680115 82F/6 NW

REFERENDUM MINE

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Sam

AUGUST 1986

Tom Cherry

Nelson, B.C.



KEY MAP.

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	RESOUR	CES. GE	OLOC	SICAL	FIE	ELDWORK	: 1	985	-	Paper	1986-1

- II COPY OF SKETCH OF VISIBLE ORE & PHOTOGRAPH LOCATIONS
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REFERENDUM MINE

LOCATION AND ACCESS

The Referendum property is located in the Nelson Mining Division at Longitude 117⁰23' West and Latitude 49⁰26' North and lies within NTS 82F/6W map area. There is good access to the property via the Rover Creek Forest Access Road. The Property is about 35Km S.W. of Nelson.

PROPERTY NAMES AND TYPES

Referendum	(Lot 4387)	Record #1626	
Katie	(Lot 4386)	Record #1625	Reverted
Golden Cross	(Lot 4388)	Record #1627	Crown Grants
TEC Gold	(16 Units)	Record #2997	
TEC 1 - 7	(2 post claims)	Record #2998 3004	Located Claims
TECCU 1 - 2	(2 post claims)	Record #4263 4264	

All Claims Owned by T. Cherry

CONTRACTURAL OBLIGATIONS

There are no outstanding legal obligations, attachments or agreements associated with these claims: All claims are owned by Tom Cherry of Nelson, B.C.

GEOLOGY

See Attached Description of Referendum Mine by G.G. Addie published in B.C. M.E.M.P.R. Geological Fieldwork, 1985, Paper 1986-1. Page 2

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Exploration Status

Exploration in the early 1900's involved considerable trenching and test-pitting, with the sinking of at least one shaft to a depth of 200 fpet. There was recorded preduction of 100 oz. gold from 250 tons of ore (0.40 oz./ton), processed on-site in a 3 stamp mill, (B.C.D.M. Annual Report <u>1907</u>, pp 103). Current trenching has on occasion exposed old mine timbers, suggesting some lateral development on these old workings.

In <u>1971</u> a preliminary geochemical survey was conducted by J. Edington under the supervision of C.E. Tedrow, Consulting Engineer of Spokane, Washington, U.S.A. This survey consisted of colorimetric field-testing of heavy metal content of small samples using dithizone and identified a strong cast-west anomaly running through the crown granted claims, (B.C. Assessment Report #3533) and suggest at least one cross-structure (see attach.).

Tedraw and Edington, as a consult of this preliminary survey, recommended a more detailed geochemical survey using spectrographic analysis, for the following year, but this was never undertaken, (presumably because of the advent of the NDP administration.)

A January 1981 report by W.G. Hainsworth, P. Eng. for Coffee Creek Resources refers to the possibility of additional vein structures on the property, and the importance of location of such veins as additional or back-up targets to the main vein. Hainsworth obtained values of 0.306 oz/ton and 0.803 oz/ton gold from two grab samples from a dump presumably the old shaft dump.

Hainsworth recommended a three stage exploration programme costing just under \$200,000.

Recent exploration has consisted primarily of trenching and bulk sampling of known quartz veins. Samples have been shipped direct to the Cominco smelter at Trail, B.C. and the average grade on 181.4 tonnes has been 6.2 grams per tonne gold, 30 grams per tons silver and approx. 95% silica.

,Page 3

To date the best bulk sample was a 9.01 tonne shipment which graded 0.278 oz/ton gold.

Recent testing has demonstrated that these quartz veins can be detected and traced using magnetometer methods.

Note that the high silica content in these veins brings a smelter credit greater than the smelter charge; this property may more properly be considered a gold-silica prospect (cc Attached Smelter Sheets).

It is also of interest that the immediate area has a strong history of gold production: the Kenville Mine (aka Granite-Poorman), three miles to the north, recorded production of 174,300 tonnes grading 0.373 oz/tonne gold and 0.158 oz/tonne silver, with minor lead and zinc recovered in the last years of its production.

