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Gold Commissioner's Office VANCOUVER, B.C.

Assessment Report

# Geological and Geochemical Survey

TAM PROPERTY (Nechako Project) 1994

Omenica Mining Division British Columbia

NTS 93F/3E

FILMED

## GEOLOGICAL BRANCH ASSESSMENT REPORT

23,746 K. Schimann

K. Schimann January 1995 94-CND-78-13

### TABLE OF CONTENTS

	Page	•
INTRODUCTION	1	
PHYSIOGRAPHY AND ACCESS	1	
REGIONAL GEOLOGY	3	
LEGAL DESCRIPTION OF THE PROPERTY	3	
METHODOLOGY	3	
GEOLOGY AND MINERALIZATION	7	,
GEOCHEMISTRY	7	,
CONCLUSIONS	8	)

## List of Appendices

Appendix 1Rock Descriptions and AnalysesAppendix 2Statement of ExpendituresAppendix 3Statement of Qualifications

# List of Figures

		Page
Figure 1	Nechako Project, Location of Properties	2
Figure 2	Claim Map of the Tam Property	6

# List of Tables

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		Page
	Main Geologic Map Units of the Nechako Basin	
Table 2	List of Claims: Tam Property	5

# List of Maps

# (in pocket)

Scale

Map 1	1	Tam Property	Geology and	Geochemistry	 1.15 000
iviap.	T	rain Froperty,	Ocology and	Geochemistry	 1.13 000

Tam Property 1994 Geology and Geochemistry

#### INTRODUCTION

The Tam Property was acquired by staking in early 1994, based on the release of the Geological Survey Branch of the discovery of the Tommy showing. It is located in the Nechako Basin, in the south-central part of British Columbia (figure 1). Precious metals mineral showings and deposits with both high-grade vein and low-grade bulk tonnage potential occur in this region.

The property lies in the central part of the Stikine Terrane. The geology of this part of the Stikine Terrane contains three volcanic stratigraphic groups of latest Upper Cretaceous to Miocene age, underlain by Cretaceous and older basement rocks. Mineralization is associated with an Eocene tectonic event that involved crustal extension, felsic and basic volcanism, unroofed metamorphic complexes, large and small scale calderas and associated plutons, pull-apart sedimentary basins, and basin and range geomorphology. This Eocene tectonic-metallogenic belt extends from northwestern British Columbia and crosses all major geologic terranes of the northern Cordillera to the Columbia River basalt plateau in Washington State. The Tertiary tectonic evolution and volcanism of the Nechako Basin are similar to that of the Great Basin of Nevada and adjacent States and the potential for volcanic-hosted and hot-spring type epithermal deposits is similar. Areas at deeper tectonic levels have potential for porphyry-related mineralization such as polymetallic mesothermal veins.

Two epithermal precious metals deposits are currently being mined within this Eocene metallogenic province: the Cannon mine (Wenatchee District), and the Golden Promise in the Republic District. Three have recently been mined out the Equity Silver Mine, the Blackdome, and the Kettle deposits. High sulphide replacement deposits of the Republic graben, although not strictly epithermal, are part of the same metallogenic event.

