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**PEG Property** 

(A Tantalum-Niobium Prospect)

**Geological Assessment Report** 

Nelson Mining Division NTS 82F/5 49° 28'N; 117° 35'W

British Columbia, Canada

By

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May 16, 2002

GEOLOGICAL SURVEY BRANCH

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## Summary

The PEG claim is located in southeastern B.C. within the Valhalla metamorphic core complex which ranges in age from the Late Cretaceous to the Eocene.

Within the claim area, the metamorphic complex consists of potassium feldspar megacrystic quartz monzonite and leucocratic quartz monzonite which contain pegmatites, as well as pegmatitic lenses and/or sills.

The adjacent tantalizing claims, lying immediately to the south of the PEG property have the same geological units and contain pegmatites with high grade pockets assaying 9.8 percent tantalum (Ta) and 25.7 percent niobium (Nb). Other samples have returned up to 0.14 percent Ta<sub>2</sub>0<sub>5</sub> and 1.25 percent Nb<sub>2</sub>O<sub>5</sub>. Another study obtained a mean value of 0.20  $\pm$  0.14 percent Ta<sub>2</sub>0<sub>5</sub>.

These values compare favourably with North America's largest Ta mine (Tanco) located near Bernic Lake, Manitoba. The Tanco Mine is a pegmatite deposit which had pre-production reserves of 2.1 million tonnes at 0.22 percent  $Ta_2O_5$ .

A larger pegmatite deposit/mine at Greenbushes, Australia had 28 million tonnes at 0.043 percent Ta<sub>2</sub>0<sub>5</sub> and 0.031 percent Nb<sub>2</sub>O<sub>5</sub>.

The PEG property is road accessible and close to power lines. It requires initial phase prospecting, geochemical surveys and geological mapping to identify pegmatites and areas anomalous in Ta and Nb. The PEG claim is also prospective for REE's, U, Th and La.

#### Introduction

The writer visited the PEG property during June, 2001 and completed a preliminary rock geochemical sampling program, investigated the nearby Minfile occurrences, and reviewed the local geology.

The PEG claim is primarily prospective for tantalum (Ta) and niobium (Nb) in pegmatites, but also contains anomalous quantities of rare earth elements (REE's), uranium (U), thorium (Th) and lanthanum (La).

## **Location and Access**

The PEG claim is located approximately 24 km west of Nelson and 3 km north - northwest of Krestova within the Kootenay Land District of southeastern B.C. It is situated west of the Slocan River, is road accessible and close to powerlines (Figure 1).



## Claim Data

Claim Name	Tenure #	# of Units	Expiry Date	
PEG	386823	12	June 5, 200 <u>5</u>	/

A claim map is included as Figure 2.

## Topography, Vegetation and Climate

Topography within the claim area is moderate with elevations ranging between 1700 feet (518 meters) and 3100 feet (945 meters).

Vegetation and climate are typical of the south-eastern interior valleys of B.C.

## History and Previous Work in the Area

The Crescent Minfile showing (082FSW272) is located approximately 300 meters south of the PEG claim within the Tantalizing claim group.

The area surrounding the Minfile showing was investigated during 1985 by Active Minerals Explorations Ltd. At that time the company completed soil and rock geochemical sampling and blasted at least one trench. Assay results from the pegmatite included 0.14% Ta<sub>2</sub>0<sub>5</sub> and 1.25 Nb<sub>2</sub>O<sub>5</sub>.

Previous samples from the Crescent pegmatite showing assayed up to 9.8% tantalum and 25.7% niobium.

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# **Regional Geology**

The PEG prospect is located on the southeastern flank of the Passmore Dome within the southern portion of the Valhalla metamorphic core complex which ranges in age from the Late Cretaceous to the Eocene.

The metamorphic complex is bounded on the west by the Valkyr shear zone and on the east by the Slocan Lake normal fault. The middle Jurassic Nelson batholith is located east of the Slocan Lake fault.

