ARIS SUMMARY SHEET

istrict Geologist, Smithers

Off Confidential: 90.03.10

ASSESSMENT REPORT 18820

MINING DIVISION: Skeena

PROPERTY:

Bow

LOCATION:

56 23 00 LAT

129 52 00 LONG

09 6248868 446482 UTM

104A05W NTS

CAMP:

050 Stewart Camp

CLAIM(S):

Bow 1-41

OPERATOR(S): Brucejack Gold

Kruchkowski, E.R.; Sinden, G.W.

1989, 51 Pages

AUTHOR(S): REPORT YEAR: COMMODITIES

SEARCHED FOR: Gold, Silver, Copper KEYWORDS: Hazelton Group. Vol

Hazelton Group, Volcanics, Sediments, Alteration, Shear zones

Sulphides, Quartz veins

WORK

DONE:

Geochemical

ROCK 35 sample(s); AU, AG SILT 169 sample(s); AU, AG

Map(s) - 4; Scale(s) - 1:10 000

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GEOCHEMICAL REPORT	FILE NO:		
ON THE BOW CLAIMS STEWART, BRITISH COLUMB SKEENA MINING DIVISION NTS 104A/5W LATITUDE 56° 31' LONGITUDE 129° 41'	IA	The server serve	FILMED
ВҮ		ZO	
E.R. KRUCHKOWSKI, B.Sc. CONSULTING GEOLOGIST	, P.Geol.		
G. SINDEN, R.E.T.		A MA	
		prof four	
BRUCEJACK GOLD LTD. Suite 400 255 - 17th Avenue S.W. Calgary, Alberta T2S 2T8			
E.R. KRUCHKOWSKI CONSUL 23 Templeside Bay N.E. Calgary, Alberta	TING LTD.		

Calgary, Alberta May, 1989

PREPARED FOR:

PREPARED BY:

Calgary, Alberta TlY 3L6

OUR FILE: BOWMAY89

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SUMMARY

The claims are located approximately 50 kilometers north-northeast of Stewart, British Columbia along Todd Creek in the Skeena Mining Division.

During October 1988 E.R. Kruchkowski personnel carried out reconnaissance stream sediment sampling, prospecting and rock geochemical sampling programs on the Bow Claims situated in the Skeena Mining Division of Northern British Columbia.

The Bow Claims are underlain by favourable gold and copper bearing volcanic and sedimentary units of the Unuk River, Betty Creek and Salmon River Formations of the Hazelton Group intruded by various granitic rocks.

The potential of encountering mineralized quartz sulphide veins, quartz-carbonate-sericite-pyrite altered zones and/or mineralized shear zones is considered good in the light of the anomalous 1987 silt sample BGS-KK-09 which assayed .188 ounces per ton gold and anomalous 1988 rock samples TCGR-4 which assayed .100 ounces per ton gold and TCRF-9 which returned assays of 270 ppb gold and 66.00 ounces per ton silver.

The claims are adjacent to the known Todd Creek gold-copper property held in joint venture between Golden Nevada Resources and Noranda. Recent drilling intersections returned assay values varying from 0.117 - 0.348 ounces per ton gold and 0.23% - 1.50% copper over widths up to 32.6 feet.

Further work on the Bow Claims is recommended for 1989. The work should include the following:

- detailed silt geochemical sampling in the area of TCGR-4
- prospecting in the areas of anomalous sites
- trenching of located showings
- geological mapping

INTRODUCTION

This report is based on data obtained from field observations and samples collected from the Bow Claims and located in northern British Columbia approximately 50 kilometers by air north-northeast of Stewart, B.C., situated on the west side of Bowser Lake along the headwaters of Todd Creek.

E.R. Kruchkowski Consulting personnel carried out a program of stream sediment sampling, prospecting and rock geochemical sampling during September - October of 1988. The results of this work are presented within this report. Geochemical analyses were performed by Loring Laboratories Ltd. of Calgary, Alberta.

Location, Access and Physiography

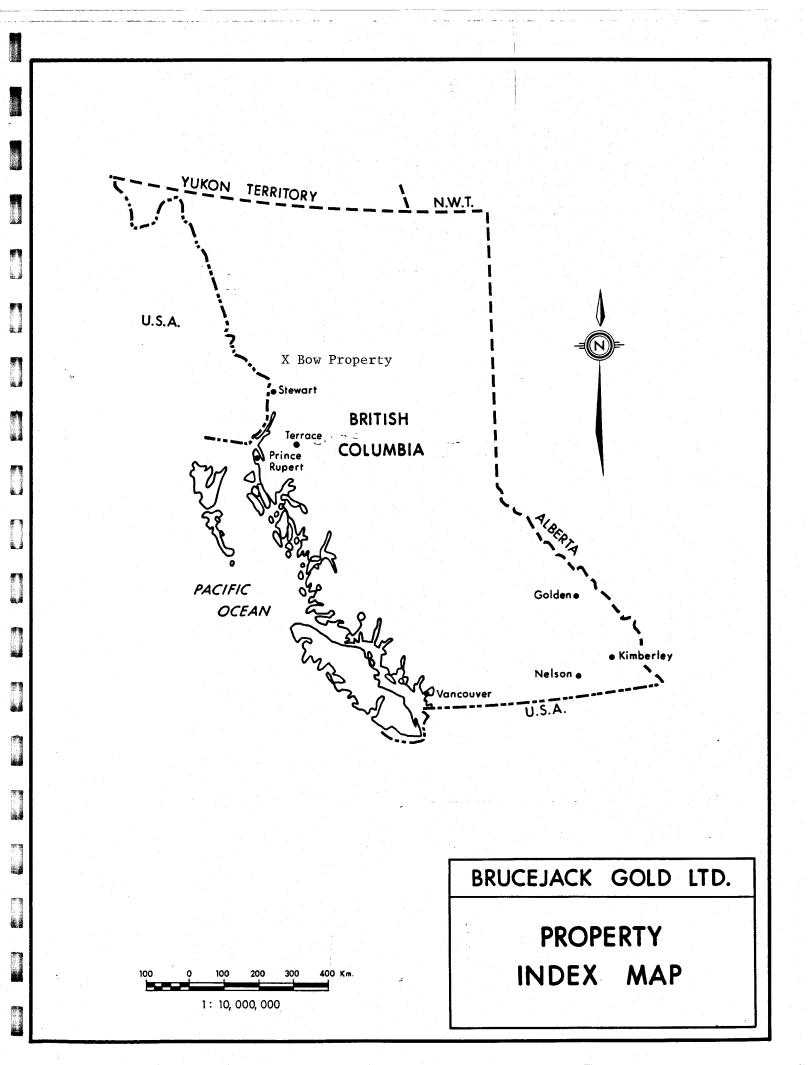
The Bow Claims are located in northwestern British Columbia, 50 kilometers north of Stewart, British Columbia, in the Skeena Mining Division, NTS 104A/5W (Figure 1).

The property is situated on the west side of Bowser Lake along the headwaters of Todd Creek at latitude 56°31', longitude 129°46'.

At present access is by helicopter based in Stewart, British Columbia. A 38 kilometer summer road extending to the Tide Lake Airstrip from Stewart, B.C. can be used to reduce mobilization/demobilization expenses (approximately 22 km southwest of the headwaters of Todd Creek).

A newly constructed winter road cuts through the property. This road extends from the Cassiar-Stewart highway, east of Bowser Lake to the Newhawk Mining Camp, west of Brucejack Lake. The road has yet to be tested by the author.

The terrain is extremely rugged and steep with elevations ranging from 1300 feet to 7000 feet. Treeline is at 4000 feet.