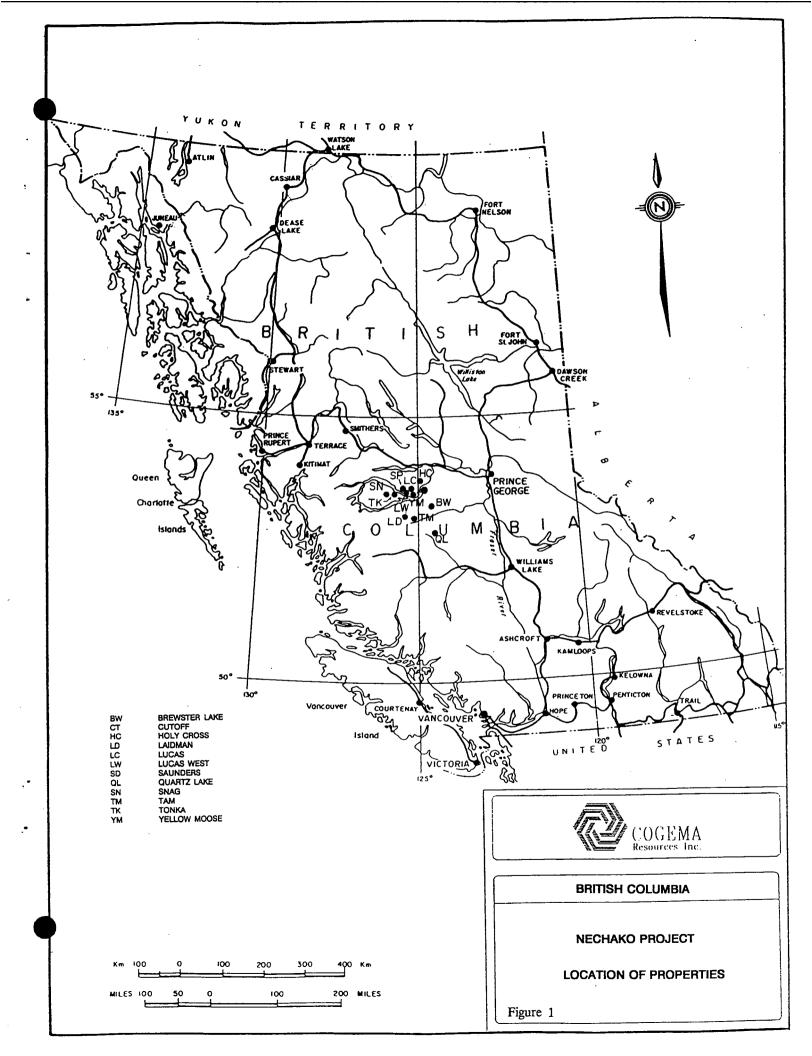
### PHYSIOGRAPHY AND ACCESS

The Nechako Basin is part of the Interior Plateau of the Canadian Cordillera, comprising the Nechako Plateau north of the Blackwater River, and the Fraser Plateau south of it.

The Centre, where the Tam Property is located, is a low relief plateau transected by two NW-SE trending ranges, the Nechako Range culminating at 1,780 m, and the Fawnie Range, culminating at 1,935 m. Away from the ranges, outcrops are sparse.

Access is good, using a network of forestry roads starting from Highway 16. From Kilometre 161 of the Kluskus-Ootsa Forestry road, a branch road leads east for about 5 km to a clearcut from which an old cat trail reaches the north boundary of the property. There are no major environmental concerns.

On the Tam property, outcrop conditions are quite good, compared to other parts of the region, and outcrops fairly evenly distributed due to the hilly topography.



Tam Property 1994 Geology and Geochemistry

#### Page 3

#### **REGIONAL GEOLOGY**

The Tertiary geologic elements of the Nechako Basin are part of a regional extensional system that extends from the Republic area of northern Washington State, northwesterly for some 1000 kilometres into the Babine district of north central British Columbia. This belt trends northwest with the approximate dimensions of 1000 X 200 kilometres. It crosses major terrane boundaries and underlies the Quesnel, Kootenay and Omineca Terranes in the south and the Stikine Terrane in the north, crossing the oceanic Cache Creek Group. It overlaps the southern margin of the Bowser Basin where it continues northward as a thin strip along the eastern margin of the Coast Range.

Stratigraphic and intrusive rocks in the Stikine Terrane range in age from Palaeozoic to Pleistocene. With respect to the Eocene mineral setting, the geologic elements of the Stikine Terrane may be divided into three separate packages: basement rocks, latest Upper Cretaceous-Eocene rocks associated with mineralization, and cover rocks (Table 1).

#### LEGAL DESCRIPTION OF THE PROPERTY

The Tam property consists of 3 2-post claims and 1 4-post claim for a total of 14 units. They are owned 100% by COGEMA Resources Inc. The claims are listed in table 1 and shown on figure 2.

