86-954-15477

GEOLOGICAL AND GEOCHEMICAL REPORT, 1986

on the

KS-1 and KS-2 CLAIM BLOCKS

Atlin Mining Division

N.T.S. 104K/10W

Latitude 58°~~06'~~N 39.4'

Longitude 132°~~55'~~W 55.9'

by

Wayne Reid

for

Owner/Operator: Noranda Exploration Company, Limited (NPL)

January, 1987

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CHAPTER ONE: INTRODUCTION

1-1: GENERAL STATEMENT

The KS-1 and 2 claims were staked in December, 1985 following a program of regional geochemical sampling directed on areas outlined by a combination of remote sensing analysis (i.e. linear and circular features) and geology from the G.S.C. 1:250,000 scale map (Souther, 1969). The claims are characterized by an interpreted circular feature, silicified and gossaned Sloko volcanics and moderate multi-element geochemical (silt and rock) anomalies. The 1986 field work consisted of geological mapping, prospecting and geochemical sampling.

1-2: LOCATION AND ACCESS

The claims are located approximately 5 kilometres south of King Salmon Lake on N.T.S. 104 K/10 at latitude 58°40'N and longitude 132°55'W (Figure 1). Elevations range from 3,500 feet to over 6,000 feet on the north edge of the claims.

To date, access has been totally by helicopter from Atlin, B.C., however fixed wing aircraft to King Salmon Lake is the obvious staging point for any future work. Helicopter would still be needed for access to the claims.

