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**GEOCHEMICAL ASSESSMENT**

**REPORT ON THE**

**SOUP GROUP OF CLAIMS**

**N.T.S. 94D/8**

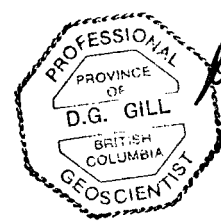
**APRIL, 1994**

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 VANCOUVER, B.C.

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**23,367**

**Author:** D.G. Gill, P.Geo. (Project Geologist)  
**Owner:** Vital Pacific Resources Ltd.  
**Operator:** Noranda Exploration Company, Limited  
 (No Personal Liability)



*P. H. Gill*  
*May 11/94*

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## 1.0 INTRODUCTION

Between the dates of August 16 and August 20, 1993 eight mandays were spent on the Soup claim group by Norex personnel conducting recce soil and rock geochemistry upslope from the known skarn mineralization. A total of 63 soils and 34 rocks were collected for analysis during this programme.

### 1.1 Location and Access

The Soup property is located approximately 190 km north-northeast of Smithers, B.C. on N.T.S. Mapsheet 94D/8 in the Omineca Mining Division.

Camp mobilization was achieved via helicopter based at the Osilinka Logging Camp owned and operated by Finlay Forest Industries of MacKenzie, B.C.

### 1.2 Topography and Physiography

The Soup property is situated within the Osilinka Ranges and lies on steep south and southwest facing slopes which are drained by small, intermittent creeks flowing into Kliyul Creek. Much of the property is devoid of vegetation due to the steepness of the terrain and elevations which range from 4330 feet in the valley bottom to 7500 feet along the northwest trending ridge located in the northeastern section of the claims.

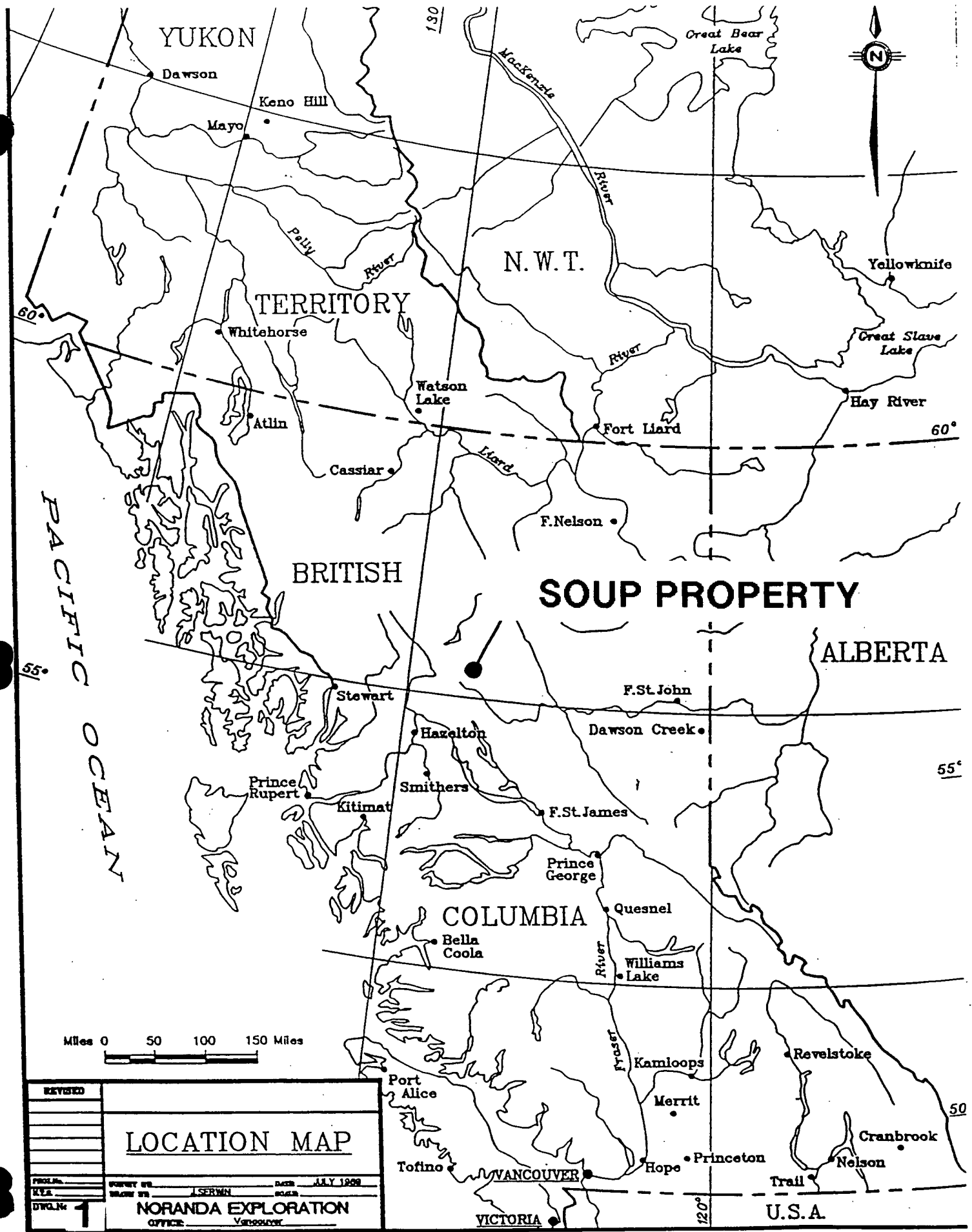
### 1.3 History

Below is a brief outline of documented work performed on the Soup property in chronological order.

