Exploration on the

Tom Mineral Claims

1991

Claims (record numbers):	Tom 1 (223452) Tom 2 (223453) Tom 3 (223454) Tom 4 (223455)
Mining Division:	Liard
NTS Map Sheet:	NTS 104 B 10E
Latitude: Longitude:	56 deg 42 min N 130 deg 36 min W
Owner of Claims:	Ecstall Mining Corporation #307 - 475 Howe Street Vancouver, B.C. V6C 2B3
Project Operator:	Ecstall Mining Corporation
Consultant:	New Caledonian Geological Consulting
Report by:	Peter A. Ronning, P.Eng.
Date of Report:	6 December 1991

1. Summary and Conclusions

The Tom claims are located on NTS sheet 104 B, at latitude 56 deg 42 min north and longitude 130 deg 36 min west, in the Liard Mining Division. The center of the 63 unit claim group is about 7 kilometers southeast of the Iskut River.

As of 25 October 1991, the owners of record at the Vancouver Mineral Titles office were Ecstall Mining Corporation and Omega Gold Corporation. The claims were staked in 1988 for Ecstall and Omega, with the first recorded work being done in 1989 (Nicholson, 1990). Work prior to 1991 has consisted of reconnaissance geology and prospecting, stream sediment geochemistry and lithogeochemistry.

In 1991 the work program was aimed at providing a geological assessment of the overall exploration potential of the property. Most of the area was covered on foot by two geologists and a prospector. Thirty-four rock chip samples were collected.

Volcanic and volcaniclastic rocks of the lower Jurassic Betty Creek formation underlie most of the property. These are intruded by the Jurassic Lehto Porphyry (Britton, 1989). Rocks have been folded, faulted and metamorphosed, mainly during the Cretaceous.

On the northern part of the Tom 2 claim, a convergence of two major fault trends forms an east-west topographic lineament in the form of a valley. Traceable for at least 150 meters along this valley, about 20 meters wide, is a zone of highly altered quartz-sericite rock containing disseminated pyrite and locally, chalcopyrite. Grab samples of this material contained 2,507 and 8,981 ppm copper, with 24,400 and 13,231 ppm zinc. One sample contained 3,708 ppm lead.

Veining and alteration containing hematite, chlorite and vuggy quartz are widely distributed in the Lehto Porphyry. Most of the porphyry is weakly to moderately sericitized. Several quartz veins a few centimeters thick contain disseminations and blebs of chalcopyrite. Samples of such material contained copper in the range 0.35% to 1.43%.

The next exploration objective on the Tom property should be to locate larger bodies of mineralization, with significant precious metals in addition to the known base metals. To this end a small program of heavy mineral lithogeochemical sampling is suggested herein, projected to cost in the order of $17,000.

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2. Introduction

2.1. Location and Access

The Tom claims are located on NTS sheet 104 B, at latitude 56 deg 42 min north and longitude 130 deg 36 min west, in the Liard Mining Division. The center of the claim group is about 7 kilometers southeast of the Iskut River.

At present, access to the property is available only by helicopter. There are usually machines available from bases at Bell 2 and Bob Quinn Lake, on the Stewart Cassiar Highway, about 50 kilometers east and 40 kilometers northeast, respectively, of the Tom Claims. Helicopters may be available at the Bronson Creek airstrip, 34 kilometers west of the Tom. Bronson Creek is served by scheduled flights from Smithers, 330 kilometers to the southeast.

A road to service Eskay Creek and other properties in the area is under construction at present. The proposed route to Eskay Creek would intersect the northwest corner of the Tom claim group (Smith and Gerath, 1989).

2.2. Physiography

The Tom claims are located in a rugged part of the Coast Mountains. Elevations on the property range from about 640 meters (2,100 feet) in a creek valley on the north edge of the Tom 3 to 1,600 meters (5,250 feet) on a ridge at the south boundary of the Tom 1. The valleys of two major north and northeast flowing creeks on the property have been glacially scoured, with steep sides that are difficult to traverse.

Timber line is at about 1,370 meters. Anywhere below about 1,070 meters, extremely dense undergrowth makes foot travel extremely difficult.

The climate is typical of the Coast Ranges, with heavy precipitation. The winter snow pack builds up to several meters, and the field season for geological work is limited to June through early October.

* map photocopied from Nalensek & Dewanck, 1990

ECSTALL MINING CORPORATION

Tom 1 - 4 Claims

Property Location

Compiled by: Orequest Cons.	Date: Oct. 1991	Drawing No.: 91 18-4	Revision No: 1
Drawn by: Orequest Cons.	Date: Oct. 91	Sheet No.: 1 of: 1	Job No.: 91 18
Checked by: N.B.A.	Date: 6 Dec 91		
Version: ☐ draft ☒ final			Figure 1

2.3. Property Definition

2.3.1. Claim Status, Owner and Operator

The Tom property consists of four claims as listed in Table 1, below. As of 25 October, 1991, the owners of record as determined at the Vancouver Mineral Titles Office were:

Ecstall Mining Corporation
307 - 475 Howe Street
Vancouver, B.C. V6C 2B3 50%

Omega Gold Corporation
1000 - 789 West Pender Street
Vancouver, B.C. V6C 1H2 50%

Table 1 - Claim Status

Claim No.	Record No.	Units	Record Date	*Expiry Date
Tom 1	223452	20	12 Nov. 1988	12 Nov. 1992
Tom 2	223453	15	12 Nov. 1988	12 Nov. 1992
Tom 3	223454	12	12 Nov. 1988	12 Nov. 1992
Tom 4	223455	16	12 Nov. 1988	12 Nov. 1992

* as indicated in the records of the Mineral Titles Office at Vancouver, B.C. on 25 October, 1991

