GEOFILE 2008-7

A MULTI-MEDIA GEOCHEMICAL ORIENTATION STUDY OVER THE JEN CLAIMS (MURRAY PROPERTY), BLACKWATER RIVER AREA, BC (NTS 93G03)

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KEYWORDS: Geochemistry, orientation, soil, rock, nickel.

INTRODUCTION

Copper mineralization has been found during past exploration of the JEN mineral claims (Murray Property) near the Blackwater River (Poole, 2006) and the published results of a government regional geochemical survey detected up to 138 ppb Au in the sediment collected from streams draining the claims. In this Geofile we report the results of geochemical sampling and a geological examination of selected outcrops on and near the claims to better understand the relationship between mineralized bedrock and trace element geochemistry of the overlying soil and of sediment in the streams.

TOPOGRAPHY AND SURFACE ENVIRONMENT

Reconnaissance geological mapping and geochemical sampling was carried out by the authors over part of the JEN claims located south of the Blackwater River and about 90 km north west Quesnel , BC (Figure 1). Landscape of the area surrounding the claims is typical of the Fraser Plateau where rolling drumlin and ridged landforms reflect a topography modified by advances of Pleistocene ice from the south. North of the Backwater River the more subdued topography reflects that of the Fraser Basin, a region of low relief where bedrock is covered by glacio-fluvial and lacustrine sediments deposited in a proglacial lake (Holland, 1976). The JEN claims are dominated by a dome shaped ridge rising to 300 metres ASL. This ridge is drained by a radial pattern of streams flowing north and west into the Blackwater River and to the south into Uldy Creek. Locally the vegetation is typical of the Sub boreal Spruce bioclimatic zone (Lord and Walmsley, 1988).

At lower elevations along the Blackwater River valley white spruce, lodgepole pine and black spruce are most common canopy species whereas at higher elevations Douglas fir becomes more abundant mixed with trembling aspen and paper birch. Western Thimbleberry, Oregon Boxwood, Rocky Mountain maple and blueberries form the understory. Willow and alder grow along valley floors and in wetlands. Much of the timber within the JEN claims has been harvested and Mountain Pine beetle has damaged many of the remaining pine trees.

Lord and Walmsley, 1988, mapped much of the soil formed from the better-drained glacial deposits and colluvium as a Grey Luviosl (Telegraph Series) or a Orthic Dystric Bruisol (Westroad-Barrett Series). Both soils have a leached Ae horizon, a weakly developed Bf (Fe accumulation visible as a dark-red brown layer) horizon or Bt (clay accumulation) horizon and a dark brown Bm horizon (Canada Soil Classification Working Group, 1998). Soil pH is typically less than 5.5. Depending on the parent material, soil texture ranges from sandy to gravelly loam. Organic soils (LOI > 30%) and glysolic soils have formed in poorly drained depressions and along stream valleys where there is commonly a thick alder and devils club growth.

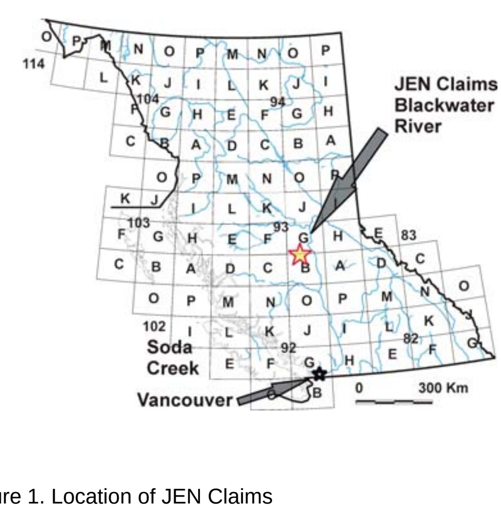

Figure 1. Location of JEN Claims

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GEOLOGY

Regional Geology

The study area is underlain by fine grained chert, argillite and mafic to ultramafic volcanic and subvolcanic rocks correlative with the Pennsylvanian to Jurassic Cache Creek Group, and to the north, small isolated exposures of intermediate and felsic intrusions comprise a moderate sized granodiorite pluton assumed to be Jurassic to Cretaceous in age (Tipper, 1960; Massey et al., 2005). Large erratic boulders of maroon and variegated block and lapilli tuff in the south-western part of the map area are likely Eocene volcanic strata of the Endako Group which unconformably overlie the Cache Creek Group rocks. Eocene deformation and erosion preceded Miocene to Oligocene deposition of the flat-lying basalt, breccias and interflow glacial deposits of Chilcotin Group. Recent unconsolidated overburden mantles the area.

