LOG NO:	12-31	RD.
ACTION:		
FILE NO:		

VANCOUVER, B.C.

GEOCHEMICAL REPORT

ON THE

VIRGINIA K GROUP

Skeena Mining Division

NTS: 104A/5W Latitude: 56°17' Longitude: 129°53'W

Owner/Operator:

Don McLeod and Ian McLeod 860 - 625 Howe Street Vancouver, B.C. V6C 2T6

Work Conducted:

September 30, 1990

Report By:

Dave Visagie November 26, 1990

> GEOLOGICAL BRANCH ASSESSMENT REPORT

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#### 1.0 INTRODUCTION

The Virginia K property occurs within the Stewart gold camp, approximately 42 air kilometres north of the town of Stewart, B.C. The claims are underlain by a north-northwest trending assemblage of Hazelton Group volcanic and sedimentary rocks, consisting of argillites and maroon andesitic tuffs and flows. The property has had a long exploration history dating back to the late 1920's. One day (representing two man-days) was spent, September 30, 1990, collecting 14 talus samples. The property evaluation was hampered by topographic and weather conditions.

### 2.0 LOCATION AND ACCESS (Figures 1 & 2)

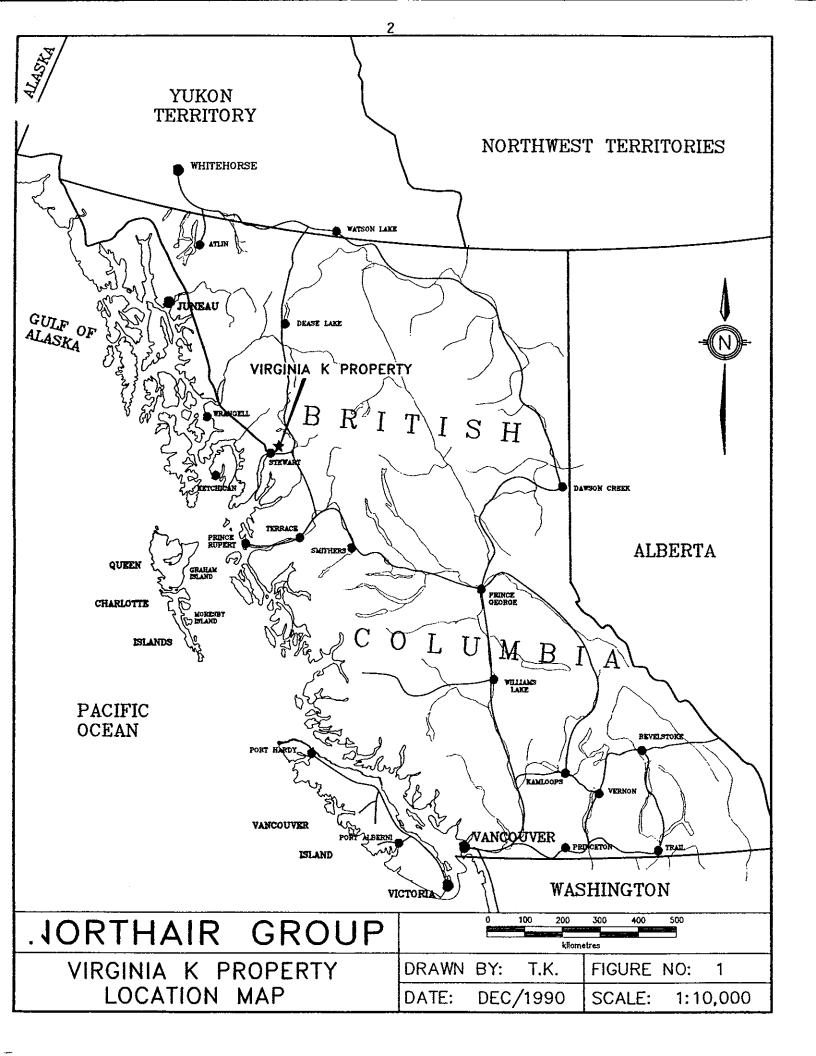
The Virginia K property is located on the headwaters of American Creek, a south-flowing tributary of Bear River and lies about 42 air kilometres north of the town of Stewart, B.C. The property is centred on latitude  $56^{\circ}17$ 'N and longitude  $129^{\circ}53$ 'W, shown on topographic map NTS 104A/5.