#### METHODOLOGY

The Tam property was accessed from a temporary camp located on the Kluskus Forestry road where it crosses Fawnie Creek. Systematic geological mapping and prospecting for alteration and mineralization in outcrop and float covered the whole property. Outcrops as well as locations of rock samples are shown on Map 1. No indication was found of previous mineral exploration activities with exception of recent surveys overlapping from adjoining properties.

Analyses of all rock and silt samples were done by Acme Analytical Laboratories Ltd. The analytical procedures were as follows:

Au: Aqua regia digestion, MIBK extraction, atomic absorption; 50 g for till;

30 Elements: Aqua regia digestion, ICP on 0.5 g for till and rock

Hg: Flameless atomic absorption

Aqua regia digestion results in partial analysis for the following elements: Ca, Mg, Fe, Mn, Cr, Ba, Sr, U, Th, La, Ti, B, Al, Na, K.

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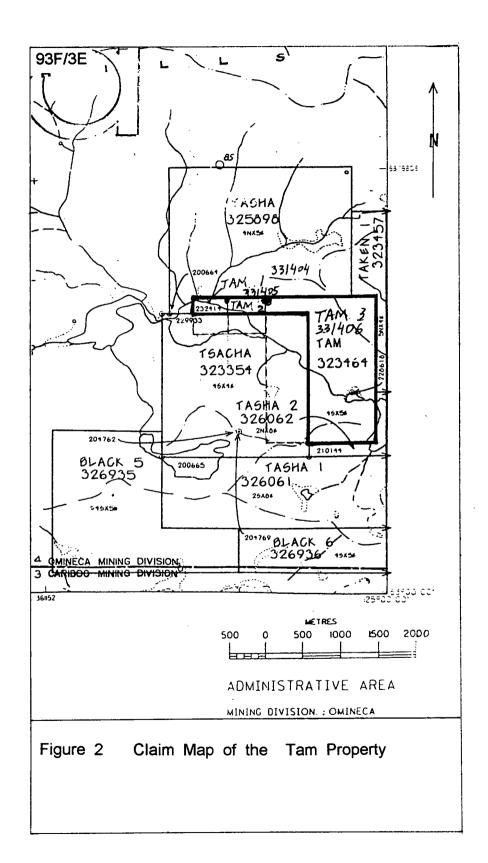
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	Stratified Rocks		Intrusive and Metamorphic Rocks
11.	Anahim Volcanics (Pliocene-Pleistocene)		
10.	Chilcotin Volcanics (Miocene		
9.	Endako Group (Eocene-Oligocene)		
8.	Ootsa Lake Group (Eocene and Palaeocene)	G.	Eocene (stocks, plugs, dykes, rhyolite, felsite, porphyry, diorite, gabbro)
7.	Kasalka-Kingsvale Groups (Upper Cretaceous)	F.	Upper Cretaceous-Palaeocene (Quanchus Intrusions: stocks and batholiths, diorite to quartz monzonite)
6.	Skeena-Jackass Mountain Groups (Lower Cretaceous)	E.	Mid-Cretaceous (mainly tonalite to quartz monzonite of Coast Bange complex)
5.	Gambier Group (Upper Jurassic-Lower Cretaceous)	D.	Coast Range complex) Jurassic-Cretaceous (François Lake Batholith; quartz diorite to granite, includes quartz-feldspar
4.	Relay Mountain-Bowser Groups (Upper Jurassic-Lower Cretaceous)		porphyry)
3.	Hazelton Group (Lower and Middle Jurassic)	C.	Middle Jurassic (locally foliated granodiorite and quartz monzonite)
2.	Stuhini Group (Upper Triassic)		
1.	Cache Creek Group (Upper Palaeozoic)	В.	Permian (mainly granodiorite in lower Chilcotin River)
		A.	Metamorphic Rocks (gneiss, schist, metavolcanics cataclasites)