1930's: Consolidated Mining and Smelting Company explored for lode gold occurrences to the east and southeast of the Soup at Porphyry Creek, Croydon Creek and Granite Basin.

1946-48: Springer Sturgeon Gold Mines explored auriferous quartz veins known as the Solo, Bruce and Ginger B occurrences.

1963: This year saw the beginning of exploration on the Davie Creek moly prospect which continued through to 1983 by such companies as Riocanex, Teck, Chevron and Getty Canadian Metals.



YUKON

Dawson

Keno Hill

Mayo

Pelly  
River

Whitehorse

TERRITORY

Watson  
Lake

Atlin

Cassiar

N. W. T.

Great Bear  
Lake

Yellowknife

Great Slave  
Lake

Hay River

Fort Liard

F. Nelson

BRITISH

SOUP PROPERTY

ALBERTA

F. St. John

Stewart

Dawson Creek

Hazelton

Smithers

F. St. James

Prince  
Rupert

Kitimat

Prince  
George

COLUMBIA

Quesnel

Bella  
Coola

Williams  
Lake

Fraser  
River

Kamloops

Revelstoke

Port  
Alice

Merrit

50

Tofino

VANCOUVER

Hope

Princeton

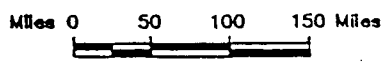
Trail

Cranbrook

Nelson

VICTORIA

U.S.A.



REVISED	
<b>LOCATION MAP</b>	
PROJECT	DATE JULY 1929
BY	A. SERVIN
<b>NORANDA EXPLORATION OFFICE</b>	
Vancouver	

- 1964: Southwest Potash Corp. (Amax) conducted mapping and chip sampling of the southern-most Soup skarn horizons.
- 1965: Mapping by K.C. McTaggart revealed the skarn horizon varied in width from 10 to 100 feet and extended discontinuously for over 8,000 feet.
- 1971: Three x-ray holes (70 feet) were drilled into the skarn horizon at one location on the Soup 10 claim by Falconbridge Nickel Mines Ltd.
- 1975: An ore microscopy study was performed on a number of mineralized skarn samples by A.J. Sinclair.
- 1976: A magnetic profiling and modeling survey was conducted by A.J. Sinclair which revealed a stratiform magnetic occurrence with dips of 20 to 30° E.
- 1977: A rock chip sampling programme was conducted by BP Minerals along eleven cross-lines through the skarn horizons.
- 1980-81: Vital Resources Ltd. optioned the claims and subsequently performed a limited soil survey across the skarn horizon stratigraphy.
- 1982: Noranda Exploration Company, Limited optioned the claims from Vital and conducted soil and rock chip sampling as well as magnetometer surveying.
- 1984: Detailed mapping as well as talus-fine and rock chip geochemistry was done by BP Resources Canada Ltd. The geochem survey revealed anomalous Au zones exist stratigraphically above the skarn horizons.
- 1986-87: A detailed magnetometer survey and systematic rock-chip sampling was completed by Lemming Resources Ltd. One new skarn zone was discovered as mineralized talus.
- 1989: A seven hole (1112 feet) diamond drill hole programme was completed by Athlone Resources Ltd. Drilling was focused on skarn horizons as well as northeast-southwest crosscutting structural features which contained discordant magnetite-pyrite-chalcopyrite mineralization.

1990: Teck Explorations Ltd. completed a detailed large-scale mapping and prospecting programme as well as systematically sampling the skarn occurrences in the southeast portion of the property. Teck recommended further mapping to assess the porphyry Cu-Au potential on the property.