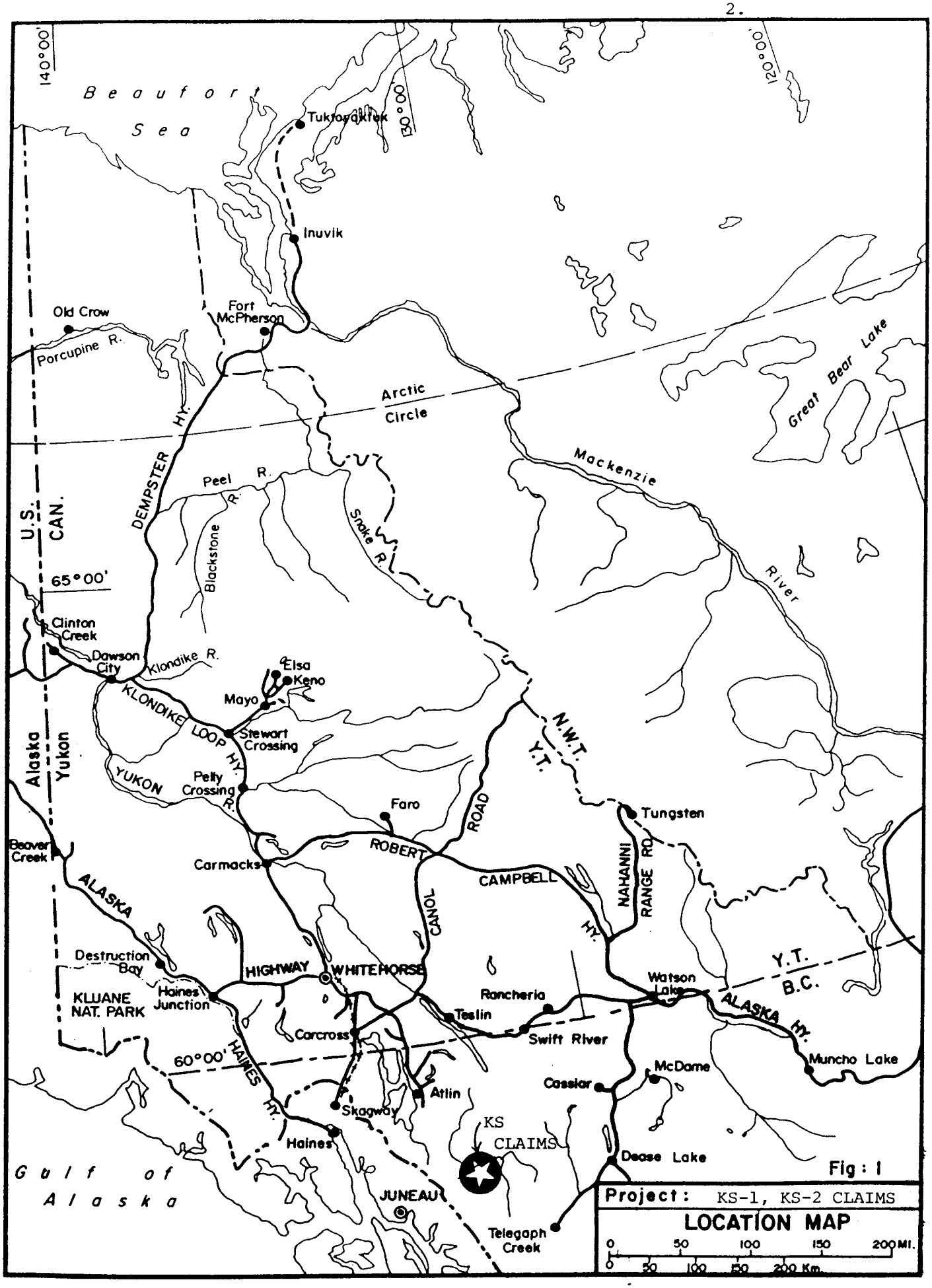


Fig : 1

Project: KS-1, KS-2 CLAIMS

LOCATION MAP

VANCAL 11926

1-3: CLAIM STATUS

The original two claims consisted of the KS-1 and 2 (Record Nos. 2577 (12) and 2578 (12)) for a total of 40 units. These have now been reduced to a total of 21 units. See claim sketch (Figure 2). Upon acceptance of this report, the claims will be in good standing until December 18, 1987.

1-4: PREVIOUS WORK

The area was regionally mapped by Souther in 1958, 59 and 60 resulting in the G.S.C. map 1262A published in 1969. This is the only known work done prior to staking the KS claims.

Exploration work has been done in the region however, the closest being a magnetometer survey on the MAD and NUT claim groups 5 kilometres to the southwest. Other areas worked in the last twenty years are listed in the regional geology section of this report.

1-5: 1986 WORK PROGRAM

On July 29, 1986 a total of four mandays were spent prospecting, geological mapping and geochemically sampling the KS claim group. This work was supported by helicopter from Atlin, B.C. As well as initial access, the helicopter was used for setting out and picking up crew members on a number of short traverses. A total of 14 silt, 12 talus fines, 22 rock and 4