2.3.2. History

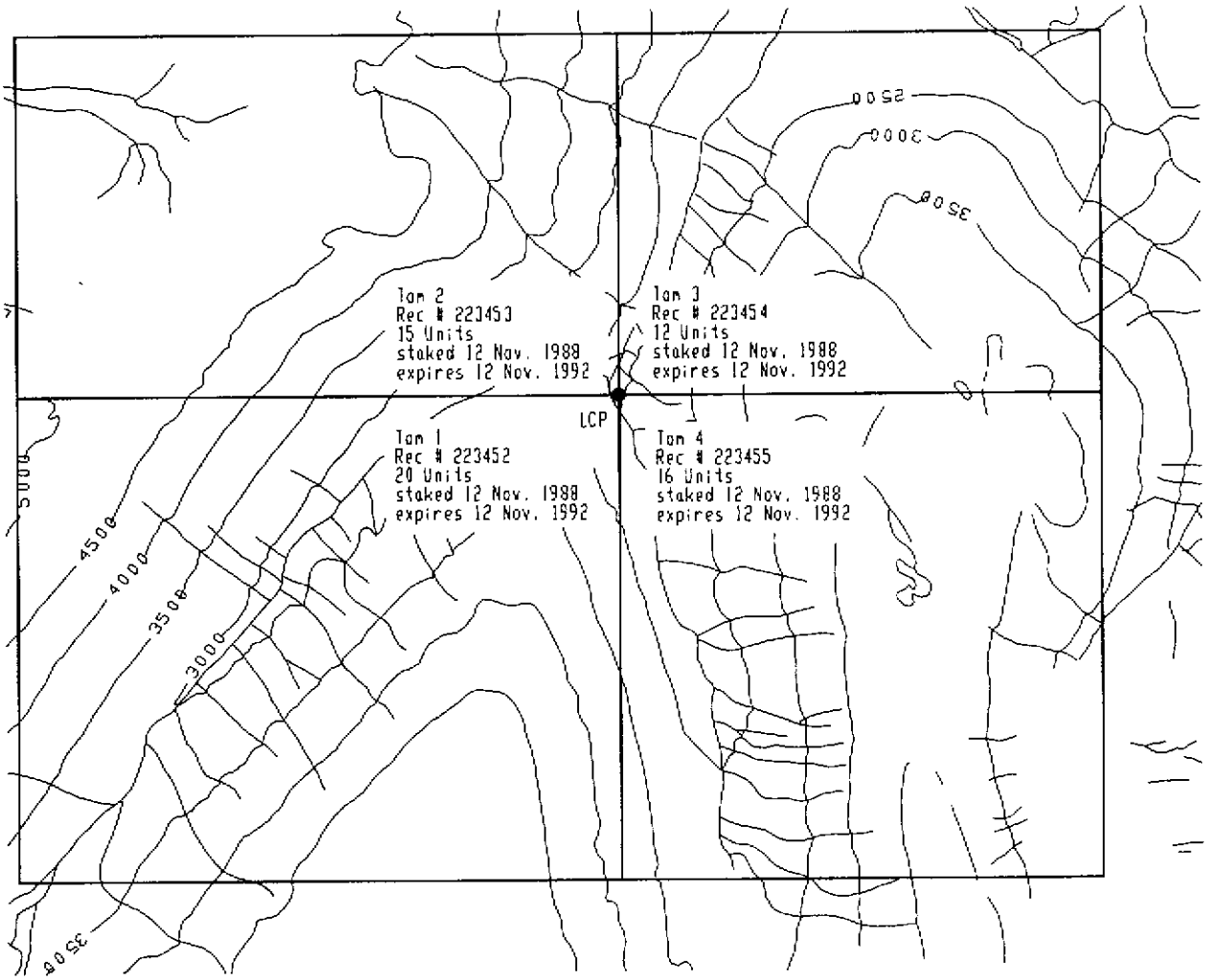
History of the Region

The Iskut River has been the scene of sporadic mineral exploration since the turn of the century. Production has been negligible, although the nearby Stewart Camp, some 50 to 70 kilometers to the south and southeast, has had two significant producers, Silbak Premier and Granduc. The former produced 41 million ounces of silver and 1.8 million ounces of gold between 1920 and 1936 (Nicholson et al, 1990) while the latter started production after World War II with published reserves of 10.9 million tons grading 1.79% copper.

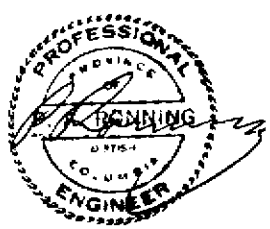
The modern period of exploration in the Iskut River area began in the 1970's with exploration for porphyry copper deposits. Exploration in the 1980's through to the present has been targeted mainly at precious metals. An exploration boom which began in the late 1980's and continued through 1990 has resulted in the development of two mines, one of which, Cominco's Snip, is producing now, and in the discovery of numerous deposits and prospects. Some of the more significant deposits are tabulated in Table 2 on page 6.

History of the Tom Property

The Tom property was staked for Ecstall Mining Corporation and Omega Gold Corporation in 1988. The first recorded work on



ECSTALL MINING CORPORATION			
Tom 1 - 4 Claims Claim Map			
Compiled by: P. Rensing	Date: Oct. 1988	Drawing No.: 91 18-1	Revision No.: 1
Drawn by: P.A.R.	Date: Oct. 91	Sheet No.: 1 of 1	Job No.: 91 18
Checked by: N.B.A.	Date: 8 Dec 91	Figure 2	
Version: ☐ draft ☒ final			



the property is that described in Nicholson (1990). Nicholson notes the remains of tools on the property which suggest that some prior work did occur.

In 1989 Nicholson and Associates carried out a preliminary program which consisted of a geological examination, rock geochemistry and stream sediment geochemistry (Nicholson 1990 and Nicholson et al 1990). Orequest Consultants Ltd. did a limited work program of prospecting, reconnaissance mapping, silt and rock sampling in 1990 (Malensek and Dewonck, 1990).

2.3.3. Economic Potential

Prior work on the Tom claims located some anomalous copper, zinc and gold values in grab samples of rock, some from float and some from a porphyry intrusion in the south central part of the property. The work described in this report also produced some moderately high copper, lead and zinc values in rock samples.

Some of the creeks draining the area contain anomalous copper, lead or zinc in the stream sediments.

This property is an early stage prospect, with potential for epigenetic base or precious metal mineralization related to intrusive activity and major faulting. No mineralization with potentially economic dimensions and grades has as yet been identified.