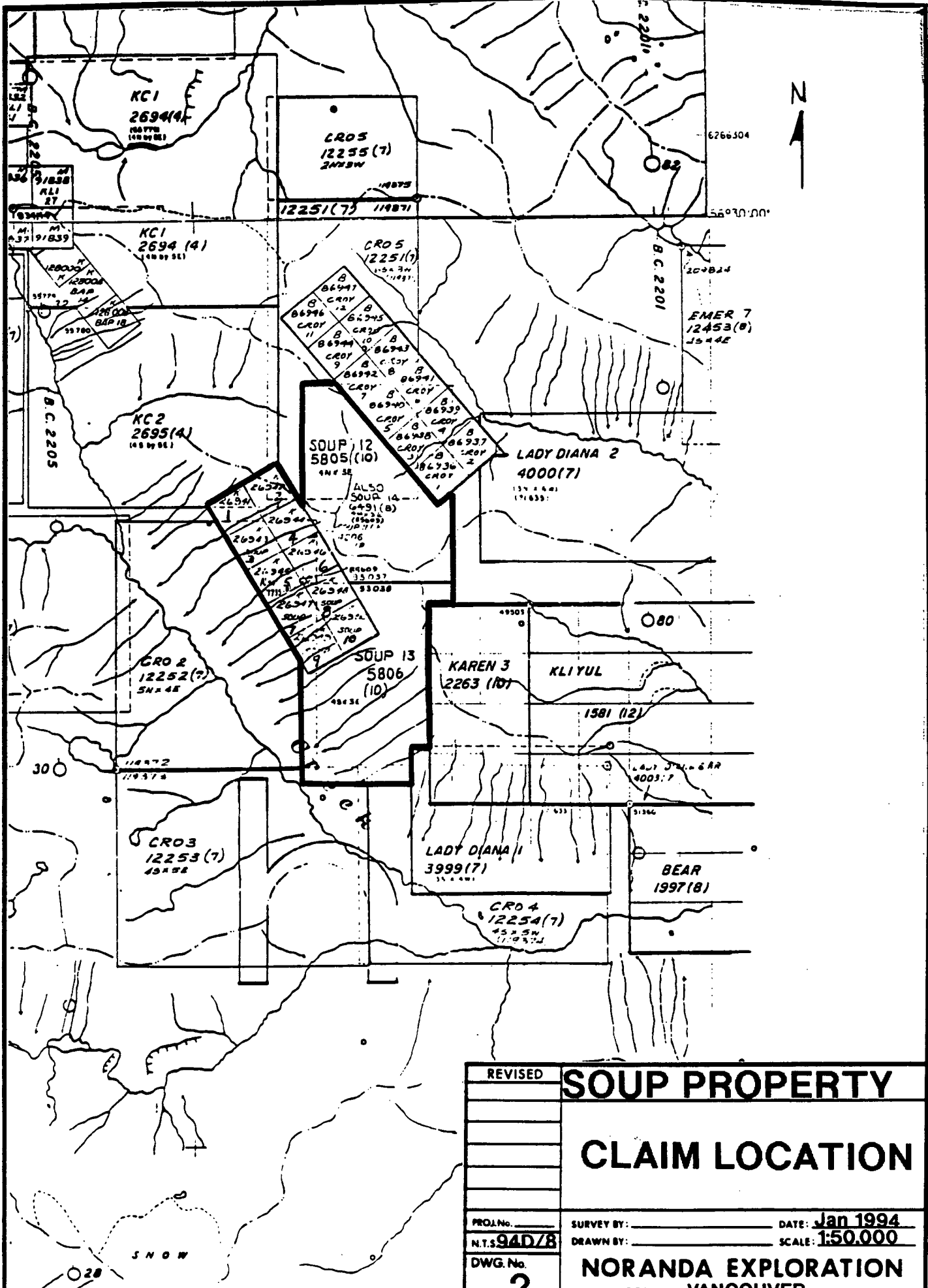
#### 1.4 Claims

The Soup property is comprised of 10, 2-post mineral claims (10 units) and 2, 4-post mineral claims (24 units) for a total of 34 units. A list of each claim and its corresponding data follows.

<b>CLAIM NAME</b>	<b>TENURE NO.</b>	<b>UNITS</b>	<b>ANNIVERSARY DATE</b>	<b>OWNER</b>
Soup 1	244014	1	August 7, 1997	Vital Pacific Res. Ltd.
Soup 2	244015	1	August 7, 1997	Vital Pacific Res. Ltd.
Soup 3	244016	1	August 7, 1997	Vital Pacific Res. Ltd.
Soup 4	244017	1	August 7, 1997	Vital Pacific Res. Ltd.
Soup 5	244018	1	August 7, 1997	Vital Pacific Res. Ltd.
Soup 6	244019	1	August 7, 1997	Vital Pacific Res. Ltd.
Soup 7	244020	1	August 7, 1997	Vital Pacific Res. Ltd.
Soup 8	244021	1	August 7, 1997	Vital Pacific Res. Ltd.
Soup 9	244022	1	August 7, 1997	Vital Pacific Res. Ltd.
Soup 10	244023	1	August 7, 1997	Vital Pacific Res. Ltd.
Soup 12	238688	12	October 5, 1994	Vital Pacific Res. Ltd.
Soup 13	238689	12	October 5, 1994	Vital Pacific Res. Ltd.

#### 1.5 Economic Potential

The narrow, discontinuous, erratically mineralized skarn horizons that occur on the Soup property and dip into the hill do not provide a very practical target for an economic deposit. However, the potential for bulk mineable gold associated with stockworks/breccias zones along major structural breaks may exist on the property. The high grade section (0.47% Cu, 0.229 opt Au/15 feet and 0.17% Cu, 1.427 opt Au/10.5 feet) intersected by Athlone Resources in DDH-89-1 and 2 respectively while drilling one of these discordant zones (Saddle Gulley zone) lends credence to this possibility.



REVISED	<b>SOUP PROPERTY</b>	
	<b>CLAIM LOCATION</b>	
PROJ. No. _____	SURVEY BY: _____	DATE: <b>Jan 1994</b>
N.T.S. <b>94D/8</b>	DRAWN BY: _____	SCALE: <b>1:50,000</b>
DWG. No. _____	<b>NORANDA EXPLORATION</b>	
	VANCOUVER	

CAL 11827

## 1.6 Survey Control

Due to the reconnaissance style nature of this programme and the steep terrain traverse lines were completed with the aid of compass, altimeter and metric hipchain.



## 2.0 GEOLOGY

### 2.1 Regional

The Soup property is situated within the Intermontane Belt which is comprised of Upper Triassic to Lower Jurassic island arc volcanics, volcanoclastics and minor sediments of the Takla Group which hosts such Cu-Au porphyry deposits as Mt. Milligan and Kemess. The dominantly volcanic package in the Soup area has been intruded by Jura-Cretaceous aged diorites, monzonites and syenites associated with the Hogem Batholith.

Prominent structural features in the area include NW, E-W, N-S and NNE-SSW trending fault systems.

DARB LAKE

LAY CK



KLIYUL CLAIMS

SOUP CLAIMS

KLIYUL CK.