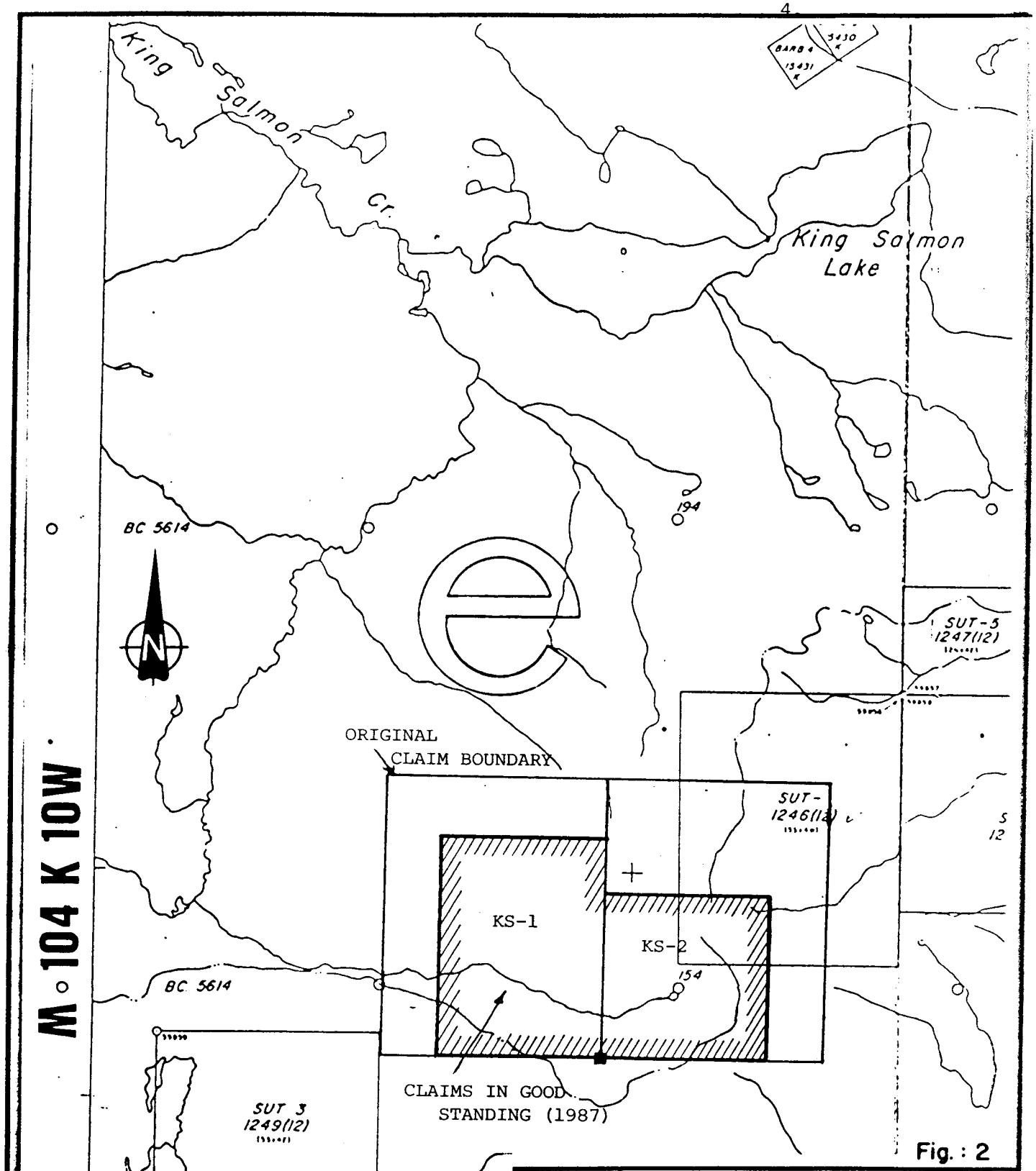


Fig. : 2

REVISED	KS Claims
	Claim Map
PROJ No. 73	SURVEY BY: _____ DATE: _____
N.T.S. 104 K 10	DRAWN BY: AI SCALE: 1:50,000
DWG. No.	NORANDA EXPLORATION
	OFFICE: Whitehorse

VANCAL 11927

panned concentrate samples were taken. Results are described in Chapter 3.

The following personnel worked on the property:

Mary Webster	Crew Chief
Steve Mackay	Geologist
Gordon MacKay	Assistant
Robert Copland	Assistant

CHAPTER TWO: GEOLOGY

2-1: REGIONAL GEOLOGY

The claims lie within the Triassic-Jurassic aged Whitehorse Trough consisting of submarine volcanic rocks and related coarse to fine clastic and carbonate rocks. Lithological and structural trends are generally in a northwesterly direction.

A package or suite of Tertiary aged Sloko volcanics and associated high level intrusives unconformably overlie or intrude the older rocks. Alteration including silicification-pyritization and clay mineralization often accompany the emplacement of the Tertiary igneous suite.

For the limited amount of work done in the area (104K) to date, there appear to be quite a number of interesting mineralized areas. Some of these include the following, from southeast to northwest:

a) Muddy Lake Au deposit
b) Outlaw-Inlaw alteration Au zones
c) Thorn Cu-breccia
d) BWM Cu (Ag) showing
e) Go Au deposit
f) Red Cap Cu-Mo deposit

These are just a few of the known deposits; many of which have not been fully evaluated for their Au potential.