Mineralization/Alteration

Figure 2 shows the regional and detailed geology with the location of rock, soil and sediment samples. A 5 to 15 metre wide northwest trending zone of iron carbonate ± silica ± pyrite alteration is exposed in 5 trenches along a strike length of 200 meters roughly parallel to an access road. The zone has developed along the contact between a variably sheared serpentinized ultramafic sill and a package of thin bedded black, grey and green chert and siliceous argillite. The ultramafic is massive to weakly schistose, veined by asbestos-form serpentine and possesses a moderately high magnetic susceptibility reflecting the serpentine alteration product magnetite. Pervasive zones of iron carbonate alteration are restricted to the ultramafic body and are characterized by fine grained orange to brown weathering texturally destructive zones often containing bright green chrome micas. Silicification overprints the ultramafic and the metasediments. It is characterized by narrow (1-2 cm wide) crustiform, botryoidal and vuggy white quartz veinlets which are more concentrated close to the contact. The quartz veins are typically void of any visible sulphide concentrations. Highly oxidized sections of the alteration zone contain traces of malachite.

The alteration zone is on strike with a similar ultramafic mineralized showing located 1 kilometre southeast. Although not visited this zone has returned grab samples of mineralized ultramafic containing 8.17% and 8.75% copper (Rio Tinto Exploration unpublished report on the Pantage property, 1969). No mineralization of this tenor was recognized or sampled during the property visit.

Surficial Geology

Tipper (1972) interpreted the Black Creek valley as a major meltwater channel formed during deglaciation of the Fraser Ice sheet. Ice-flow directions can be clearly identified for the orientation of rock drumlins and glacial groves on air photographs of the area surrounding the JEN claims. South of the claims the ice-flow direction is from 010^{o} to 015^{o} whereas closer to the Blackwater River valley the direction becomes more easterly. The change in ice-flow direction may be caused by deflection of the advancing ice by the ridge in the center of the claims. Ice flow indicators are less clear in the central part of the claims and this may either be due to the softer nature of the granitic bedrock, relatively stagnant ice over a topographic high or even the emergence of the land surface above the ice sheet. Deglaciation features mapped by Tipper (1972) in the immediate area of the claims include a small meltwater channel draining into the Blackwater River and an esker. Till exposed in a trench on the north side of the height of land is sandy, moderately dense and has an estimated 30 percent of sub rounded to angular clasts. Figure 3 shows soil profile 45 in a trench exposure on the JEN claims.

Figure 3. Profile 45 shows glacial sediment sampled in a trench on the JEN claims. The sediment is interpreted as lodgement till deposited from an ice advance from the south.

SAMPLE COLLECTION AND ANALYSIS

Soil, stream sediment, moss and stream water samples were collected during a visit to the claims in July 2007. The soil samples were collected at intervals down four vertical profiles in trenches near a shear zone on the access road and at one location to the north underlain by granodiorite. Drainage samples were taken from a stream flowing north from the claims into the Backwater River. Figure 2 shows location of the drainage and soil profiles.