DORATELLE CK.

**LEGEND**

INTRUSIVES

 DIORITE, MONZONITE, SYENITE

 ULTRAMAFIC ROCKS (PYROXENITE)

TAKLA VOLCANICS (UP. TRIASSIC)

 ANDESITES

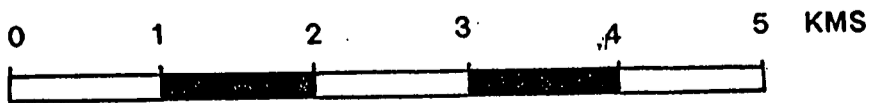
 SEDIMENTS (ss, arg, lst.)

**3**



**REGIONAL GEOLOGY**

**KLIYUL CREEK AREA**



★ OCCURRENCES

SCALE 1:50,000

### 3.0 GEOCHEMISTRY

The geochemical programme conducted on the Soup property was conducted to confirm the presence and limits of previous geochemical surveys upslope from the known skarn horizons. Noranda's sampling was done mainly along slope contours due to the steep and rugged terrain and was focused on the northern section of the claims in the area of best historic geochemical results and previous drilling.

Soil sampling was conducted along metrically chained lines with samples taken every 50 - 100 meters apart to a depth of 20-40 cm with the aid of a shovel or mattock. Soils were collected in brown kraft envelopes for drying, storage and shipping purposes and sent to Noranda Exploration Laboratory at Unit #1, 7550 - 76th Street, Delta, B.C.

Rock samples were collected as grabs or chips across certain widths whenever representative, altered and/or mineralized formations were encountered.

Results of the soils collected reveal a range of copper values from 248 to 1964 ppm (1993 data). A contour interval of 300 ppm copper has been used taking into account all documented soil surveying done within the Johanson Lake - Soup Property area since the 1970's. Referring to Drawing #4 (compilation of all existing geochem data) it is apparent that when using this value almost the entire Soup claims are anomalous relative to the regional geochemical background. However, contouring at 750 ppm reveals the existence of several highly anomalous zones that exhibit a north to north-northwest trend suggesting a more structural control to the geochemical source. The bulk of these anomalous areas also occur uphill of the known skarn mineralization and to the west of holes 89-1, 2 (marked on both maps 4 and 5).

Contouring of the gold soil geochemistry at 500 ppb also reveals two main zones of north-northwest trending anomalies which are semi-coincident with the main copper anomaly and for the most part also occur above the exposed skarn mineralization. Gold in soil results from the 1993 programme ranged from 10 to 3800 ppb.

Rock sampling of the upper slopes detected mainly propylitically altered augite porphyry flows and andesite tuffs and flows and lesser microdiorite dykes. Best copper mineralization was found to occur as malachite/azurite fracture fillings in quartz-epidote veined, locally sheared augite porphyry (see samples 384-E, F, O, 385 - C, L). One rock sample located outside of the main soil geochemical response (385-L) returned a value of 800 ppb Au taken from a sheared contact zone between augite porphyry flow and dioritic intrusive with disseminated magnetite.

#### 4.0 CONCLUSIONS

Interpretation of the results of the 1993 soil sampling programme conducted by Noranda coupled with historic geochemical data has delineated an 800 long x 100 to 200 m wide coincident zone of >750 ppm copper and >500 ppb gold which trends north to north-northwest and is mainly located upslope of the known skarn mineralization. The trend of this soil anomaly is discordant with the known strike of the underlying volcanic/intrusive package and stratiform skarn mineralization (NW) and is thought to represent an unidentified structural break.

Drilling by Athlone Resources in 1989 returned values of 0.47% Cu, 0.229 opt Au/15 feet and 0.17% Cu, 1.427 opt Au/10 feet from one such structural zone known as the Saddle Gulley Zone which is located outside of the main geochemically anomalous area.

A programme of detailed rock geochemistry and structural mapping is warranted across this soil anomaly paying particular attention to density of fracture sets, shearing, alteration, brecciation and stockwork veins associated with an epithermal bulk tonnage gold occurrence.

## REFERENCES

1. Assessment Report #675: Geology of the Soup Claims, K.C. McTaggart, 1965.
2. Assessment Report #5562: Mineralogical Study of Soup Claims, A.J. Sinclair, 1975.
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12. Exploration Report on the Soup Property, Teck Explorations Ltd., 1991.

13. Lord, C.S.:

McConnell Creek Map Area,  
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1948.

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Aiken Lake Map Area, B.C.,  
G.S.C. Memoir 274, 1954.

APPENDIX I  
LABORATORY ANALYTICAL TECHNIQUES



## ANALYTICAL METHOD DESCRIPTIONS FOR GEOCHEMICAL ASSESSMENT REPORTS

The methods listed are presently applied to analyse geological materials by the Noranda Geochemical Laboratory at Vancouver.

### 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 geochemical analysis.

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

### 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 0.4 g and chemical quantities are doubled relative to the above noted method for digestion.

The concentrations of Ag, Cd, Co, Cu, Fe, Mn, Mo, Ni, Pb, V and Zn can be determined directly from the digest (dissolution) with a conventional atomic absorption spectrometric procedure. 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 dissolution with an AA-475 equipped with electrodeless discharge lamp (EDL).

Arsenic - As: 0.2 - 0.3 g sample is digested with 1.5 ml of perchloric 70% and 0.5 ml of conc. nitric acid. A Varian AA-475 equipped with an As-EDL is used to measure arsenic content in the digest.