CHAPTER THREE: 1986 FIELD WORK

3-1: GEOLOGY AND PROSPECTING

The claims are underlain by Sloko group volcanics which are generally characterized by mafic to felsic volcanics with faulted contacts. A number of felsic dykes intrude the volcanics and often result in bleached and silicified wall rocks. Northeast trending faults and narrow sheears are often characterized by bright gossans and are also spatially related to the felsic dyke-alteration zones. Five of 22 rock samples proved weakly anomalous in Au with values ranging from 40 to 70 ppb. Other anomalous values from the silicified zones were 228 ppm Cu, 13.2 ppm Ag, 13,200 ppm Pb and 6,200 ppm As. All results are appended.

3-2: SEDIMENT SAMPLING

The results from the silts and panned concentrates were disappointing. Minor As values to 170 ppm and a 150 ppm Pb in silts are only slightly anomalous. The talus fines, however, gave consistently anomalous (20-40 ppb) Au values with one sample in particular having an associated 2,000 ppm As. See Appendix 1 for all results. Sample locations are plotted on Figure 4.

CHAPTER FOUR: CONCLUSIONS AND RECOMMENDATIONS

The KS claims are underlain by a bimodal sequence of Sloko volcanics and related rhyolite dykes. Alteration related to the dykes includes bleaching and silicification. A number of gossanous zones appear related to narrow shears and faulted contacts. Geochemical sampling in 1986 resulted in moderately anomalous Au-As-Ag-Pb values associated with this alteration.

More follow-up work, especially prospecting, is warranted, however due to the weak nature of the anomalies and the property's location, this follow-up work has a low priority.

Respectfully submitted,

Wayne Reid
Senior Project Geologist

STATEMENT OF QUALIFICATIONS

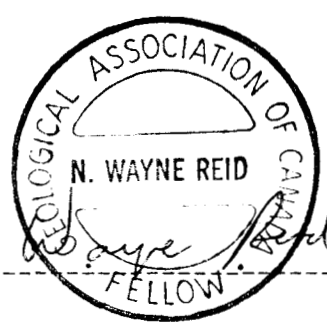
I, Wayne Reid, of the City of Whitehorse in the Yukon Territory, do hereby certify that:

1. I have been employed as a Geologist by Noranda Exploration Company, Limited (No Personal Liability) since 1976.

2. I am a graduate of Memorial University of Newfoundland with a Bachelor of Science Degree in Geology.

3. I am a Fellow of the Geological Association of Canada, a member of the Yukon Professional Geoscientists and the Prospectors and Developers Association.

4. I helped plan and supervise part of the work described in this report.



N. Wayne Reid
Senior Project Geologist
Noranda Exploration Company, Limited
(No Personal Liability)

STATEMENT OF COSTS

PROJECT: KS-1 and 2 Claims

Labour:		
	4 mandays @ $150.00	600.00
Helicopter:		
	1.8 hrs @ $550.00	990.00
Analysis:		
	22 rocks for Cu, Ag, Zn, Pb, Au, As @ $15.00	330.00
	30 sediments for Cu, Ag, Zn, Pb, Au, As @ $10.50	315.00
Miscellaneous:		
	Truck rental, gas, shipping, etc.	150.00
Report Writing, Drafting, etc.		200.00
	TOTAL	$2,585.00