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NAN	ie record	UNITS	STA	KED	GOOD	MINING	NTS
	No		DATE	YEAR	UNPERS.	DIVISIO	N
TAM	PROPERTY						
TAM-1	331404	1	21-Sep	1994	1997	OMINECA	93F/3E
TAM-2	331405	1	21-Sep	1994	1997	OMINECA	93F/3E
TAM-3	331406	12	21-Sep	1994	1997	OMINECA	93F/3E
	Total	14					

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#### GEOLOGY AND MINERALIZATION

The Tam property is underlain by andesites and rhyolites of the Middle Jurassic Hazelton Group cut by dykes and sills of an Eocene felsite<sup>1</sup>. Rhyolite is the most widespread rock type. Andesite occurs in the northeast corner of the property and along its eastern border. The Eocene felsite has been observed only in the northern half of the Tam 3 claim, on a series of small knolls.

All the rhyolite outcrops observed are hydrothermally altered to a certain degree. The alteration manifests itself first by a ruddiness of the rock, which progresses to more abundant carbonatization and argillization, and the development of fine quartz veinlets.

Two new showings were discovered the Mint and Mint South about 500 m apart. They are both hosted in rhyolite.

The Mint showing consists of a series of quartz veins up to 8-10 m wide, in a zone of abundant quartz stockwork at least 100 m wide. The veins strike mostly N30-40° and are essentially vertical. The quartz is white to grey, fine grained, occasionally with fine colloform banding and almost chalcedonic; it contains irregularly distributed wispy patches of grey sulphides, mainly galena and sphalerite with minor pyrite; sulphosalts may also be present. The veins outcrop best in the creek and on the north side of it, at the edge of an old burn.

The Mint South showing consists of a 50 m wide zone of small outcrops and subcrop of altered rhyolite with abundant quartz stockwork including wider veins. One of these is at least 15 m wide and massive. The quartz is fine grained white to grey and contains occasional disseminated pyrite and galena; it is sometimes brecciated. The veins are subvertical and trend N150-170°.

Both showings are open on all sides and limited only by lack of outcrop. They are about 500 m apart, and correspond probably to two different structures.

A large area of quartz flooding in andesite occurs at rock sample location 5038-5039. The veinlets are narrow (1-5 cm) and appear unmineralized.

An area of subcropping rusty carbonate altered vuggy rhyolite with quartz veinlets occurs at rock sample location 5138-5140; it is 50-100 m wide. Similar rock occurs also at rock sample location 5244.

#### GEOCHEMISTRY

The Mint showing rocks contain up to 5.3 g/t Au and 483 g/t Ag, with up to 1.3 % Zn and .7 % Pb; Cu reaches 610 ppm and Hg 4 ppm; As and Sb are elevated.

The Mint South showing has lower grades but is was less sampled; best grades are 1.5 g/t Au and 82 g/t Ag with up to 0.1 % Zn and 0.3 % Pb; Hg, As, and Sb are lower.

<sup>&</sup>lt;sup>1</sup> Diakow, L. 1994, GSB OF 1994-2

The area of quartz flooding in andesite has only 16 ppb Au. The area of rusty rhyolite near the northern boundary of the claims has up to 60 ppb Au, 328 ppm Zn, 371 ppm Pb, and 235 ppb Hg.

#### CONCLUSIONS

The 1994 exploration work on the Tam property has discovered two new showings set in very broad system of hydrothermal alteration.

The mineralization on the Tam 3 claim appears to be of lower temperature than that at the Tommy showing, based on the chemistry, ratio of Zn + Pb/Cu and Au/Ag, and on the texture of the quartz which, on the Mint and Mint South showings, is finer grained and almost chalcedonic in places, compared to the coarse grained white quartz found at the Tommy showing, where also chalcopyrite is a distinctive part of the assemblage.

The very strong lake sediment Au anomalies of the GSB 1993 Regional Geochemical Survey extend over several small drainages which probably define the extent of the alteration system containing the Mint and Mint South, and the Tommy, showings. The intensity of the lake sediment anomaly (over 250 ppb Au) suggests a very good potential for the presence of more extensive Au mineralization than that found so far.