Barium - Ba: 0.1 g sample digested overnight with conc. perchloric, nitric and hydrofluoric acid; Potassium chloride added to prevent ionization. Atomic absorption using a nitrous oxide-acetylene flame determines Ba from the aqueous solution.

Bismuth - Bi: 0.2 - 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 with an AA-475 complete with EDL.

Gold - Au: 10.0 g sample is digested with aqua regia (1 part nitric and 3 parts hydrochloric acid). Gold is extracted with MIBK from the aqueous solution. AA is used to determine Au.

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 the use of 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 from a perchloric-nitric decomposition, usually from the multi-element digestion, is buffered. The aqueous solution is exposed to laser light, and the luminescence of the uranyl ion is quantitatively measured on the UA-3 (Scintrex).

N.B.: If additional elemental determinations are required on panned samples, state this at the time of sample submission. Requests after gold determinations would be futile.

LOWEST VALUES REPORTED IN PPM:

Ag - 0.2	Mn - 20	Zn - 1	Au - 0.01
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	

APPENDIX II

SOIL AND ROCK GEOCHEMICAL RESULTS

# NORANDA DELTA LABORATORY

## Geochemical Analysis

Project Name & No.: SOUP - 127

Material: 63 Soils

Remarks: \* Sample screened @ -35 MESH (0.5 mm)

□ Organic, Δ Humus, S Sulfide

Geol.: L.E.

Sheet: 1 of 2

Date received: AUG. 26

Date completed: SEP. 13

LAB CODE: 9308-040

Au - 10.0 g sample digested with aqua-regia and determined by A.A. (D.L. 5 PPB)

ICP - 0.2 g sample digested with 3 ml HClO<sub>4</sub>/HNO<sub>3</sub> (4:1) at 203 °C for 4 hours diluted to 10 ml with water. Leeman PS3000 ICP determined elemental contents.

N.B. The major oxide elements and Ba, Be, Ce, La, Li, Ga are rarely dissolved completely from geological materials with this acid dissolution method.