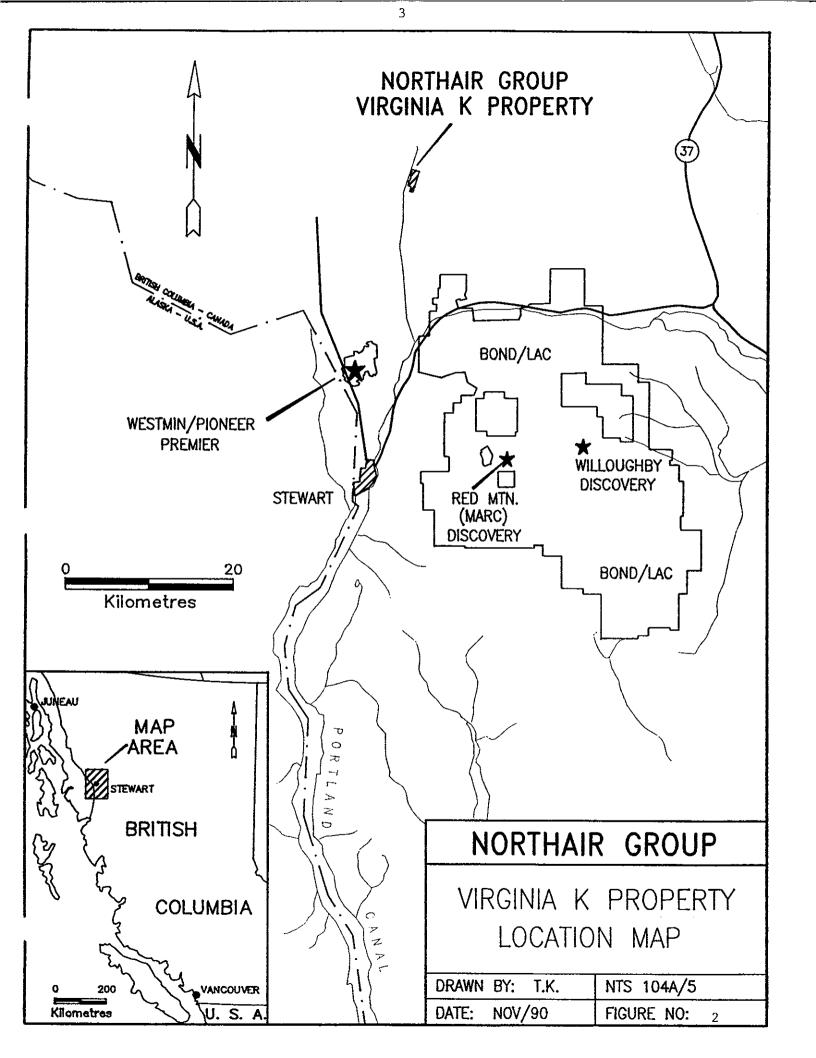
Access to the property at present is by helicopter from Stewart, B.C. A pack-horse trail some 17 kilometres long was constructed to the Virginia K and Moonlight properties in the early 1930's from the Bear River, but has long since fallen into disrepair and disuse. The retreat of the American Creek glacier over the past 20 years has opened up a possible surface access route along a series of fault controlled benches and ridges on the west side of American Creek. Several areas on this route may require rock work, there has been no ground evaluation of the route to this time.

### 3.0 PHYSIOGRAPHY, VEGETATION AND CLIMATE

The property is located in the Boundary Ranges of the Coast Mountain Physiographic terrain. Extensive permanent snowfields and glaciers cover much of the higher ground. The mountains are up to 8,500 feet (3,000 metres) high, the valley sides are steep to precipitous reflecting recent emergence from mountain glaciation. A hanging glacier flowing off Bear River Ridge, about 9 miles (14 kilometres) south of the property, occupied the floor of the valley up to 50 years ago, causing problems of access to the early workers on the property. The American Creek glacier as it was known, has since retreated up the valley side and presently terminates at about 4,500 feet (1,400 metres) elevation, as a perched glacier.

The valley of American Creek is steep-sided, with elevations on the property ranging form 3,000 feet (914 metres) at Kimball Lake, to more than 6,500 feet (1,900 metres) along the ridges. The topography on the west side of American Creek near the headwaters is more subdued with a number of benches and ridges locally marked by small patches of scrubby spruce occupying areas away from avalanche trails and snow chutes.





The weather is typical of the northern Coast Mountains with heavy winter snowfall and associated extreme avalanche and snowslide danger. The summers are generally cool and wet with snow occurring on the mountains in any month of the summer. The lower slopes on the property are partially snow free in mid August, snowfall commences in late September and starts accumulating by mid to late October.

The property is available for surface exploration work from mid August until mid October each year, this is dependent on the previous winter's snow pack and the rate of snow melt in the spring and early summer. Large patches of snow can remain all year in some locations.