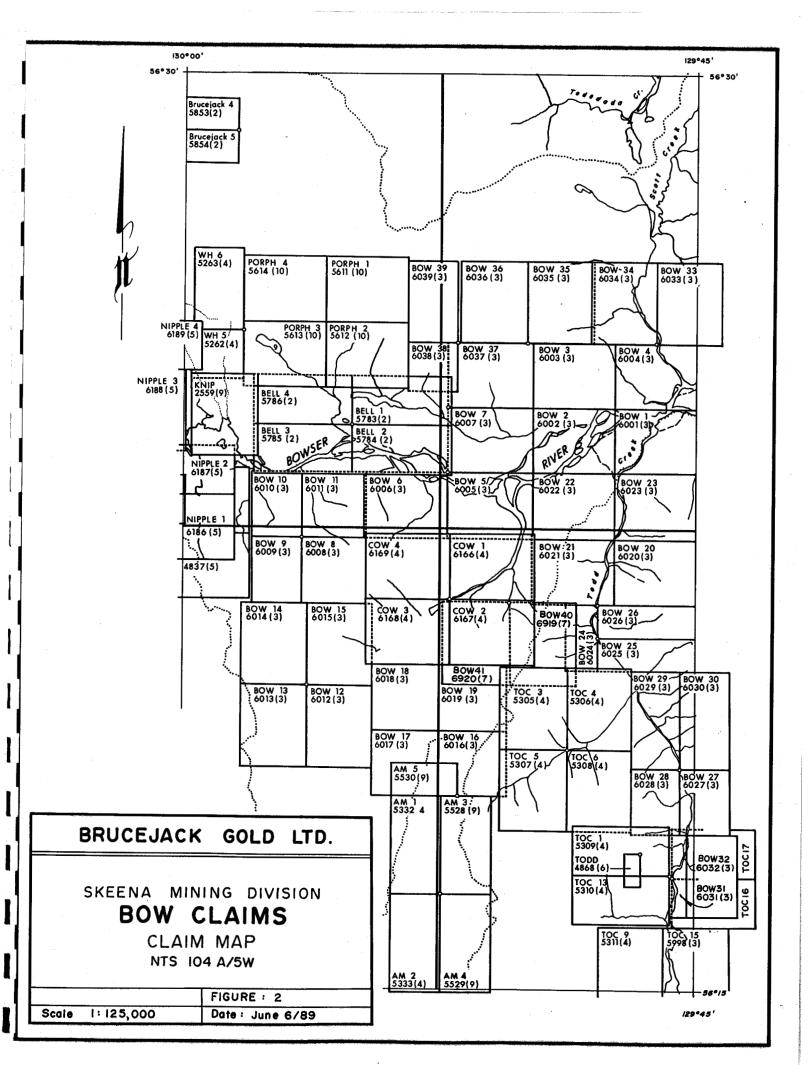
Vegetation at the lower elevations consists of fir, hemlock and spruce while at upper elevations vegetation is limited to thin brush and minor hemlock.

Water supply is plentiful as several glacial run-off streams drain into Bowser River and Todd Creek.

Property Ownership

The Todd Creek property consists of 678 units (Figure 2).

<u>Claim Name</u>	Record No.	No. of Units	Record Date
Bow 1	6001 (3)	20	March 19, 1987
Bow 2	6002(3)	20	^
Bow 3	6003(3)	20	
Bow 4	6004(3)	20	
Bow 5	6005(3)	20	
Bow 6	6006(3)	20	
Bow 7	6007(3)	20	
Bow 8	6008(3)	16	
Bow 9	6009(3)	12	
Bow 10	6010(3)	12	
Bow 11	6011(3)	16	
Bow 12	6012(3)	20	
Bow 13	6013(3)	20	
Bow 14	6014(3)	20	
Bow 15	6015(3)	20	
Bow 16	6016(3)	16	
Bow 17	6017(3)	16	
Bow 18	6018(3)	16	
Bow 19	6019(3)	16	
Bow 20	6020(3)	20	
Bow 21	6021 (3)	20	
Bow 22	6022(3)	20	
Bow 23	6023(3)	20	
Bow 24	6024(3)	8	
Bow 25	6025(3)	12	
Bow 26	6026(3)	12	
Bow 27	6027(3)	12	
Bow 28	6028(3)	12	
Bow 29	6029(3)	18	
Bow 30	6030(3)	18	
Bow 31	6031 (3)	5	
Bow 32	6032(3)	15	
Bow 33	6033(3)	20	
Bow 34	6034(3)	20	
Bow 35	6035(3)	20	
Bow 36	6036(3)	20	
Bow 37	6037(3)	20	
Bow 38	6038(3)	9	Wanah 10 1007
Bow 39	6039(3)	15	March 19, 1987
Bow 40	6919(7)	12	July 29, 1988
Bow 41	6920(7)	10	July 29, 1988



Personnel and Operations

Personnel involved during the 1987 program were as follows:

E.R. Kruchkowski, Geologist September 18 - October 2

K. Konkin, Geologist September 18 - October 2

G.D. Keller, Geologist September 18 - October 2

G. Sinden, Geological Technologist September 18 - October 2

B. Touzin, Prospector September 18 - October 2

T. Devine, Assistant September 18 - October 2

S. Weirs, Cook September 18 - October 2

Personnel involved in the project were accommodated in a tent camp located on the Bow 21 claim block and utilized a Vancouver Island Bell 206 Jet Ranger and a Bell 204 for transportation to and from the work site. Supplies for the program were purchased in Stewart, British Columbia.

GEOLOGICAL SURVEYS

Regional Geology

The Bow Claims are located in the Stewart area, east of the Coast Crystalline Complex and within the western boundary of the Bowser Basin. Rocks in the area belong to the Mesozoic Hazelton Group and have been intruded by plugs of both Cenozoic and Mesozoic age.

At the base of the Hazelton Group is the lower Lower Jurassic Marine (submergent) and non-marine (emergent) volcaniclastic Unuk River Formation. This is overlain at steep discordant angles by a second, lithologically similar, middle Lower Jurassic volcanic cycle (Betty Creek Formation), in turn overlain by an upper Lower Jurassic dacitic lapilli tuff horizon (Mt. Dilworth Formation). Middle Jurassic non-marine sediments with minor volcanics of the Salmon River Formation unconformably overlie the above sequence.

The oldest rocks in the area belong to the lower Lower Jurassic Unuk River Formation which forms a north-northwesterly trending belt extending from Alice Arm to the Iskut River. It consists of green, red and purple volcanic breccia, volcanic conglomerate, sandstone and siltstone with minor crystal and lithic tuff, limestone, chert and coal. Also included in the sequence are pillow lavas and volcanic flows.

In the property area the Unuk River Formation is unconformably overlain by middle Lower Jurassic rocks from the Betty Creek Formation. The Betty Creek Formation is another cycle of trough-filling submarine pillow lavas, broken pillow breccias, andesitic and basaltic flows, green, red, purple and black volcanic breccia, with self erosional conglomerate, sandstone and siltstone, and minor crystal and lithic tuffs, chert, limestone and lava.

