

# GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL REPORT

on the

## **TUZEX MINERAL CLAIM**

PORT ALBERNI M.D. BRITISH COLUMBIA

> NTS 92 C/15E 092C087

Latitude: 48° 52' N Longitude: 124° 40' W

**Owner: Lenka Ruza** 

**Operator: Ruza Resources Ltd.** 

Report by: D.K.Bragg GICAL SURVEY BRANCH ASSESSMENT REPORT Date: September 1, 1997



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## INTRODUCTION

In early July of 1997 I was approached by J. Ruza to map in the 21 samples he and Bob Mahdal had collected during a visit in mid-June from the Tuzex property in the Little Nitnat River area in the Alberni Mining Division.

I conducted the field work from July 8th to July 17th as is described under Field Work. This report covers the result of the field work and the review of previous assessment work reported on.

## PROPERTY LOCATION and ACCESSIBILITY

The Tuzex claim, Tenure No. 319260, is located in the Port Alberni M.D. approximately 45 km west northwest of Cowichan Lake, B.C. The property is accessible by all weather roads on either side of Cowichan Lake and along the Nitnat River. Within the property itself are numerous logging roads as well as an old logging rail grade that ranges from good through various stages of disrepair to impassible even with four wheel drive.

All the property can be traversed by foot except for some places in the Little Nitnat River canyons and some cliffs in the northeast corner of the claim. Some of the logged areas can be difficult to traverse. Relief within the claim ranges from 20 metres to 500 metres.

Parts of the claim have been logged at various times in the past and the forest cover ranges from old growth, mature open forest at ground level to dense second growth that can be difficult to traverse. Other areas have been more recently logged and are more easily traversed.

See Figure 1, page 2 for property location map.

PROPERTY LOCATION MAP



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### GEOLOGY OF THE TUZEX CLAIM

#### **GENERAL GEOLOGY**

The Tuzex claim is underlain by volcanic rocks of the Bonanza Group (IJB) in the south western three quarters portion of the claim and by Island Intrusions (Jqd) in the northeastern portion of the claim (see Open File 463, G.S.C.). The Bonanza Group of rocks include dacitic and rhyodacitic tuffs, tuff breccias and porphyries and andesitic porphyries and latites.

#### LOCAL GEOLOGY

In mapping the area it did appear that most of the map area covered is underlain by rocks of the Bonanza Group. Little time was spent in mapping the lithology of the volcanics. The main purpose of mapping the rocks was to note the amount of sulphides in the rocks and to look for areas of massive sulphides.

For the most part, increased pyritization seemed to appear in the more silicic portions of the volcanic rocks although there were numerous occurrences of unmineralized silicic rocks. Of more importance was the fact that wherever an increase in sulphides or a massive sulphide zone was found, an occurrence of intrusive diorite or quartz diorite was most often found very close.

Quite often the boundaries between the intrusives and the volcanics was not clear cut and distinct but gradational and the invaded volcanics seemed more silicic and with increased pyritization.

Noel and Jones indicated and designated six mineral showings. Showings 1, 2 and 3 are along the old rail grade. These three zones are the best mineralized zones found to date in that they appear to have potential mineable widths with economic grades. These are zones of fractures and stringers carrying fair values of zinc, copper with silver and minor gold within a volcanic envelope of increased pyrite and these same minerals.

Most importantly, these three zones are closely associated with intrusive rocks and are contact metamorphic types of fracture filling and veining within the volcanics that show various degrees of alteration.

Showings 4, 5 and 6 represent a wider zone of low grade mineralization within alteration zones in the volcanics. It would appear that there are small stringers of higher grade mineralization within these alteration zones. No intrusives were found in the immediate vicinity but it is suspected that intrusives may exist at depth. These zones are of interest.

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Throughout the map area there are numerous other small stringers of pyritization in a silicic gauge that may be upper portions of vein systems. There are also other alteration zones.

The intrusives that were found are mainly quartz diorite to diorite and tend to parallel the northerly trending mineralization zones. As yet it is difficult to determine if these intrusives are large dykes or are stocks, but it is believed by the writer that they play a very important part in the emplacement of the mineral zones found. These quartz diorite and diorites are thought to be of Jurassic age & are typed in as Jqd on my geology map.

#### FIELD WORK

On June 18th and 19th, J. Ruza and Bob Mahdal visited the Tuzex property and collected a total of 21 samples that were analyzed by 32 element ICP plus gold. Four of the better samples were then assayed for zinc. On June 26, 1997 J. Ruza and Bob Mahdal took me to the Tuzex property on an orientation tour and to show me where, and to describe what had been sampled.

I returned to the property on July 8th and spent the next nine and a half days in travel and on the property. During this time I surveyed in 6.6 km of road and line by compass and hip chain. The topographical features and outcrop boundaries were mapped along the surveyed roads and the rock types were determined and mapped. During the mapping of the geology the positions of the 21 samples were mapped and a representative sample for most were collected for closer examination at a later date. A number of other samples were collected as well for later examination. These samples are described in the Rock Library in the Appendix.

A magnetometer survey was conducted over the 6.6 km of surveyed roads and lines and approximately 330 readings were taken on a spacing of twenty-five meters.

For the purpose of the magnetometer survey, a base station was set up and numerous readings were taken over a few days prior to commencing the survey in order to establish an average base station reading to maintain control over the diurnal fluctuations during the surveys. The magnetometer had been previously calibrated so that the lower range scale would be used in the survey. As the survey progressed, this base station was checked into on a regular basis so as to monitor the diurnal drift. Also, a number of station readings were duplicated throughout the survey area to further monitor the diurnal drift. During the survey 15 duplicate station readings were taken. A Scintrex MF-1 vertical field magnetometer, which works on the fluxgate principle, was used in this survey.