#### 4.0 CLAIM STATUS (Figure 3)

The Virginia K property consists of the following reverted crown grants:

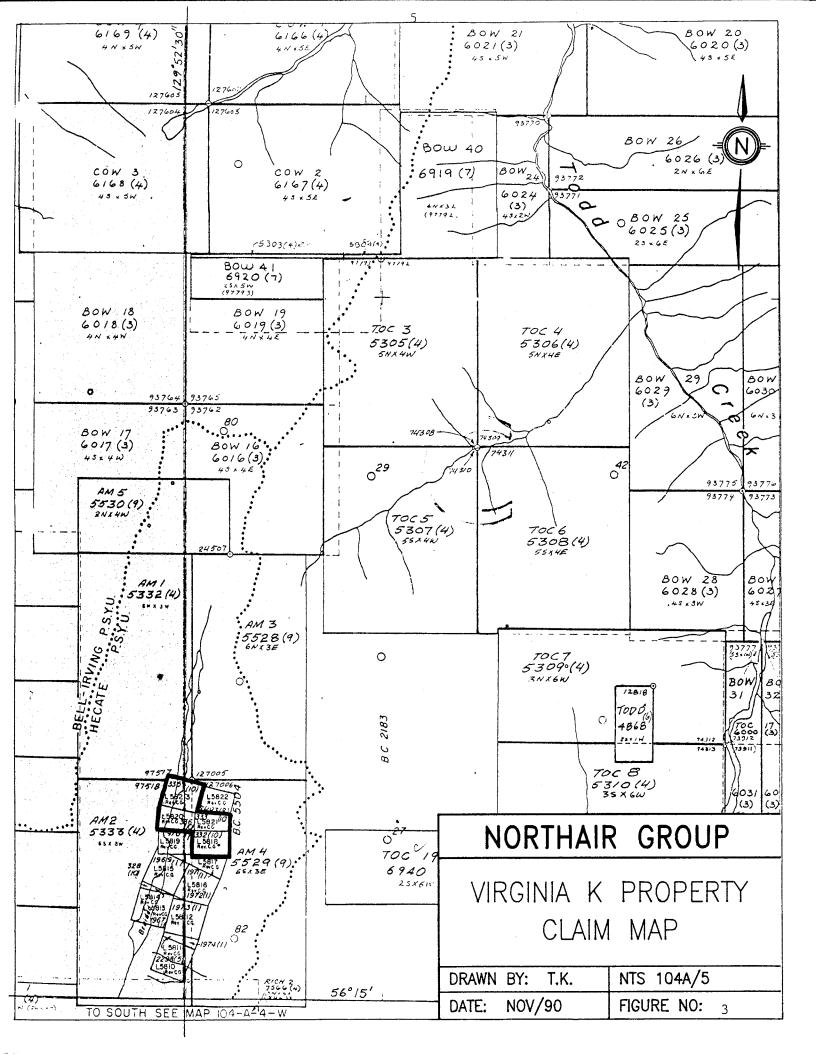
Claim	Units	Record Number	Expiry Date
Virginia K #4	1	332	Oct. 1, 1993
Virginia K #5	1	333	Oct. 1, 1992
Virginia K Extension #2	1	335	Oct. 1, 1992
Virginia K Extension #3	1	336	Oct. 1, 1992

## 5.0 HISTORY AND PREVIOUS WORK

The mineralized showings at the head of American Creek were discovered by D.D. Kimball in 1929. In 1930 the Excelsior Prospecting Syndicate was formed to explore the showings at both the Virginia K and the Moonlight properties. A pack-horse trail was completed to the properties in 1932.

Exploration work continued on both properties to 1935, when limited mining was carried out on the Virginia K claims. Discoveries of spectacular pockets of native gold were made on the Moonlight property in 1936 and 1937, with underground development carried out from 1938 through 1939. The claims were crown granted and presumably were kept in good standing by making the annual tax payments.

There are no reports of development work being carried out on the properties until 1955 when the Great North Mining Company carried out trenching and x-ray diamond drilling on the Moonlight group of claims. Trail work was completed and a cabin erected on the access trail and beside the workings on the Moonlight vein.



The Virginia K group was explored by diamond drilling in 1956, when Canex Exploration Ltd. optioned the property. There are no reports of further work until 1966 when Frontier Exploration Inc. carried out further prospecting, trenching and sampling of the Moonlight vein area. In 1979, Tournigan Mining Exploration Ltd. carried out mapping and sampling of the Moonlight vein and reconnaissance mapping of the surrounding area.