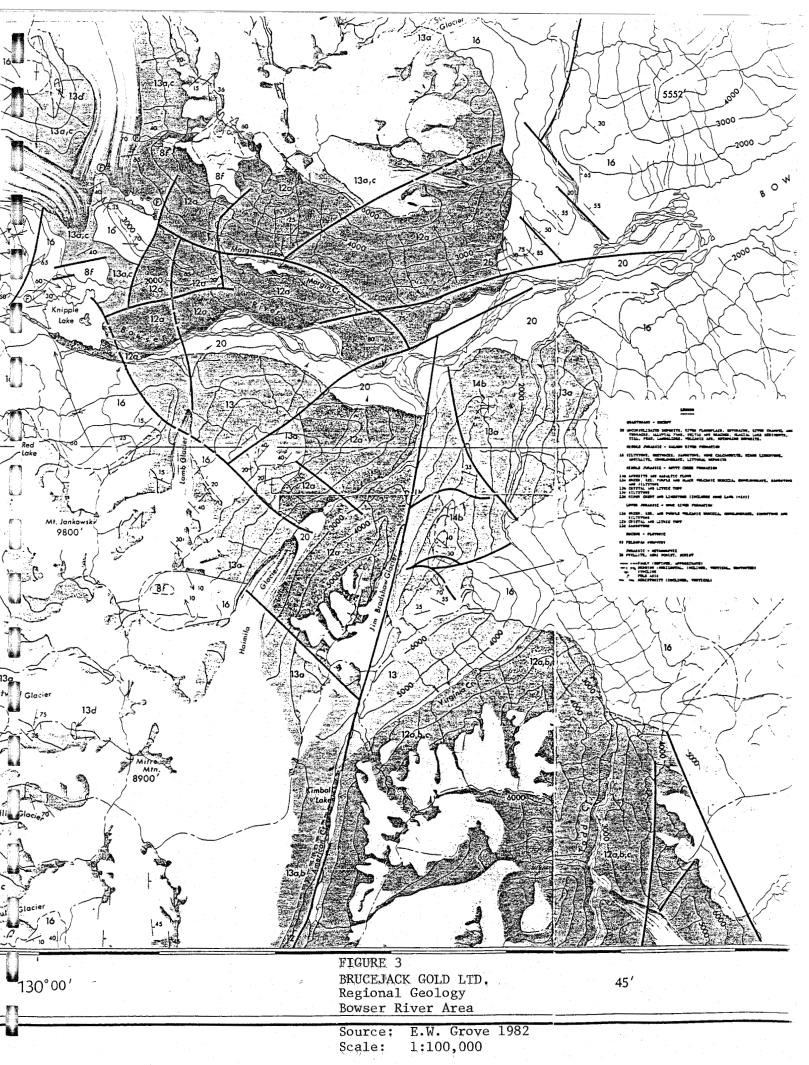
The upper Lower Jurassic Mt. Dilworth Formation consists of a thin sequence varying from black carbonous tuffs to siliceous massive airfall lapilli tuffs and felsic ash flows. Minor interbedded sediments and limestone are present in the sequence. Locally pyritic varieties form strong gossans.

The Middle Jurassic Salmon River Formation is a late to post volcanic episode of banded, predominantly dark coloured, siltstone, greywacke, sandstone, intercalated calcarenite, minor limestone, argillite, conglomerate, littoral deposits, volcanic sediments and minor flows.

According to E.W. Grove, the majority of the rocks from the Hazelton Group were derived from the erosion of andesitic volcanoes subsequently deposited as overlapping lenticular beds varying laterally in grain size from breccia to siltstone.

D. Alldrick's work has shown several volcanic centres in the property area. Lower Jurassic volcanic centres in the Unuk River Formation are located in the Big Missouri Premier area, and in the Brucejack Lake area. Volcanic centres within the Lower Jurassic Betty Creek Formation are in the Mitchell Glacier and Knipple Glacier areas.

There are various intrusives in the area. The granodiorites of the Coast Plutonic Complex largely engulf the Mesozoic volcanic terrain to the west. East of these (in the property area), smaller intrusive plugs range from quartz monzonite to granite to highly felsic; some are, likely, related late phase offshoots of the Coast plutonism, others are synvolcanic and tertiary. Double plunging, northwesterly-trending synclinal folds (Mitre syncline, Dilworth syncline, Spider anti-cline) of the Salmon River and underlying Betty Creek Formations dominate the structural setting of the area. These folds are locally disrupted by small east-overthrusts (Tippy Lake, Knipple Lake) on strikes parallel to the major fold axis, cross-axis steep wrench faults which locally turn beds, selective tectonization of tuff units, and major northwest faults which turn beds. Figure 3 shows the regional geology of the Bow Claims property area (Grove).



Local Geology

The property area is underlain by rocks belonging to the Hazelton Group. Volcanic sediments, volcanic flows and sedimentary units of the Unuk River, Betty Creek and Salmon River Formations are encountered.

The southeastern region of the property area contains red, purple and green volcanic breccia, conglomerate, siltstone, sandstone, lithic tuff and crystal tuff. The lithic and crystal tuffs are weakly to strongly silicified along sheared or faulted zones, particularly along exposed valley bottoms. Barren milky-white quartz veins intrude these rocks of the Unuk River Formation along the southern portion of Todd Creek. Several gossanous, very well silicified zones are encountered along Todd Creek on the eastern region of the property. These pyritic, silicified gossans appear to be hosted by the Betty Creek Formation of similar description to the rocks of the Unuk River Formation.

The northeastern regions encompass siltstone, greywacke and sandstones of the sedimentary Salmon River Formation. The siltstone and argillite units are black, fissil and contain belemnites and cherty concretions. The unit locally oxidizes a limonitic orange colour.

The central region of the property area includes volcanic breccias, siltstone and sandstones of the Betty Creek and Unuk River Formations. Locally minor wedges of sandstone, siltstone and greywacke of the Salmon River Formation appear.

The western section of the property is predominately crystal and lithic tuff with volcanic breccia, sandstone, and minor siltstone. Various small unmapped eocene feldspar porphyry plugs, stocks and dykes are encountered throughout the property.

A small wedge of schist, phyllite and semischist, sericitically altered, is located on the north valley wall of Bowser River. The property area is sheared and offset by regional block faulting.

Mineralization

The Stewart area of British Columbia has been the focus of considerable mineral exploration, especially for precious metals, since the turn of the century. Currently several precious metal prospects in the area are being explored. The important developments in the area in recent years included the mining at the Granduc Mine, the start-up of the Scottie Gold Mine in 1981, the ongoing exploration of th Silbak-Premier and Big Missouri prospects by Westmin Mineral Resources and the exploration of the Sulphurets camp by Newhawk-Granduc and Catear Resources.

1. <u>Silbak-Premier</u> - During the period 1918 to 1968, 4,670,170 tons of ore were mined containing 1,804,318 ounces of gold, 40,863,280 ounces of silver, 4,083,635 pounds of copper, 54,628,047 pounds of lead and 17,468,730 pounds of zinc. The property is currently under exploration by Westmin Resources Ltd.

The ore is restricted to several sulphide-rich shoots enclosed within essentially barren quartz-pyrite zones. Both the ore shoots and the surrounding barren quartz zones are enclosed by irregular zones of quartz-pyrite-sericite alteration. The ore shoots consist of sphalerite, galena, chalcopyrite, pyrrhotite, argentite, tetrahedrite, mercury and electrum within a gang of quartz-calcite-barite.

Three types of ore occurred in the mine including: (1) stephanite native silver (2) "black sulphide" ore, and (3) lower grade siliceous ore. The surface bonanza ores (stephanite-native silver) and the black sulphide ores contained up to 5% mercury. Silver content within galena averaged 1 oz/ton but ranged up to 55 oz/ton.

In recent years, some geologists have interpreted the ore zones as volcanogenic exhalations.

2. <u>Big Missouri</u> - From 1927 to 1942 the Big Missouri Mine produced 847,615 tons of ore containing 58,384 ounces of gold, 52,677 ounces of silver, and 2,712 pounds of lead. The prospect is currently being explored by Westmin Resources; in 1983 this company published open pit reserves of 1.9 million tons averaging 0.1 oz/ton gold.

The ore body has been described as a 200-foot fracture zone laced with quartz-calcite veinlets. The veinlets contain varying but generally small amounts of galena, sphalerite and chalcopyrite. The ore occurs within chloritic schists which have been sericitized, silicified, and pyritized. Silicification would appear to be the most persistent form of alteration. Recent talks by Harlan Meade of Westmin Resources indicate the possibility that the Big Missouri might contain a number of small lenses of exhalative sulphides with associated alteration zones.

3. Scottie Gold - The Scottie Gold Mine began operation in 1981 at which time reserves were reported as 175,000 tons grading 0.75 oz/ton gold.

Mineralization is described as consisting of erratic, discontinuous masses of sulphide mineralization occurring within siliceous replacement bodies. Sulphides include pyrrhotite, pyrite, arsenopyrite and chalcopyrite with minor sphalerite and galena.