T.T. No.	SAMPLE No.	Au ppb	Ag ppm	Al %	As ppm	Ba ppm	Bc ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cu ppm	Fe %	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P %	Pb ppm	Sr ppm	Ti %	V ppm	Zn ppm
198	4200E-5500N	55	0.6	4.46	4	206	0.5	5	2.85	0.4	54	48	32	518	6.33	0.24	16	12	1.81	1471	3	0.07	29	0.14	5	344	0.32	205	75
201	5550	420	0.6	4.49	4	153	0.4	5	2.92	0.3	47	67	178	567	7.16	0.25	15	14	2.13	1208	10	0.09	53	0.11	2	272	0.35	225	86
202	5600	65	0.8	4.56	8	261	0.4	5	2.39	0.3	49	57	77	496	6.55	0.35	15	16	2.47	1209	6	0.08	73	0.11	2	267	0.36	196	81
203	5650	95	3.0	4.53	4	234	0.5	5	2.44	0.4	50	65	39	301	5.90	0.35	16	13	1.91	1849	25	0.08	48	0.12	70	386	0.27	171	80
204	4200E-5750N *	500	3.4	4.71	5	209	0.6	5	1.36	0.4	46	30	44	329	5.99	0.67	15	19	2.38	1405	8	0.05	52	0.12	11	124	0.25	175	102
205	4200E-5800N *	210	2.2	4.59	2	293	0.6	5	1.68	0.4	56	39	34	262	6.53	0.79	19	17	2.18	1904	9	0.05	65	0.13	10	163	0.27	188	91
206	4250E-5850N	230	0.2	4.16	5	267	0.4	5	2.08	0.5	47	61	40	536	7.04	0.44	14	15	1.97	1581	7	0.06	44	0.14	11	200	0.33	216	86
207	4925E-5125N	120	0.4	4.91	8	195	0.4	5	2.95	0.2	48	92	37	462	7.36	0.25	15	12	1.97	1434	4	0.05	46	0.15	2	253	0.38	231	57
208	5175	65	0.4	4.25	16	164	0.3	5	2.28	0.6	49	102	83	578	7.81	0.27	15	14	2.81	1409	7	0.04	75	0.13	2	184	0.39	233	64
209	4925E-5200N	160	0.2	4.78	15	220	0.4	5	2.44	0.2	49	78	45	663	7.62	0.30	15	12	1.89	1217	12	0.06	49	0.22	2	267	0.40	201	64
210	4925E-5250N *	20	0.2	4.00	9	121	0.4	5	2.21	0.2	43	92	168	387	7.44	0.20	13	13	2.78	1097	5	0.04	124	0.14	2	195	0.31	188	71
211	5300	750	2.0	4.58	3	226	0.4	5	2.43	0.8	46	89	105	422	7.66	0.38	15	20	3.81	2030	7	0.03	73	0.10	2	64	0.31	278	99
212	5350	410	0.6	4.94	2	233	0.5	5	2.84	0.2	51	168	49	786	8.19	0.24	16	11	1.74	1648	3	0.04	72	0.17	2	352	0.36	219	66
213	5400	260	1.0	4.47	2	216	0.3	5	1.82	0.2	45	71	66	716	7.13	0.39	13	14	3.48	1409	4	0.03	58	0.12	2	171	0.47	282	83
214	4925E-5450N	500	2.2	4.06	2	131	0.3	5	2.32	0.5	46	76	47	1458	6.99	0.21	12	12	2.65	1312	13	0.03	41	0.12	2	220	0.40	264	59
215	4925E-5500N	45	0.2	4.07	2	192	0.3	5	2.38	0.2	46	65	60	407	6.53	0.31	13	12	2.36	1013	2	0.03	53	0.11	2	257	0.40	228	63
216	5550 *	60	0.6	4.31	7	93	0.3	5	2.52	0.4	44	141	28	1964	8.16	0.16	12	11	2.09	973	13	0.03	70	0.13	2	225	0.38	251	68
217	5600	90	0.2	4.37	2	217	0.5	5	1.87	0.2	58	117	57	808	6.85	0.37	20	15	1.50	1057	9	0.05	51	0.19	2	158	0.31	194	73
218	5650 *	95	0.2	4.45	9	127	0.3	5	2.12	0.4	44	101	47	774	6.98	0.19	12	13	2.93	980	7	0.03	54	0.11	2	162	0.37	229	66
219	4925E-5700N	150	0.8	4.67	2	274	0.3	5	1.97	0.3	47	61	20	841	8.06	0.57	15	13	2.55	606	12	0.04	25	0.18	2	183	0.43	265	49
220	5000E-5250N	340	0.4	4.11	2	172	0.3	5	1.91	0.2	45	70	54	398	6.97	0.22	14	11	2.52	1808	4	0.04	44	0.11	4	143	0.33	222	68
221	5300 *	95	0.8	4.20	4	268	0.3	5	2.01	0.3	41	56	46	446	6.41	0.33	11	13	2.52	1388	3	0.03	44	0.09	2	187	0.35	226	66
222	5350 *	140	0.2	5.09	2	260	0.3	5	2.53	0.2	42	42	17	632	5.92	0.56	11	13	1.93	1131	2	0.05	24	0.12	2	181	0.26	181	59
223	5400	220	0.6	4.45	3	193	0.4	5	1.80	0.3	47	60	83	573	6.55	0.35	13	18	3.01	856	3	0.05	60	0.12	4	135	0.32	191	94
224	5000E-5450N	230	0.6	5.08	2	502	0.5	5	1.77	0.3	49	79	74	447	6.52	0.51	16	15	2.85	1777	4	0.05	70	0.14	4	134	0.34	196	89
225	5250N-5050E	420	0.6	4.60	3	146	0.4	5	2.70	0.4	52	132	32	720	8.47	0.21	14	12	2.12	1693	3	0.04	61	0.14	2	219	0.37	233	63
226	5100	410	0.2	4.97	8	160	0.4	5	3.06	0.2	47	140	38	697	8.32	0.23	13	11	1.84	1318	3	0.05	64	0.15	2	253	0.32	239	62
227	5150	160	0.4	4.48	9	153	0.4	5	2.60	0.3	49	145	118	829	8.69	0.24	15	12	2.09	1471	3	0.04	102	0.13	4	167	0.29	239	68
228	5200	360	0.4	4.63	7	84	0.3	5	2.66	0.4	52	258	47	1442	9.87	0.15	14	11	2.23	2385	5	0.04	102	0.15	4	146	0.37	260	79
229	5250N-5250E *	110	0.4	5.10	8	76	0.3	5	4.89	0.2	40	101	30	580	7.36	0.15	10	6	1.13	1123	2	0.05	61	0.11	2	192	0.32	195	43
230	5250N-5300E	280	0.6	4.50	10	193	0.3	5	2.73	0.2	45	143	68	1289	8.56	0.32	13	12	2.68	1276	8	0.04	107	0.15	3	202	0.38	239	66
231	5500N-4250E	340	0.2	4.88	3	200	0.5	5	2.88	0.4	48	52	60	453	6.66	0.31	14	15	2.47	1428	5	0.06	41	0.11	13	275	0.36	219	76
232	4300	180	0.4	4.64	4	224	0.5	5	2.05	0.3	53	42	53	469	6.82	0.29	17	17	2.65	1795	4	0.06	36	0.14	15	224	0.34	221	86
233	4350	560	0.2	4.73	2	255	0.5	5	2.57	0.2	52	39	46	288	6.72	0.51	16	17	2.93	1483	2	0.05	35	0.16	3	300	0.44	209	96
234	5500N-4400E	320	0.2	4.74	6	221	0.4	5	2.89	0.5	51	71	26	577	7.10	0.46	15	14	2.15	1395	14	0.07	33	0.12	2	289	0.39	220	64