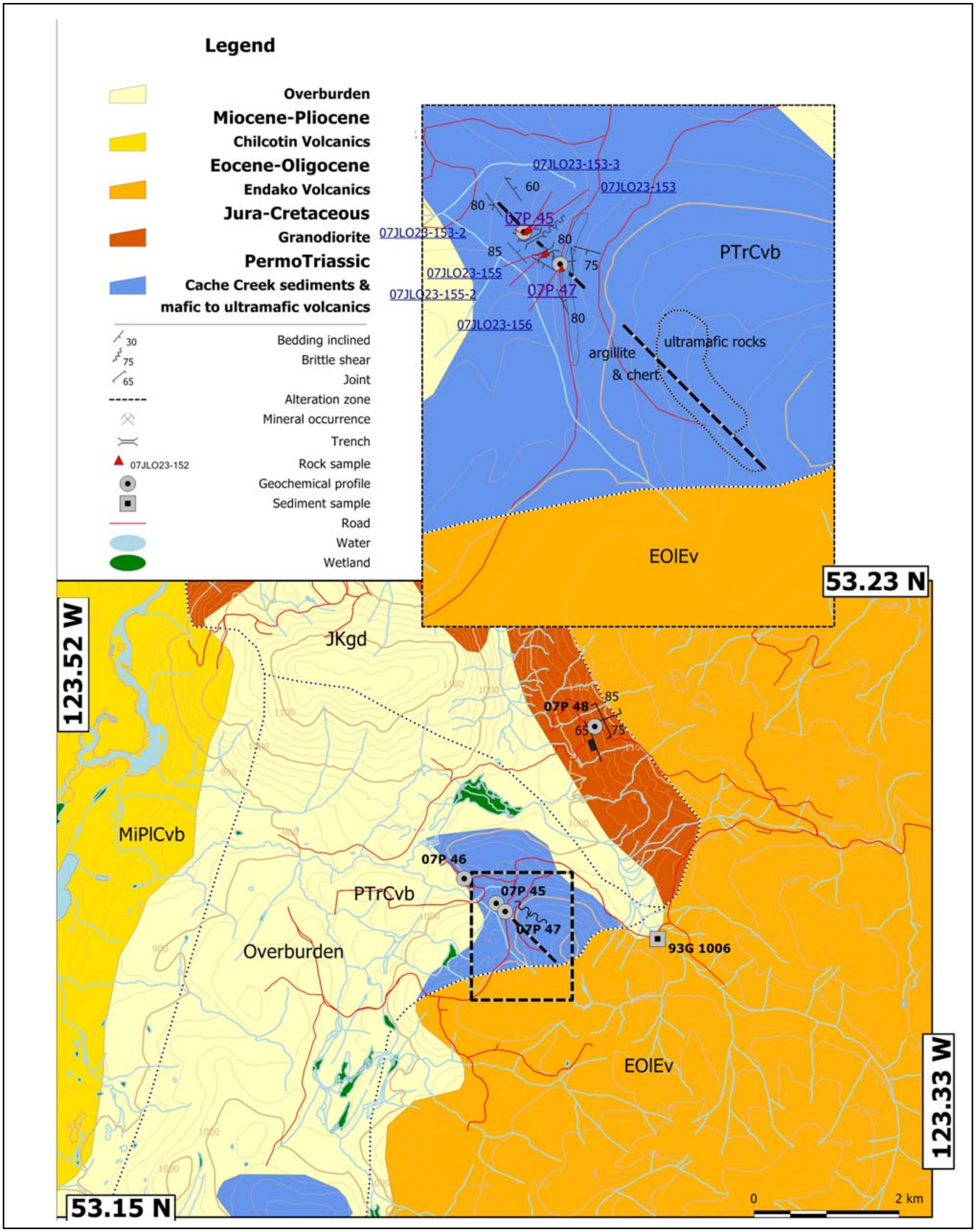

Figure 2: Geology and sample locations

A bulk stream sediment for heavy mineral concentration was also collected at the drainage site in addition to the routine stream sediment and moss sediment. The bulk sediment was wet sieved to – 2mm at the sample site. Water sample preservation (filtration and acidification) was carried out soon after collection and were later analysed for trace and minor elements by a combination of ICPES (inductively coupled plasma emission spectrometry) and ICPMS (inductively coupled plasma mass spectrometry) at Acme analytical, Vancouver, BC. Soil pH was measured in the field using a 1:1 volume soil to distilled water and a Hache pH meter calibrated daily with pH 4 and 7 buffers.