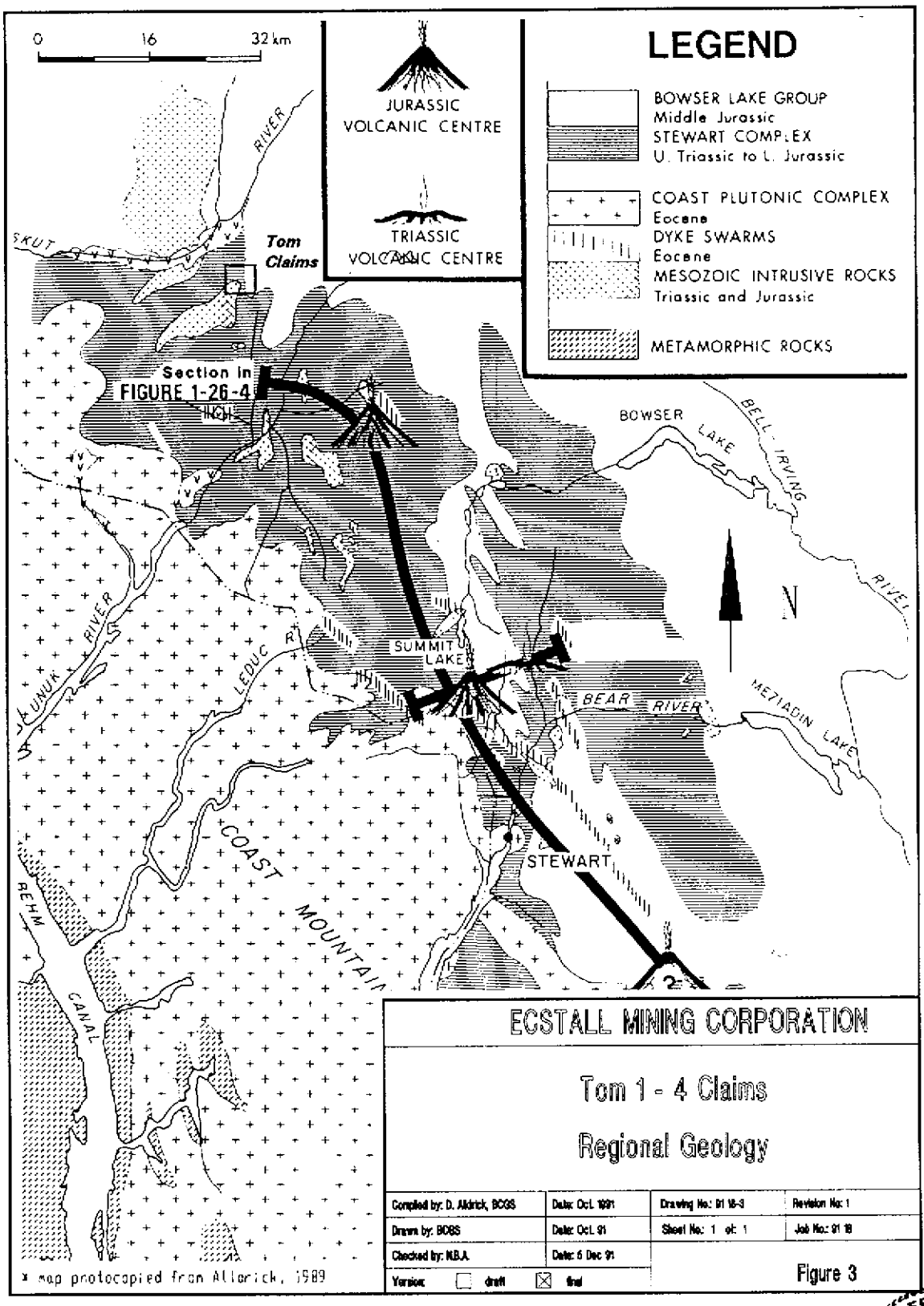
2.4. Work Program

The 1991 work program was carried out over 3 days by two geologists and a prospector. Based at a camp on the Forgold property, about 17 kilometers north of the Tom Claims, the crew was flown to the site each day by helicopter. The program was aimed at providing a geological assessment of the overall exploration potential of the property. Most of it, some 1,575 hectares, was covered on foot at a reconnaissance level. Thirty-four rock chip samples were collected and analyzed for copper, lead, zinc, silver and gold as well as varying combinations of other elements (see Appendix 2 for analytical results and Appendix 3 for descriptions of the rock chip samples). The results of the work are plotted on Map 4 at a scale of 1:10,000.

3. Geology

3.1. Regional Geological Setting

The Tom property lies towards the Northern Margin of what has been termed the Stewart Complex (Grove, 1986). The complex lies adjacent to the western margin of the successor Bowser Basin. It includes upper Triassic to lower Jurassic volcanic sequences which are the setting for the Iskut, Sulphurets, Stewart and Kitsault mining camps (Alldrick, 1989). Stratigraphic nomenclature within the area is still evolving, but Table 2, adapted from Anderson, 1989, provides a "snapshot" of recent thinking.



ECSTALL MINING CORPORATION

Tom 1 - 4 Claims

Regional Geology

Compiled by: D. Alldrick, BCGS	Date: Oct. 1991	Drawing No.: 91 18-3	Revision No.: 1
Drawn by: BCGS	Date: Oct. 91	Sheet No.: 1 of: 1	Job No.: 91 18
Checked by: N.B.A.	Date: 6 Dec 91		
Version: ☐ draft ☒ final			Figure 3

Table 2 - Stratigraphy of the Iskut River Area

MIDDLE AND UPPER JURASSIC BOWSER LAKE GROUP
greywacke and shale
LOWER (to middle?) JURASSIC SPATSIZI GROUP
siliceous shale, submarine tuff, sandy limestone to limey sandstone
LOWER JURASSIC HAZELTON GROUP
welded tuff and tuff breccia
maroon volcanic conglomerate and breccia
massive green andesite and minor shale
UPPER TRIASSIC STUHINI GROUP
clinopyroxene-phyric volcaniclastic rocks
shale and argillite
clinopyroxene-phyric mafic tuff and flow rock; felsic tuff
grey sparry limestone and chert-limestone conglomerate
PALEOZOIC STIKINE ASSEMBLAGE
PERMIAN green intermediate to felsic volcaniclastic rock and tuff
L. PERMIAN thin bedded coralline limestone
MISSISSIPPIAN pillowed basalt and hyaloclastite
MISSISSIPPIAN medium to thick bedded coralline limestone
L. DEVONIAN deformed coralline limestone
L. DEVONIAN schistose mafic volcaniclastic rock
L. DEVONIAN schistose felsic tuff

Read et al. (1989) suggested that in the region immediately surrounding the Tom claims pre-Cenozoic supracrustal rocks range in age from lower Permian to Middle Jurassic. Conversely Alldrick et al. (1989) assigned all of these rocks to the lower Jurassic Betty Creek Formation of the Hazelton Group. This apparent contradiction was discussed by Britton (1991), who points out that one of the age assignments of Read et al. (1989) was based on paleontological evidence but others were based on the degree of structural deformation, an equivocal criterion. Lacking independent evidence, the present writer has chosen to follow Alldrick et al. (1989) and assume a lower Jurassic age for most of the supracrustal rocks of the area, while recognizing that the question is still open.

Table 3, adapted from Alldrick (1989), shows simplified stratigraphy of the Hazelton Group.

Table 3 - Simplified Stratigraphy of the Hazelton Group

FORMATIONS	MEMBERS	LITHOLOGIES
Salmon River	Pyjama Beds Basal Limestone	Thin bedded silt, mudstones Gritty, fossiliferous limestone
Mount Dilworth	Upper Lapilli Tuff Middle Welded Tuff Lower Dust Tuff	Dacitic lapilli tuff Dacitic welded ash flow Dacitic dust tuff
Betty Creek	Sedimentary Members Volcanic Members	Volcaniclastic sediments, turbidites Intermediate tuffs and flows
Unuk River	Premier Porphyry Upper Andesite Upper Siltstone Middle Andesite Lower Siltstone Lower Andesite	2 feldspar + hornblende phyric tuffs Massive tuffs, local volc. sediments Turbidites, minor limestones Massive tuffs, minor volc. sediments Turbidites Massive to bedded ash tuffs

Strata in the area are cut by a variety of plutons representing at least four intrusive episodes spanning late Triassic to Tertiary time (Britton et al., 1989). They include, in addition to the batholithic Coast plutonic complex, syn-volcanic plugs, small stocks, dike swarms, isolated dikes and sills. Table 4, adapted from Britton et al. (1989), summarizes the intrusive rocks.

Table 4 - Intrusive Rocks

AGE	NAME OF UNIT	LITHOLOGIES
Eocene	King Creek Dyke Swarm Coast Plutonic Complex Lee Brant Stock	rhyodacite to andesite granite to quartz diorite quartz monzonite
Jurassic	Lehto Porphyry	granodiorite to syenite
L Jurassic to U Triassic		diorite and gabbro
U Triassic		meta-quartz-diorite

The stratigraphic sequence of the area has been folded, faulted and metamorphosed (Britton et al., 1989). Most of the deformation was Cretaceous, but some Triassic strata are polydeformed (Britton et al., 1991) and some penetratively-deformed Devonian rocks exhibit at least two phases of deformation.

3.2. Mineral Deposits in the District

Some of the more prominent mineral deposits of the Iskut area are listed in Table 5, which follows. They range from precious metal veins (Premier, Sulphurets, Snip, Stonehouse) through copper-gold porphyries (Kerr) to still-controversial base-precious metal deposits with some characteristics of veins and some of volcanogenic massive sulphides (Eskay Creek).