The magnetometer readings were corrected for diurnal fluctuations using a straight line time calculation and these results were then plotted on a map on the scale of 1 to 2000 (See Figure 4).

Copies of previous assessment reports on the property were taken into the field as a guide to previous work that perhaps should be followed up (see list of references). Where previous authors had reported on samples and assaying, I quickly mapped in these areas spending less time there than elsewhere. So most of the time mapping was spent looking for new occurrences of mineralization. An attempt was made to find the lines of the geochemical survey reported on by R.S. Verzosa in a report dated May 1990. No evidence of these lines could be found in the field.

In the process of preparing this report some time was spent on reviewing these previous assessment reports to summarize some of the data and relate it to what I had found in the field.

Of all the reports of the past work on the property, only Sookochoff notes the occurrences of invading intrusives in the areas where the mineralization is found. I believe these intrusives are critical to the occurrences of the high grade mineral zones. In mapping the area, much time was spent in trying to delineate the intrusives. Only a little time was spent on the Showings (1 to 6 as designated by Noel and Jones) as these had been mapped and sampled numerous times since.

In trying to assess the potential of the property and the mineralized zones, the results of this past sampling is summarized in Table 1 - Summary of Assays and Analytical Results. The analytical results were converted from ppb and ppm to oz/ton and to percentages to equate with assay results.

The geochem sampling by R.S. Verzosa was assessed on a preliminary basis and related to this current field work. Although topographical features were not included in Verzosa's maps in the process of scaling this work to 1:2000 and overlaying it on my topographical map and with the configuration of the lines and spaces missed it would appear that the LCP of the Tuzex Claim Record No. 3910 of twelve units may have existed 25 to 50 meters southwest of the LCP of the current claim.

	Sampler	Sample No.	Width	Cu %	Zn %	РЬ %	Ag oz/t	Au oz/t
Showing 1	Jones Jones Ven Huizen Sookochoff Sookochoff	3081 TUZ 15 TUZ 16	1.3 0.6 0.6 ? ?	.09 .32 .276 .227 .430	.51 .73 .51 9.91 5.68	- .02 .01 .18	.28 3.36 3.86 .66 3.08	.001 .004 .005 .03 .24
Showing 2	Jones Jones Ven Huizen Ruza Sookochoff	3080 TUZEX 21 TUZ 17	1.6 0.6 Grab Grab 3cm	.01 .07 .58 .42 .26	.09 1.65 .296 1.23 .95	.028 .06	.08 .23 1.39 1.20 2.41	.001 .006 .004 .003 .016
Showing 3	Jones Jones Ruza Ruza Sookochoff Sookochoff Sookochoff Sookochoff Sookochoff	TUZEX 1 TUZEX 2 TUZ 8 TUZ 9 TUZ 10 TUZ 11 TUZ 13 TUZ 14	3m .6m Grab Grab 1cm ? 2.5cm ? Grab	.48 .96 .39 .92 1.39 .29 .24 .18 1.01	5.38 5.20 4.56 1.97 10.0+ 10.0+ 8.18 .85 6.78 .18	- .03 - .12 .19 .10 .05 .06 -	1.10 4.42 .94 .11 3.08 3.51 1.27 .45 .52 .98	.082 .078 .03 .004 .99 .34 .26 .013 0.25 .009
Showing 4	Ven Huizen	3083	Grab	.027	.216	.076	.13	.003
Showing 5	No samples of	value						
Showing 6	Ven Huizen Sookochoff	3084 TUZ 6	4.6m 10m	- .058	.014 .158	- .12	.017 .31	- .004
Showing 7	Ruza Ven Huizen	TUZEX 20 3078	Grab 3m	.17 .11	1.35 .24	-	.12 .3	- .005
Geochem	Verzosa	BL12 8SW BL12 9SW		.03 .10	.12 .65	.56 1.14	.75 2.7	.146

## TABLE 1 - SUMMARY OF ASSAY & ANALYTICAL RESULTS

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## RESULTS

During the time I was in the field on the Tuzex property there were a number of small magnetic storms that resulted in some lack of day to day continuity even with the straight line diurnal corrections and the day to day corrections made to the base station readings. The result was that on some days the readings were out by as much as 250 gammas. Of the 15 duplicate stations most were not duplicated within 250 gammas.

Even with this problem the magnetometer results have some validity when each day's readings are viewed separately. The magnetometer fails to delineate any magnetic differences between the intrusives and the volcanics. Nor does the magnetometer respond to any of the high grade mineralized zones even when the readings are taken in close spatial distances over them (see Figures 2 & 3).

This was further confirmed when high grade samples were tested with a magnet. There seems to be no magnetite or pyrrhotite associated with the mineralized zones. However, of interest is that in the vicinity of Showings 1 and 2, and 4, 5 and 6 and along the road southeast from these showings to turning point 34 (TP34), the readings are lower by a factor of about 600 gammas. These are areas where there seems to be an increase in alteration of the volcanics with a probable loss of any magnetite or pyrrhotite and basic minerals from the volcanics.

The magnetometer was first tested up the road between TP1 and TP7 to establish the range of readings to be expected and to set the magnetometer to read in the lower scales. It was noted that there was a difference of readings of as much as 1,000 gammas between where TP6 and TP7 were later mapped and although the area was outside the claim boundary the survey and mapping was extended into this area to see if this difference could be explained. The rocks in the area of TP7 were andesitic and perhaps more basic than at TP5 and TP6.

The results of the corrected magnetometer readings are plotted on Map Figure 4.