The sediment and rock samples were prepared for later analysis in the British Columbia Geological Survey laboratory, Victoria, BC. The B horizon soil samples were sieved to – 80 mesh (< 0.180 mm) and the C horizon (till) samples sieved to – 230 mesh (< 0.063 mm). Litter samples (F-H horizon) were dried and milled. Sediment and moss samples were dried at 35^{o}C and sieved to – 80 mesh. A heavy mineral concentrate was prepared from the bulk stream sediment sample with a Morfee spiral concentrator. Rocks were jaw crushed and milled to – 150 mesh. The prepared rock samples were analysed by a hydrofluoric-nitric-perchloric-hydrochloric acid digestion and ICPMS analysis. The -230 mesh fraction of the C-horizon samples and the -80 mesh fraction of the B-soil horizon samples, the stream sediment, moss sediment and rock samples were analysed at Acme Analytical, Vancouver for trace elements by aqua regia digestion - ICPMS. Results of field and analytical duplicate samples and standard samples included with the routine samples reveal that the data quality is acceptable.

RESULTS

Rock Geochemistry

Five rock geochemical samples (Table 1a) were collected from three separate trenches to characterize metal abundances of the ultramafic, the iron carbonate alteration and the epithermal-style quartz. The results of the analyses are presented in Table 1b. Magnesium, Co, Cr and Ni show expected high values reflecting the mafic to ultramafic rock sampled, while Cu, Au and Ag returned generally low values (samples 07JLO23-153-3; 23-155). The iron carbonate altered zones do not contain substantial enrichment but do show depletion of magnesium, nickel and copper. The silicified, quartz vein zones (samples 07JLO23-153; 23-153-2; 23-156) contain slightly elevated As, Sb and Mo values which are characteristic of epithermal style veins while all other elements returned low values.

Soil Geochemistry

Profile descriptions and soil sample analyses are reported in Tables 2 though 4. Up to 0.42% Ni with 149 ppm Co, 47.5 ppm As and 7 ppb Au was detected in a sample of loose colluvium representing the C soil horizon from Profile 47 just above bedrock near the shear zone exposed along the access road. Lower metal concentrations are present in the B and A horizons from this profile. High Mg content (7.6%) and a reaction of the C material with dilute HCl suggests that the soil contains abundant weathered ultramafic and carbonate rock. Of the other profiles sampled only Ni (72 ppm) is elevated in the C horizon at Profile 45 located 100 metres north along shear zone and there is a trace of Au (5.8 ppb) in the C horizon of Profile 47. The higher Ni in the C horizon at Profile 45 could be explained by till deposited from a south to north ice advance from the area of the shear zone. Elevated Ag to 664 ppb in the F-H horizon could be explained by Ag accumulation by the organic matter since there are low Ag levels in the mineral soil or rock.

Sediment Geochemistry

Concentrations of most elements in the -80 and -40 size fractions of stream sediment and moss sediment from site 93G071006 are below the 95 percentile anomaly threshold (Table 6) determined for the regional geochemical survey carried out over NTS 93G (GSC, 1986). Gold, however, is anomalous in the - 80 mesh fraction of the moss sediment and the 58.5 ppm value most likely reflects the presence of Au grains (Figure 4) in a heavy mineral separate of the sediment at the site. The source for the Au is unknown but could be mineralized rock within of beneath the Endako volcanics to the south.

Figure 4: Gold grains in the heavy mineral concentrate of a bulk sediment sample at site 93G071006.

StnNum	UTM E	UTM N	Elev	Rock Sample Description
07JLO23-153	471770	5893251	1048	weak FeCO3 altered ultramafic, mariposite, pyrite + minor chalcopyrite coating fractures
07JLO23-153-2	471770	5893251	1048	pervasive FeCO3 altered, silicified by stockworks of vuggy, banded epithermal quartz
07JLO23-153-3	471770	5893251	1048	serpentinized, asbestos veined ultramafic
07JLO23-155	471824	5893204	1049	serpentinized ultramafic
07JLO23-155-2	471824	5893204	1049	pervasive FeCO3 altered ultramafic sill
07JLO23-156	471869	5893181	1053	FeCO3-pyrite-silica altered ultramafic sill