Finites Expenditures on Referendum Property

by owner:	1985-86	\$16,700	- trenching,	bulk	sampling,	etc.
	1984-85	15,000	23	Π	**	
pre	1984	23,900	- road build bulk sampl	ing, t ing, d	trenching etc.	<u>&</u>

Expenditures by previous owners is unknown.

Bibliographies

1.	Nelson	Мар	Area	-	Wes	t Half	P (G.S.C.	Memoir	308
				н.	₩. 1	Little	•	(1960)		

2. B.C. Dept. of Mines Annual Reports

1900 - Pg. 845 1901 - Pg. 1224, 1225, 1226 1907 - Pg. 103

- 3. B.C. Assessment Report No. 3533
- 4. Gealogical Fieldwork 1985 Pg. 333,334, 335 G.G. Addie

5. B.C. Mineral Exploration Review 1985 Pg. 47

APPENDIX I

REFERENDUM MINE (82F/6)

By G. G. Addie

INTRODUCTION

80

For the last several years Tom Cherry of Nelson has been surface sampling the Referendum mine (MI 82F/SW-177): this year he was successful in finding a new vein. The grade from a bulk sample of 181.4 tonnes obtained from the Referendum vein was 6.2 grams gold per tonne. The silica credit from Cominco pays for the smelting.

GENERAL GEOLOGY (Fig. 51-1)

The host rocks for the veins are roof pendants in the Nelson batholith and include andesites of the Lower Jurassic Rossland Group. Recently this unit has come under intensive examination by exploration companies searching for massive sulphides. In the Referendum mine area (Fig. 51-1) zones of alternating sedimentary rocks, metamorphic rocks, and volcanic rocks are present. The rocks include agglomerates, conglomerates with boudinage texture. tuffs, and crystal tuffs. The metamorphic rocks (included with the sediments for mapping purposes) include quartz augen sericite schist (bird's eve sericite schist) and chlorite schist. The volcanic rocks are basalts and andesites. The mine area (Fig. 51-2) is in andesite which has been intruded by lamprophyre dykes. Throughout the area there are small tension veins with tourmaline and ilmenite. Some are quartz carbonate filled and some have quartz only. Zoning within the veins is suspected, but not proven. Only rarely is visible gold seen, yet production from the main vein and new vein has given consistent grades. To the southeast of the mine area there is a small Eocene Coryell plug which is believed to have a shonkinite rim (Fig. 51-1).

REFERENDUM MINE (Fig. 51-2)

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The Annual Report of the Department of Mines for 1907 indicates that total production to that date was 2 268 tonnes grading 12.4 grams gold per tonne. The mining was apparently at the 61-metre level. The grade was approximately double that being obtained at present from the surface. In the vicinity of the shaft, which has not been trenched, the main vein has considerable amounts of massive, fine-grained tourmaline. Tension veins join the main vein in this area and also have tourmaline. In prospecting for the extension of the main vein it was noted that on the footwall side of the vein the andesites are sheared, while the hangingwall has blocky jointing. On this basis, a small vein was found on the east side of the biotite lamprophyre dyke with a horizontal displacement by the dyke of approximately 10 metres to the northwest.

NEW VEIN SHOWING

The 'new vein' (Fig. 51-2) was found by trenching. It is on strike with an unnamed vein on the next claim to the west (Fig. 51-1). The west segment of the 'new vein' may be a separate vein: its vuggy nature and high tourmaline content appear quite different from the shear vein. Based on the displacement of the main vein on the east side of the biotite lamprophyre dyke, it is likely that the 'new vein' will be found displaced to the northwest by a similar amount (10 metres). A bulk sample was taken at the visible gold location; it returned a grade of 3.1 grams gold per tonne.

OTHER VEINS AND MINERALIZATION

On the logging road south of Referendum mine, a small goldbearing tension vein striking 125 degrees and dipping 77 degrees south has been discovered by Tom Cherry. It is a quartz calcite vein with visible gold in bornite. Unfortunately the vein is only a few metres long.