While doing the chain and compass control of the roads and lines the rock outcrops and rock types were mapped along with many of the physical features that will offer better control for future work. Also a note was made of the timber ages to assist in future programs. Where the timber is mature, the forest floor is generally open and easy to run lines in. Recently logged areas and immature timber areas present more difficulties in establishing line grids. This data is presented on Figure 5 - Geology and Topography.



Since three of the Tuzex samples had been taken from the "C" horizon; Tuzex 8, 9 and 11, it was decided to sample the "Bf" horizon directly over where the Tuzex samples were taken to establish three geochemical profiles. The results are included in Table 2 below with some of the more diagnostic minerals.

		Au ppb	Ag ppm	As ppm	Cu ppm	Fe %	Pb ppm	Zn ppm	Cr ppm	V ppm
T Soil 1	Bf horizon	<5	0.6	4	34	4.83	8	40	23	121
Tuzex 8	C horizon	10	0.2	6	40	3.01	2	60	74	61
T 0-11 0		~E	<0.2	2	30	5.00	6	44	27	110
Tuzex 9	C horizon	15	<0.2	2 14	39	3.93	<2	68	61	88
T Soil 3	Bf horizon	<5	<0.2	6	32	6.78	8	48	35	135
Tuzex 11	C horizon	<5	0.2	8	47	3.98	<2	76	62	80

#### Table 2 - Soil Profiles

Normally results from the "Bf" horizon should be substantially more than found in the mid "C" horizon. It is therefore surprising in this case to find Au, As, Cu, Zn and Cr reporting lower values in the "Bf" horizon than in the "C" horizon.

These samples had been taken in a bulldozer cut along the side of the road that was perhaps more than a year old, and that I had taken my samples after digging well into the bank to what I though was unleached "Bf" horizon. There may have been sufficient leaching to account for the lower results for these minerals in the "Bf" horizon. The other minerals, Fe, Pb and V, show higher readings as is expected in the "Bf" horizon.

Another explanation is also that the results are from two separate analytical runs and the differences are not that great. Also the sample sites represent roughly what may be general background results for the volcanics and not over an anomalous zone where the differences between the "C" horizon and the "Bf" horizon should be considerably greater.

Other profiles should be taken in other parts of the property during which the horizons are sampled at the same time and analyzed in the same run.

Four Moss Mat Samples (TMMS) and 1 stream sediment sample (TSSS) were taken. None of these show any anomalous data except perhaps for TMMS1 which shows 136 ppm for lead. More stream sampling should be undertaken on the property as they may quickly delineate potential areas of interest.

On reviewing the Summary of Assays and Analytical Results, Table 1, and bearing in mind the mineralized zones as seen in the field it would appear that Showing 2 may be the best zone most likely to produce economic mineable grades, widths and tonnage followed by Showing 3 and Showing 1 in that order. Of note is the seemingly consistent higher results achieved by Sookochoff. This may be because his samples represented a smaller width of higher grade material. It does result in more spectacular assays but makes it more difficult to assess the economic potential of the zones.

Showings 4, 5 and 6 are very interesting but at this stage do not appear to have economic potential with what data is available. The width of the alteration zones is more encouraging as they may be the top of deeper seated economic mineralization.

Showing 7 may be a new zone of interest. This is based on two different samples and perhaps warrants some follow-up.

Based on a preliminary and cursory review of the geochemical survey by Verzosa it would appear that the survey was quite valid. However it would have been of greater assistance and value if the field notes of each sample site had been included in the report, such as the depth of sample, colour of sample, character of the coarser fragments, etc. All this helps in understanding and interpreting the results of the survey. I tend to disagree with Verzosa's estimation of the depth of overburden average at only one meter. I believe that if this was the case we would see considerably more outcrop on the property. There is considerable evidence, such as the gravel pit, that the overburden in places may be well over ten meters of glacier till and outwash gravels. These depths can mask any mineralization below. A quick study of the surficial geology would assist in the interpretation of this survey.

Although good topographical features are not included in Verzosa's maps I believe that the survey can be drawn to scale and overlain the topographical map that I have produced and this geochemical survey can be used to follow-up other potential anomalies, even some very subtle ones. Perhaps some of the other elements should be looked at as trace elements.

It would appear that Verzosa's "B" anomaly outlines the mineralization found in Showings 1, 2 and 3, and the down slope dispersion. Two of the soil samples from the "B" anomaly are included in Table 1 because of the high results obtained. These samples could have been taken of outcrop rubble or immediately over mineralized outcrop.

Verzosa's anomalies "A" and "C" lie to the north and northwest of the current mineralized zones that are known and the mapping I have completed. They present two new target areas.

#### CONCLUSIONS

From the work that I have done on the property, examining the geology and mineralized zones, and a review and summary of the previous work, assaying, mapping and geochemical results, I believe the property does warrant further work. It would appear, at this stage, that the main economic potential of the property exists in the area of Showings 1, 2 and 3 where the grade of the mineral and size potential is the best and where the intrusives have been identified.

In the area of Showings 4, 5 and 6 the alteration of the volcanics over a wide area is very interesting but the lack of visible high grade mineralization over widths, or good assay results suggest that, at least at the surface, the showings do not present economic potential. It can only be hoped that as work progresses on the property better grades and width will be found at depths.

There are numerous other small veins or showings along both the old rail grade and the main haul road such as the one designated Showing 7 that are of interest but as yet surface analysis does not indicate economic potential at this time. Many are only small stringers but may represent upward vertical extensions of something more economic at depth. It is encouraging that there are so many of them.

Anomaly "B" of Verzosa's survey outlines Showings 1, 2 and 3 along with down slope dispersions. There are two other geochemical anomalies that have not been examined or at least reported on. Although the intensity of either of these anomalies is not as great as anomaly "B", they may be more subtle but are still good targets.