- 4. <u>Granduc Mine</u> The Granduc Mine was opened by Esso Minerals Ltd. in 1980 at which time the indicated reserves were 10,890,000 tons using a cut-off of 1.79% copper. The mine closed again in 1983.
- 5. <u>Cumberland-Daly</u> Gold-silver-lead-zinc mineralization was also found near the mouth of Sulphurets Creek, about ten kilometers east of the Esso Minerals prospects. These showings, discovered in the 1930's, include two types. One type consists of sheared fissure

veins containing quartz, calcite, barite, pyrite, galena, sphalerite, stibnite, tetrahedrite, and argentite. These mineralized lenses are small and irregular but can carry high amounts of silver. The second type consists of quartz replacement zones containing pyrite, pyrrhotite, chalcopyrite, sphalerite, galena and gold. A grab sample from one of these returned 0.26 oz/ton gold, 2.4 oz/ton silver in addition to some base metals.

6. <u>Tom MacKay</u> - This prospect is owned by Stikine Silver Ltd. In 1973 the inferred reserves were reported as 107,200 tonnes using a 0.25 oz/ton gold cut-off.

The mineralization consists of stockworks of quartz veins irregularly mineralized with pyrite, tetrahedrite, sphalerite, galena, chalcopyrite and arsenopyrite. These stockworks occur within prominent oxidized knolls or domes.

7. <u>Goat Ridge Mine</u> - This mine, owned by Noradco Mines Ltd., has undergone sporadic development since 1978. In 1979 indicated reserves were estimated at between 500,000 and 1,000,000 tonnes grading 1% to 2% lead, 4% zinc and 80 gm/ton silver.

Mineralization consists of sphalerite, arsenopyrite, pyrite, galena, freibergite within three siderite-quartz-calcite veins.

8. Newhawk-Granduc - The deposits are as follows:

	Present Reserves	Grade opt Au opt Ag
Newhawk West (partially explored)	854,072	.354 22.94
Catear Goldwedge (partially explored)		
Golden Rocket Discovery	319,149 37,980	.80 1.12 .63 1.08

The above gold-silver discoveries are structurally controlled, epithermal-mesothermal veins occurring in areas of syenodiorite intrusions and associated with areas of intense sericite (quartz-pyrite) alteration.

Economic Geology

No significant in place gold or silver mineralization has been located, at present, on the property.

During 1988 work concentrated on silt sampling, and on finding previously undiscovered quartz sulphide veins, quartz-carbonate-sericite-pyrite altered zones and mineralized shear zones using rock geochemical sampling and prospecting techniques.

1987 Silt sampling has returned values as high as .188 ounces per ton gold. Rock geochemical samples in the vicinity of Golden Nevada's property produced assays up to .160 ounces per ton gold.

The 1988 rock geochemical sampling program located two new areas that require follow-up work. Assays up to 66.00 ounces per ton silver were located within a quartz-carbonate-sericite-pyrite alteration zone located northeast of Golden Nevada's South Zone on Bow 32.

An assay of .100 ounces per ton gold was recovered from a quartz rich sulphide poor zone on Bow 15.

The work program to date has assisted in delineating high priority areas.

A deposit of very similar nature occurs to the south on Golden Nevada/Noranda's Todd Creek property.

Recent results released by Golden Nevada Resources Inc. outline three mineralized zones on their Todd Creek property.

The South Zone is a 900 meter long and 15 meter wide fault controlled quartz-sericite-pyrite alteration zone. Chip sampling averaged 0.119 ounces per ton gold over 270 meters and 0.65% copper across three meters.

The North Zone returned values of 0.153 ounces per ton gold across three meters in a quartz sulphide vein system.

The Mid Zone consists of mineralized shear zones and quartz sulphide veins with values up to 0.96 ounces per ton gold. Boulders from a quartz-carbonate-sericite-pyrite alteration zone graded up to 0.845 ounces per ton gold. Some of the trench results are:

	WIDTH	GOLD	CU
TRENCH	FEET	OZ/T	%
8	19.7	0.174	0.49
10	29.5	0.109	1.20
11	14.7	0.214	0.52
13	9.8	0.128	0.23
15	9.8	0.130	0.66

Drilling on the South Zone substantiated surface assays. Grades of gold mineralization improved with depth. Some of the drilling results are:

HOLE NO	INTERSECTION FEET	WIDTH FEET	GOLD OZ/T	COPPER %
5	181.6 - 187.3	5.7	0.348	1.50
7	200.0 - 204.9	4.9	0.117	0.70
8	190.6 - 210.8	20.2	0.200	0.23
	including			
	196.5 - 203.1	6.6	0.317	0.40
9	196.5 - 203.1	6.6	0.317	0.40
	232.8 - 265.4	32.6	0.183	0.32
	including			
	234.4 - 237.7	3.3	0.181	0.97
	244.3 - 246.5	2.2	0.160	0.28
	256.8 - 262.1	5.3	0.238	0.57

Brucejack Gold's Todd Creek property presents good economic potential citing encouraging results from Golden Nevada's property as an example of a deposit similar mineralogically and structurally. A good possibility exists that auriferous quartz sulphide veins and auriferous quartz-carbonate-sericite-pyrite alteration zones may be discovered. The property is an excellent gold exploration target. Further work is essential to explore the Todd Creek property to determine its true economic potential.

GEOCHEMICAL SURVEYS

Rock Geochemistry

A total of 35 rock geochemical samples were collected from the Bow Claims during September - October 1988. The samples were selected on the basis of mineralization and/or alteration.

The samples were shipped to Loring Laboratories Ltd. of Calgary, Alberta where they were crushed, split and ground to a -80 mesh. The samples were then analyzed using standard geochemical methods (Appendix I).

Results of the program indicate anomalous gold and silver values in the survey area. The sample sites are shown on Figure 4 to Figure 7.

In 1987 rock samples were statistically treated and plotted on cumulative frequency graph paper. The lower or normal distribution values which plot as a straight line were used to determine background and anomalous values. Based on the plots in Appendix IV the anomalous and background values are as follows:

Metal	Background	Anomalous
Gold	10 ppb	TOO ppb
Silver	.8 ppm	1.7 ppm

Using the above threshold number, weakly anomalous values are considered being 1-2 times threshold, moderately anomalous 2-3 times threshold and strongly anomalous as greater than 3 times threshold. As a result the geochemical program indicates several gold and silver anomalies ranging from weak to strong on the Bow 11, 15, 31 and Bow 32 claims.

In comparing the 1974 - 1976 Granduc Surveys and the Bighorn 1987 survey on their Sulphurets properties to the Brucejack Gold Ltd. 1987 program on the Bow Claims, the results were remarkably similar in

terms of background and anomalous values for gold and silver in rocks. The Granduc survey indicated that results over 1 ppm silver and 100 ppb gold were anomalous, while Bighorn's results indicate results over 2.6 ppm silver and 105 ppb gold were considered anomalous. Brucejack Gold's 1987 survey indicated that values over 1.7 ppm silver and 100 ppb gold were anomalous. Any values over 1.7 ppm silver and 100 ppb gold were considered anomalous in the 1988 survey.

Silt Geochemistry

A total of 169 silt samples were collected during the course of the rock geochemical program. These samples were collected and placed in numbered kraft sample bags and subsequently shipped to Loring Laboratories Ltd. of Calgary, Alberta. They were dried, crushed and ground to a -80 mesh. The samples were then analyzed using standard geochemical methods for Au and Ag. (Appendix I)

The results are plotted on cumulative frequency graph paper with the straight line plot considered the normal distribution. Using these plots indicates the following background and threshold volumes:

Metal	Background	Threshold
Gold	8 ppb	25 ppb
Silver	0.2 ppm	0.9 ppm

Using the above threshold number, weakly anomalous values were considered as 1-2 times threshold, moderately anomalous as 2-3 times threshold and strongly anomalous as greater than 3 times threshold.