On the same road, but further west, there is a 5-metre-wide chlorite schist band with a small amount of pyrite which is reported to assay 1.5 grams gold per tonne. This type of exploration target has not been explored and warrants further investigation.

ACKNOWLEDGMENT

We appreciate having the property brought to our attention by Tom Cherry, and his donation of vein samples for study.

10:00

British Columbia Ministry of Energy, Mines and Petroleum Resources, Geological Fieldwork, 1985, Paper 1986-1.



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Appenduci IV

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Report

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Referendum-Stamp Claims

Nelson Mining Division

for

. Coffee Creek Resources Incorporated

Vancouver, British Columbia

January 7, 1981 Calgary, Alberta .

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W.G. Hainsworth, P. Eng. Consulting Geologist

APPEDEDIX Y



Report on the Referendum-Stamp Claims Nelson Mining Division, B.C. for Coffee Creek Resources Incorporated Vancouver, B.C.

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Figures

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Figure 1 - Location Map following page 6 Figure 2 - Claim Map following page 7

Appendix A

Assay Certificate

W. G. HAINSWORTH & ASSOCIATES LTD.

Mining Consultants Calgary, Alberta

Summary

Coffee Creek Resources Incorporated, of Vancouver, British Columbia, has acquired by staking, a 20 unit block of ground in the south Nelson area of the Nelson Mining Division of British Columbia. The claims blanket three crown-granted claims which the Company acquired from the Provincial Government. The claims show values in gold.

Early 1900 saw limited gold production from a shallow 60 metre (200 feet) shaft. Surface exposures extend the vein structure over 35 metres (115 feet) in one direction while its extension in the other direction is concealed.

The writer has recommended a three stage program to investigate the potential of the property totalling slightly under \$200,000.

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Recommendation

The Referendum vein structure has had little known exploration. It was considered worthy of sinking a shaft in the early part of the century and it returned in excess of 100 ounces of gold. Sampling of the dump by the writer assayed moderate grade gold values (0.306 and 0.803 for an arithmetic average of 0.555 from the two samples). A chip sample across the surface expression of the vein some 100 feet west of the shaft produced a weak result indicating either a remobilization of gold values out of this area or a weak section of the ore shoot. However, it should be noted that the presence of ore shoots has not been definitely established at the property.

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Values in the cross structures, although not strong, are encouraging. There were no silver values of consequence in the sampling.

In view of the lack of past work on the property and with the encouragement engendered by the writer's samples and the present price of gold, the Referendum-Stamp claims present a worthy exploration project.

Reference was made earlier to the possibility of additional vein structures on the property. Location of such features is important as additional or back-up targets to the main vein.

The sheared nature of the vein and enclosing host rock make for an identifiable geophysical form should overburden conceal the surface expression.

In addition geochemistry utilizing the gold ion should be undertaken to more firmly "button-down" hidden structures.

When surface expressions have been readily identified by geological, geophysical, and geochemical means, sub surface examination can then be conducted using diamond drills.

Dependent upon results emanating from the drilling, an underground exploration program would be the next approach.

The writer, therefore, recommends that the Referendum-Stamp holdings of Coffee Creek Resources Incorporated be thoroughly examined to test for viable gold deposits.

It is recommended that the undertaking be carried out in three stages with the third stage being entirely dependent upon results from the first two stages.

Stage I would be a surface approach involving a geological-prospecting survey, an EM 16 geophysical survey and a soil analysis survey. Estimated cost of this stage is \$22,000.

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Stage II would be a sub surface program involving diamond drilling of the target zones. The number of drill targets other than the main structure is presently unknown. To properly test the Referendum vein would require some twenty inclined holes spaced 15 metres (50 feet) apart and testing the vein at two different elevations. Estimated cost of Stage II is \$94,000.

The final exploration approach, Stage III, would entail dewatering the shaft, replacing the ladders and fully mapping and sampling the underground workings. An estimate of this stage is \$80,000.

Upon these results would depend a development program. However, this phase of operations would entail further funding which is not the objective of this report.

The writer sees the Referendum property as an interesting exploration situation worthy of investigation.