I do not believe the magnetometer will be the best geophysical tool to use in this area as neither the mineralized zones nor the difference in magnetic expression of either the intrusive or the volcanics will give sufficient difference or relief to be of any great use. However, it may be useful in distinguishing intense alteration zones and as a follow-up to other geophysical tools.

### RECOMMENDATIONS

As the best economic potential known to date on the Tuzex claim is in the area of Showings 1, 2 and 3, I would recommend that this be the core of the work and expand outwards from there. I recommend that a north/south base line be started about TP20 running as far south as the Little Nitnat River canyon and at least 600 meters north and then running lines westerly from this base line to the canyon or 500 meters west. These lines should be at least as close as 50 meters to start and perhaps filling in other lines where necessary.

It appears that both the mineralization and diorite bodies trend northward and any surveys would cross these structures. This grid should be cut out for easy passage. The grid should be mapped in detail and rock sampling carried out.

I suggest that both self potential and either VLF or EM be run over this grid. Any mineralized zones should be trenched and sampled in detail. Showings 1, 2 and 3 should be trenched and sampled in controlled detail.

If, after this detailed sampling of Showings 1 and 2 continue to support economic potential, then a drill should be set up in the creek to drill both to the north and south from the same setup so as to intersect both showings at depth.

The geochem survey of Verzosa should be looked at again using other metals as trace elements and perhaps study some of the single or more subtle anomalies. The areas of Verzosa's anomalies "A" and "C" should be prospected, and if anything is found they should be followed up.

To further prospect the claim, Moss Mat sampling and/or stream sediment sampling of all the creeks on a 250 meter spacing or above roads or disturbed areas. This has been started and looks like it might help delineate potential areas.

## STATEMENT OF COSTS

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I.

Bob Mahdal	2 days @ \$200.00	June 18 & 19, 1997	\$	400.00
Jerry Ruza	2 days @ \$200.00	June 18 & 19, 1997		400.00
D.K. Bragg	Field time 9.5 days @ \$200.00	July 8 to 17, 1997 )/day	1	,900.00
Truck costs	9.5 days @ \$50.00/	day		475.00
Board & camp	supplies	9.5 days @ \$30.00/day		285.00
Equipment ren	t & field supplies, ferri	es, etc., truck gas		338.08
Assay costs	\$540.00 & \$184.74			724.74
Report Prepara	ation - Xeroxing & Ma	ap Printing		900.00
		Total	5	5,422.82
Bob Mahdal       2 days @ \$200.00       June 18 & 19, 1997       \$ 400.0         Jerry Ruza       2 days @ \$200.00       June 18 & 19, 1997       400.0         D.K. Bragg       Field time       July 8 to 17, 1997       1,900.0         Truck costs       9.5 days @ \$200.00/day       475.0         Board & camp supplies       9.5 days @ \$30.00/day       285.0         Equipment rent & field supplies, ferries, etc., truck gas       338.0         Assay costs       \$540.00 & \$184.74       724.7         Report Preparation - Xeroxing & Map Printing       _900.00         Total       5,422.8:         PAC Account - Ruza Resources Ltd.       1,400.00         Total       6,822.8:         Amount Filed       6,400.00         FXCESS       \$ 422.6			,400.00	
		Total	6	6,822.82
		Amount Filed	_6	<u>,400.00</u>
		EXCESS	\$	422.82

### STATEMENT OF QUALIFICATIONS

D.K. Bragg supervised and did most of the work involved in this investigation, including the line cutting, prospecting, mapping the geology, soil sampling, magnetometer survey and report preparation. His qualifications are as follows:

Graduated Armstrong High School, Armstrong, B.C., 1951

Attended U.B.C. from 1958 to 1962 in the faculty of Arts and Science, in Honors Geology.

Has worked in the mineral exploration industry since 1956.

Worked for Kennco Explorations during the summers of 1956, 1957, and 1959 in the Yukon and northern B.C. as an assistant prospector and geochem sampler under the direction of Dr. R. Campbell and R. Woodcock.

Worked as head prospector for the Nahanni 60 Syndicate in the Northwest Territories in 1960 under the direction of Doug Wilmont.

Worked as head prospector in the Yukon for Dualco in 1961 under the supervision of E. Wozniak.

Worked as head prospector for Mining Corp. of Canada in southwest B.C. in 1962 under J.S. Scott and Dr. K. Northcote.

Worked as head prospector during the summer of 1963 for the Francis River syndicate in the central Yukon, under the direction of Dr. A. Aho.

Worked as field geologist in the Greenwood area of B.C. for Scurry Rainbow Oil in 1965 under the direction of Bill Quinn.

Worked as field supervisor for Alrae Explorations Ltd. from September 1965 to April 1967 under the direction of Rae Jury.

Since 1956 has also worked as a self-employed contractor, working for various mining companies in the following fields: prospecting, property examination, staking, line cutting, topographical mapping, geological mapping and reconnaissance, mineral sampler, draughting, air photo interpretation, geochemistry, geophysics, and supervising property exploration programs.

## STATEMENT OF QUALIFICATIONS (cont'd)

Since 1956 has also been a self-employed prospector working in various areas in B.C. on numerous properties.

Has assisted in teaching the geochemical section of the Ministry of Energy, Mines and Petroleum Resources Mineral Exploration Course for Prospectors under the direction of Dr. S. Hoffman in 1984, 1985, 1986, 1987 and 1988.

Has received the B.C. Provincial Grubstake for the years 1964, 1968, 1969, 1970, 1980, 1981, 1982, 1983, 1985, 1986, 1987 and 1988.

Has worked in the Rossland camp since 1971 as a miner on the Snowdrop and Bluebird claims. Has spent considerable time in the camp as a prospector and mining exploration contractor.