Table 1a. Rock sample descriptions

Station Number	Easting	Northing	Ag_ppm	Al_%	As_ppm	Au_ppb	Ba_ppm	Bi_ppm	Ca_%	Cd_ppm	Ce_ppm	Co_ppm
07JLO23-153	471770	5893251	0.1	0.36	99	7	54	0.1	1.43	-0.1	-1	97.7
07JLO23-153-2	471770	5893251	0.2	0.25	388	-2	23	0.4	3.78	-0.1	-1	79.6
07JLO23-153-3	471770	5893251	0.1	0.57	2	-2	10	0.1	1.19	-0.1	-1	129.1
07JLO23-155	471824	5893204	0.1	0.89	59	24	5	0.2	0.06	-0.1	-1	104.8
07JLO23-155-2	471824	5893204	0.1	0.31	37	-2	61	0.3	1.22	-0.1	-1	51.3
07JLO23-156	471869	5893181	0.3	0.23	121	19	108	0.3	0.29	-0.1	-1	79.7

Station Number	Easting	Northing	Cr_ppm	Cu_ppm	Fe_%	Hf_ppm	K_%	La_ppm	Li_ppm	Mg_%	Mn_ppm	Mo_ppm
07JLO23-153	471770	5893251	1597.5	24	4.72	-0.1	0.04	-0.1	17.9	15.13	747	0.5
07JLO23-153-2	471770	5893251	1453.6	27.7	4.68	-0.1	0.03	0.1	6.7	14.43	705	0.4
07JLO23-153-3	471770	5893251	1600.7	56.9	6.22	-0.1	-0.01	-0.1	23.6	20.45	696	0.1
07JLO23-155	471824	5893204	1487.7	10.2	5.75	-0.1	-0.01	0.1	6.7	21.61	379	0.1
07JLO23-155-2	471824	5893204	929.1	91.7	3.26	-0.1	0.11	0.2	27.6	12.7	526	0.5
07JLO23-156	471869	5893181	1407.2	24.6	4.79	-0.1	0.06	-0.1	23.4	16.36	476	0.2

Station Number	Easting	Northing	Na_%	Nb_ppm	Ni_ppm	P_%	Pb_ppm	Rb_ppm	S_%	Sb_ppm	Sc_ppm	Sn_ppm
07JLO23-153	471770	5893251	0.009	-0.1	1927.7	0.002	0.5	2.3	-0.1	1.3	7	-0.1
07JLO23-153-2	471770	5893251	0.01	-0.1	1762.4	0.002	1.4	1.5	-0.1	4	6	0.1
07JLO23-153-3	471770	5893251	0.002	-0.1	2380.9	0.001	0.7	0.2	-0.1	0.5	10	0.1
07JLO23-155	471824	5893204	0.002	-0.1	2317	0.002	1	0.1	-0.1	0.8	12	-0.1
07JLO23-155-2	471824	5893204	0.012	-0.1	1279.4	0.003	0.8	4.8	0.1	2	4	0.1
07JLO23-156	471869	5893181	0.012	-0.1	1478.3	0.001	0.9	3	1	3.5	6	0.1

Station Number	Easting	Northing	Sr_ppm	Ta_ppm	Th_ppm	Ti_ppm	U_ppm	V_ppm	W_ppm	Y_ppm	Zn_ppm	Zr_ppm
07JLO23-153	471770	5893251	32	-0.1	-0.1	0.007	0.5	25	1.6	0.3	41	1.2
07JLO23-153-2	471770	5893251	80	-0.1	-0.1	0.004	0.1	21	0.3	0.3	29	0.3
07JLO23-153-3	471770	5893251	15	-0.1	-0.1	0.011	-0.1	37	1.6	0.5	41	0.2
07JLO23-155	471824	5893204	2	-0.1	-0.1	0.016	0.1	47	1.3	0.5	32	0.2
07JLO23-155-2	471824	5893204	58	-0.1	-0.1	0.008	0.1	17	1.4	0.5	33	0.3
07JLO23-156	471869	5893181	26	-0.1	-0.1	0.003	-0.1	20	1.8	0.1	49	0.2

Table 1b. Rock sample chemistry.