Table 5 - Deposits of the Iskut Area

MINE OR DEPOSIT	STATUS	SIZE AND GRADES
Premier	production resumed 1989	production & reserves as of 1 Jan 1991 (source CMH): 2 million tonnes 1.84 g Au/tonne 25.98 g Ag/tonne
Sulphurets	development	reserves (source EBC): 500,800 tonnes 14.33 g Au/tonne 617 g Ag/tonne
Kerr	exploration	reserves (source EBC): 114.3 million tonnes 0.61% Cu 0.27 g Au/tonne 1.71 g Ag/tonne
Eskay Creek	feasibility	geological reserves (source EBC): 3.967 million tonnes 26.4 g Au/tonne 998.4 g Ag/tonne
Snip	production commenced 1991	reserves at start up (source CMH): 943,000 tonnes 28.58 g Au/tonne
Stonehouse	production suspended	produced (source EBC): 2.7 million g Au 4.1 million g Ag 1.0 million kg Cu

sources: CMH - Canadian Mines Handbook, 1991-92
EBC - British Columbia Ministry of Energy, Mines and Petroleum Resources, Exploration in B.C., 1990

3.3. Local and Property Geology

3.3.1. Lithologic Units

Lithologic units on the Tom property are indicated on Map 4. The gross lithologic boundaries, including faults, are adapted from Read et al. (1989), but the latter's age assignments are not used.

Supracrustal Rocks

Supracrustal rocks, underlying two thirds of the Tom Claims, are comprised of both pyroclastic and sedimentary units. Most are assumed to be lower Jurassic and may belong to the Betty Creek Formation. On the ridges east of Tom Creek, Read et al. (1989) reported mainly sedimentary rocks, but the present work, and that of Malensek and Dewonck (1990) identified mostly andesitic tuffs.

On the west side of the claim group, in an area referred to by Britton (1990) as Hematite Ridge, most of the Tom 2 and part of the Tom 1 claims are underlain by a stratigraphically and structurally complex package of andesitic to rhyolitic tuffs,

tuffaceous wackes, conglomerates and limestone. It is in this area that Read et al. found three early Permian fossils. Although the interdigitation of lithologies is complex, the crest of Hematite Ridge is characterized by sediments while volcanic rocks are more abundant on the southeast facing slope. Rhyolites have been identified near the east end of the ridge top.

Intrusive Rocks

Along the eastern edge of the Tom 4 claim, the presence of a quartz feldspar porphyry mapped by Read et al. (1989) was confirmed by the present work (Unit 3 on Map 4). It is probably the same rock as a felsic intrusive noted by Malensek and Dewonck (1990). Rusty weathering, it contains variable amounts of disseminated pyrite, to as much as 3%. It was found to be bounded on the east by a granodiorite which may be part of a large meta-diorite mapped by Read et al. in the northeast corner of the Tom 3 claim.

A large body of feldspar and quartz feldspar porphyry underlies about a third of the Tom property including most of the Tom 1 claim (Unit 3 on Map 4). It is the northeast end of the Lehto Porphyry of Britton et al. (1989), identified by them as being granodioritic to syenitic, with potassium feldspar, plagioclase and hornblende phenocrysts.

On the Tom claims this porphyry has both feldspar porphyry and quartz feldspar porphyry phases. Near the south boundary of the property it contains 20% opaque, pinkish feldspar phenocrysts, probably a potassium feldspar, in a finely crystalline felsic groundmass. Chloritized relicts of primary mafic silicates may be present. There are gash-like miarolitic cavities up a centimeter long, some lined with quartz crystals.

About a kilometer north of the south boundary, some exposures exhibit 10% clear grey, millimetric quartz grains in the groundmass.

On the ridge top at the south boundary of the Tom 1 claim, the porphyry contains partly digested xenoliths of andesitic rock, up to several meters in size. Shaley felsenmeer in the same area may be a relic of sedimentary xenoliths.

3.3.2. *Structural Geology*

Large scale, brittle faulting is the dominant deformational style on the Tom Claims. The major faults appearing on Map 4 were mapped by Read et al. (1989). Many smaller, more local faults and shears, some of them controlling alteration and mineralization, were encountered in the present work.

3.3.3. Metamorphism

Rocks on the property are metamorphosed to the regional lower greenshist facies described by Britton et al. (1989). Plagioclase is saussuritized and most mafic minerals are chloritized. Metamorphic foliations are not typical, although

Read et al. mapped a fault bounded phyllite in the northwest corner of the property.

3.3.4. Alteration

Alteration Related to Major Fault Zones

Near the north boundary of the Tom 2 claim a prominent east-west valley forms a topographic lineament across the top of Hematite Ridge, marking a convergence of two of the major fault trends mapped by Read et al. (1989). Traceable for at least 150 meters along this valley, about 20 meters wide, is a zone of highly altered rock made up almost entirely of quartz and sericite in roughly equal amounts. It typically contains pyrite in the order of 3%. The length of the alteration zone westward from the top of Hematite Ridge is unknown to the writer, but it is not traceable eastward and downward into the valley of the main creek draining the claims.

Other Alteration in Volcanic Rocks

Local zones of silicification or quartz-sericite alteration, related to minor faults and shears, are common in the volcanic rocks. Also common are veins a few centimeters thick, with mineral assemblages including:

- quartz-chlorite-hematite-(carbonate)
- quartz-barite
- quartz-carbonate

Alteration in the Lehto Porphyry

Alteration in the porphyry is similar to that in the volcanic rocks, but differs in detail. Its features include:

- veinlets of maroon hematite, 1 to 2 centimeters wide, with minor specular hematite. These are present throughout the porphyry in minor amounts.
- veinlets and fracture coatings of felty chlorite, present mainly at elevations below 1,500 meters. In places, chlorite and hematite occupy the same fractures.
- vuggy quartz veinlets, typically less than 10 cm wide. These veinlets are common and widespread, but comprise less than 1% of the rock mass. A few of them contain disseminations and blebs of chalcopyrite, locally to as much as 5% of the vein material.
- most of the porphyry exhibits weak to moderate sericitization of the felsic groundmass.

3.3.5. Mineralization

Two types of mineralization are most significant on the property:

- chalcopyrite-bearing quartz veins in the Lehto Porphyry

- quartz-sericite alteration associated with major faults, with disseminated pyrite and local chalcopyrite

Chalcopyrite in the Lehto Porphyry

The vuggy quartz veins in the Lehto porphyry contain, in several locations, disseminations and blebs of chalcopyrite, comprising up to 5% of the vein material. Samples of mineralized vein material collected in 1991 contained copper in the range 0.35 % to 1.43%. The samples did not contain notable concentrations of precious metals or other base metals.

These copper-bearing veinlets are locally visually prominent, due to malachite staining, but they don't comprise a significant resource.

Chalcopyrite in Fault-related Alteration Zones

Pyrite is characteristically disseminated throughout the fault-related quartz-sericite alteration zone on Hematite Ridge. Locally, there are fracture-controlled concentrations of up to 2% disseminated chalcopyrite up to a meter wide. Samples of this material contained 2,507 and 8,981 ppm copper, with 24,400 and 13,231 ppm zinc. One sample contained 3,708 ppm lead. None contained significant precious metals.

These known occurrences of copper, zinc and lead mineralization aren't large enough to have any economic potential. Their presence, however, associated with a major fault structure and alteration zone, holds some promise for locating larger bodies of mineralization.

4. Recommendations

To demonstrate economic potential on the Tom Claims, two objectives should be met:

1. Identify a larger body of mineralization than the small and widely dispersed veins known at present;
2. Identify the existence of both precious and base metals, as opposed to the base-metal dominated mineralization now known.

One way of achieving the second objective could be a program of heavy mineral lithogeochemistry covering the most prospective parts of the property. An example of a heavy mineral lithogeochemical survey is described in Bamford (1981). Such a program would require that rock chip samples weighing about 5 kg each be collected systematically at a pre-determined spacing; for example 200 meters apart. Each sample would consist of five or more chips collected within a radius of 5 meters of the nominal sample site.