Respectfully submitted. W.G.^N Hainsworth, P. Eng. Consulting Geologist::

Calgary, Alberta January 7, 1981

<u>Cost Estimates</u>

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Stage I - Surface Exploration

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Line gridding of claims for surveys Geological survey EM 16 geopysical survey Soil sampling (1,000 samples) Assaying Rentals, travel. consulting	\$ 1,500 3,500 2,500 1,500 6,000 4,000
15% Contingency	\$ 19,000 2,850
•	\$ 21,850
say	\$ 22,000
Stage II - Sub Surface Exploration	
Diamond drilling (20 holes @ 150'/hole @ \$25/ft) Assaying Consulting, travel	\$ 75,000 1,000 6,000
15% Contingency	\$ 82,000 12,300
· · ·	\$ 94,300
. say	\$ 94,000
Stage III - Underground Exploration	
Dewatering and timbering Mapping and sampling Rentals, consulting, travel Assaying	\$ 58,000 . 3,000 6,000 2,000
15% Contingency	\$ 69,000 10,350
	\$ 79,350
say	\$ 80,000
TOTAL THREE STAGES	<u> </u>

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W. G. HAINSWORTH & ASSOCIATES LTD.

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Mining Consultants Calgary, Alberta

Introduction

At the request of Mr. Edward Sonnenberg, president, and Mr. Dennis Bialkowski, secretary-treasurer of Coffee Creek Resources Incorporated, the writer undertook an evaluation of the present merits of their property holdings in the Nelson area of south-central British Columbia.

The holdings, consisting of three crown-granted claims completely enclosed within a claim of 20 units, have workings established along a strong quartz vein.

The general area known for its precious metal possibilities has lately seen a revival in exploration due to the firm price of gold.

The REFERENDUM-STAMP group of claims were inspected by the writer on October 22, 1980. A light fall of snow the day previous made surface examination slow and difficult. Location and Access

The gold prospect of Coffee Creek Resources Inc., lies in the Nelson Mining Division of British Columbia, some 11.25 kilometres (7 miles) southwest of the town of Nelson.

In terms of co-ordinates the claim units are centered at Longitude 117° 23' west and Latitude 49° 26' north and lie within NTS 82F/6.

By road, Vancouver is some 657 kilometres (408 miles) to the west.

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There is easy access to the property. At a point on the Castlegar-Nelson highway (No. 3A) two kilometres south of Beasley the Kootenay River and canal are crossed. The Rover Creek Forest Service Road on the south side of the river winds for some 16 kilometres up the steep north facing slope of Connor and Red mountains.

Several sections of the mountain side are presently being logged and present vehicle problems.

Property

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The Coffee Creek Resources Incorporated property consists of three crown grants and one claim staked on the modified Grid Plan. They are:

Claim Name	Record Number	Acres	No. of Units	Assessment Due Date
C.G. Katie	4386	36.40	· 1	-
C.G. Referendum	4387	31.20	1	-
C.G. Golden Cross	4388	49.05	1	-
Stamp .	Not Avail.	-	20	October 14

The claim units form a rectangle, 5 units by 4 units, with the three crown granted claims being contained within the centre of the group.

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Topography

The claim units lie within the Columbia Mountain division of British Columbia and within the subdivision known as the Selkirk Mountains.

- 6 -

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Characteristic of this subdivision, the claim units are located on the relatively steep slopes of the Bonnington Range.

From the 505 metre (1,650 feet) above sea level elevation on the Kootenay River at Beasley, the topography rises sharply to the south over a distance of 8 kilometres (5 miles) to 1,645 metres (5,390 feet) A.S.L. at the Referendum shaft.

History

The general area has been one of mining activity for many decades. It became the area of small but numerous mines and prospects of both base and precious metals.

The Nelson area came alive in 1882 when the Blue Bell mine on Kootenay Lake was staked followed by further lead-zinc-silver deposits in the Ainsworth district on the west shore of Kootenay Lake. Further discoveries followed in short order in the area south of Nelson. In 1892, the Poorman Mine, 5 kilometres (3 miles) north of the Referendum, erected the first stamp mill (10 stamps) in the area to treat the gold-silver ores.