The silt sampling program highlighted several areas worthy of followup. Numerous weak to strongly anomalous gold and silver values were found on the Bow 10, 11, 15, 26 and 27 claims.

It is recommended that all areas of anomalous gold in rocks and silts be investigated by further sampling.

CONCLUSIONS

- 1. The area is underlain by favourable gold and copper bearing volcanic and sedimentary units of the Unuk River, Betty Creek and Salmon River Formations.
- 2. The claims are adjacent to recent gold-copper discoveries to the south on the Golden Nevada Resources/Noranda joint venture. Drilling had intersected assays varying from 0.117 0.348 ounce per ton gold and 0.23% 1.50% copper over widths up to 32.6 feet.
- 3. Rock geochemical samples taken while prospecting returned values up to 0.10 ounce per ton gold and 66.0 ounce per ton silver.
- 4. Silt sampling yielded numerous weak to strong anomalous gold and silver values.
- 5. A further program consisting of prospecting, silt geochemistry, geological mapping and trenching is recommended for the property.

RECOMMENDATIONS

Detailed Silt Geochemistry

Sampling should be conducted every 50 meters along stream beds on the property.

2. Prospecting

All structural features on the property should be carefully prospected in order to evaluate the mineral potential. Special attention should be given to quartz sulphide veins, quartz-carbonate-sericite-pyrite altered zones and mineralized shear zones.

3. Trenching

Trenching would be conducted in areas of newly discovered mineralization to obtain fresh samples for assaying as well as evaluation for indicator minerals.

4. Geological Mapping

The property should be mapped in conjunction with silt sampling and prospecting programs. Detailed mapping would be conducted in areas of newly discovered mineralization.

STATEMENT OF EXPENDITURES

Personnel Personnel			
K. Kruchkowski	Geologist, Project	15 days @ \$400/	day \$6,000.00
K. Konkin G. Keller G. Sinden B. Touzin T. Devine S. Weins	Supervisor Geologist Geologist Geotechnologist Prospector Assistant Cook	15 days @ \$300/ 15 days @ \$250/ 15 days @ \$200/ 15 days @ \$150/ 15 days @ \$150/ 15 days @ \$150/	day 3,750.00 day 3,000.00 day 2,250.00 day 2,250.00
Food			
\$20 per day x 105	man days		2,100.00
Camp \$25 per day x 105	man days		2,625.00
Geochemical Analy			
\$15 per sample x	204 samples		3,060.00
Helicopter (Bell	206)		21,605.42
Generator Rental \$20 per day x 15	days		300.00
Cobra Drill Renta \$90 per day x 15			1,350.00
Radio Rental \$10 per day x 15	days		150.00
Fuel, Explosives			1,200.00
Freight			300.00
Expediting Costs			941.60
Consumables/Hardv	ware Supplies		2,500.00
Mob/Demob - Pro	rated		5,000.00
Report Writing/D	rafting/Administrati	on .	5,000.00
			\$ 70,132.02

STATEMENT OF COSTS TO BE APPLIED TO CLAIM GROUPINGS

Claim Group	Number of Units	% of Work to be Applied	Cost of Work to be Applied
Bow 1, 2, 3, 4	80	11.43%	\$ 8,000.00
Bow 33, 34, 35 36, 39	95	13.57%	9,500.00
Bow 24, 25, 27 28, 29, 30, 31, 32	100	14.29%	10,000.00
Bow 20, 21, 22, 23, 26	92	13.14%	9,200.00
Bow 9, 10, 11, 12, 13, 14	100	14.29%	10,000.00
Bow 8, 15, 16, 17, 18, 19	100	14.29%	10,000.00
Bow 5, 6, 7, 37, 38	89	12.71%	8,900.00
Bow 40, 41	_22	6.28%	4,400.00
	678 units	100%	\$70,000.00

REFERENCES

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- MINISTER OF MINES AND PETROLEUM RESOURCES
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- WORLD INVESTMENT NEWS Volume 1 Issue 12 November 1987
- VANCOUVER STOCKWATCH NEWS RELEASES -September 11, 1987 November 6, 1987 November 13, 1987

CERTIFICATE

I, EDWARD R. KRUCHKOWSKI, Geologist, residing at 23 Templeside Bay N.E., in the City of Calgary, in the province of Alberta, hereby certify that:

- 1. I received a Bachelor of Science degree in Geology from the University of Alberta in 1972.
- 2. I have been practising my profession continuously since graduation.
- I am a member of the Association of Professional Engineers, Geologists and Geophysicists of Alberta.
- I am a consulting geologist on behalf of Brucejack Gold Ltd.
- 5. This report is based on a review of reports, documents, maps and other technical data on the property area and on my experience and knowledge of the area obtained during programs in 1974 -1988.

E.R. KRUCHKOWSKI, B.Sc

CERTIFICATE

I, GORDON W. SINDEN, currently residing at #2607, 123 - 10 Avenue S.W., Calgary, Alberta T2R 1K8, hereby certify that:

- 1. I am a geological technologist and have practised my profession since 1977.
- I am a graduate of the Northern Alberta Institute of Technology (1977) in Mineral Resources Technology.
- I am a Registered Engineering Technologist with the Alberta Society of Engineering Technologists.
- 4. This report is based on a review of reports, documents, maps and other technical data on the property area and on my experience and knowledge of the area obtained during programs in 1982 1988.

June 7/89

Date

Gordon W. Sinden, R.E.T.

APPENDIX I

ANALYTICAL INFORMATION

LABORATORY:

Loring Laboratories Ltd.

Calgary, Alberta

MESH SIZE:

-80/stream sediments

-80/rocks

EXTRACTION:

For Cu:

HN03/HC104 to dryness

taken up in HCl

For Pb/Zn:

Nitric-Perchloric dissolution

to dryness, taken up in dilute HCl

For Au/Ag:

Fire Assay fusion, cupellation

and acid dissolution of precious

metal bead.

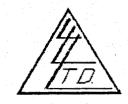
ANALYSIS:

Atomic absorption

APPENDIX II

ROCK GEOCHEMICAL ANALYSIS

To: CATEAR RESOURCE	ES LTD.,
400, 255 - 17th A	venue S.W.,
Culgary, Alberta	T2S 2T8



Date November 24, 1988
Samples Rock
TODD CREEK PROJECT

ATTN: Ed Kruchkowski

Certificate of Assay LORING LABORATORIES LTD.

RECEIVED NOV 2 5 1988

Page # 1

SAMPLE NO.

OZ./TON GOLD OZ./TON SILVER

"Rock Samples"

"Assay Analysis"

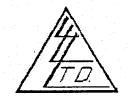
TCGR-4		.100	-
DK EAST GOLD		054	38.20
TCRF-5		<u>-</u>	5.13
TCRF-7		- _.	9.79
TCRF-8			2.54
TCRF-9		• • • • • • • • • • • • • • • • • • •	66.00
TCRF-11			4.09
TCRF-12			1.73
TCRF-13		-	1.68
TCKR-1			2.01

I Hereby Certify that the above results are those assays made by me upon the herein described samples....

Rejects retained one month. Pulps retained one month unless specific arrangements are made in advance.

Stary faraley

	RCES LTD., Avenue S.W.,
	T2S 2T8



File No. 31952

Date November 24, 1988

Samples Rock

TODD CREEK PROJECT

PPM

ATTN: Ed Kruchkowski

SAMPLE NO.

Certificate of Assay LORING LABORATORIES LTD.