Prior to analysis, samples would be reduced to their heavy mineral, non-magnetic fractions using heavy liquid and magnetic separations. These fractions would then be analyzed for the elements of interest, in this case copper, lead, zinc, silver and gold.

The immediate objective of this type of sampling and analysis is to identify metal zoning in the heavy mineral fraction of the rock, which includes the sulphide minerals, irrespective of the absolute metal concentrations in the rock as a whole. If there is an area on the Tom Claims where precious metals are more enriched relative to base metals, this could identify it.

Once an area of precious metal enrichment was identified, detailed prospecting and conventional lithogeochemistry would be required to locate economic grades. The need for other techniques, such as soil geochemistry or geophysical surveys, would depend on local conditions of the target area.

The collection and analysis of heavy mineral lithogeochemical samples is expensive relative to more conventional techniques, with the heavy mineral separation alone costing about $35 per sample. Sampling should be limited to the most prospective areas. On the Tom claims, an initial survey could cover the northern half of the Tom 2 claim, where alteration and sulphidization are most widespread. This area of roughly 190 hectares would be covered by about fifty samples on a 200 meter square grid pattern. With geochemical analyses for copper, lead, zinc, silver and gold, the total cost for field work, analyses and reporting would be in the order of $17,000.

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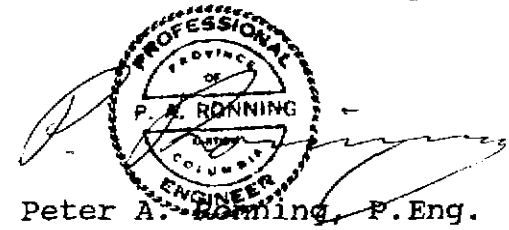
Statement of Qualifications

I, Peter Arthur Ronning, of 1450 Davidson Road, Langdale, B.C., hereby certify that:

1. I am a consulting geological engineer, doing business under the registered name New Caledonian Geological Consulting. My business address is 912 - 510 West hastings Street, Vancouver, B.C., V6B 1L8.
2. I am a member in good standing of the Association of Professional Engineers of the Province of British Columbia.
3. I am a graduate of the University of British Columbia in geological engineering, with the degree of B.A.Sc. granted in 1973.
4. I hold the degree of M.Sc. (applied) in geology from Queen's University in Kingston, Ontario, granted in 1983.
5. I have worked as a geologist and latterly as a geological engineer in the field of mineral exploration since 1973.
6. I am the author of the report entitled "Exploration on the Tom Mineral Claims, 1991" and dated December 1991.
7. I participated in and supervised the work described in this report.
8. I hold no beneficial interest in the mineral claims which are the subject of this report, nor in any corporation or other entity whose value could reasonably be expected to be affected by the conclusions expressed herein.
9. I authorize Ecstall Mining Corporation to use this report, but only in its entire and unabridged form, for any lawful purpose.



Peter A. Ronning, P.Eng.

Appendix 1 - Statement of Costs

Description					Cost
Personnel					
P. Ronning	3	days @	346.68 =	1,040.04	
G. Wilson	3	"	240.00 =	720.00	
J. Sveen	3	"	230.00 =	690.00	
J. Daley	1.5	"	175.00 =	262.50	
				-->	2,712.54
Air Fares (pro-rated)					100.00
Crew Mob-Demob (pro-rated)					500.00
Camp Rental	0.1	months @	900 =		90.00
Camp Set Up, flat fee (pro-rated)					200.00
Field Supplies (pro-rated)					100.00
Fuel (heating, generator, pumps, stoves)					100.00
Office Supplies, Maps, Reports					25.00
Groceries (pro-rated)					225.00
Helicopter (Northern Mountain Helicopters Inc.)					3,611.25
Trucking (Samples, supplies etc.)					50.00
Expediting					50.00
Rentals					
radios (hand held and base)					50.00
Analytical Costs					
rock, geochem				450.00	
rock, assay				120.00	
				-->	570.00
			Total Cost		**$8,383.79**

Note: costs include applicable taxes

Appendix 2 - Analytical Results

SAMPLE	FILE	AG	AL	AS	B	BA	BE	BI	CA	CD
1-26223	0974	2.0	2770	33	1	342	0.1	1	860	0.1
1-26224	0974	1.9	4500	52	1	889	0.1	1	1610	0.1
1-26225	0974	0.6	3820	18	1	1525	0.1	1	870	0.1
1-26226	0974	0.8	11650	33	1	267	0.3	2	1350	0.1
1-26227	0974	0.3	2740	6	1	75	0.1	1	650	0.1
1-26228	0974	0.7	2490	12	1	201	0.1	1	1570	0.1
1-26229	0974	1.0	7220	15	1	152	0.1	1	20210	0.1
1-26230	0974	8.4	6820	1	3	14	0.1	20	2130	0.1
1-26231	0974	0.4	9740	9	1	2885	0.1	2	7070	0.1
1-26232	0974	0.9	3750	1	1	573	0.1	1	72770	0.1
1-26233	0974	4.0	17070	35	1	69	0.1	9	4850	179.8
1-26234	0974	6.3	29680	17	1	64	0.1	13	17490	111.2
1-26235	0974	0.7	4470	7	1	80	0.1	1	490	2.6
1-26236	0974	0.2	9710	1	1	27	0.1	3	85110	0.1
1-26237	0974	7.5	19000	123	1	1210	0.1	3	18820	0.1
1-26238	0974	0.3	4850	12	1	64	0.1	1	5670	0.1
1-26239	0974	0.2	12020	5	1	290	0.1	1	3880	0.1
1-26240	0974	0.3	5080	5	1	53	0.1	1	1430	0.1
1-26241	0974	0.2	13130	1	1	49	0.1	1	8110	0.1
1-26242	0974	1.5	9540	17	1	199	0.1	5	90440	0.1
1-26243	0974	2.1	3940	11	1	222	0.1	7	50210	0.1
1-26244	0974	1.5	4370	10	1	65	0.1	5	70300	0.1
1-26245	0974	0.2	30820	4	1	81	0.1	2	5410	0.1
1-26246	0974	0.2	33820	1	4	59	0.1	1	1890	0.1
1-26247	0974	0.2	17060	38	1	418	0.1	1	600	0.1
1-26248	0974	0.2	9620	4	1	670	0.1	1	510	0.1
1-26029	0973	0.1		13				2		0.1
1-26030	0973	0.4		9				2		0.1
1-26035	0973	0.1		12				1		0.1
1-26036	0973	0.1		4				1		0.1
1-26037	0973	0.3		4				1		0.1