APPENDIX 1

GEOCHEMICAL RESULTS

NORANDA EXPLORATION COMPANY, LIMITED
GEOCHEMICAL RESULTS

KS CLAIMS

	SAMPLE NO.	ppm Cu	ppm Zn	ppm Pb	ppm Ag	ppm As	ppb Au	
ROCKS:	72410	32	46	24	.8	46	5	
	72411	60	48	4	.6	4	5	
	72418	32	140	8	.6	6	5	
	72419	8	78	24	.6	6	5	
	72420	226	410	13200	13.2	40	40	
	72421	86	164	48	.2	2	10	
	72422	36	120	60	.4	2	5	
	78423	34	84	8	.2	6200	70	
	78424	6	36	18	.2	240	4	
	78425	228	396	1020	2.0	3040	60	
	81476	82	78	16	.2	64	5	
	90179	18	100	10	.2	70	40	
	90183	112	74	10	2.2	2	5	
	90184	12	62	16	1.0	142	5	
	90185	6	46	22	.2	64	60	
	90230	12	90	8	.2	8	5	
	90231	8	84	12	.2	2	5	
	90237	6	62	6	.2	6	5	
	90238	10	26	8	.2	12	5	
	90239	4	22	30	.4	2	5	
	90240	18	260	336	1.6	14	5	
	97750	60	78	4	.6	26	5	
PAN CONCENTRATES:	90164	230	160	24	.4		10	29.5 wt.(g)
	90166	78	92	50	.8		10	19.6 wt.(g)
	90168	30	86	16	.2		10	22.6 wt.(g)
	90170	50	130	12	.6		10	30.7 wt.(g)
SILTS:	90165	260	460	46	.2	10	10	
	90167	120	150	60	.4	120	10	
	90169	30	54	16	.2	22	10	
	90173	310	1200	36	.4	96	10	
	90174	60	170	30	.2	24	10	
	90176	160	260	62	.4	32	10	
	90177	82	170	94	.4	48	10	
	90178	160	230	150	1.0	140	10	
	90180	92	150	50	.4	110	10	
	90181	66	120	50	.4	52	10	
	90182	96	80	6	.2	22	10	
	90186	80	180	22	.4	160	10	
	97748	60	150	22	.2	170	10	
	97749	64	130	12	.2	20	10	
TALUS FINES:	72412	28	76	48	.2	10	10	
	72413	30	88	52	.2	6	10	
	72414	32	54	18	.2	16	10	
	72415	80	56	12	.2	8	30	
	72416	150	62	38	.4	16	30	
	72417	88	100	110	.4	8	20	
	90232	82	230	520	1.6	14	10	
	90233	54	160	88	.4	40	10	
	90234	64	74	42	.6	38	10	
	90235	120	70	44	2.8	2000	40	
	90236	36	120	66	1.2	56	10	
	90241	130	540	1700	4.6	48	20	

APPENDIX 2

ANALYTICAL METHOD

ANALYTICAL METHOD DESCRIPTIONS FOR GEOCHEMICAL ASSESSMENT REPORTS

Revised: 01/86

The methods listed are presently applied to analyse geological materials by the Noranda Geochemical Laboratory at Vancouver. (March, 1984).

PREPARATION OF SAMPLES

Sediments and soils are dried at approximately 80°C and sieved with a 80 mesh nylon screen. The -80 mesh (0.18 mm) fraction is used for analysis.

Rock specimens are pulverized to -120 mesh (0.13 mm). Heavy mineral fractions (panned samples) are analysed in its entirety, when it is to be determined for gold without further sample preparation. See addendum.

ANALYSIS OF SAMPLES

Decomposition of a 0.200 g sample is done with concentrated perchloric and nitric acid (3:1), digested for 5 hours at reflux temperature. Pulps of rock or core are weighed out at 0.2 g or less depending on the matrix of the rock, and twice as much acid is used for decomposition than that is used for silt or soil.

The concentrations of Ag, Cd, Co, Cu, Fe, Mn, Mo, Ni, Pb, V and Zn (all the group A elements of the fee schedule) can be determined directly from the digest (dissolution) with an atomic absorption spectrometer (AA). A Varian-Techtron Model AA-5 or Model AA-475 is used to measure elemental concentrations.

ELEMENTS REQUIRING SPECIFIC DECOMPOSITION METHOD

Antimony - Sb: 0.2 g sample is attacked with 3.3 mL of 6% tartaric acid, 1.5 mL conc. hydrochloric acid and 0.5 mL of conc. nitric acid, then heated in a water bath for 3 hours at 95°C. Sb is determined directly from the acid solution with an AA-475 equipped with electrodeless discharge lamp (EDL).