I.	SAMPLE No.	9308-040																											
		Au ppb	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cu ppm	Fe %	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P %	Pb ppm	Sr ppm	Ti %	V ppm	Zn ppm
5	5500N-4450E	3800	4.4	5.11	7	332	0.5	5	1.66	0.4	49	76	236	443	8.40	0.45	15	23	3.81	3432	15	0.04	163	0.13	5	118	0.19	250	117
5	4500	880	2.2	4.81	2	159	0.4	5	3.13	0.3	45	66	87	423	6.96	0.34	14	17	3.45	1532	4	0.08	88	0.12	2	227	0.41	210	72
7	4550	200	0.6	4.71	2	107	0.5	5	2.39	0.3	53	53	37	677	6.57	0.22	17	13	2.55	3071	4	0.05	39	0.14	4	293	0.34	237	84
3	4600	130	0.4	5.00	4	173	0.4	5	2.57	0.6	46	133	56	1011	8.23	0.16	14	16	3.07	2579	7	0.05	73	0.12	3	393	0.37	249	81
7	5500N-4650E	1400	0.4	4.68	2	179	0.4	5	3.10	0.2	49	205	60	850	8.28	0.27	15	11	2.22	1607	6	0.04	58	0.15	2	274	0.44	254	62
7	5500N-4700E	300	0.4	4.64	5	317	0.3	5	2.63	0.2	52	98	31	687	6.84	0.58	15	13	2.57	833	9	0.04	34	0.14	11	228	0.46	268	51
1	4750	410	0.6	4.08	7	178	0.3	5	2.36	0.5	50	98	40	954	7.62	0.27	16	12	2.40	1097	7	0.03	50	0.12	4	225	0.41	248	59
2	4850	45	0.2	4.12	4	240	0.3	5	1.87	0.2	46	47	60	287	6.52	0.43	13	13	2.45	1194	3	0.04	39	0.09	2	192	0.35	230	63
3	4900	180	0.4	4.57	4	210	0.4	5	2.12	0.2	52	61	42	610	6.98	0.26	16	13	2.04	1050	5	0.04	43	0.13	2	205	0.38	239	74
1	5500N-4950E	320	0.4	4.81	6	237	0.5	5	1.81	0.2	57	109	44	923	7.05	0.39	19	16	2.29	1733	5	0.05	53	0.15	3	171	0.35	221	89
5	5500N-5000E	350	0.2	4.40	7	163	0.4	5	2.15	0.2	53	48	76	734	7.03	0.30	16	14	2.45	923	3	0.04	45	0.13	4	176	0.37	243	84
5	5700N-4200E	10	0.2	5.32	6	286	0.3	5	2.81	0.2	43	23	17	248	6.53	0.64	11	15	2.40	1064	2	0.10	25	0.13	2	255	0.42	226	82
7	5700N-4400E *	45	0.2	3.95	2	205	0.3	5	0.99	0.2	34	64	23	389	7.07	0.59	10	18	2.72	1064	4	0.04	30	0.11	2	78	0.26	254	62
3	5850N-3950E *	50	0.2	4.93	4	294	0.5	5	2.51	0.6	48	118	30	536	7.98	0.57	14	14	1.91	1890	7	0.05	38	0.16	5	218	0.30	185	57
1	5850N-4000E *	130	1.0	4.12	2	308	0.5	5	1.45	0.2	50	113	37	1442	8.72	0.42	19	16	2.33	1731	8	0.04	38	0.14	2	159	0.29	186	95
2	5850N-4050E	180	1.0	4.86	2	260	0.5	5	2.03	0.2	49	70	36	955	8.92	0.39	15	14	2.01	2044	9	0.04	40	0.23	3	228	0.30	162	75
3	4100	320	1.2	4.89	3	100	0.5	5	6.50	0.7	45	39	20	693	7.71	0.16	13	11	1.51	3462	6	0.04	23	0.15	2	182	0.27	144	233
1	4150	50	0.2	5.80	6	139	0.5	5	7.99	0.2	38	61	23	550	8.95	0.17	11	9	1.14	3183	4	0.06	28	0.16	2	262	0.28	170	205
5	4200	55	0.4	5.28	2	240	0.5	5	2.32	0.2	47	100	27	645	7.69	0.45	13	16	2.20	2789	4	0.07	42	0.19	7	229	0.32	217	92
5	5850N-4300E	210	0.6	4.48	4	168	0.4	5	2.85	0.3	44	88	64	772	7.65	0.34	14	14	2.65	1283	11	0.09	77	0.14	2	278	0.37	213	73
7	5850N-4350E	150	0.6	3.94	7	103	0.3	5	2.28	0.3	44	89	86	890	7.70	0.26	13	14	2.91	1148	8	0.06	74	0.13	2	219	0.32	197	62
3	4400	140	0.8	4.21	3	80	0.4	5	2.01	0.2	42	76	113	1161	7.05	0.23	13	16	3.90	1203	16	0.04	81	0.11	2	144	0.28	175	59
9	4450	170	1.0	4.62	6	237	0.4	5	1.98	0.6	48	69	36	1647	7.22	0.52	15	17	2.88	1480	5	0.04	34	0.14	2	168	0.38	207	84
7	4500	520	2.0	5.22	2	237	0.5	5	2.08	0.2	50	60	28	1235	7.59	0.48	16	20	3.11	1636	8	0.05	35	0.14	4	234	0.45	232	92
1	5850N-4600E	210	0.4	5.34	8	169	0.5	5	3.56	0.5	45	113	65	1515	7.33	0.25	14	12	2.45	1034	5	0.05	57	0.14	2	335	0.39	227	56
2	5850N-4650E	440	0.8	4.93	3	616	0.5	5	2.63	0.4	49	92	42	683	7.03	0.39	15	15	2.80	1508	10	0.06	43	0.14	2	283	0.41	209	72
3	5850N-4700E	350	1.0	4.87	5	283	0.5	5	1.81	0.3	55	50	42	994	5.89	0.59	17	19	1.92	693	6	0.08	39	0.15	8	198	0.32	174	96

# NORANDA DELTA LABORATORY

## Geochemical Analysis

Project Name & No.: SOUP - 127

Geol.: L.E.