Page # 2

PPB

"Rock Sar	mples"		
Geochemical	Analysis		**
TC-160A	15		0.2
251A	10		1.7
390A	15 (15)		0.1
422A	5		0.5
TCASR- 8	20		0.4
55	10		1.0
TCBSR-500	20		0.5
501	NIL		0.4
503	10 m		0.4
504	160		1.0
505	80		2.3
506	25		0.6
507	90		6.1
TCCSR-240	NIL		0.2
TCDSR- 40	10		0.1
240	10		0.1
325	10		0.2
TCGR- 1	20		0.3
2 3	70		0.5
3	790		0.7
4	+1000		1.2
5	110		1.5
BEGR-1-	205	Control of the Contro	0.2
2	10-	Walter Control of the	-0.1
-3			0.1
BESSR 142	NIL		0.3
200 -	5		0.1
TCRF- 1	NIL		0.2
2	NIL		0.5

I Hereby Certify that the above results are those assays made by me upon the herein described samples...

Rejects retained one month.-Pulps retained one month unless specific arrangements are made in advance. Assayor (

To: CATEAR RESOUR	RCES LTD.,
400, 255 - 17th	Avenue S.W.,
Calgary, Alberta	T2S 2T8



File No. 31952

Date November 24, 1988

Samples Rock

TODD CREEK PROJECT

ATTN: Ed Kruchkowski

Certificate of Assay LORING LABORATORIES LTD.

Page # 3

SAMPLE NO	o.	PPB Au	PPM Ag
TCRF- 3		10	0.2
4		10	0.1
5		80	+30.0
6		10	0.8
7		30	+30.0
8		25	+30.0
9		270	+30.0
10		20	17.0
11		105	+30.0
12		60	+30.0
13		10	+30.0
TCKR- 1		180	+30.0
2		30	3.3
DK EAST GOLD		+1000	+30.0

I Hereby Certify that the above results are those assays made by me upon the herein described samples....

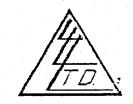
Rejects retained one month.
Pulps retained one month
unless specific arrangements
are made in advance.

Say faaling

APPENDIX III

SILT GEOCHEMICAL ANALYSIS

400, 255 - 17th Avenue S.V	٧.,
Calgary, Alberta T2S 2T8	



File No. <u>31951</u>

Date November 22, 1988

Samples Soil

PROJECT: TODD CREEK

ATTN: Ed Kruchkowski

Certificate of Assay LORING LABORATORIES LTD.

Page # 1

RECEIVED MOV 2 5 1988

SAMPLE NO.	PPB Au	PPM Ag
"Soil Samples"		
Geochemical Analysis		
TCAS- 1	15	3.0
2	10	2.1
3	20	0.7
4	5	0.6
5	10	0.7
6	10	0.4
7	30	0.4
. 8	NIL	0.4
9	NIL	0.5
. 10 - 144	NIL	0.5
11 (1) Burgaran	10	0.5
13	15	0.6
14	NIL	0.6
15	10	0.4
16	NIL	0.4
17	5 99 99	0.4
TCBS- 1	10	0.1
	10	0.1
3	NIL	0.3
<u> </u>	5	0.1
5 11 1 2 2 3 4 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	NIL	0.1
6	NIL	0.2 0.2
7	10	0.2
8	NIL	0.1
9	10 5	2.3
		1.1
	NIL 10	1.5
12	NIL	1.6
13 1 2 2 4 4 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	NIL 5	1.3
T Herehy Certify +n		

I Hereby Certify that the above results are those assays made by me upon the herein described samples....

Rejects retained one month.
Pulps retained one month
unless specific arrangements
are made in advance.

Lang fraley

To: CAT	EAR RESOUR	RCES LTD.,
400, 2	55 - 17th	Avenue S.W.,
Calgary	, Alberta	T2S 2T8



File No. <u>31951</u>

Date <u>November 22, 1988</u>

Samples <u>Soil</u>

PROJECT: TODD CREEK

ATTN: Ed Kruchkowski

Certificate of Assay LORING LABORATORIES LTD.

Page # 2

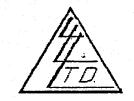
	SAMPLE NO.	PP8 Au	PPM Ag
	TCBS-15	20	2.2
W	16	15	1.6
便清	17	10	1.7
	18	10	1.8
	19	15	0.8
# T	20	10 10 10 10 10 10 10 10 10 10 10 10 10 1	1.2
	21	20	2.0
- - 	22	<u>. 10 </u>	1.6
	23	49 4 40 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	1.7
	24	5	1.6
	25 06	20	1.6 1.8 1.2
	26	15 (14) (15) (16) (17) (17) (17) (17) (17) (17) (17) (17	1.2
	27	10	0.9
	28	10 * 10	1.8
	29	10	1.3
	30	5	1.5
Application of the state of the	31	15	0.2
	32	NIL	0.1
	33 34	20	0.2
	35 35	30	0.3
	36	15 5	0.2
	36 37	20	0.2
	38	25	0.2
	39	20	0.2
	41	20	0.2
	42	15	0.2
	43	5	0.4
	44	10	0.1
	45	NIL	0.1
	46	15	0.1
	47	20	0.8
	THIA		0.0

I Hereby Certify that the above results are those assays made by me upon the herein described samples...

Rejects retained one month.
Pulps retained one month
unless specific arrangements
are made in advance.

Jany Swaley

To: CATEAR RESOUR	RCES LTD.,
400, 255 - 17th	Avenue S.W.,
Calgary, Alberta	T2S 2T8



File No. <u>31951</u>
Date <u>November 22, 1988</u>

Samples Soil

PROJECT: TODD CREEK

ATTN: Ed Kruchkowski

Certificate of Assay LORING LABORATORIES LTD.

Page # 3

	SAMPLE NO.		PP A	B u	PP A	M .g
7 1						
	TCBS-48	- 9		5	0.	
القشقة	49			0	0.	1
ar n	50			0	0.	1
	51		. 2	0	0.	
	52			5	0.	
	53			0	0.	
	54			5	0.	
	TCCS- 1		2	0	0.	
	2			5	0.	6
	3			0	0.	5
	4			5	0.	
1 2.3	5		NI	L	0.	7
Re Ta	6		1	0	0.	7
	TCDS- 1			0	NI	
4.3	2		NI		NI	L
	3		NI		NI	L
	4			5	0.	3
	5		NI		0.	2
	6			5	, a taloni, see to see 0. .	2
	7		NI	L	0.	2
	8		NI		0.	2
44.5	TCGS- 1			0	0.	3
87° 79.	2			5	0.	4
	3			5	0.	4
k.i	4		NI	L	1	3
	5			5	0.	3
	6		1	0	0.	4
ال	7			0	0.	3
	8			5	0.	2
	9			0	0.	2
	10		1	0	0.	2
E.3	11		1	0	0.	3

I Hereby Certify that the above results are those assays made by me upon the herein described samples....

Rejects retained one month.
Pulps retained one month
unless specific arrangements
are made in advance.

Spany July Assayer

To:	CATEAR	RESOUR	RCES	LTD	••
400,	255 -	- 17th	Aven	ue	s.w.

Calgary, Alberta T2S 2T8

TD.

File No. 31951

Date November 22, 1988

Samples Soil

PROJECT: TODD CREEK

ATTN: Ed Kruchkowski

Certificate of Assay LORING LABORATORIES LTD.

Page # 4

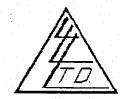
	SAMPLE NO.	PP8 Au	PPM Ag
	TCGS-12	10	0.2
	13	5	0.2
	14	5	0.2
	15	10	0.2
	16	15	0.3
-	17	20	0.2 0.2
	18	5	0.2
	19	10	0.1
	20	15	0.2
	21	20	0.2
	22	15	0.1
4	23	20	0.2
	24	10	0.2
	25	40	0.3
	26	25	0.2
min	27	20	0.2
	28	10	0.3
	29	15	0.3
	30	10	0.2
	31	NIL	0.2
	32	NIL	0.2
	33	NIL 15	0.2
	34	15	0.2
	35	NIL	0.6
	36	10	0.5
gr→s	37	NIL	0.8
	38	10	0.8
	39	5	0.6
	40	10	0.5
	41	10	0.2
	42	5	0.2
	43	10	0.6

I Hereby Certify that the above results are those assays made by me upon the herein described samples....