Arsenic - As: 0.2 - 0.4 g sample is digested with 1.5 mL of 70% perchloric acid and 0.5 mL of conc. nitric acid. A Varian AA-475 equipped with an As-EDL measures the arsenic concentration of the digest.

Barium - Ba: 0.1 g sample is decomposed with conc. perchloric, nitric and hydrofluoric acid. Atomic absorption using a nitrous oxide-acetylene flame determines Ba from the aqueous solution.

Bismuth - Bi: 0.2 g - 0.3 g is digested with 2.0 mL of perchloric 70% and 1.0 mL of conc. nitric acid. Bismuth is determined directly from the digest into the flame of the AA instrument c/w EDL.

Gold - Au: 10.0 g sample (Pan-concentrates see below) is digested with aqua regia (1 part nitric and 3 parts hydrochloric acid). Gold is extracted with Methyl iso-Butyl ketone (MIBK) from the aqueous solution. Gold is determined from the MIBK solution with flame AA.

Magnesium - Mg: 0.05 - 0.10 g sample is digested with 4 mL perchloric/nitric acid (3:1). An aliquot is taken to reduce the concentration to within the range of atomic absorption. The AA-475 with a nitrous oxide flame determines Mg from the aqueous solution.

Tungsten - W: 1.0 g sample sintered with a carbonate flux and thereafter leached with water. The leachate is treated with potassium thiocyanate. The yellow tungsten thiocyanate is extracted into tri-n-butyl phosphate. This permits colourimetric comparison with standards to measure tungsten concentration.

Uranium - U: An aliquot, taken from a perchloric-nitric (3:1) decomposition, usually from the multi-element digestion, is diluted with water and a phosphate buffer. This solution is exposed to laser light, and the luminescence of the uranyl ion is quantitatively measured on the UA-3 (Scintrex).

LOWEST VALUES REPORTED IN PPM

Ag - 0.2	Mn - 20	Zn - 1	Au - 0.01 (10 ppb)
Cd - 0.2	Mo - 1	Sb - 1	W - 2
Co - 1	Ni - 1	As - 1	U - 0.1
Cu - 1	Pb - 1	Ba - 10	
Fe - 100	V - 10	Bi - 1	

ADDENDUM

ANALYSIS OF PAN CONCENTRATES FOR GOLD

Geochemical reconnaissance for gold through stream sediments has for the greater part been left to chance. Analytical results for gold on silts have certainly confirmed this notion.
Since 1982 an attempt was made to standardize the procedure in which heavy mineral surveys (pan-concentrates) were conducted. The method used for panning in the field was suggested by R.M. (27-05-82).

In essence about 20 kg (8-9 L) stream sediment is pan-concentrated to a 20-50 g sample (pan-con). The weights of the pan-cons submitted over the last few years, have been reasonably consistent, within the 20-50 g range, except when there was a non-distinct heavy mineral fraction or the material was uniform in specific gravity (Black sand or high concentration of sulfides).

Basically, one concentrates a bulk sample (20 kg) by a factor of about a thousand, primarily for free metallic gold and/or its minerals.
This should provide a more "representative" sample than silts would, and enhance gold concentration above detection limits with present analytical methods.

The total amount of concentrate obtained is largely a function of specific gravity, heavy mineral content and the panner. Thus the weight of the pan-con submitted to the lab, whether 20 or 40 g or more, is of little importance concerning the actual gold concentration. It is for this reason that the analysis of the pan-con for gold is normalized to 20 g sample weight, even though all of the sample is digested and gold is determined (calculated) as if it were a 20 g sample.

Conversely, if results were based on sample weight submitted, then this would in all likelihood indicate a bias towards the panner. With a penchant for "anomalies", one could conceivably pan until one approaches 10^6 ppm Au. Previous tests with pans (1-4, 1-12, 1982) have substantiated this point.

Therefore, the lab has expressed the concentration of pan-con based on 20 g sample, so that semi-quantative results are compatible, provided one collects constant bulk samples (~ 20 kg) in situ.
Subsampling of pan-con is precluded, owing to the nature of gold in sediments.