Further work is strongly recommended and should consist of detailed mapping and prospecting of the claims together with a systematic till (or soil) geochemical survey and a geophysical survey, for example magnetics and VLF-R, to define structures. The showings should be trenched to define their extension and for detailed sampling.

Appendix 1

Rock Descriptions and Analyses



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Area	Number	Туре	Name	Description	Sampler
ТМ	5014		qz	qz vein 40-50 cm; N20/90; banded, white-pinkish, c.gr. qz with ankerite at selvage no sulph	KS
ТМ	5015	oc	qz	2 m wide qz vein N5/90 in rhyolite similar to above; band with cpy (sp, ga??) and some py; ankeritic alteration around and 20-	KS
			-	30 m of stockwork zone	
ТМ	5016	oc	qz	same vein as above 20 m south	KS
ТМ	5017		qz	qz vein similar but more vuggy, some ankerite, py?	KS
ТМ	5018		qz	20 cm/R2; qz veins (1-3 cm) in carb. rhy, ± vuggy, no sulph.	KS
ТМ	5019		rhy	qz veinlets in ankeritized rhy.	KS
ТМ	5020		rhy	carb altered thy some qz veining, py	KS
ТМ	5021		qz	grey bland looking qz, rare py as stockwork in rhy	KS
ТМ	5022		qz	grey bland looking qz, rare py as stockwork in rhy	KS
ТМ	5023		qz	qz vein 10 m ? wide, ?N150/90; same qz as above	KS
ТМ	5024		qz	QV in creek, N30-40/90; f gr qz greyish 25 cm vein rare sulph	KS
ТМ	5025		qz	f gr qz greyish 25 cm vein rare sulph	KS
ТМ	5026		qz	QV, f.gr. qz, white abundant sp-ga (cpy?)	KS
ТМ	5027		qz	QV, f.gr. qz, white abundant sp-ga (cpy?)	KS
ТМ	5028	oc	qz	second vein 6 m E of 5024; abt 10 cm ± stockwork, some sp-ga in qz; py in host	KS
ТМ	5029		qz	white qz stockwork in pink carb. alter. rhy	KS
ТМ	5030		qz	10 cm wide white qz vein, nicely banded, almost colloform, N10/90	KS
ТМ	5031		qz	black-grey banded ± vuggy qz (carb)	KS
ŤΜ	5032	oc	qz	8-10 m wide almost massive banded qz vein in creek bed; frequent wispy black sulphides; qz is finer grained and better	KS
				banded, sometimes colloform, almost chalcedonic; 5032-5035: samples across vein; N30/90	
ТМ	5033	oc	qz	" same "	KS
ТМ	5034	oc	qz	" same "	KS
ТМ	5035	oc	qz	"same "	KS
ТМ	5036	flt	qz	30 cm/ R?;very vuggy qz, with some fibrous qz growth, very unusual text., rare sulph.	KS
ТМ	5037	flt	qz-carb	1 m +/R?; intergrowth of white qz and whitw carb (white weathering)	KS
ТМ	5038		sil.and.	quartz flooding in andesite	KS
ТМ	5039	oc	qz	1 cm qz vein in quzrtz flooded andesite	KS
ТМ	5137	oc	intrus	Altered intrusive? just N of c/l, carbonate oxidation	JB
ТМ	5138	SC	Fp P	Lt colored rusty vuggy F-spar P very angular.	JB
ТМ	5139	SC	Fp P	Rusty siliceous F-spar P.	JB
ТМ	5140	SC		Lt colored siliceous rhy - altered F-spar P.?	JB
ТМ	5234	flt	Qtz	20 cm; Qtz along S claim line.	RB
ТМ	5235	flt	Qtz	12 cm; Qtz/carb.	RB
TM	5236	flt	Qtz	10 cm; Qtz, 15m N of 5235.	RB
ТМ	5237		Qtz	25 cm; Qtz with carb (ankerite) on fracture.	RB
ТМ	5238			Massive white qtz, trace py.	RB
ТМ	5239		Qtz	Qtz stkwork with dissem py =- cpy, siderite? 1m W of 5238.	RB
TM	5240			Massive white qtz, rusty patches, no vis. sulphides.	RB
TM	5241			White qtz with galena, sphal?, trace cpy and py. Loc ~40m E of 5240.	RB