In 1980, Komody Resources Ltd. acquired the Reverted Crown Grants on the Virginia K property and during the course of exploration work a high grade vein was discovered. A 1,500 lb bulk sample, averaging 182 ounces per ton silver, was mined and shipped to the smelter.

Komody Resources Ltd. consolidated the Moonlight and adjoining Bugnello claims under the same ownership as the Virginia K property in 1981, carrying out some limited exploration each year. The Moonlight vein was leased for high-grading in 1984, and it was reported that further spectacular finds of arborescent gold were made by the lessors.

In 1986, the AM-1 and AM-2 modified grid claims were staked to cover the lapsed Moonlight and Bugnello claims. The property comprising the Virginia K group of reverted crown grants and the Am-1&2 claims was acquired under option by Square Gold Exploration Inc. A program of geological mapping, prospecting and sampling was carried out over the Moonlight and Bugnello mineral occurrences on the west side of American Creek, where several veins carrying gold and silver mineralization were discovered to the north of the old Moonlight vein. Additional modified grid claims were staked, the AM-3, AM-4 and AM-5, totalling 44 units, a reverted crown grant was acquired, and added to the Joint Venture property.

The results of the 1986 program were sufficiently encouraging for recommendations to be made for a program of trenching and sampling on the new vein discoveries, and for additional geochemical soil sampling and geological mapping. During August 1987 a 12 foot x 16 foot cabin was constructed near the mineralized vein showings on a bench about 1,200 feet (365 metres) above creek level. An extensive program of trenching and sampling was carried out over the newly discovered mineralized veins, as well as some geological mapping and geochemical soil sampling on the AM-3 and AM-4 claims. The program was terminated by heavy snow in early October 1987.

The 1987 program outlined two gold/silver bearing veins in some The veins occur within the altered zone discovered in detail. They are up to 3.0 feet (0.9 metres) wide and were traced 1986. over 300 feet to 400 feet (90 metres to 120 metres) along strike. Mineralization consist quartz-siderite of veins carrying sphalerite, galena and chalcopyrite. A program of diamond drilling was recommended to test the down dip extensions of the veins and to determine if there had been supergene enrichment of the veins at or near surface.

In 1988, six holes totalling 456 metres were drilled from three set-ups by Glacier Resources on the AM-1 claim located immediately to the northwest of the Virginia K group.

## 6.0 REGIONAL GEOLOGY

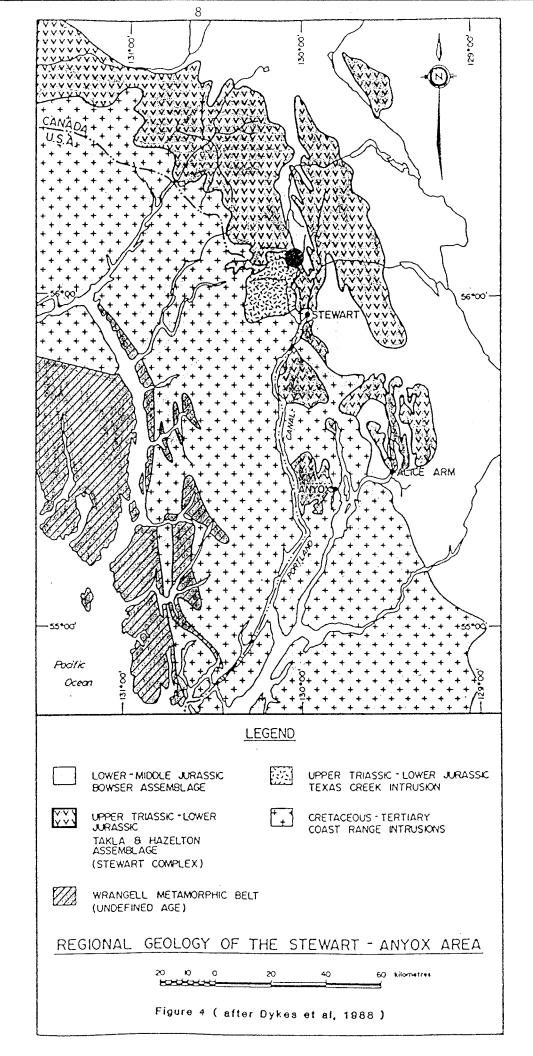
The Stewart area is underlain by a north to northwest trending assemblage of Upper Triassic to Lower Jurassic volcanic and sedimentary rocks of the Hazelton Group occurring in an island arc complex, capped by Middle Jurassic marine basin turbidites of the Bowser Lake Group on the east. The sub-aerial volcanic pile is constructed of differentiated andesitic to dacitic calc-alkaline volcanics with interbedded sedimentary facies. Variations in the volcanic facies, mapped by recent workers in the area, indicate that volcanic vents and palaeotopographic highs were centred at Mount Dilworth and at Lay Lake on Bear River Ridge lying west of the AM-Virginia K property. It is likely that other volcanic centres were located nearby.