The Referendum claim and its sister claims, the Katie and Golden Cross, were located in 1900 by the Referendum Free Gold Mining and Milling Co. Ltd. That year, according to B.C. Minister of Mine reports, a shaft was sunk for 45 feet (14 metres). Reference in the 1908 report to the Referendum mines states that "development has been pushed to the 200 foot level and a small mill has been operated during the latter part of the year, the total crushed being 250 tons, producing \$2,100". No further reference to the Referendum is made in subsequent reports.

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Past Work

Since the original sinking of the shaft in the early 1900's little work has been done, or known to have been done, on the Referendum showings.

In 1971, the three crown-grants (Katie, Referendum and Golden Cross) were acquired by Western Metals Development Corp. of Spokane. They tied 5 north-south claims, called Western No.1 to No.5, on to the west end of the Katie crown-grant. To satisfy assessment requirements. they carried out a geochemical survey over the crown-grants and staked claims. The survey collected 2I3 soil samples which were screened and tested in the field for heavy metals. Samples were collected at 200 foot (61 metres) intervals. This is hardly the interval at which to identify a 0.6 to 1 metre (2 to 3 foot) quartz vein. Nor is identification of heavy metals synonomous with quartz veins lacking the sulphides.

The survey did identify a broad east-west anomalously mineralized zone cutting through the crown grants. A cross structure was also located at the west end of the Katie crown grant.

No further work is known to have been done on the crown grants or immediate area since 1971.

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Regional Geology

The greater part of the Nelson area is underlain by granite and related intrusives which form the Nelson batholith and its satellite bodies. These plutonic rocks, thought to be lower Cretaceous in age, intrude into the majority of sedimentary and igneous formations of the area.

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Extending from the American border to the West Arm of Kootenay Lake is a northeast trending band of flow and related rocks, the Rossland Formation. As mentioned the formation has been extensively intruded by the later Nelson granites. Associated with this intrusive-extrusive action are the base and precious metal vein system of the Ymir-Nelson, the lower Nelson and the Rossland area.

Structurally the area deviates from the accepted trend of striking northwest and appears almost directly related to the Nelson batholith forming the famous "Kootenay Arc". Pre-intrusive major structures such as faults and folds complicate the detailed structure of the area.

The entire area has been overriden by a major glacial advance which modified the topography and left a mantle of till over much of the area.

Local Geology

The twenty claim units and three crown-granted claims of Coffee Creek Resources Incorporated lie within the Rossland group in close contact with a small satellite granite body.

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The Rossland Group comprises volcanic and minor intercalated sedimentary rocks of Lower Jurassic age. It is underlain by the Ymir group of sediments and overlain conformably by the Hall sedimentary formation.

In the vicinity of the shaft several exposures show a dark, coarse grained basaltic lava. No mineralization, including pyrite, was observed in the few exposures. The coarse graininess of the flow texture might in part be attributeable to recrystallization brought on by the close proximity of the granite body. Shearing of the flows is most noticeable on the immediate locale of the Referendum vein.

The vein structure is strong and consistent. Trench exposures show a sheared, bullish, clear quartz vein varying from 15 inches to over 2 feet in width. No sulphides were observed in the vein material but the sheared partings often contained a thin veneer of dark material.

Showings

The Referendum crown-granted claim has seen the most work of the holdings. A shaft reportedly to a depth of 61 metres (200 feet) has been sunk with an unknown amount of subsequent development work. A 4' by 4' shaft to 200 feet would produce 265 tons of muck. The 1908 B.C. Minister of Mines Report states that 250 tons were crushed that year, the equivalent of the shaft product. A dump thirty feet north of the shaft has rough dimensions of 30' by 10' by 5' approximating 125 tons. The writer assumes this coarse muck came from development work underground and was stockpiled awaiting crushing. Two samples (#8259 and #8260) were randomly picked from this muck pile. The results:

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#8259 - 0.306 oz./ton gold and 0.020 oz./ton silver
#8260 - 0.803 oz./ton gold and 0.017 oz./ton silver

The Mines Ministry reports the 250 tons to have produced \$2,100. In 1908, gold sold for \$20.60 per ounce. Assuming 100% mill recovery, this equals \$8.40 per ton or a grade of 0.408 oz. gold per ton.