Within the property area, lithologies are predominantly a potassium feldspar megacrystic biotite-hornblende quartz monzonite of Paleocene age or a leucocratic biotite quartz monzonite of Paleocene or Eocene age.

Regional structures as well as local foliations within the study area trend northeasterly to north-south.

# Local Geology

Within the PEG claim, the Valhalla metamorphic complex consists of potassium feldspar megacrystic quartz monzonite and leucocratic quartz monzonite which contain pegmatites as well as pegmatitic lenses, sills or veins which are generally conformable with foliation, although some cross cutting relationships were observed.

Pegmatitic samples collected by the writer were composed of coarse crystalline potassium feldspar, plagioclase feldspar and quartz with lesser amounts of muscovite, biotite, chlorite and opaque oxide minerals. The oxide minerals contained tantalum and niobium, hence may belong to the tantalite-columbite or the microlite-pyrochlore series.



# Legend: Figure 3

PEg:	Eocene or Paleocene leucocratic biotite quartz monzonite
mEc:	middle Eocene Coryell Intrustions; biotite-augite monzonite
Pgn:	Paleocene megacrystic potassium feldspar biotite-horn blende quartz monzonite
mJn:	middle to late Jurassic Nelson Instrusions
IJ:	lower Jurassic Rossland Group; volcanics and sediments
Pms:	Paleozoic metasedimentary rocks and limestone

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272 Minfile Occurrence

Normal fault

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Shear zone

Claim outline

## **Geochemical Sampling and Assay Results**

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Eight rock geochemical samples and one silt sample were collected from the PEG claim. Refer to Figure 4 and the Appendices for sample locations, analytical results and sample descriptions.

The samples were analyzed by Acme Laboratories using an ultratrace ICP-MS and by Actlabs using neutron activation for Ta, Nb, Cs, Rb,Sn, Be, Li, U, Th, Sr, La, T, Ga and the rare earth elements (REE's).

In general, the samples consisted of coarse grained, pegmatitic or megacrystic potassium and plagioclase feldspars and quartz with minor amounts of micaceous minerals. Some samples were a coarse grained leucocratic biotite quartz monzonite.

Geochemical results indicate anomalies in Ta, Nb, Rb, Be, U, Th, La, Ti and the REE's.

Sample number 20773 collected from the southern portion of the claim, contained 7.4 ppm Ta, 5.69 ppm Nb, 3.4 ppm Be, 102.5 ppm U, 501.4 ppm Th, 99.0 ppm La, and highly anomalous REE's. Sample 20770 was anomalous for Th (81.7 ppm), La (91.0 ppm), and some of the REE's. Sample 20772 contained 26.6 ppm Rb, 1.9 ppm Sn, 11.9 ppm Li, 29.6 ppm Sr, 0.103% Ti, 6.1 ppm Ga and some REE anomalies.

Besides Ta and Nb; U, Th, La and REE's are associated with pegmatitic material on the PEG claim. This correlation will be useful during future exploration efforts (i.e. geochemical and geophysical surveys) and may also be of economic interest.



## **Conclusions and Recommendations**

The PEG claim is located in southeastern B.C. within the Valhalla metamorphic core complex which ranges in age from the Late Cretaceous to the Eocene.

Within the claim area, the metamorphic complex consists of potassium feldspar megacrystic quartz monzonite and leucocratic quartz monzonite which contain pegmatites, as well as pegmatitic lenses and/or sills.

The adjacent Tantalizing claims, lying immediately to the south of the PEG property have the same geological units and contain pegmatites with high grade pockets assaying 9.8 percent tantalum (Ta) and 25.7 percent niobium (Nb). Other samples have returned up to 0.14 percent Ta<sub>2</sub>0<sub>5</sub> and 1.25 percent Nb<sub>2</sub>O<sub>5</sub>. Another study obtained a mean value of  $0.20 \pm 0.14$  percent Ta<sub>2</sub>0<sub>5</sub>.