### REFERENCES

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Analytical Chemists \* Geochemists \* Registered Assayers

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Page inber :1-A Total Pages :1 Certificate Date: 27-JUN-97 Invoice No. :19728641 P.O. Number : Account :YM

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Project : Comments:

											CERTIFICATE OF ANALYSIS					A9728641					
SAMPLE	PRI COI	EP DE	Au ppb FA+AA	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd PPm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg Ppm	K %	La ppm	Mg %	Mn ppm
TUZEXO1 TUZEXO2 TUZEXO3 TUZEXO4 TUZEXO5	205 205 205 205 205 205	226 226 226 226 226 226	4120 140 20 15 < 5	32.2 3.6 < 0.2 0.6 0.2	1.94 2.04 2.28 1.93 2.58	>10000 550 48 24 32	10 40 10 10 70	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5	88 12 < 2 < 2 < 2 < 2	1.27 0.73 1.10 0.47 0.89	>100.0 >100.0 0.5 < 0.5 < 0.5	177 36 12 47 11	44 85 99 192 67	3940 497 133 63 38	9.16 6.02 4.82 5.39 3.23	<pre>&lt; 10 &lt; 10</pre>	1 < 1 < 1 < 1 < 1 < 1	0.12 0.39 0.15 0.12 0.22	< 10 < 10 < 10 < 10 < 10 < 10	0.69 0.66 1.65 1.66 1.60	1285 1110 240 365 900
TUZEXO6 TUZEXO7 TUZEXO8 TUZEXO9 TUZEX10	205 205 205 205 205	226 226 226 226 226 226	<pre></pre>	0.2 0.4 0.2 < 0.2 0.2	2.34 3.56 2.18 2.84 1.89	12 92 6 14 14	70 250 40 50 20	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5	<pre> &lt; 2 &lt; 2</pre>	0.88 0.71 0.70 0.73 0.96	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5	7 11 9 14 7	71 39 74 61 57	19 52 40 39 4	2.58 5.33 3.01 3.93 4.79	<pre>&lt; 10 &lt; 10</pre>	<pre>&lt; 1 &lt; 1</pre>	0.26 0.25 0.09 0.13 0.13	<pre>&lt; 10 &lt; 10</pre>	1.50 1.01 0.96 1.55 1.17	995 735 595 720 745
TUZEX11 TUZEX12 TUZEX13 TUZEX14 TUZEX15	205 205 205 205 205	226 226 226 226 226 226	<pre>&lt; 5 &lt; 5 &lt; 5 &lt; 5 &lt; 5 30</pre>	0.2 0.2 < 0.2 < 0.4 0.2	2.94 2.03 2.21 3.02 2.02	8 30 8 20 12	40 30 < 10 < 10 10	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5	<pre></pre>	0.81 1.10 1.29 2.03 0.86	<pre>&lt; 0.5 &lt; 0.5 &lt; 0.5 &lt; 0.5 &lt; 0.5 &lt; 0.5 &lt; 0.5</pre>	14 14 13 44 13	62 46 43 44 87	47 25 6 65 26	3,98 4,92 5,00 6,67 3,25	<pre>&lt; 10 &lt; 10</pre>	<pre>&lt; 1 &lt; 1</pre>	0.13 0.13 0.06 (0.01 0.07	<pre>&lt; 10 &lt; 10 &lt; 10 &lt; 10 10 &lt; 10 &lt; 10</pre>	1.40 1.22 1.40 1.47 1.66	710 675 1065 760 265
TUZEX16 TUZEX17 TUZEX18 TUZEX19 TUZEX20	205 205 205 205 205 205	226 226 226 226 226 226	<pre>&lt; 5 10 155 25 90</pre>	0.4 0.4 1.4 0.8 4.0	2.44 1.80 3.49 2.69 2.35	14 36 30 20 310	10 < 10 < 10 30 < 10	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5	<pre></pre>	1.21 1.59 2.65 0.94 0.87	< 0.5 < 0.5 < 0.5 < 0.5 < 0.5 85.5	8 125 58 39 62	111 139 83 81 99	14 26 9 230 1720	8.09 9.29 12.25 9.32 11.95	<pre>&lt; 10 &lt; 10 10 10 &lt; 10 &lt; 10</pre>	<pre>&lt; 1 &lt; 1</pre>	0.09 0.06 0.05 0.14 0.15	<pre>&lt; 10 &lt; 10 &lt; 10 &lt; 10 40 &lt; 10</pre>	1.33 1.75 1.62 2.13 0.91	330 500 475 440 960
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Analytical Chemists \* Geochemists \* Registered Assayers

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RUZA RESOURCES LTD.

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Page N Total Pages :1 Certificate Date: 27-JUN-97 Invoice No. :19728641 P.O. Number : Account :YM

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Project : Comments:

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SAMPLE	PREP CODE		Mo ppm		Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U mgq	V ppm	W ppm	Zn ppm	
EUZEXO1 EUZEXO2 FUZEXO3 FUZEXO4 FUZEXO5	205 22 205 22 205 22 205 22 205 22 205 22	6 6 6 6	<pre>&lt; 1    1    &lt; 1    1    5</pre>	< 0. < 0. 0. 0. 0.	01 01 05 05 05	<pre>&lt; 1     6     15     43     10</pre>	400 920 910 450 860	274 52 < 2 < 2 2	4 2 2 2 2	1 4 13 15 4	53 27 42 16 67	0.03 0.08 0.23 0.21 0.13	< 10 < 10 < 10 < 10 < 10 < 10	<pre>&lt; 10 &lt; 10 &lt; 10 &lt; 10 &lt; 10 &lt; 10 &lt; 10</pre>	1 23 54 85 32	< 10 < 10 < 10 < 10 < 10 < 10	>10000 >10000 190 70 114	
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TUZEX11 TUZEX12 TUZEX13 TUZEX14 TUZEX15	205 22 205 22 205 22 205 22 205 22 205 22	26 26 26 26 26	1 2 < 1 < 1 1	0. 0. 0. 0.	05 06 06 01 06	7 < 1 < 1 < 1 < 1 9	820 1690 1860 1510 440	<pre></pre>	2 2 2 2 2 2	11 9 8 7 11	53 55 58 291 53	0.25 0.26 0.33 0.35 0.24	<pre>&lt; 10 &lt; 10</pre>	<pre>&lt; 10 &lt; 10</pre>	80 52 57 57 42	<pre>&lt; 10 &lt; 10</pre>	76 70 86 50 34	
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-To: RUZA RESOURCES LTD.