The stratovolcano of the island arc complex was underlain by a coeval, epizonal subsidiary magma chamber at a depth of about 2 kilometres. Late stage magmatic, bimodal feldspar-porphyry feeder dykes and volcanic surface. The exposed coeval intrusives are the Texas Creek batholith and the Summit Lake stock, the dyke phase of the Texas Creek batholith is known as the Premier Porphyry in the mining camps.

A younger intrusive suite, the Hyder Quartz Monzonite of Middle Eocene age, outcrops in the Stewart area, including a batholithic phase as well as several minor plugs and a widespread dyke phase termed the Hyder Dykes. These Tertiary intrusives lie within the eastern margins of the Coast Plutonic Complex while the smaller stocks and dykes are considered to be satellites of the Complex.

The Stewart area lies near the boundary of the Cordilleran Intermontane Belt and the Coast Plutonic Belt. The major structural deformation of the area may be related to plate tectonics and collision, the volcanics were deformed along major northerly trending fold axes and later intruded by stocks and batholiths of granitic rocks. Later deformation and faulting was accompanied by granitic intrusions during the early Tertiary.

The mineral deposits of the Stewart area were responsible for much of the past economic activity in the area and account for most of the present activity. The mineral deposits have been the focus of ongoing studies by provincial and federal Geological Surveys, such as Alldrick (1982-1988), and Anderson (1983-1988). The majority of the deposits consist of precious metal veins, which are late stage to post-intrusive epithermal veins emplaced in the andesitic to dacitic host rocks of the Upper Triassic to Lower Jurassic stratovolcanic complex of the Hazelton Group. The veins are spatially related to the coeval Texas Creek Granodiorite stocks.



A second system of silver-rich galena-sphalerite-freibergite veins in the area appears to be related to the intrusion of Eocene-age biotite-granodiorite stocks and dykes of the Hyder Quartz Monzonite.

## 7.0 LOCAL GEOLOGY

The Virginia K property, occuring at the headwaters of American Creek, is underlain by a north-northwest trending assemblage of Hazelton Group volcanic and sedimentary units deformed along major northerly trending fold axes. The northern section of American Creek follows the course of a major fault trending about 014°, while further south the creek lies near the axial plane of the major American Creek anticlinal structure which trends northnorthwest.

The claims are underlain by the faulted core of the American Creek anticlinorium, exposing the lowest units of the Hazelton Group along the creek. The units consist of dark grey to black argillites associated with interbedded limestone units on the Virginia K group of reverted crown grants. On the west side of the creek the basal argillite unit is succeeded upwards by interbedded siltstones and argillites. The siltstones contain some Bouma sequences and represent a turbidite facies of sedimentation. This unit is succeeded upward on the west side of the valley by an assemblage of green and maroon fragmental volcanics including volcanic tuffs, agglomerates and volcanic flow rocks.

The anticlinorium was much affected by faulting, the major north trending fault underlying the claim block crosses the axis of the anticlinorium obliquely, and apparent axial plane faults or shears strike parallel to the fold axes. The majority of these northerly trending strike slip or axial plane faults do not appear to have had much displacement but some have acted as the focus for a series of major faults roughly paralleling the main American Creek fault zone. The faults have also acted as zones of weakness for emplacement of the intrusive dykes evident on the west side of the valley and for the associated zones of silicification and carbonate alteration.

A series of roughly parallel east-west faults strike across the anticlinorium and the major north-south fault zones. The east-west faults are believed to be later than the major north-south faults and are certainly later than the westerly dipping quartz carbonate veins and vein systems. The two fault systems appear to have had a block faulting effect on the stratigraphic units underlying the property, more detailed surface mapping will be required to determine the size and extent of the fault blocks. The local mineralization primarily consists of quartz-calcite veins and stringers which occur as fissure veins in minor shears and fractures and along bedding fractures. Sulphide minerals in the veins include pyrite, galena, sphalerite, minor chalcopyrite and tetrahedrite. Native gold and silver, as well as rare electrum, have been reported.

#### 8.0 GEOCHEMISTRY

A total of 14 rock chip samples were collected in the course of the evaluation. The rock chip samples weighing up to 5 kilograms were taken, identified and stored in plastic bags. The sample locations are plotted on Figure 5 with the sample descriptions being listed in Appendix 1. The assay results are outlined in Appendix 2.