These values compare favourably with North America's largest Ta mine (Tanco) located near Bernic Lake, Manitoba. The Tanco Mine is a pegmatite deposit which had pre-production reserves of 2.1 million tonnes at 0.22 percent Ta<sub>2</sub>0<sub>5</sub>.

A larger pegmatite deposit/mine at Greenbushes, Australia had 28 million tonnes at 0.043 percent  $Ta_20_5$  and 0.031 percent  $Nb_2O_5$ .

The PEG property is road accessible and close to power lines. It requires initial phase prospecting, geochemical surveys and geological mapping to identify pegmatites and areas anomalous in Ta and Nb. The PEG claim is also prospective for REE's, U, Th and La.

# **Cost Statement**

Geologist @ \$400/day	\$ 1,600
Truck rental	340
Hotels, food, gas, misc.	1,460
Assays	200
Report	1,200
Drafting, typing, photocopies, etc.	320
Total	\$ 5.120



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## References

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Graff, C. 1985 Geological Assessment Report (#14,652) on the Crescent 1,2, 3 claims; Niobium-Tantalum Prospect.

# **Statement of Qualifications**

I, Ed McCrossan of 204 – 1225 Barclay Street, Vancouver, British Columbia hereby certify:

- 1. I am a graduate of the University of British Columbia (1984) and hold a B.Sc., degree in geology.
- 2. I have been employed in my profession by various mining companies since graduating and have worked on projects in Canada, U.S.A., Thailand, China, Argentina, Chile, Bolivia, Peru, Venezuela, Central America and Mexico.
- 3. I am a member of the Society of Economic Geologists, the Canadian Institute of Mining and Metallurgy, a Fellow of the Geological Association of Canada, and a registered member in good standing of the Association of Professional Engineers and Geoscientists of B.C.
- 4. The information and recommendations contained in this report are based upon a two day site visit and a review of pertinent literature.
- 5. I consent to and authorize the use of the attached report and my name in the Company's Prospectus, Statement of Material Facts or other public documents.



Ed McCrossan, Geologist, F.G.A.C., P.Geo.

DATED at Vancouver, British Columbia this 16th day of May 2002.

Appendix I

**Analytical Results** 

Activation Laboratories Ltd. Work Order: 22553 Report: 22323

Sample ID	Ta	Mass	
	ppm	9	
20768	1.7	1.588	
20769	-0.5	1.671	
20770	-0.5	1.66	
20773	7.4	1.767	
TAN-1	2360	0.202	
Tan-1 Cert.	2360		

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SAMPLE#	U ppm	Th ppm	Sr ppm	La ppm	Ti %	Ga ppm	
B 20768 B 20769 B 20770 B 20771 B 20772	3.9 .6 1.8 .3 .3	18.5 6.1 81.7 10.8 4.2	15.9 8.9 10.7 27.5 29.6	9.4 17.7 91.0 19.7 16.4	.021 .149 .097 .061 .103	1.385 4.51	
B 20773 B 20774 B 20775 RE B 20775 RE B 20775 STANDARD DS3	102.5 7.9 7.0 6.8 6.0	501.4 6.9 8.5 8.2 4.2	4.1 6.5 4.8 5.0 27.9	99.0< 3.1< 2.6 2.5 17.3	<.001 .001 .007 .005 .088	1.5 2.8 1.5 1.5 6.4	

GROUP 1F1 - 1.00 GM SAMPLE, 6 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 20 ML, ANALYSIS BY ICP/ES & MS. UPPER LIMITS - AG, AU, HG, W, SE, TE, TL, GA, SN = 100 PPM; NO, CO, CD, SB, BI, TH, U, B = 2,000 PPM; CU, PB, ZN, NI, NN, AS, V, LA, CR = 10,000 PPM. - SAMPLE TYPE: ROCK R150 60C Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