To pulverize the sample does not decrease subsampling error appreciably. Clearly, analyzing the entire sample is necessary, as the analyses of silts have verified numerous times. An example given below for a 50.0 g pan-con reported as 2500 ppb:

A 50 g sample is apportioned to facilitate the routine method (Aqua Regia digestion - MIBK - Flame AA.

2. The calculation for concentration is relative to 20 g. E.g. if the sampler/panner was to reduce the sample to 20 g, e.g. by further panning, the concentration would still be 2500 ppb (2.5 ppm). Presumably no gold is lost in the process.

3. The actual ppb value for the 50 g sample would be:

$$20\ g/50\ g \times 2500\ ppb = 1000\ ppb \text{ or } 1\ ppm$$

4. Total weight of gold in the pan or the original bulk sample (sediment) is $20\ g \times 2.5\ ppm \times 10^{-6} = 0.05\ mg\ Au$

or $50\ g \times 1.0\ ppm \times 10^{-6} = 0.05\ mg\ Au$

5. Relative to the original 20 kg bulk sample it would equate to

$0.05\ mg\ Au/20\ kg = 2.5 \times 10^{-9} = 2.5\ ppb$

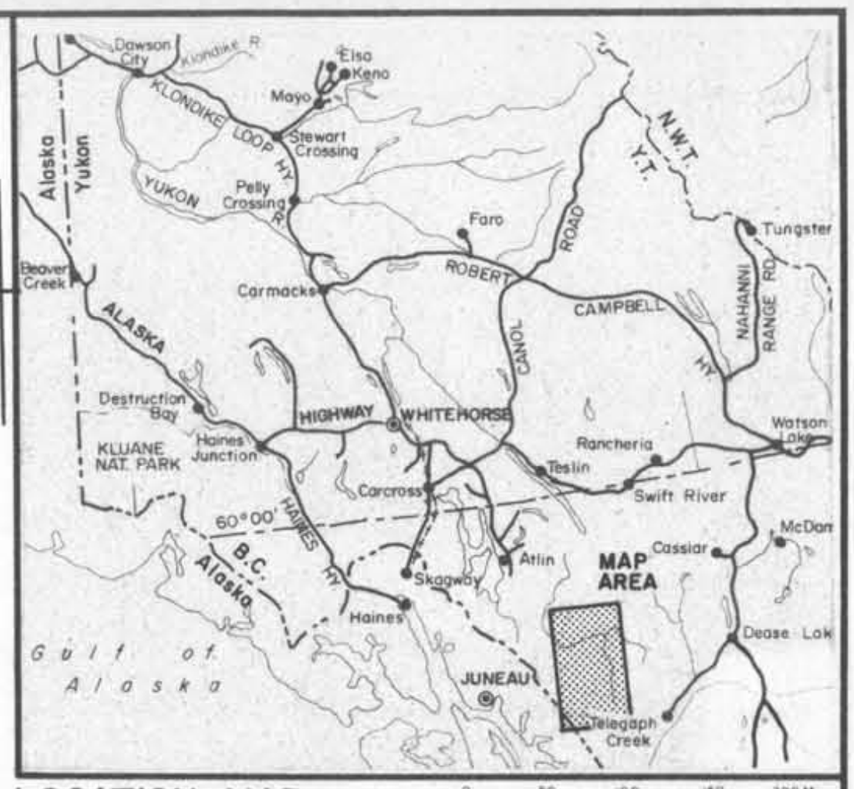
When the majority of pan-cons submitted are about 20 g and the bulk sampling remaines constant, then gold results based on 20 g appears to be meaningful for interpretation, irrespective of the submitted sample weight.

A noted exception is for black sand or other bulky samples. To analyse in its entirety is impractical.
Caution should be excercised with black sand as natural panning has taken place in situ, therefore it is somewhat doubtful to evaluate black sand in a similar manner as one would with sediments or pan-con.