Rejects retained one month.
Pulps retained one month
unless specific arrangements
are made in advance

Charge funding

To:	To: CATEAR RESOURCES LTD.,					
400	, 25	5 - 171	th.	Avenue	e S.W.	
Cal	gary,	Albert	ta	T2S	2T8	
						_



File No. <u>31951</u>
Date <u>November 22</u>, 1988

Samples Soil

PROJECT: TODD CREEK

ATTN: Ed Kruchkowski

Certificate of Assay LORING LABORATORIES LTD.

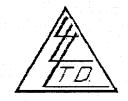
Page # 5

	SAMPLE NO.	PP8 Au	PPM Ag
	TCGS-44	20	0.5
أدعا	45	15	0.2
	46	10	0.3
	47	10	0.4
	48	10 5	0.3
	49	10	0.3
	50	10	0.3
	51	NIL 1996 PAGE 1996	0.3
	52	10	0.3
4 3	53	10	0.3
	54	20	0.2
	55	20 5	0.3
8F3	56	.	0.3
	57	10	0.3
in a	58	10	0.2
min/7/he	59	15	0.3
	60	30	0.3
	61	20	0.3
	62	5	0.2
	63	20	0.2
	64 65	10 5 10 15	0.2
	66 66	5	0.3
	66 67	10 45	0.2
	68	20	0.2 0.2
	69	10	0.2
	70	5 1 1 1 1 1 1 1	0.2
	71	5	0.2
选	TCPS- 1	10	0.5
er e	2	10	0.5
		10 15 20	0.4
	3 4	20	0.3

I Hereby Certify that the above results are those assays made by me upon the herein described samples....

Rejects retained one month. Pulps retained one month unless specific arrangements are made in advance. Lang frales

To: CATEAR RESOUR	RCES LTD.,
400, 255 - 17th	Avenue S.W.
Calgary, Alberta	T2S 2T8



File No. 31951

Date November 22, 1988

Samples Soil

PROJECT: TODD CREEK

ATTN: Ed Kruchkowski

Certificate of Assay LORING LABORATORIES LTD.

			Page # 6	
	SAMPLE NO	•	PP8 Au	PPM Ag
	TCPS- 5		10	0.3
	6		10	0.3
	7		10	0.4
	8		10	0.3
	9		15	0.3
	10		20	0.2
	11		5	0.3
	12		10	0.3
	13		10	0.5
	14		10	0.4
	BEGS- 1-		5	
	2-		5	0.2
	3		10	0.1
	4		15	0.1
	 5		NIL	0.2-
	<u>.</u>		5	
	7		10	
	8	-	10	
	9	·	15	
	10_		• •	
	11_			
	12_			
	13_		~~	0.1
- 1	44-			0.1-
	1-5 1-6			0.1
	1-7	· · · · · · · · · · · · · · · · · · ·	10	0.2
	18-			0.2
	BESS- 1		10	0.2
	2_		20	0.2
	3-		25	0.2
	<u> </u>		25	0.2

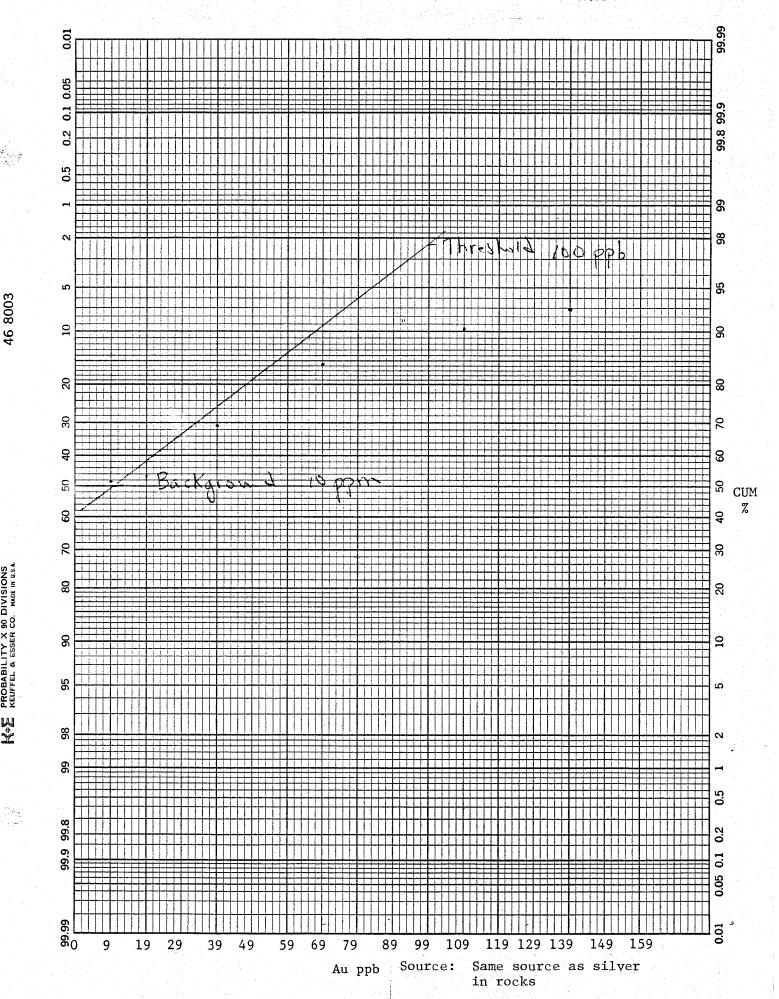
I Hereby Certify that the above results are those assays made by me upon the herein described samples....

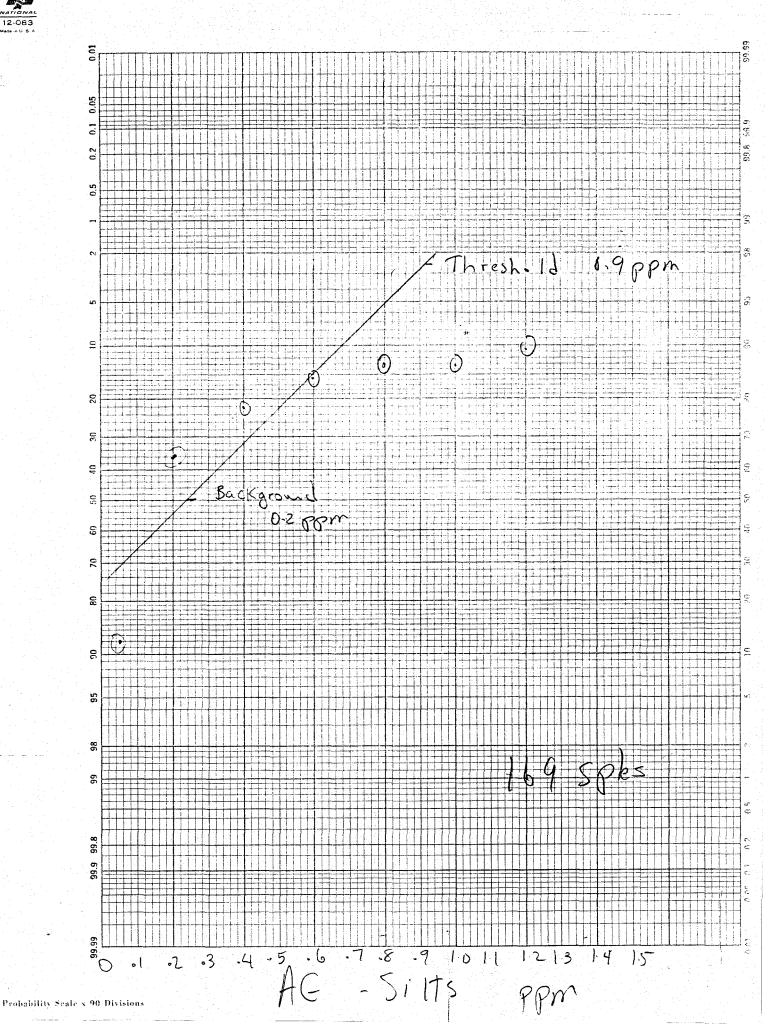
Rejects retained one month. Pulps retained one month unless specific arrangements are made in advance. Han funding