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McCrossan, Ed File # A101641 (b) 204 - 1225 Barclay St., Vancouver BC V6E 1H5 Submitted by: Ed McCrossan



Data 🖉 FA

SAMPLE#	Cs ppm	Nb ppm	Rb ppm	Sn ppm	Ta ppm	Be ppm	Li ppm	
B 20768 B 20769 B 20770 B 20771 B 20772	.43 1.07 .51 .47 .61	1.22 1.23 .87 .55 .88	8.3 53.9 19.6 20.0 26.6	.4 .86 1.3 1.9	<.05 <.05 <.05 <.05 <.05	.2 .2 .1 .2	3.112.86.96.211.9	
B 20773 B 20774 B 20775 RE B 20775 STANDARD DS3	.17 .19 .53 .54 5.49	5.69 2.69 1.29 1.23 1.44	6.8 9.3 10.2 10.2 13.5	<.1 .26 .66 7.2	<.05 <.05 <.05 <.05 <.05	3.4 .2 .2 2.5	.7 2.1 7.4 7.2 16.6	

GROUP 1F1 - 1.00 GM SAMPLE LEACHED WITH 6 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 20 ML, ANALYSED BY ICP/ES & MS. UPPER LIMITS - AG, AU, HG, W, SE, TE, TL, GA, SN = 100 PPM; MO, CO, CD, SB, BI, TH, U, B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM. - SAMPLE TYPE: ROCK R150 60C Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.



(ISO 9002 Accredited Co.)

All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of the analysis only.

(ISO 9002 Accredited Co.) GEOCHEMICAL ANALYSIS CERTIFICATE McCrossan, Ed File # A101642 (a) 204 - 1225 Barclay St., Vancouver BC V6E 1H5 Submitted by: Ed McCrossan SAMPLE# U Th Τi  $\mathbf{Sr}$ La Ga 8 ppm ppmppm ppm ppm SLT 01 .9 .9 6.3 3.9 RE SLT 01 3.8 STANDARD DS3 3.9 28.6 16.9 6.1 .088 GROUP 1F1 - 1.00 GH SAMPLE, 6 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 20 ML, ANALYSIS BY ICP/ES & MS. UPPER LIMITS - AG, AU, HG, W, SE, TE, TL, GA, SN = 100 PPN; NO, CO, CD, SB, BI, TH, U, B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns. - SAMPLE TYPE: SILT P150 60C Ime 20/01 DATE RECEIVED: JUN 11 2001 DATE REPORT MAILED: SIGNED BY .....D. TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSAYERS All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of the analysis only. Data 🙆 FA

	SAMPLE#	Cs ppm j	Nb R ppm pp	b Sn m ppm	Ta ppm	Be ppm	Li ppm	<u></u>
	SLT 01 RE SLT 01 STANDARD DS3	$.87 1 \\ .87 1 \\ 5.37 1$	.57 19. .61 19. .44 13.	$   \begin{array}{ccc}     1 & .8 \\     3 & .9 \\     4 & 7.5   \end{array} $	<.05 <.05 <.05	.5 2.4	15.1 15.1 16.2	
GROUP 1F1 - 1.00 GM SAMPLE UPPER LIMITS - AG, AU, HG, - SAMPLE TYPE: SILT P150 60	LEACHED WITH 6 ML 2-2-2 HCL-HN W, SE, TE, TL, GA, SN = 100 PP C Samples beginning 'RE' a	03-H2O AT 95 M; MO, CO, C re_Reruns an	DEG. C FOR D, SB, BI, <u>d 'RRE'</u> are	ONE HOUR, H, U, B = Reject Rer	DILUTED T 2,000 PPM	O 20 ML, I; CU, PB	ANALYSED BY ICP/ES & I , ZN, NI, MN, AS, V, L	MS. A, CR = 10,000 PP <b>M.</b>
DATE RECEIVED: JUN 11 2001	DATE REPORT MAILED: (	June 21	(0, SI	SNED BY.	<u>C</u> .L	•••••	TOYE, C.LEONG, J. WAN	G; CERTIFIED B.C. ASSAY
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ACAS ANALYTICAL LABORATORIES LTD. (ISO 9002 Accredited Co.)