#### 8.1 Assay Procedure

All of the samples were prepared in Stewart, B.C. by Eco-Tech Laboratories and then sent to their laboratory in Kamloops, B.C. to be analyzed using the 30 element Inductively Coupled Plasma (I.C.P.) method with gold content being determined by atomic absorption. Samples that contained >1000 ppb Au, 30 ppm Ag, 10,000 Cu, Pb or Zn were assayed.

The following is an outline of the procedure used for the preparation and analysis of the samples:

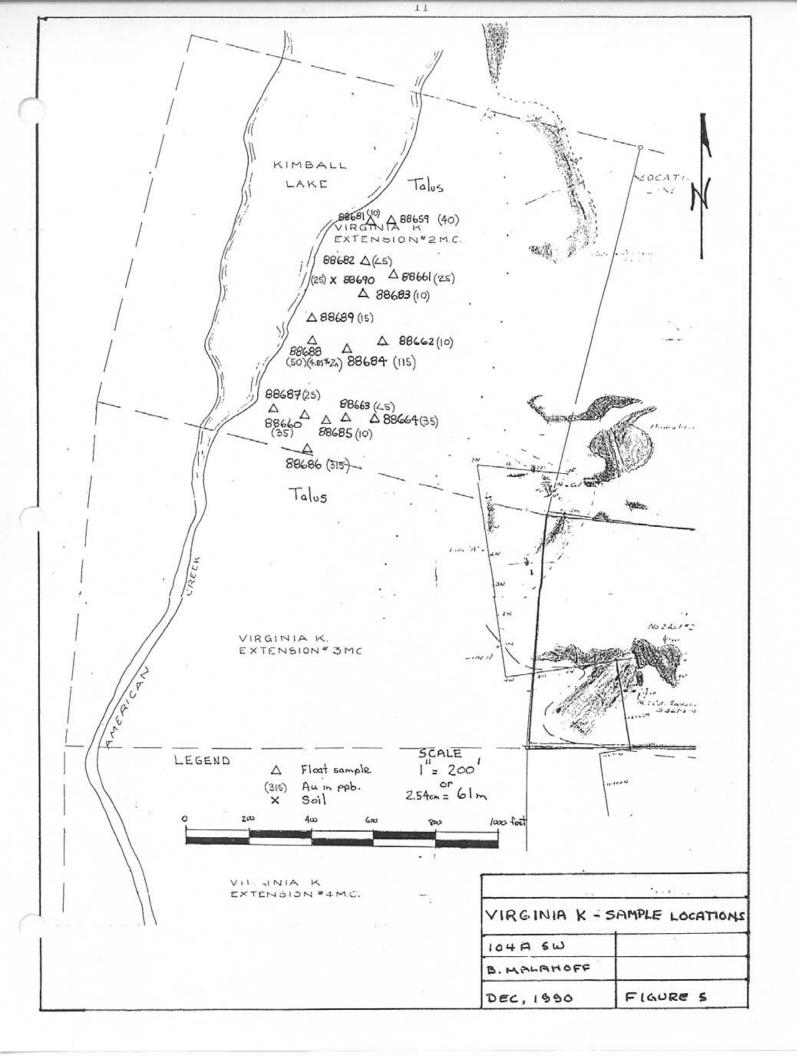
Samples dried (if necessary), crushed or sieved to pulp size and pulverized to approximately -140 mesh.

For the 30 element I.C.P. analysis, a 10 gram sample is digested with 3 ml of 3:1:3 nitric acid to hydrochloric to water at  $90^{\circ}$  C for 1.5 hours. The sample is then diluted to 20 mls with demineralized water and analyzed. The leach is partial for Al, B, Ab, Ca, Cr, Fe, K, Mg, Ma, Na, Q, Sb, Ti, U, and W.

For gold determination by atomic absorption, a 10 gram sample that has been ignited overnight at  $600^{\circ}$  C is digested with hot dilute aqua regia and the clear solution obtained is extracted with Methyl Isobutyl Ketone (MIBK). Gold is determined in the MIBK extract by atomic absorption using a background detection (detection limit 5ppb).

For fire assay analysis, a one assay ton subsample is used.

Copper, lead and zinc are digested by aqua regia with the samples being analyzed by atomic absorption.



## 8.2 Results

The results for the talus samples are located in Appendix 2. Samples of talus were generally of quartz carbonate veined andesite and argillite. The results show generally low values for gold and silver with only two samples 88684 and 88686 containing >100 ppb Au, 115 and 315 ppb Au respectively. Copper values are low with only three samples containing >1000 ppm Cu with no samples being >2.760 ppm Cu. Zinc values are generally low with one sample assaying 4.85%. All the rest of the samples contain <3650 ppm with the majority assaying <100 ppm.