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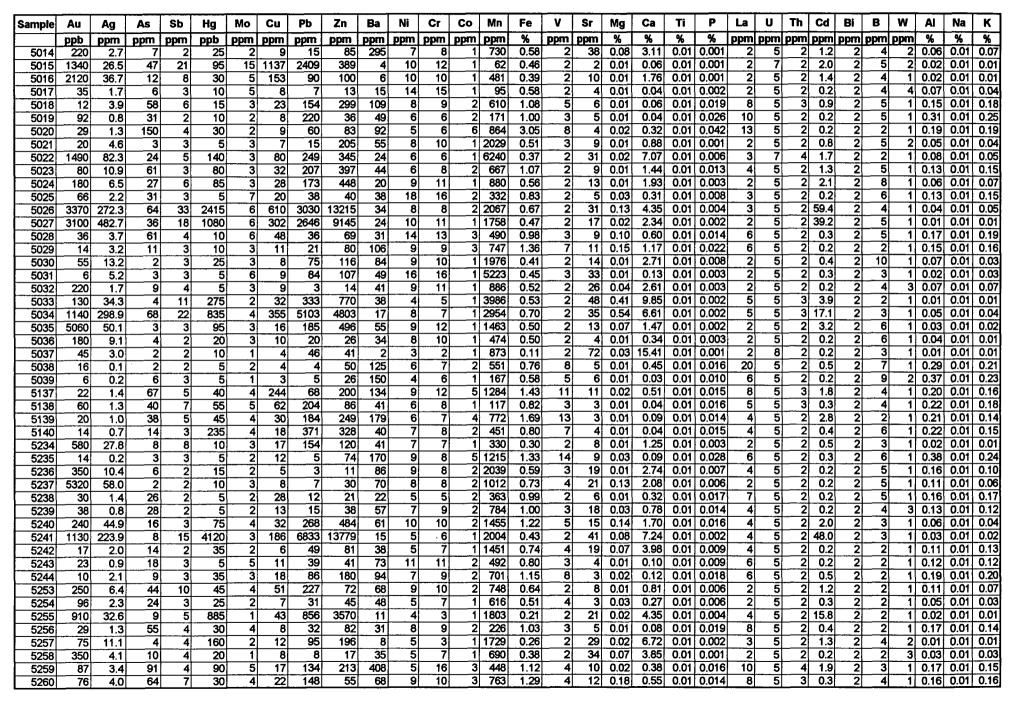
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Area	Number	Туре	Name	Description	Sampler
ΤМ	5242	oc	Rhy	Rhy P.?with qtz veins/veinlets, trace py.	RB
ТМ	5243	flt	Rhy	40 cm; Qtz veining in rhy/ rusty patches, trace py.	RB
ТМ	5244	oc	Rhy	Qtz veins cutting rhy.	RB
ТМ	5253	sc	Qtz	White qtz loc ~20m above E of trail.	RB
ТМ	5254	oc	Qtz	White qtz, same loc as 5253.	RB
ТМ	5255	sc	Qtz	Large bldr white qtz with trace silvery sulphide.	RB
ТМ	5256	SC	Qtz bx	Large qtz bx with trace py and rusty fractures.	RB
ТМ	5257	SC	Qtz	Large bldr white qtz with dissem dark grey metallic mineral?	RB
ТМ	5258	fit	Qtz	60 cm; 'between' showings/white qtz occasional, blue sulphides (ck).	RB
ТМ	5259	ос	Rhy	Rusty rhy with qtz veins and trace sphalerite.	RB
ТМ	5260	SC	qz	qz veining in rusty rhy	RB
ТМ	5261	oc	Qtz	Rusty white qtz, loc same as 523.	RB
ТМ	5262	sc	qz	quartz brx with veining, ga	RB
ТМ	5263	flt	Qtz	15 cm; Local float in tree roots, about 50 m @ N150 from 5021. Rusty qtz with dissem py.	RB
ТМ	5264	oc	Qz vein	Qtz veining in rhy, ankerite on fractures. Loc ~30m N of 5022.	RB
ТМ	5265	oc	Qtz	White qtz, trace py +-5m 160o along o/c.	RB
ТМ	5266	oc		White qtz, 15 cm seam in qtz, dissem galena and py. Loc ~5m 160o.	RB
ТМ	5267	OC	Qtz	White qtz, ~5m @ N160 vein trends N160-170 and ~15m a 15m wide solid qtz with alt rocks at sides.	RB