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McCrossan, Ed File # A101641 (b) 204 - 1225 Barclay St., Vancouver BC V6E 105 Submitted by: Ed McCrossan

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SAMPLE#	Y mqq	Ce ppm	Pr ppm	Nd ppm	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er ppm	Tm ppm	dY ppm	Lu ppm	
B 20768 B 20769 B 20770 B 20771 B 20772	4.87 4.39 6.50 6.60 7.52	17.0 31.2 168.7 32.3 29.6	2.16 3.92 20.68 4.29 3.84	7.28 13.49 68.79 14.73 14.14	1.94 2.74 12.65 3.70 3.70	.23 .25 .33 .34 .35	1.53 2.10 6.50 3.14 3.47	.20 .25 .62 .36 .41	.95 1.25 2.09 1.73 1.94	.14 .18 .20 .24 .28	.40 .41 .38 .60 .63	.07 .06 .04 .07 .08	.52 .32 .25 .40 .48	.06 .04 .02 .05 .05	
B 20773 B 20774 B 20775 RE B 20775 STANDARD DS3	148.88 3.72 3.85 3.85 8.18	206.4 5.9 5.4 5.3 31.4	29.58 .73 .68 .67 3.83	$109.57 \\ 2.52 \\ 2.57 \\ 2.36 \\ 13.65$	45.21 .86 .89 .89 2.92	.75 .09 .05 .04 .57	42.48 .96 .99 .85 2.38	5.80 .15 .14 .14 .31	28.16 .91 .85 .77 1.75	3.71 .15 .13 .14 .30	10.40 .43 .35 .37 .83	1.76 .06 .05 .06 .12	14.04 .42 .43 .43 .85	1.72 .05 .05 .05 .10	

UPPER LIMITS - AG, AU, HG, W, SE, TE, TL, GA, SN = 100 PPM; MO, CO, CD, SB, BI, TH, U, B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPN. - SAMPLE TYPE: ROCK R150 60C Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

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PHONE (604) 253-3158 PAX (604) 253-1716

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SAMPLE#	Y	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	HO	Er	Tm	Yb	Lu
			<u> </u>			<u></u>	<u> </u>	_ <u></u>	E Puil	ppm	Pbm	Ppm		- <u>55m</u>
$\begin{array}{c} SLI & VI \\ RE & SLT & 01 \end{array}$	6.32	38.4	4.27	15.46 15.83	3.16 3.15	48	2.29	.35	1.44	.23	.55	.08	$.51_{54}$	.06
STANDARD DS3	8.48	32.0	3.82	13.59	2.82	.5ž	2.38	.31	1.75	.30	.80	.12	.87	.10

UPPER LIMITS - AG, AU, HG, W, SE, TE, TL, GA, SN = 100 PPM; MO, CO, CD, SB, BI, TH, U, B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM. - SAMPLE TYPE: SILT P150 60C Samples beginning (RE' are Reruns and (RRE' are Reject Reruns.

DATE RECEIVED: JUN 11 2001 DATE REPORT MAILED: two 20/01 SIGNED BY. .....D. TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

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# Appendix II

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# Rock Sample Descriptions

20651	pegmatitic potassium feldspar, plagioclase feldspar and quartz. Muscovite, biotite. Trace to 1% fine grained, black oxide? minerals. Subangular float
20652	as in 20651
20653	leucocratic quartz monzonite with coarse feldspar and quartz pegmatitic texture. Subangular float.
20654	as in 20653
20770	as in 20653. Trace of fine grained black oxides?
20771	as in 20653
20772	megacrystic kspar quartz monzonite. Trace to 1% fine grained black minerals.
20773	as in 20651