## 9.0 SUMMARY AND CONCLUSIONS

One day was spent sampling talus on the Virginia K property. Originally, a program was designed to evaluate the known showings, however, due to topographic and climactic conditions the program was modified.

Results from the talus sampling show weakly anomalous gold values in two locations while silver values are all low. Copper and zinc values are generally low with only one sample assaying >1% being 4.58% Zn.

The known showings are documented as containing gold and silver with quartz-filled shear zones and should be evaluated when conditions permit.

#### 10.0 RECOMMENDATIONS

It is recommended that additional work be completed on the Virginia K property. The purpose of the program would be to evaluate the known showings to determine their lateral and vertical extent.

11.0 STATEMENT OF QUALIFICATIONS

I, D.A. Visagie of 860 - 625 Howe Street, Vancouver, British Columbia, do hereby declare that:

- I graduated from the University of British Columbia with a Bachelor of Science Degree, majoring in Geology, in 1976.
- 2. I have been steadily employed in the mining industry since then and have since January 1990 been employed by Northair Mines Ltd. as Senior Geologist.
- 3. The work undertaken on the Virginia K group was under my supervision.

Dated at Vancouver, British Columbia, this 27th day of November, 1990.

Dave Visagie

I, Brian Malahoff of 860 - 625 Howe Street, Vancouver, British Columbia, do hereby declare that:

- I graduated from the University of British Columbia with a Bachelor of Science degree, majoring in Geology, in 1985.
- 2. I have been steadily employed in the mining industry since then and have been employed by the Northair Group, under contract, since July, 1990.
- 3. The work on the Virginia K group was completed by myself and a crew under my supervision.

Dated at Vancouver, British Columbia, this 27th day of November, 1990.

Brian Malahoff

12.0 COST STATEMENT

a)	Labour D. Visagie: B. Malahoff:	Geologist, 1 Geologist, 1			\$417.62
b)	Room & Board i - Room 2 man ii - Board 2 ma				\$150.00
c)	Truck rental 1 day @ \$75/day				\$ 75.00
d)	Helicopter 1.3 hours @ \$71	3.50			\$927.55
e)	Sampling 14 samples @ \$1	7.50			\$245.00
f)	Report includes xeroxi	ng, drafting	, etc.		\$300.00
				Total:	\$2,115.17

APPENDICES

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## APPENDIX 1: SAMPLE DESCRIPTION - VIRGINIA K

Sample #	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Sample Description
88569	40	0.02	15	16	27	Mod-strongly sil. q.v. in andesite tuff
88660	26	2.6	62	30	24	Crystal tuff
88661	25	7.2	20	46	22	Mod. sil. crystal andesite tuff, gossanous tr 10% py
88662	10	7	47	320	551	Carbonate vein with weak siderite 2% pyrite
88663	<5	0.04	32	14	65	Mod-strongly sil. andesite crystal tuff 1% pyrite
88664	35	6.8	2718	26	3647	Mod-strongly sil. andesite crystal tuff 1% pyrite
88681	10	0.2	15	6	75	Quartz-carbonate vein, tr pryite
88682	<5	0.4	5	36	120	Quartz-carbonate vein, tr pryite
88683	10	0.4	3	62	76	Quartz-carbonate vein, tr pryite
88684	115	1.4	17	118	34	Gossanous silicified andesite 20% pyrite
88685	10	0.8	1381	6	29	Siliceous andesite, tr cp, tr py
88686	315	11.8	33	102	13	Gossanous pyrite, andesite flow
88687	25	2.2	2758	6	522	Silicified andesite, tr pyrite
88688	50	3.2	887	116	4.48%	Silicified andesite, tr pyrite
88689	15	3	11	366	1980	Silicified andesite, gossanous tr pyrite
88690	25	0.6	32	15	96	Soil sample

16

10041 EAST TRANS CANADA HWY. KAMLOOPS, B.C. V2C 2J3 PHONE - 604-573-5700 FAX - 604-573-4557 860-625 HOWE ST. VANCOUVER, B.C. V&C 2T6