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Page K\_\_\_\_lber :1 Total Pages :1 Certificate Date: 01-JUL-97 Invoice No. :19729574 P.O. Number : Account :YM

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SAMPLE	PREP CODE	Zn %								
TUZEX01 TUZEX02 TUZEX20 TUZEX21	244 244 244 244	4.56 1.97 1.35 1.23								
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RUZA RESOURCES LTD. **`**:: Chemex Labs Ltd. Page .oer :1-A Total Pages - : 1 508 - 1415 ST. GEORGES AVE. Certificate Date: 09-SEP-97 AnaMical Chemists \* Geochemists \* Registered Assayers NORTH VANCOUVER, BC Invoice No. :19740718 V7L 3J3 P.O. Number 212 Brooksbank Ave., North Vancouver Account :YM British Columbia, Canada V7J 2C1 Project : PHONE: 604-984-0221 FAX: 604-984-0218 Comments: CERTIFICATE OF ANALYSIS A9740718 PREP Au ppb λg **11** As Ba Be Bi Ca Cđ Co Cr le Cut Ga Eg K Ъa Mg Mn SAMPLE CODE  $F\lambda + \lambda\lambda$ ppm % ррд ppm ppm ppm X ppm ppm ppm \* ppm ppm ppm \* x ppm ppm SOIL-1 201 202 æ < 5 0.6 5.25 4 10 < 0.5 < 2 0.08 < 0.5 6 23 4,83 < 1 < 0.01 34 < 10 < 10 0.27 300 SOIL-2 201 202 < 5 < 0.2 6.14 2 10 < 0.5 < 2 0.10 < 0.5 7 27 39 5.00 < 1 0.01 < 10 < 10 0.37 360 SOIL-3 201 202 < 5 < 0.2 8.33 6 10 0.5 < 2 0.13 < 0.5 6 35 32 6.78 10 < 1 0.01 < 10 0.34 295 **CERTIFICATE OF ANALYSIS** A9740619 . PREP λl Au ppb λg λs Ba Be **Bi** Ca Cđ Co Cr Cu Fe Ga K Mg Mn Ħα La SAMPLE CODE FX+XX ppm % ppm DDW ppm ppm \* ppm ppm \* ppm ppm \* ppm ۶, ppm ppm ppm 201 202 TMMS- / < 5 < 0.2 3.55 < 2 80 0.5 < 2 1.11 < 0.5 15 19 46 4.05 10 < 1 0.05 < 10 0.90 845 TMMS- 2 201 202 < 5 < 0.2 2.28 < 2 70 < 0.5 < 2 0.74 < 0.5 13 25 33 3.70 < 10 < 1 < 10 0.82 720 0.05 TMMS- 3 201 202 90 < 0.2 2.30 2 30 < 0.5 < 2 0.57 < 0.5 12 27 37 4.22 < 10 < 1 0.03 < 10 0.80 550 TMMS-4 201 202 5 < 0.2 2.61 8 50 < 0.5 < 2 0.67 < 0.5 15 30 42 4.77 10 < 1 0.04 0.93 775 < 10 **CERTIFICATE OF ANALYSIS** A9740620 PREP Au ppb λg λ1 λs Ba Be Bİ Ċa Cđ Co Cr Cu 2e Ga Mg Mn Ηg ĸ **La** SAMPLE CODE <u> </u>
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እ+እእ ppm \* \* ррщ ppm ppm ррщ ррш \* pp∎ ppm ppm ppm ррд \* DDE \* ppm 797-11 205 226 10 0.2 0.63 60 < 10 < 0.5 6 0.85 < 0.5 170 112 59 11.05 < 10 < 1 < 0.01 < 10 0.53 230 **CERTIFICATE OF ANALYSIS** A9740621 PREP Au ppb λg λ1 λø Ba Be Bi Ca Cđ Co Cr Cu ₽e Ga Ξg K La Mg Mn SAMPLE CODE <u> </u> **F**λ+λλ \* ррщ ppm ppm ppm ppm x ррт \* × × ppm ppm ppm <u>p</u>pm ppm ppm ppm TSSS-1 201 202 < 25 < 0.2 4.69 2 40 0.5 < 2 0.93 < 0.5 14 18 36 4.52 955 < 10 < 1 0.04 < 10 1.13 . . . . . . - - -- -Hartbuchler

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Analytical Chemists \* Geochemists \* Registered Assayers 212 Brooksbank Ave., North Vancouver British Columbia, Canada V7J 2C1 PHONE: 604-984-0221 FAX: 604-984-0218 o: RUZA RESOURCES LTD.