To date, there is no panacea for gold geochemistry sampling, but a pre-requisite for data evaluation (interpretation) is to normalize the sampling medium.

N.B. It should be borne in mind, that silts or soils undergo some pre-concentration through screening. The selectivity of grain size (-80 mesh) in all probability contains all the gold from the sediment taken. The -80 mesh sample (silt) is roughly 10% of the sediment material collected on site, thus a concentration factor of about 10. In other words there exists a rough relation between pan-con and silts of 100, at least for gold results.

Base metals on pan-con e.g. Cu, Zn, Pb, Ag, Co, Ni and Fe is determined directly from the aqua regia digestion solution. Note that this dissolution is incomplete and is somewhat selective towards sulfide minerals.



LOCATION MAP

0 50 100 150 200 Mi.
0 50 100 150 200 Km

59°00'

Noranda NOW Claims

Yeth Creek

Inklin River

King Salmon Lake

Noranda KS Claims

Noranda INK Claims

Creek

River

HEART PEAKS

Kowatua

Sutlahine River

Shesley

Trapper Lake

CHECHIDLA CREEK DESIGNATED PLACER AREA

Noranda FULL Claims

Tatsamenie Lake

Chevron

MUDDY LAKE DEPOSIT

Muddy Lake

Whiting River

Noranda HOPE Claims

Noranda WILD Claims

Whiting Lake

Noranda WHIT Claims

Alaska B.C.

133°00'

58°00'

132°00'

0 5 10 20 Kilometers
Scale 1:250,000

Legend

(from GSC Map no. 1262A)

CRETACEOUS and TERTIARY

Sloko Group

6 — Felsite, quartz - feldspar porphyry.

5 — Quartz monzonite.

4 — Rhyolite, dacite, trachyte flows, pyroclastics, derived sediments.

LOWER or MIDDLE TRIASSIC

3 — Diorite, granodiorite.

TRIASSIC and EARLIER

2 — Intercalated sediments and greenstone volcanic rocks.

PERMIAN

1 — Limestone

Symbols

Geological contact (defined, assumed)

Fault

Boundary of designated Placer Area

Noranda claims

Other claims

Map / Fig. : 3

REVISED
FEB 86
JAN 87

Tatsamenie - Whiting Lake Area

Regional Geology

PROJ. No. 62
N.T.S. 104 K
DWG. No

SURVEY BY: MS
DRAWN BY: AI
DATE: FEB 85
SCALE: 1:250,000

NORANDA EXPLORATION
OFFICE: Whitehorse

King Salmon Lake

Noranda KS 1-2 Claims

Original Claim Boundary

Claims in good standing

LCP

Buff gossan
Red gossan
Yellow gossan
Yellow gossan As
Knob
Morgine
Basaltic dykes
Fine grained buff rhyolite dykes
Felsic dykes
Mafic dyke 04/72W
Mafic dyke 80/65N

minor 5

58° 40'
58° 45'
58° 30'
132° 55'
133° 00'
132° 30'

0 100 300 500 metres

Legend

- 5 Mafic dykes.
- 4 Felsic intrusive monzonite, qtz porphy.
- 4a Rhyolite dykes.
- 3 Mafic flows & tuffs.
- 2 Rhyolite

TRIASSIC - JURASSIC

- 1 Metasedimentary rocks.

Symbols

- Geological contact (approx.)
- Limit of Outcrop
- Silts (S) — Sample location & no.
- Rocks (R) — Sample location & no.
- Talus fine (TF) — Sample location & no.

Map Index: K14 K15 K16 / K11 K9 / K6 K7 K8; Map Area 104K10

GEOLOGICAL BRANCH
ASSESSMENT REPORT
15,477

Fig.: 4

REVISED	SOUTH WHITING / SLOKO (KS Claims)
	Geology & Sample Location Map
PROJ No 73	SURVEY BY ____ DATE JAN 87
N.T.S. 104 K 10 W	DRAWN BY AI SCALE 1:10,000
DWG No	NORANDA EXPLORATION
	OFFICE Whitehorse