Shallow trenches extend east from the collapsed shaft for 35 metres (115 feet). The narrow (15") vein was chip sampled by the writer and produced:

#8261 - 0.002 oz./ton gold and N.D. silver

The vein strikes N 75° W almost east-west, through the trenches and maintains a steep to vertical dip. No sulphides were visible in the highly fractured quartz vein but soft, gougey, thin material often filled the fractures.

Some 230 metres (750 feet) east of the shaft and 45 metres (150 feet) lower in elevation a 6 metre (20 feet) deep shaft has been sunk on a cross structure. This 20 centimetre (8 inches) vein is contained within a highly sheared, sedimentary material. The bullish-looking quartz vein strikes north 55° east and, like the Referendum vein, has a vertical dip. Closing angle between the two structures is 55° to 60°. An 8" chip sample cut from this vein yielded:

#8261 - 0.049 oz./ton gold and 0.008 oz./ton silver

No further showings were claimed to be known at the time but the writer feels that more prospecting will reveal additional exposures.

11. 1929

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Bibliographies

1) Nelson Map-Area, West Half GSC Memoir 308

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- H.W. Little (1960)

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2) British Columbia Department of Mines Annual Reports:

NT

1900 - Page 845 1901 - Pages 1224, 1225, 1226 1907 - Page 103

3) British Columbia Assessment Report No. 3533

CERTIFICATE

I, W.G. Hainsworth, P. Eng., of Calgary. Alberta, do hereby certify:

- That I am a Consulting Geologist residing at 2310 Carleton Street S.W., Calgary, Alberta.
- 2) That I am a graduate of the University of Western Ontario, London, Ontario, Bachelor of Science Degree, Honours Geology.
- 3) That I have practiced my profession for 30 years.
- 4) That I have been a continuous member of the Association of Professional Engineers of British Columbia since 1965 and have received my Professional Geologist certification with the Association of Professional Engineers, Geologists and Geophysicists of Alberta in January 1980.
- 5) That I have no financial interest, direct or indirect, in Coffee Creek Resources Incorporated, and do not expect to obtain any such interest.
- 6). That the information contained in this report is based on examination of all pertinent maps, reports and other data relevant to the property including personal examination of the property on October 22, 1980. Visual inspection was limited due to a recent snow fall in the area.
- This report may be used by Coffee Creek Resources Incorporated in a 7) Statement of Material Facts or Prospectus for public financing.

.W.G. Hainsworth, P. Eng.-Geol S. (Alta.) Report on the Referendum-Stamp Claims, Nelson Mining Division, for Coffee Creek Resources Incorporated Vancouver, British Columbia

(B.C.)

January 7, 1981

To accompany:

. نتخن 111111111 16 BARRINGER MAGENTA LIMITED LGANT, ALBERTA CANADA THE BYR NE 1403 278-8781 THE BLUTTLE 0 Certificate Analysis NOV 20,580 Report No. 466C-80 W.G. HAINSWORTH & ASSOCIATES LTD. Nov. 17, 1980 Date · 310 - 800 6TH AVENUE S.W. CALGARY, ALBERTA, T2P 3G3 Rock I HEREBY CERTIFY that the following analyses were performed by us on the herein described. samples. SAMPLE NUMBER Ag Sample No. Au Au opt opt opt 0 8259 -.020 .306 ۰, v 8260B .803 .017 J, Ц, .<u></u>.... .002 8261B ND رل į 8262 .049 .00 . 8 Note: Rejects retained one month. Putps retained three months unless previous arrangements made in advance. Barringer Magenta Ltd. Signed