SAMPLE	CO	CU	FE	K	LI	MG	MN	MO	NA
1-26223	5	21	27990	2960	1	710	37	6	50
1-26224	5	23	31510	2810	1	1320	44	5	30
1-26225	4	16	26350	3020	1	470	42	7	30
1-26226	3	17	29480	5820	2	5230	110	3	40
1-26227	2	10	16980	1210	1	780	228	7	560
1-26228	4	40	13600	1260	1	480	184	4	250
1-26229	4	46	15640	1730	5	3400	403	8	70
1-26230	91	9766	205120	120	1	4740	214	1	10
1-26231	5	93	22710	2210	4	4910	1170	3	230
1-26232	13	91	46680	990	1	46960	1664	1	190
1-26233	8	2507	44500	1110	9	16530	2298	8	140
1-26234	24	8981	89230	1940	14	29930	4454	1	40
1-26235	3	235	20880	2340	1	1160	138	4	330
1-26236	21	255	81720	820	3	44920	5098	1	80
1-26237	16	1131	63340	880	9	16380	852	19	520
1-26238	3	75	22170	2410	1	1650	240	6	590
1-26239	9	25	54850	2980	4	9020	337	1	230
1-26240	2	18	19990	2050	1	990	82	2	160
1-26241	14	24	63580	2450	5	10800	403	1	310
1-26242	5	1861	22930	2040	3	7510	3297	3	80
1-26243	2	4356	11970	1300	1	2280	2116	6	140
1-26244	2	2107	12550	1410	2	3260	2833	3	60
1-26245	135	211	116490	1560	10	23920	656	17	230
1-26246	195	35	191340	1310	11	25020	734	14	120
1-26247	66	74	139710	990	6	8490	229	11	300
1-26248	28	37	60130	1560	2	3850	381	5	320
1-26029		10					159	4	
1-26030		41					552	3	
1-26035		24					73	3	
1-26036		14					521	1	
1-26037		8					549	5	

SAMPLE	NI	P	PB	SB	SR	TH	TI	V	ZN	GA
1-26223	1	1130	43	8	26	1	40	10.6	13	1
1-26224	1	1290	33	7	21	1	45	22.9	15	1
1-26225	1	1010	22	2	23	1	48	12.4	8	1
1-26226	1	1370	34	5	9	1	137	46.2	20	2
1-26227	1	110	12	1	3	1	26	2.0	64	1
1-26228	1	170	12	1	2	1	24	5.7	29	1
1-26229	10	470	19	4	45	1	20	37.9	94	1
1-26230	91	10	8	1	1	1	874	39.8	418	1
1-26231	1	350	23	3	49	1	24	6.8	109	3
1-26232	1	80	22	1	162	1	19	77.5	129	1
1-26233	1	470	3708	16	10	2	29	25.7	24400	4
1-26234	1	690	153	14	45	1	50	107.1	13231	1
1-26235	1	180	53	1	3	1	24	3.5	600	1
1-26236	1	710	24	1	102	1	49	50.3	219	1
1-26237	1	1030	73	8	39	2	165	168.2	129	4
1-26238	1	110	16	1	5	1	29	4.1	106	1
1-26239	1	2160	23	1	15	1	38	47.8	55	1
1-26240	1	240	11	1	2	1	17	2.1	23	1
1-26241	1	2860	25	1	14	1	46	58.3	61	1
1-26242	5	410	22	5	101	1	29	23.3	29	6
1-26243	11	150	14	5	41	1	59	6.1	16	1
1-26244	4	100	16	4	85	1	22	5.2	13	3
1-26245	1	1720	34	4	5	1	71	53.7	81	1
1-26246	1	440	29	1	1	1	98	38.2	132	1
1-26247	1	40	35	1	1	2	57	43.4	57	1
1-26248	1	250	18	1	8	4	58	39.7	28	1
1-26029	1		13	1					18	
1-26030	1		11	2					30	
1-26035	1		7	1					6	
1-26036	1		43	1					42	
1-26037	1		10	1					22	

SAMPLE	SN	W	CR	AU
1-26223	1	3	97	1
1-26224	1	2	53	9
1-26225	1	5	126	1
1-26226	1	3	54	1
1-26227	1	6	167	27
1-26228	1	6	163	1
1-26229	1	5	126	1
1-26230	1	1	63	40
1-26231	1	4	96	1
1-26232	1	1	23	1
1-26233	1	1	75	1
1-26234	1	1	39	79
1-26235	1	4	114	1
1-26236	1	1	26	1
1-26237	1	4	55	30
1-26238	1	9	225	1
1-26239	1	2	33	3
1-26240	1	2	65	2
1-26241	1	2	37	12
1-26242	1	4	60	3
1-26243	1	6	145	41
1-26244	1	4	92	3
1-26245	1	1	38	32
1-26246	1	1	1	91
1-26247	1	1	28	53
1-26248	1	4	110	1
1-26029				2
1-26030				2
1-26035				3
1-26036				4
1-26037				1

MIN-EN LABORATORIES

ASSAY CERTIFICATE 1V-0973-RA1

Company: ECSTALL MINING Date: SEP-05-91
Project: TOM
Attn: C.GRAF

We hereby certify the following Assay of 3 ROCK samples submitted SEP-01-91 by P.RONNING.

Sample Number	AU-FIRE g/tonne	AU-FIRE oz/ton	AG g/tonne	AG oz/ton	CU %	PB %
1-26031	.03	.001	2.2	.06	1.427	.01
1-26032	.01	.001	0.8	.02	.448	.01
1-26034	.01	.001	0.5	.01	.353	.01

Appendix 3 - Descriptions of Rock Samples

Sample	Site	Description
- for sample locations, see map, Figure 4 -		
1-26029	PT-5	Feldspar Porphyry; 20% opaque, pinkish feldspar phenocrysts, 1-4 millimeters, in very finely crystalline felsic groundmass. 1% pyrite, finely disseminated; host weakly sericitized. Sample is gra from felsenmeer
1-26030	PT-6	Feldspar Porphyry; outcrop 30 meters by 20 meters; feldspars sericitized to waxy sheen; chlorite common on fracture surfaces; chloritized mafics up to 10% of porphyry; quartz 10% as clear grey grains in groundmass; quartz veinlets 5%; sample is composite grab selected for lack of visible copper mineralization.
1-26031	PT-6	Feldspar Porphyry; see 1-26030; sample from vuggy quartz veinlet with minor chalcopyrite mineralization
1-26032	PT-6	Feldspar Porphyry; see 1-26030; sample from 3 centimetric veinlets within 10 centimeters; minor chalcopyrite and malachite mineralization
1-26034	PT-10	Boulder 15 centimeters thick of silicified rock; 70% quartz, 20% sericitized host, 5% Fe oxides; 1% chalcopyrite disseminated. Protolith was probably feldspar porphyry
1-26035	PT-13	Feldspar Porphyry; gully exposure 5 meters wide; silicified, sericitized, pyritized; 50% quartz, 45% sericite, 2% pyrite, finely disseminated; a few 1-2 centimeter wide chlorite veinlets.
1-26036	PT-17	On edge of fault; for at least 150 meters sub-paralle to fault trace, 20 meters wide, is zone of highly altered rock consisting almost entirely of quartz and sericite with 2% disseminated pyrite. Protolith unrecognizable. Sample is grab of pyritiferous material.
1-26037	PT-15	Feldspar porphyry; intense iron carbonate alteration; groundmass buff weathering to orange-red; pyrite 1% finely disseminated. Sample is random grab.
1-26223	WTR-1	Tuff; silicified, Fe oxide alteration; pyrite 3% disseminated; grab from OC
1-26224	WTR-2	as 1-26223
1-26225	WTR-3	as 1-26223
1-26226	WTR-4	as 1-26223
1-26227	WTR-5	Quartz feldspar porphyry; Fe oxide alteration; pyrite 3% disseminated; grab from OC
1-26228	WTR-6	as 1-26227
1-26229	WTR-11	Andesite lapilli tuff; silicified; chalcopyrite 2%, disseminated; grab from OC
1-26230	WTR-12	Quartz carbonate vein in andesite tuff; hematite and chlorite alteration; trace chalcopyrite disseminated; grab from OC