508 - 1415 ST. GEORGES AVE. NORTH VANCOUVER, BC V7L 3J3 Page ber :1-B Total Pages :1 Certificate Date: 09-SEP-97 Invoice No. :19740718 P.O. Number : Account :YM

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**CERTIFICATE OF ANALYSIS** A9740718 PREP Mo Na Nİ ₽ Pb SP тi T1 ۷ W Sc Sr U Zn SAMPLE CODE ٩, \* ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm SOIL-1 201 202 < 1 < 0.01 1450 9 0.14 40 í. 3 8 < 2 9 < 10 121 < 10 < 10 SOIL-2 201 202 < 1 < 0.01 2190 6 < 2 11 13 0.16 < 10 < 10 110 < 10 44 4 SOIL-3 201 202 < 1 < 0.01 3050 4 8 < 2 11 15 0.20 < 10 < 10 135 < 10 48 **CERTIFICATE OF ANALYSIS** A9740619 ۷ W NL ₽ Sb Sc Sr тi **T1** U Zn PREP Na Pb Мо CODE \* \* ppm ppm ррш ppm ppm SAMPLE ppm ppm ppm ppm ppm ppm ppm 60 201 202 1 < 0.01 6 720 136 < 2 7 73 0.16 < 10 < 10 102 < 10 TMMS- I TMMS- 2 201 202 < 1 < 0.01 700 < 2 7 49 0.18 < 10 < 10 111 < 10 42 9 2 42 35 0.18 < 10 < 10 130 < 10 TMMS-3 201 202 < 1 < 0.01 7 6B0 < 2 6 4 131 82 43 0.15 < 10 < 10 < 10 TMMS-4 201 202 < 1 < 0.01 8 550 < 2 6 Ĥ 1 Сh **CERTIFICATE OF ANALYSIS** A9740620 1 .<u>.</u>.' V W Zn U Ni ₽b Sb SC Sr тi T1 PREP ₽ Mo Na ppm ppm \* ppm ppm ppm ppm CODE \* ppm ppm ppm ppm ppm SAMPLE ppm 170 < 10 109 30 0.01 < 10 < 10 797-11 205 226 4 < 0.01 35 2550 B < 2 1 A9740621 **CERTIFICATE OF ANALYSIS** ٧ W Zn тi T1 U Sb Sr Nİ P Pb SC PREP Mo Na ppm ppm \* ppm ppm ppm ppm ppm SAMPLE CODE \* ppm ppm ppm ppm ppm 82 0.24 < 10 < 10 109 < 10 10 70 201 202 480 < 2 < 2 TSSS-1 1 < 0.01 9 fait/Sichler

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- Tuzex 1 Small irregular fractures 5 to 10cm wide strike 14° ave vertical. Very rusty boxwork gossen formed on surface. Can see sphalerite in sample, also arsenopyrite. Volcanic rocks on either side not well mineralized. This fracture may be the top of a vein. This fracture is 12 metres NW of intrusive rocks and 6 meters SE of intrusive rocks. The gauge material of the samples appears to be altered, silicified volcanics. Samples non-magnetic.
- Tuzex 2 This was a boulder hooked out of the rock wall by the cat. Source not determined. Very similar to sample Tuzex 1. Can see sphalerite in sample. Gauge altered and silicified volcanics. Much of the rock contains only pyrite up to 2% with minor amounts of chalcopyrite. The sphalerite seems to be in stringers through the rock up to 2cm wide.
- Tuzex 3 & 4 Rocks very similar. Very rusty, rubbly rhyolite containing pyrite up to 2%.
- Tuzex 5 Rusty, altered and bleached rhyolite. Brecciated. Pyrite content about 2%. Very similar to Tuzex 6, but less mineralized.
- Tuzex 6 Almost massive pyrite in altered and bleached volcanics. Deposition along a shear 10-15 cm wide. Sulphides entirely pyrite, can see no other sulphides. Rock to north of shear contains about 0.5% pyrite.
- Tuzex 7 Well fractured and altered volcanics. Almost no sulphides. Between Tuzex 6 & 7 there is 4 meters of very rusty, highly sheared and altered volcanics.
- Tuzex 8 Sample of C horizon about 1 meter below the surface. T soil 1 was taken in the B.F. horizon for comparison.
- Tuzex 9 Sample of C horizon about 1 meter below surface. T soil 2 was taken from the B.F. horizon for comparison.

Tuzex 10 Grey greenish rhyolite. Pyrite up to 2%.

- Tuzex 11 Sample of C horizon about 1 meter below the surface. T soil 3 was taken from the B.F. horizon directly above for comparison.
- Tuzex 12 Sample greenish grey rhyolite containing pyrite up to 1%. Immediately to the southeast of this sample are two basic dykes.
- Tuzex 13 Fractured gray rhyolite containing pyrite up to 4% both as disseminations and along the fractures. Some epidote occurring along the fractures as well.
- Tuzex 14 Sample of strongly epidotized andesite with blebs and stringers of pyrite.
- Tuzex 15 Sample of 5cm to 10cm fracture zone along which silica and pyrite has been introduced. The enclosing rhyolites have been silicified and contain pyrite up to 4%.
- Tuzex 16 Zone sampled is a fracture zone 60cm wide in silicified rhyolite through which silica has been introduced along with increased pyrite content. Strike of fracture zone is 56° dipping 85° NW. In places this fracture zone contains massive pyrite. See description of Sample T97-9.
- Tuzex 17 See T97-10. Sample of contact metamorphic zone carrying pyrite.
- Tuzex 18 10cm shear in the intrusives containing an increase of silica and pyrite up to 30%.
- Tuzex 19 Small rusty shear in the intrusives. There is an introduction of silica and pyrite in the shear up to 3%. Intrusive medium grained quartz diorite.
- Tuzex 20 Massive sulphides in a .5 meter wide shear 335°, vertical. Pyrite and sphalerite can be seen in the silica gauge.