Sample ID	07061207	07061208	07061209	07061210
Profile	45	45	45	45
UTM East	471750	471750	471750	471750
UTM North	5893276	5893276	5893276	5893276
Contamination	None	None	None	None
Horizon	L-F-H	Upper Bm	Lower Bm	1C
Depth (cm)	2-3	12-15	25-27	75-80
Fissility		None	None	None
Density		Loosely Moderate	Medium	Dense
Oxidation		Moderate	Moderate	Moderate
Jointing		None	None	None
Matrix %		90	90	90
Musell Colour		10YR4/2	10YR4/2	10YR4/2
Matrix Texture Clay (%)		10	10	10
Matrix Texture Sand (%)				
Matrix Texture Silt (%)		90	90	90
Matrix Moisture		Wet	Wet	Wet
HCL Reaction		Weak	Weak	Weak
Soil pH		5.95	6.25	
Ag_ppb	207	34	23	39
As_ppm	1.1	4.7	5.1	12.6
Au_ppb	-0.5	1.1	-0.2	-0.2
Bi_ppm	0.08	0.08	0.07	0.11
Ca_%	2.45	0.25	0.24	0.49
Cd	3.34	0.08	0.07	0.35
Co_ppm	3.9	10.1	9.5	18.6
Cr_ppm	21.9	44.9	44.4	50.3
Cu_ppm	15.1	19.47	21.69	47.99
Fe_%	0.45	2.44	2.51	3.54
Mg_%	0.15	0.55	0.59	1.02
Mn_ppm	3170	250	257	909
Mo_ppm	1.35	0.7	0.78	1.05
Ni_ppm	13.7	43.7	44.2	72.3
Pb_ppm	10.2	4.79	4.47	6.92
Sb_ppm	0.22	0.31	0.32	0.56
Se_ppm	-0.1	0.3	0.2	0.2
Te_ppm	0.03	-0.02	0.03	-0.02
Tl_ppm	0.04	0.07	0.08	0.15
V_ppm	13	64	68	82
Zn_ppm	261	55.2	51.8	78.6
LOI_%		4.6	3.7	

Table 2: Profile 45 soil geochemistry. Slope – Moderate; Direction – West; Drainage – Moist. Physiography - Undulating and hilly; Vegetation – evergreen.

Sample ID	07061211	07061212	07061213	07061214
Profile	46	46	46	46
UTM East	471320	471320	471320	471320
UTM North	5893637	5893637	5893637	5893637
Contamination	Forestry	Forestry	Forestry	Forestry
Horizon	L-F-H	Upper Bm	Lower Bm	1C
Depth (cm)	1-2	12-14	25-27	70-75
Fissility		None	None	None
Density		Loose	Medium	Moderately Dense
Oxidation		Strong	Moderate	Moderate
Jointing		None	None	None
Matrix %		85	85	90
Musell Colour		10YR4/2	10YR4/2	10YR4/2
Matrix Texture Clay (%)		10	10	15
Matrix Texture Sand (%)		5	5	5
Matrix Texture Silt (%)		85	85	80
Matrix Moisture		Dry	Moist	Moist
HCL		Weak	Weak	Weak
Soil pH		5.92	6.66	
Ag_ppb	433	111	134	75
As_ppm	1.7	3.9	6.5	10.2
Au_ppb	-0.5	0.3	0.4	0.5
Bi_ppm	0.13	0.09	0.09	0.09
Ca_%	3.11	0.25	0.26	0.28
Cd	0.57	0.28	0.15	0.09
Co_ppm	3.2	12.2	10.1	12.3
Cr_ppm	13.6	63	60.1	53.8
Cu_ppm	212	18.02	22.04	28.01
Fe_%	0.85	2.44	2.57	2.73
Mg_%	0.27	0.61	0.63	0.54
Mn_ppm	1190	635	271	397
Mo_ppm	4.29	0.68	0.73	0.78
Ni_ppm	21.8	59.4	61.5	55.7
Pb_ppm	9.27	4.68	4.4	5.5
Sb_ppm	0.42	0.34	0.46	0.38
Se_ppm	1	0.2	0.4	0.2
Te_ppm	0.03	0.03	-0.02	-0.02
Tl_ppm	0.11	0.09	0.09	0.13
V_ppm	21	57	64	78
Zn_ppm	34.3	83.1	57.3	51.1
LOI_%		5.9	4.1	

Table 3: Profile 46 soil geochemistry. Slope – Steep; Direction – West; Drainage – Moist. Physiography - Undulating and hilly; Vegetation – evergreen & broadleaf.