1-26231	WTR-15	Andesite tuff; propylitic alteration; pyrite stringer and seams; grab from OC
1-26232	WTR-16	Andesite tuff; silicified; pyrite 2% disseminated
1-26233	WTR-17	Rhyolite tuff; silicified fracture zone, mineralized with malachite to 4% and disseminated chalcopyrite to 2%; 1.5 meters wide, open along strike; 1 meter chip sample
1-26234	WTR-18	as 1-26233
1-26235	WTR-19	Rhyolite; intensely silicified; Fe oxide alteration; pyrite disseminated to 2%; grab from OC
1-26236	WTR-22	Quartz-barite stringer; Fe oxide staining; galena disseminated to 2%; grab from OC
1-26237	WTR-23	Andesite lapilli tuff; silicified; Fe oxide staining; fine grained pyrite disseminated; grab from OC
1-26238	WTR-24	Rhyolite; silicified; highly oxidized; pyrite disseminated to 2-3%; grab from OC
1-26239	WTR-25	Rhyolite; highly oxidized; silicified shear zone; pyrite disseminated to 2%
1-26240	WTR-26	Rhyolite; silicified; highly oxidized, sheared, pyrit 2-4%, dissem; 1.5 meter chip sample
1-26241	WTR-27	Rhyolite; silicified; Fe oxide stains; pyrite disseminated, 3-5%; grab from OC
1-26242	STR-3	Rhyolite tuff containing minor malachite
1-26243	STR-4	Feldspar Porphyry; undescribed sample collected by prospector
1-26244	STR-5	Feldspar Porphyry; undescribed sample collected by prospector
1-26245	STR-7	Feldspar Porphyry; undescribed sample collected by prospector
1-26246	STR-8	Feldspar Porphyry; undescribed sample collected by prospector
1-26247	STR-9	Feldspar Porphyry; undescribed sample collected by prospector
1-26248	STR-10	Feldspar Porphyry; undescribed sample collected by prospector

Appendix 4 - Analytical Procedures

MINERAL
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FIRE ASSAY AU

1) Weigh 30.00 grams sample into 30 gram crucible

2) Scoop in 80 grams pre-mixed neutral flux (Mines Assay Supplies.) Add 14 grams PbO and 5 grams Na_2CO_3 and any flour or nitre as required

3) Mix and add 2.5 mg Ag inquart

4) Fuse @ 1000C for 1 hour

5) Pour into steel molds and cool. Separate slag and cupel @ 925C until complete (approx 45 mins.)

6) Collect bead and place into new glassware

7) Add 2 ml 1:3 HNO_3 and part for 1/2 hour in 70C waterbath

8) Add 3 ml conc. HCL and digest for 1/2 hour in waterbath

9) Dilute to 10 ml and mix

10) Read on AA using air-acetylene flame

11) Redo the whole set if the natural standard analyzed along with this set is outside of 2 standard deviations or if the blank is greater than 0.015 g/tonne.

12) Reweigh and report the top 10% of samples per page in duplicate (3 per page)

Approximate composition of Neutral Flux-Mines Assay Supplies

PbO	50%
Na_2CO_3	40%
$Na_2B_4O_7$	7.5%
SiO_2	2.5%

OFFICE AND LABORATORIES:
705 WEST FIFTEENTH STREET, NORTH VANCOUVER, B.C.
CANADA V7M 1T2

PHONE: (604) 980-5814 (604) 988-4524
TELEX: VIA USA 7601067
FAX: (604) 980-9621

MINERAL
• ENVIRONMENTS
LABORATORIES

Division of Assayers Corp. Ltd.

GOLD ASSAY PROCEDURE:

Samples are dried @ 95 C and when dry are crushed on a jaw crusher. The 1/4 inch output of the jaw crusher is put through a secondary roll crusher to reduce it to - 1/8 inch. The whole sample is then riffled on a Jones Riffle down to a statistically representative 300 - 400 gram sub-sample (in accordance with Gy's statistical rules). This sub-sample is then pulverized on a ring pulverizer to 95% minus 120 mesh, rolled and bagged for analysis. The remaining reject from the Jones Riffle is bagged and stored.

Samples are fire assayed using one assay ton sample weight. The samples are fluxed, a silver inquart added and mixed. The assays are fused in batches of 24 assays along with a natural standard and a blank. This batch of 26 assays is carried through the whole procedure as a set. After cupellation the precious metal beads are transferred into new glassware, dissolved, diluted to volume and mixed.

These aqua regia solutions are analyzed on an atomic absorption spectrometer using a suitable standard set. The natural standard fused along with this set must be within 3 standard deviations of its known or the whole set is re-assayed. Likewise the blank must be less than 0.015 g/tonne.

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MINERAL
• ENVIRONMENTS
LABORATORIES

Division of Assayers Corp. Ltd.

AG, CU, PB, ZN, NI, AND CO ASSAY PROCEDURE:

Samples are dried @ 95 C and when dry are crushed on a jaw crusher. The -1/4 inch output of the jaw crusher is put through a secondary roll crusher to reduce it to -1/8 inch. The whole sample is then riffled on a Jones Riffle down to a statistically representative 300 - 400 gram sub-sample (in accordance with Gy's statistical rules). This sub-sample is then pulverized in a ring pulverizer to 95% minus 120 mesh, rolled and bagged for analysis. The remaining reject from the Jones Riffle is bagged and stored.

A 2.000 gram sub-sample is weighed from the pulp bag for analysis. Each batch of 70 assays has a natural standard and a reagent blank included. The assays are digested using a HNO3 - KCL04 mixture and when reaction subsides, HCL is added to assay before it is placed on a hotplate to digest. After digestion is complete the assays are cooled, diluted to volume and mixed.

The assays are analyzed on atomic absorption spectrometers using the appropriate standard sets. The natural standard digested along with this set must be within 3 standard deviations of its known or the whole set is re-assayed. If any of the assays are >1% they are re-assayed at a lower weight.

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ANALYTICAL PROCEDURE REPORT FOR ASSESSMENT WORK:

PROCEDURE FOR FIRE GOLD GEOCHEM:

Geochemical samples for Fire Gold processed by Min-En Laboratories., at 705 West 15th Street, North Vancouver Laboratory employing the following procedures.

After drying the samples at 95°C soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed and pulverized by ceramic plated pulverizer.

A suitable sample weight 15.00 or 30.00 grams are fire assayed preconcentrated.

After pretreatments the samples are digested with aqua regia solution, and after digestion the samples are taken up with 25% HCl to suitable volume.

Further oxidation and treatment of at least 75% of the original sample solutions are made suitable for extraction of gold with Methyl Iso-butyl Ketone.

With a set of suitable standard solution gold is analysed by Atomic Absorption instruments. The obtained detection limit is 1 ppb.

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ANALYTICAL PROCEDURE REPORT FOR ASSESSMENT WORK:

PROCEDURE FOR TRACE ELEMENT ICP

Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cu,
Fe, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, Sb,
Sr, Th, U, V, Zn, Ga, Sn, W, Cr

Samples are processed by Min-En Laboratories, at 705 West 15th Street, North Vancouver, employing the following procedures.

After drying the samples at 95 C, soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed by a jaw crusher and pulverized on a ring mill pulverizer.

0.50 gram of the sample is digested for 2 hours with an aqua regia mixture. After cooling samples are diluted to standard volume.

The solutions are analyzed by computer operated Jarrall Ash 9000 ICAP or Jobin Yvon 70 Type II Inductively Coupled Plasma Spectrometers.