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Rock Sample Analyse

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Sample	Au	Ag	As	Sb	Hg	Мо	Cu	Pb	Zn	Ba	Ni	Cr	Co	Mn	Fe	V	Sr	Mg	Ca	Ti	Ρ	La	U	Th	Cd	Bi	В	W	AI	Na	ĸ
	ppb	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%
5261	120	12.1	17	10	45	3	24	187	133	67	6	9	1	490	0.55	3	3	0.01	0.11	0.01	0.004	2	5	2	0.5	2	3	1	0.06	0.01	0.03
5262	200	12.4	23	5	295	3	- 44	451	1215	23	5	1	3	3584	2.29	2	45	1.64	5.16	0.01	0.008	6	5	2	6.1	2	2	1	0.04	0.01	0.03
5263	550	1.1	94	5	30	5	9	36	80	217	9	9	3	380	1.72	4	14	0.03	0.12	0.01	0.022	11	5	4	0.4	2	2	1	0.18		
5264	36	0.9	43	4	70	3	8	12	62	41	7	. 9	2	241	1.18	4	4	0.01	0.05	0.01	0.009	7	5	3	0.2	2	3	1			0.18
5265	24	4.0	17	5	35	1	9	143	106	36	5	5	1	1116	0.50	2	5	0.02	0.55	0.01	0.005	2	5	2	0.8	2	3	1	0.06		_
5266	690	19.3	15	7	240	4	16	2807	704	713	11	11	1	1897	0.60	2	35	0.13	3.39		0.002		5	2	12.7	2	4	1	0.06		
5267	35	17.8	16	6	50	2	14	106	159	30	7	6	1	3340	0.37	2	46	0.15				2	5	2	1.5	2	7	1	0.02		

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Appendix 2

Statement of Expenditures

## STATEMENT OF EXPENDITURES

## TAM PROPERTY

# Geology and Geochemistry

## September to December 1994

Personnel	K. Schimann R. Bilquist, and	1 day @ \$438	\$	438		
	J. Boutwell	3 days @ \$201	\$	603		
Field Costs		4 days @ \$131	\$	524		
(Food, freight	TV rentals,					
Rock analyses	S	57 samples @ \$15	\$	855		
Data processing and report preparation						
		Total	\$ 2	2 614		

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# Appendix 3

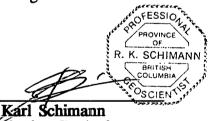
# Statement of Qualifications

#### APPENDIX III

#### STATEMENT OF QUALIFICATIONS

I, Karl Schimann, residing at 5442 Columbia Street, Vancouver, B.C., hereby states that:

- 1. I am the author of the report Geological and Geochemical Survey, Tam Property (Nechako Project), 1994, Omineca Mining Division.
- 2. I have worked on the property from July to December 1994 for COGEMA Resources Inc. and supervised the work described in this report.
- 3. I graduated from the Université de Montréal with a B.Sc. in Geology in 1968.
- 4. I graduated from the University of Alberta with a Ph.D. in Geology in 1978.
- 5. I am a Fellow of the Geological Association of Canada.
- 6. I am a member in good standing of the Association of Professional Engineers and Geoscientists of British Columbia



District Geologist