Sample ID	07061216	07061217	07061218	07061219
Profile		47	47	47
UTM East		471868	471868	471868
UTM North		5893162	5893162	5893162
Contamination		Forestry	Forestry	Forestry
A Horizon	L-F-H	Upper Bm	Lower Bm	1C
Depth (cm)	1-2	15-18	25-27	45-50
Fissility		None	None	None
Density		Very Loose	Loose	Loose
Oxidation		Moderate	Strong	Strong
Jointing		None	None	None
Matrix %		60	20	10
Musell Colour		10YR5/4	5YR3/2	5YR4/4
Matrix Texture Clay (%)		5		
Matrix Texture Sand (%)		5	10	10
Matrix Texture Silt (%)		90	90	90
Matrix Moisture		Moist	Moist	Dry
HCL		Weak	Weak	Strong
Soil pH		5.95	6.82	
Ag_ppb	87	56	66	75
As_ppm	0.7	4.6	6.1	47.5
Au_ppb	-0.5	-0.2	0.5	7.2
Bi_ppm	0.16	0.07	0.1	1.03
Ca_%	1.18	0.23	0.24	1.16
Cd	0.2	0.11	0.11	0.19
Co_ppm	1.8	11.2	14.6	148.9
Cr_ppm	3.1	42.6	51.7	323.8
Cu_ppm	10.7	11.83	15.44	44.95
Fe_%	0.15	2.21	2.24	7.1
Mg_%	0.06	0.5	0.53	7.63
Mn_ppm	415	223	260	962
Mo_ppm	4.01	0.52	0.51	1.02
Ni_ppm	4.1	97	205	4237.9
Pb_ppm	8.74	4.05	4.09	2.61
Sb_ppm	0.16	0.23	0.34	1.06
Se_ppm	-0.1	0.3	0.2	5.2
Te_ppm	-0.02	-0.02	-0.02	0.14
Tl_ppm	0.04	0.06	0.07	0.18
V_ppm	4	52	48	50
Zn_ppm	36	51.1	51.7	54.6
LOI_%		3.8	4.4	

Table 4. Profile 47 soil geochemistry. Slope – Steep; Direction – North West; Drainage – Moist. Physiography - Undulating and hilly; Vegetation – evergreen & broadleaf.

Sample ID	07061220	07061222	07061223	07061224
Profile	48	48	48	48
UTM East	473214	473214	473214	473214
UTM North	5895664	5895664	5895664	5895664
Contamination	Forestry	Forestry	Forestry	Forestry
A Horizon	L-F-H	Upper Bm	Lower Bm	1C
Depth (cm)	1-2	10-12	22-25	65-70
Fissility		None	None	None
Density		Loose	Very Loose	Loose
Oxidation		Moderate	Moderate	Moderate
Jointing		None	None	None
Matrix %		80	80	80
Musell Colour		10YR4/2	10YR4/2	10YR4/2
Matrix Texture Clay (%)				
Matrix Texture Sand (%)		90	90	90
Matrix Texture Silt (%)		10	10	10
Matrix Moisture		Wet	Wet	Wet
HCL		Weak	Weak	Weak
Soil pH		6.86	7.23	
Ag_ppb	664	14	11	18
As_ppm	0.7	1.8	1.1	3.3
Au_ppb	-0.5	-0.2	-0.2	5.8
Bi_ppm	0.16	0.05	0.09	0.07
Ca_%	0.67	0.21	0.14	0.28
Cd	0.49	0.04	0.03	0.05
Co_ppm	2.1	7.2	4.5	7.8
Cr_ppm	6.3	38.1	23.6	46.8
Cu_ppm	8.35	20.08	18.4	28.67
Fe_%	0.18	1.88	1.34	2.11
Mg_%	0.05	0.34	0.25	0.41
Mn_ppm	134	171	102	218
Mo_ppm	1.42	0.74	0.55	0.8
Ni_ppm	3.8	32.4	26	46.3
Pb_ppm	10.2	2.64	3.53	3.85
Sb_ppm	0.16	0.21	0.15	0.17
Se_ppm	-0.1	0.1	0.1	-0.1
Te_ppm	0.03	-0.02	-0.02	-0.02
Tl_ppm	0.03	0.05	0.04	0.06
V_ppm	5	51	32	62
Zn_ppm	113	26.6	25.1	30.9
LOI_%		2.7	2.5	

Table 5.Profile 48 soil geochemistry. Slope – Moderate; Direction – West; Drainage – Moist. Physiography - Undulating and hilly; Vegetation – evergreen.