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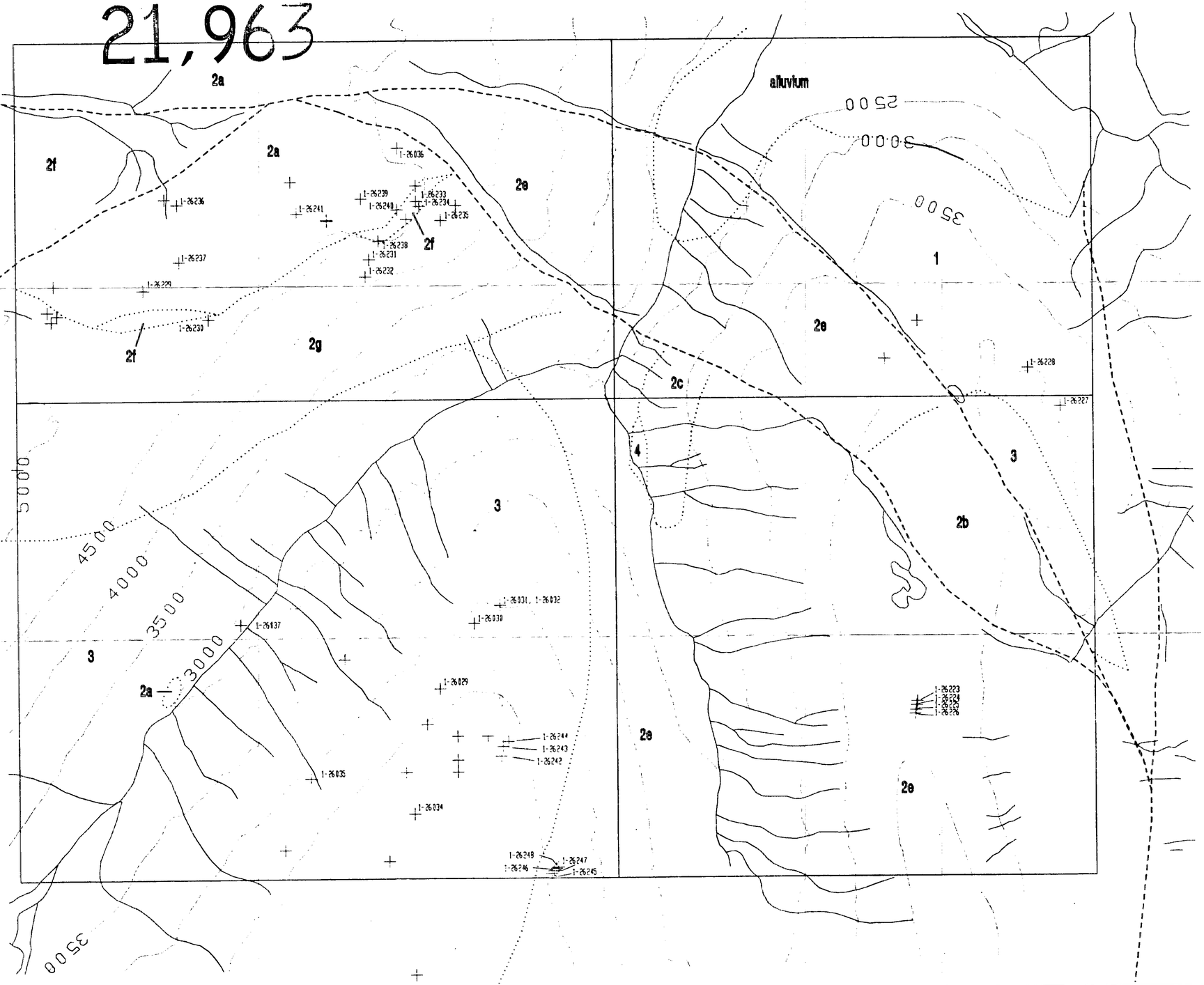
GEOLOGICAL BRANCH
ASSESSMENT REPORT

21,963



Analyses

Geochemical Analysis (all ICP except gold AA, FA prep)

Sample Number	File	Ag (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)	Au (ppb)
1-26223	0974	2.0	21	43	13	1
1-26224	0974	1.9	23	33	15	9
1-26225	0974	0.6	16	22	8	1
1-26226	0974	0.8	17	34	28	1
1-26227	0974	0.3	18	12	64	27
1-26228	0974	0.7	40	12	39	1
1-26229	0974	1.0	46	19	94	1
1-26230	0974	8.4	9766	8	418	40
1-26231	0974	0.4	93	23	135	1
1-26232	0974	0.9	91	22	129	1
1-26233	0974	4.0	2507	3708	24400	1
1-26234	0974	6.3	8981	153	13231	79
1-26235	0974	0.7	235	53	608	1
1-26236	0974	0.8	255	24	219	1
1-26237	0974	7.5	1131	73	129	30
1-26238	0974	0.3	75	16	106	1
1-26239	0974	0.2	25	23	95	3
1-26240	0974	0.3	18	11	23	5
1-26241	0974	0.2	24	25	61	12
1-26242	0974	1.5	1961	22	29	3
1-26243	0974	2.1	4356	14	16	41
1-26244	0974	1.5	2107	16	13	3
1-26245	0974	0.2	211	34	81	32
1-26246	0974	0.2	25	29	132	91
1-26247	0974	0.2	74	35	57	53
1-26248	0974	0.2	37	18	28	1
1-26029	0973	0.1	18	13	18	2
1-26030	0973	0.4	41	11	38	5
1-26035	0973	0.1	24	7	6	3
1-26036	0973	0.1	14	43	42	4
1-26037	0973	0.3	8	13	22	1

Assays

Sample Number	File	Ag (opt)	CU %	PB %	ZN %	Au (gpt)	Au (opt)
1-26031	0973	0.06	1.427	0.01	0.01	0.03	0.001
1-26032	0973	0.02	0.448	0.01	0.01	0.01	0.001
1-26034	0973	0.01	0.353	0.01	0.01	0.01	0.001

Lithologic Units

Jurassic

4 unaltered augite gabbro

3 Lento Porphyry; K-Feldspar-plagioclase-hornblende porphyry granodiorite to syenite

Lower Jurassic

2 Betty Creek Formation

- 2a siltstone, tuffaceous wacke, conglomerate, volcanic and sedimentary breccia
- 2b limestone, grey, locally silty
- 2c basic pillow lava and breccia
- 2e green aphanitic tuff; minor conglomerate, grey siltstone; rare limestone
- 2f grey-green tuffaceous wacke, siliceous siltstone, chert, minor conglomerate, rare volcanic flows and pillow lava
- 2g grey-green acid tuff, breccia and minor flows
- 2f pale green to light grey phyllite, siliceous siltstone, minor chert, ribbon chert

Age Unknown

1 meta-diorite and meta-gabbro

Map Symbols

- Topographic Contour (elevation in meters)
- Creek
- Claim Line
- Site Visited (sample numbers indicated)
- Lithologic Contact
- Fault

Scale in meters

0 100 200 300 400 500 1,000

PROFESSIONAL ENGINEER — P.A. RONNING — COLUMBIA

ECSTALL MINING CORPORATION

Tom 1 - 4 Claims

Geology and

Rock Chip Geochemistry

(1)

Compiled by: P. Ronning	Date: Oct. 1991	Drawing No.: 91 18-1	Revision No: 1
Drawn by: P.A.R.	Date: Oct. 91	Sheet No.: 1 of: 1	Job No.: 91 18
Checked by: N.B.A.	Date: 5 Dec 91		
Version: ☐ draft ☒ final			

Figure 4