- T97-1 Silica rich latite containing up to 2% fine grained pyrite.
- T97-2 Gray porphyritic quartz diorite with both feldspar and silica. Less than 1% pyrite.
- T97-3 Gray green quartz diorite. No visible sulphides.
- T97-4 Two rock samples from this site:
  - (a) Similar to T97-3 but with minor pyrite; and
  - (b) Similar to T97-3 but with more silica. Contains 2% pyrite with minor fine-grained chalcopyrite and minor sphalerite.
- T97-5 Light greenish diorite. Fractured and fracture filled with silica and feldspars with minor pyrite and chalcopyrite. Minor disseminations of pyrite and chalcopyrite, especially close to the fractures. <0.5% sulphides.
- T97-6 Fine grained, greenish diorite. Very similar to T97-5. Fractured. Pyrite <0.5%. Very minor chalcopyrite.
- T97-7 Medium grained quartz diorite, greenish. Minor disseminated pyrite. Very minor chalcopyrite.
- T97-8 Two rocks from this site:
  - (a) Coarse grained quartz diorite, greenish. Minor pyrite.
  - (b) Coarse grained quartz diorite, greenish. Minor pyrite. Some olivine in this sample.

T97-9

Suite of rocks collected from this area:

- (a) Coarse grained, greenish quartz diorite with phenocrysts of plagioclase up to 5mm. Disseminated pyrite up to 5%.
- (b) Greenish white quartz latite with fine grained pyrite up to 5%. May contain some arsenopyrite.

T97-9 (c) Similar to (b) but very silica rich, altered and bleached. Very minor pyrite.

- (d) Massive pyrite. May also contain some arsenopyrite.
- T97-10 Suite of rocks from where Tuzex 17 was taken. Host rock grey dacite containing up to 1% pyrite. Veins of silica, tremolite with pyrite up to 15%, perhaps some arsenopyrite. Some zeolites in veins. Open boxwork. Contact metamorphic zone.
- T97-11 Suite of rocks from this sample site:
  - (a) Medium grained, greenish quartz diorite with silica along fractures. <1% sulphides from 4 meters west of vein near contact.
  - (b) Greenish grey dacite with pyrite up to 5%.
  - (c) Vein material comprised of medium grained gauge that looks like quartz diorite with sulphides up to 5%. Sample contains tremolite.
  - (d) Vein material also comprised of very siliceous gauge with up to 40% pyrite. May also contain arsenopyrite. Vein is 45 to 60 cm wide.
- T97-12 Grab of rocks across 15 meters. All rocks are volcanics and range from light coloured rhyolite containing up to 2% pyrite to dark green andesite with almost no pyrite. Some of the samples collected were well fractured, with the introduction of silica along the fractures. One rock contained blebs of pyrite up to 1cm.
- T97-13 From massive sulphide vein 10-15cm wide. Strike 12° dipping 80°W. Sulphides up to 80%, mostly pyrite with some arsenopyrite. Minor sphalerite. Volcanics on either side not mineralized. This vein is 2 meters west of intrusive contact.
- T97-14 Medium grained quartz diorite, greenish, with fine grained pyrite up to 0.5%. Very minor chalcopyrite.

-9-

- T97-15 Grab of rock across 22 meters. All samples are volcanics ranging from light grey, highly silicified rhyolite and dacites with pyrite up to 4% to darker grey andesites, slightly silicified with pyrite up to 1%. All rocks are well altered and very rusty on weathered surfaces. No massive sulphides observed.
- T97-16 These were a suite of rocks taken over a length of 65 meters of intrusive rocks. The samples range from a coarse grained quartz diorite through a medium grained quartz diorite through to a fine grained quartz diorite, all greenish in colour. One grab looked more like a granite. All the above contained only very minor pyrite. Two samples were very fine grained, siliceous, fractured rocks that looked similar to the volcanics and may have come from the contact zone. These latter two were well fractured and contained pyrite up to 1%.
- T97-17 From the site where Tuzex 21 was taken. Suite of samples across 15 meters:
  - (a) Diorite from either side of the mineralized zone. These were fractured and the fractures were healed with silica. Only very minor sulphides seen.
  - (b) Very silica rich gauge containing pyrite up to 4% with some chalcopyrite and minor zinc.
  - (c) Some of the samples were very difficult to tell what they are or what they were. Most likely they are altered volcanics but some have a very intrusive appearance to them. These rocks contain pyrite up to 5%, minor chalcopyrite and minor zinc.
  - (d) High grade section that may be up to 2 meters in width. This seems to be a zinc-rich zone. Visible zinc up to 3 or 4%. Pyrite up to 3%. Only minor chalcopyrite seen.



Old growth River position estimated LEGEND [JB] BONANZA GROUP Dacitic and rhyodacitic tuffs, tuff breecias and porphyries and andesitic porphries, dacite, rhyolite and latites Jad ISLAND INTRUSIONS Quarte diorite, may include some diorite . MINERALIZED VEIN GEOLOGICAL SURVEY BRANCH ASSESSMENT REPORT MAP SYMBOLS TP2 Topochain and compass survey with turning point - 190 & TUZEX 1-20 Samples - 7 97-1 to 7 37-17 Samples TMMS 1 - 4 Moss Mat stream samples stream sodiment sample -2 - T5551 Outcrop boundaries - Boundaries of timber ages power Line and power poles Geological boundary - defined ---- approximate ..... assumed ۲ MAP2 GEOLOGY & TOPOGRAPHY TUZEX CLAIM ALBERNI M. D. 92 C/15 E 092 C 087 18° 52' N 124° 40' W 50 25 0 SCALE: 1 - 2000 DATE: Sept 1, 1997 DRAWN BY: D.K. BRAGG F19: 5 