OCTOBER 12, 1990

VALUES IN PPM UNLESS OTHERWISE REPORTED

PROJECT: VIRGINIA K - 1 15 ROCK SAMPLE RECEIVED OCTOBER 2, 1990

EI	DESCRIPTION A			AL(\$)	AS	8	8A	BI CA(%)	CD	CO	CR	CU F		К(%)		16( % )	MN		NA( <b>1</b> )	NI	P	P8	S8	SN		TI(\$)	U	Ų	W	¥	ZN
9147 - 1	88659	40	.2	.56	5	4	25	(5 1,60	(1	3	107	15	1.45	.02	17	.34	528	6	.06	4	510	16	(5	(20	53	.02	(10	25	(10	3	27
9147 - 2	88660	35	2.6	.24	1505	16	10	(5.84	{1	16	68	62	4.80	.12	7	.03	342	18	.02	2	480	30	80	(20	16	(.01	(10	] 4	(10	l	24
9147 - 3	88661	25	7.2	.03	395	6	35	5 5.84	(1	15	22	20	4.13	.01	7	.08	3239	29	,03	2	60	46	150	(20	604	(,01	(10	5	(10	4	22
9147 - 4	88662	10	7.0	.23	1685	20	10	(5 4.48	2	17	25	47	5.64	.20	12	.08	1353	10	.05	8	1160	320	150	(20	102	(.01	(10	6	10	3	551
9147 - 5	88663	(5	. 4	1.12	1240	16	15	(\$ 2.56	(1	12	35	32	3.47	.13	19	.61	390	3	.05	2	1280	14	55	(20	57	(.01	(10	24	(10	4	65
9147 - 6	88664	35	6.8	.36	545	30	35	(5.11	14	22	52	2718	6.14	.12	11	.06	150	35	.03	3	2240	26	80	(20	5	(.01	(10	8	70	1	3647
9147 - 7	88681	10	.2	.60	20	24	105	(5 2.92	(1	3	150	18	1.23	.01	3	.41	743	9	.04	5	120	6	(5	(20	75	(.01	(10	15	(10	1	75
9147 - 8	88682	(5	.4	1.20	5	8	85	(5 4.41	(1	7	85	5	2.78	.08	22	.60	1042	9	.04	i	580	36	5	(20	168	(.01	(10	13	(10	2	120
9147 - 9	88683	10	.4	.68	5	16	1150	(5 7.29	()	6	86	3	1.63	.08	14	.37	1557	6	.03	1	360	62	(5	(20	195	(.01	(10	7	(10	3	76
9147 -10	88684	115	1.4	.43	710	10	5	5.26	()	26	64	17	7.99	.10	12	.13	211	13	.02	1	370	118	70	(20	6	.03	20	15	(10	2	34
9147 -11	88685	10	.8	.51	30	18	280	(\$ 3.55	(1	5	100	1381	1.15	.12	12	.19	783	8	.02	3	1130	6	5	(20	68	(.01	(10	9	(10	2	29
9147 -12	88686	315	11.8	.03	1345	20	50	(5 .02	(1	6	115	33	3.16	.06	4	(.0)	52	241	.02	ł	180	102	345	(20	4	(.01	10	4	(10	()	13
9147 -13	88687	25	2.2	.36	65	20	125	(5 2.98	6	7	66	2758	1.01	.15	16	.12	475	8	.03	4	2150	6	(5	(20	43	(.01	(10	7	(10	3	522
9147 -14	88688	50	3.2	.34	355	14	10	(5 4.98	466	34	37	887	4.24	.14	15	.14	1341	42	.03	8	720	116	45	(20	77	(.01	10	7	860	4 >	10000
9147 -15	88589	15	3.0	.31	30	24	65	(5 2.91	17	12	28	11	3.48	.17	18	.04	1025	13	.04	2	1330	360	5	(20	39	(.01	(10	16	40	4	1980

NOTE: ( = LESS THAN

17

CC: DAVE VISAGIE TENAJON RESDURCES 80% 830, STEWART, B.C.

SE90/NORTHAIR

Jaure ECO TECH LABORATORIES LID. DUTTA TEALOUSE 8.C. CERTIFIED ASSAYER



ECO-TECH LABORATORIES LTD.

ASSAYING - ENVIRONMENTAL TESTING 10041 East Trans Canada Hwy., Kamloops, B.C. V2C 2J3 (604) 573-5700 Fax 573-4557

OCTOBER 12, 1990

CERTIFICATE OF ANALYSIS ETS 90-9147

NORTHAIR MINES LTD. 860-625 HOWE ST. VANCOUVER, B.C. V6C ZT6

ATTENTION: DAVID VISAGE

SAMPLE	IDENTIFICATION:	15 ROCK samples received OCTOBER 2, 1990
		PROJECT: VIRGINIA K – 1
		ZN
E1#	Description	(%)
·		
9147 -	14 88688	4.85

HEL ECO-TECH LABORATORIES LTD. JUTTA/JEALOUSE B.C./Certified Assayer

SC90/NORTHAIR