Element	Detection Limit	1006SS -40	1006SS -80	1006MM -40	1006MM -80	95%ile	1006_Water
Ag_ppb	2	18	26	27	34	200	-0.05
As	0.1	2.3	2	1.9	1.9	9	-0.5
Au_ppb	1	0.4	-0.2	0.3	58.5	54	
Ba	0.5	100	126.3	114.7	132.9		46.3
Bi	0.02	0.04	0.04	0.04	0.05		-0.5
Ca_%	0.01	0.36	0.38	0.41	0.43		4566
Cd	0.01	0.09	0.09	0.12	0.12	0.4	-0.05
Co	0.1	8.7	8.4	9.7	9.1	21	0.13
Cr	0.5	27.5	31.5	41.4	40.3		1.3
Cu	0.01	11.85	10.8	11.18	10.85	47	1.7
Fe_%	0.01	2.15	2.03	2.6	2.46	4	431
Hg_ppb	5	13	15	18	28	480	
La	0.5	14.1	13.2	14	13.9		
Mg_%	0.01	0.43	0.39	0.42	0.37		2441
Mn	1	357	353	424	456	3300	5.69
Mo	0.01	0.64	0.48	0.53	0.49	1	0.2
Ni	0.1	22.5	21.1	23.7	21.9	105	2.1
Pb	0.01	3.6	3.33	3.6	3.56	8	0.1
S_%	0.02	0.02	0.01	0.02	0.02		-1
Sb	0.02	0.23	0.23	0.24	0.23		-0.05
Se	0.1	-0.1	0.1	0.1	0.2		-0.5
Sr	0.5	29.3	32	33.2	36.1		
Te	0.02	0.02	0.02	-0.02	-0.02		-0.05
Ti_%	0.001	0.132	0.13	0.157	0.151		20
Tl	0.02	0.06	0.07	0.07	0.09		0.01
V	2	55	55	77	73	65	2.1
Zn	0.1	43.4	42.4	47.6	46.1	118	3

Table 6: Drainage sediment geochemistry at site 93G07_1006. Analyses by aqua regia – ICPMS of the – 80 and -40 mesh size fractions of routine stream sediment (SS) and moss mat sediment (MM) are shown in this Table. Detection limits and values for stream sediment and moss sediment are in parts per million (ppm) unless indicated. All element values in the water sample are in parts per billion (ppb). Threshold values (95%ile) for selected elements have been calculated from data in GSC Open File 1214.

CONCLUSIONS

- High Mg, Co, Cr and Ni bedrock values reflect an mafic to ultramafic body within a shear zone cutting Cache Creek Group rocks. Iron carbonate altered zones in the area do not contain substantial metal enrichment but do show depletion of Mg, Ni and Cu. The silicified, quartz vein contain slightly elevated As, Sb and Mo, an element suite characteristic of epithermal style veins.
- Elevated Ni in the till sampled ~ 100 metres to the north of the shear zone could be explained by mafic bedrock carried by ice advancing from the south. Till or the lower B soil horizon (20 – 25 cm depth) sampling would be preferable for future soil geochemical surveys to establish the extent of the shear zone. Careful surficial mapping should be carried out before soil sampling to establish the till coverage relative to other glacial deposits since the area is close to a major melt water channel and possibly a proglacial lake shore line.
- Anomalous Au levels in moss sediment from a creek east of the shear zone and the presence of several Au grains isolated from the bulk sediment heavy mineral concentrate may be evidence of concealed Au mineralization upstream from this sample site. More detailed moss sediment and prospecting upstream from this site would confirm presence of this mineralization.

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