APPENDIX IV

CUMULATIVE FREQUENCY CHARTS

Source: Kruchkowski E.R.; Konkin K.; Sinden G., 1988;
Geochemical Report on the Bow Claims,
Stewart, British Columbia, Skeena Mining Division,
NTS 104A/5W





Backgrowd 8 pp 60 30 95 AW-SILTS PPD Probability Scale x 90 Divisions

APPENDIX V

ROCK SAMPLE DESCRIPTIONS

ROCK SAMPLE DESCRIPTIONS

- TC-160A Select grab, fault gauge, intensely weathered, highly altered chlorite and clay, 2-3% fine to medium disseminate pyrite in medium to coarse grained angular clasts with strong foliation.
- TC-251A Select grab, float boulders, quartz diorite, medium grained, hematite and green chlorite alteration, 5-10% quartz, malachite staining.
- TC-390A l meter chip, graphitic shear, 10-20% l-2 mm quartz stringers, 5-10% graphite.
- TC-422A Select grab, quartz, highly fractured dark grey to black quartz, graphitic?
- TC-ASR-8 1 meter chip, siltstone-argillite, black, very fine grained moderately to weakly foliated, primary bedding, trace to 2% very finely disseminated pyrite.
- TCASR-55 Select grab, float, quartz and carbonate veins and stringers in brecciated siltstone, 1-2% pyrite, rusty weathering.
- TCBSR-500 Select grab, felsic tuff, rusty, 3-5% pyrite stringers 1-2 mm well foliated, medium to strong carbonate alteration, quartz and carbonate stringers 2-4 mm.
- TCBSR-501 Select grab, float, rusty altered volcanic, 10% quartz stringers, trace 3% finely disseminated pyrite.
- TCBSR-503 Select grab, boulder, felsic sericitic tuff, brecciated, quartz and carbonate veinlets, 5-8% disseminated pyrite.
- TCBSR-504 Select grab, boulder, sericite schist, well foliated, grey-green, 20-30% pyrite. Coarse disseminated and 3 to 6 mm stringers, 15-20% quartz stringers to 4 mm wide.
- TCBSR-505 Select grab, boulder, highly brecciated, felsic volcanic, 20-25% pyrite in 4-7 mm stringers, coarsely disseminated.
- TCBSR-506 Select grab, boulder, sericite and quartz + chlorite schist, well foliated, moderately fractured, 25-30% pyrite, stringers to 15 mm, coarsely disseminated, 10-15% quartz stringers to 10 mm.
- TCBSR-507 Select grab, boulder, mafic volcanic, black, fine grained, well foliated, highly fractured, 30% quartz veins + carbonate, 10-15% coarse disseminated pyrite.

- TCCSR-240 Select grab, quartz, barren with highly chloritic selvages.
- TCDSR-40 | meter chip across red slate unit, possible slaty interbed in volcanics, very fine grained, minor sporatic chlorite alteration, adjacent unit dark green to black feldspar porphyry, interbedded mafic volcanic.
- TCDSR-240 60 cm chip, altered volcanic, green, epidote, minor quartz and carbonate, pyritiferous.
- TCDSR=325 1 meter chip, mafic volcanic, 10-20 cm quartz + carbonate vein, no visible sulphides.
- TCGR-1 l meter chip, altered volcanic, green, limonitic, ankoritic, no visible sulphides.
- TCGR-2 3 foot chip, green altered volcanics, limonitic, pyrite locally up to 10%, quartz veinlet 2 1/2 inches wide, slightly chloritic, no visible sulphides in quartz.
- TCGR-3 | meter chip, quartz stockwork in green altered volcanic, limonitic, quartz veinlets up to 40 cm wide, 1-2% pyrite in quartz, 1-2% pyrite in volcanic.
- TCGR-4 1 meter chip, quartz stockwork in green altered volcanic, slightly limonitic, quartz veinlets up to 40 cm wide, no visible sulphides in quartz, 1-2% pyrite in volcanic.
- TCGR-5 Select grab, float boulder, reddish green altered tuff with l inch wide quartz veinlet containing malachite, no visible sulphides in tuff.
- TCRF-1 Select grab, float boulder, quartz porphorytic felsic tuff/sandstone, 3-5% fine to very finely disseminated pyrite, weathered, foliated, massive, highly fractured.
- TCRF-2 60 cm chip, felsic tuff, fine grained very fine grained, light grey, weakly foliated, highly fractured, 10-20% quartz stringers 2-4 mm wide and some tension fractures sub parallel to quartz stringers, 5-8% very fine to finely disseminated pyrite.
- TCRF-3 I meter chip, felsic volcanic, dark black to red grey, medium grained, strong hematization and minor epidote alteration, hematization masks much of fabric, 2-3% pyrite finely disseminated, weakly foliated to massive, highly fractured, 5% quartz and calcite stringers along fractures.

- TCRF-4 Select grab, minor intrusive dyke?, light grey to white grey, fine grained, composition similar to TCRF-3, strong lematite and epidote alteration throughout dyke.
- TCRF-5 Select grab, felsic tuff, fine grained, massive to weakly foliated, 7-10% very fine to finely disseminated pyrite, similar to TCRF-1 and TCRF-2.
- TCRF-6 50 cm chip, barite + quartz vein, 20-30 cm wide, barite bands + siderite with 5-8% galena finely disseminated to blebs 2-4 mm, in felsic tuff, highly altered carbonates and chlorite, highly fractured.
- TCRF-7 60 cm chip, barite vein 30-40 cm wide, similar to TCRF-6, 10-15% galena in 4-10 mm stringers in carbonate vein, hematitic and chlorite selvages with minor 2-3 mm carbonate stringers.
- TCRF-8 40 cm chip, quartz vein 2-3 cm wide, 25-30% pyrite stringers to 20 mm, some areas massive pyrite, quartz vein has bright red hematitic coating ± pyrite, 2-3% galena finely disseminated, trace chalcopyrite, host is highly foliated highly altered carbonate + hematitic + chloritic felsic volcanic.
- TCRF-9 40 cm chip, barite and quartz vein, 20-30 cm wide with barite and quartz stockworks 3-4 mm, 15% pyrite medium to coarse disseminated and stringers subparallel to carbonate stringers 2-3 mm wide, in felsic tuff with medium to strong hematite and chlorite alteration.
- TCRF-10 Select grab, felsic tuff, massive light grey, fine grained, some quartz lapilli 2 mm, 4-6 mm quartz stringers, 5-10% dark purple specks, 2-4 mm probably hematized pyrite, 5-8% pyrite fine to medium disseminated.
- TCRF-11 60 cm chip, quartz vein 5-10 cm, 8-10% pyrite, coarsely disseminated stringers to 5 mm, 1-3% galena fine to medium disseminated especially along selvages, 5-10% carbonate stringers, in felsic tuff.

4.04

1.73

- TCRF-12 | meter chip, quartz + barite vein, | meter wide, brecciated wall rock clasts 30 mm, 5-7% pyrite in 2-5 mm stringers, coarse disseminated, 1-2% galena medium to finely disseminated.
- TCRF-13 1 meter chip, across 40-50 cm barite vein, 1-3% pyrite fine disseminated, strong chlorite alteration of selvages, host felsic tuff with weak chlorite alteration.

TCKR-1 l meter chip, across 40-50 cm barite vein in grey altered volcanic, 1~2% pyrite, 2-3% galena.

TCKR-2 | 1 meter chip, pyritiferous green altered volcanic.