Date received: AUG. 27

LAB CODE: 9309-007

Material: 37 Rx

Sheet: 1 of 2

Date completed: SEP. 15

R #100180

Remarks: \* Sample screened @ -35 MESH (0.5 mm)

□ Organic, A Humus, S Sulfide

Au - 10.0 g sample digested with aqua-regia and determined by A.A. (D.L. 5 PPB)

ICP - 0.2 g sample digested with 3 ml HClO<sub>4</sub>/HNO<sub>3</sub> (4:1) at 203 °C for 4 hours diluted to 10 ml with water. Leeman PS3000 ICP determined elemental contents.

N.B. The major oxide elements and Ba, Be, Ce, La, Li, Ga are rarely dissolved completely from geological materials with this acid dissolution method.

T. No.	SAMPLE No.	Au	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cu	Fe	K	La	Li	Mg	Mn	Mo	Na	Ni	P	Pb	Sr	Ti	V	Zn
		ppb	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	
9	384 - A	10200	26.0	1.62	7	708	0.2	5	0.15	0.2	5	3	75	247	3.49	0.77	2	2	0.27	224	5	0.05	3	0.04	2	21	0.09	91	12
0	B	5	0.2	4.02	15	146	0.2	5	3.71	0.2	70	19	24	109	6.04	0.27	14	8	1.51	529	1	0.08	16	0.10	2	270	0.50	224	34
1	C	5	0.2	3.66	20	411	0.4	5	3.82	0.4	69	15	23	116	6.36	0.91	14	16	2.18	775	2	0.08	9	0.11	2	78	0.40	265	46
2	D	60	1.6	3.66	17	130	0.3	5	2.65	0.2	69	33	46	563	8.18	0.29	26	10	2.19	477	12	0.09	47	0.07	2	205	0.44	221	39
3	E	20	0.2	3.96	13	184	0.3	5	3.11	0.2	66	41	89	2207	5.53	0.39	14	11	2.26	548	1	0.09	45	0.11	2	185	0.42	212	38
4	F	20	0.2	4.63	19	159	0.3	5	4.01	0.2	74	19	25	2289	6.04	0.41	14	11	1.68	640	2	0.09	17	0.11	2	208	0.57	259	42
15	G	5	0.2	3.86	7	393	0.3	5	3.52	0.2	73	8	25	111	4.58	0.56	14	9	1.24	847	2	0.11	6	0.12	2	244	0.40	153	62
16	H	5	0.2	4.43	10	365	0.3	5	3.83	0.2	73	11	23	316	4.59	0.62	15	10	1.03	660	3	0.11	6	0.13	2	271	0.36	143	39
17	I	5	0.2	3.68	11	809	0.3	5	2.90	0.2	58	23	26	156	4.69	1.26	13	10	1.35	662	2	0.11	7	0.11	2	64	0.32	164	40
18	J	5	0.2	4.96	8	1344	0.4	5	3.22	0.2	62	13	11	71	5.16	2.35	14	11	1.19	548	1	0.09	7	0.12	2	65	0.14	166	36
9	K	5	0.2	6.79	20	30	0.3	5	8.55	0.2	65	7	35	30	5.93	0.09	14	7	0.76	798	3	0.06	14	0.09	2	389	0.44	258	25
10	L	70	0.2	4.62	18	407	0.6	5	3.83	0.2	67	19	24	151	5.00	2.10	13	13	1.66	676	4	0.08	14	0.14	2	118	0.13	233	37
11	M	30	0.2	3.52	24	75	0.4	5	2.62	1.2	67	29	44	105	7.26	0.21	15	22	3.83	1160	6	0.07	28	0.10	2	28	0.52	297	83
12	N	40	0.2	4.57	17	206	0.3	5	3.31	0.2	68	38	18	165	6.22	0.63	13	14	2.49	666	1	0.12	20	0.11	2	226	0.58	253	44
13	O	70	2.6	4.28	11	299	0.3	5	1.15	0.2	39	17	22	5543	8.93	0.44	10	20	3.47	1207	1	0.08	26	0.11	2	58	0.64	356	106
14	P	10	0.2	3.66	24	77	0.3	5	4.56	0.2	85	37	59	351	7.03	0.15	15	12	2.75	843	3	0.11	36	0.11	2	148	0.55	273	56
15	Q	110	0.2	3.60	18	217	0.2	5	2.46	0.2	52	46	60	882	8.87	0.63	10	14	2.41	1167	6	0.03	44	0.06	2	27	0.21	139	62
16	R	5	0.2	4.82	19	65	0.3	5	4.79	0.2	85	33	50	88	7.47	0.19	14	12	2.82	928	3	0.08	36	0.10	2	236	0.43	301	52
17	S	5	0.2	5.14	14	148	0.3	5	6.05	0.2	94	77	24	467	6.25	0.34	13	7	0.72	575	2	0.08	21	0.10	2	216	0.47	236	30
18	T	210	0.2	4.75	12	441	0.3	5	0.89	0.2	38	15	37	970	8.43	1.34	10	11	1.83	186	2	0.09	32	0.08	2	103	0.41	230	22
51	U	5	0.2	5.07	20	118	0.5	5	4.24	0.2	79	20	23	631	5.45	0.36	18	15	2.02	568	2	0.08	25	0.12	3	318	0.57	279	37
52	V	10	0.2	4.08	10	225	0.2	5	3.39	0.2	63	26	13	325	5.43	0.91	12	10	1.04	390	2	0.11	19	0.09	2	191	0.44	199	24
53	384 - W	470	1.6	3.11	24	26	0.3	5	5.08	0.3	82	19	61	376	6.38	0.09	16	21	3.42	1495	5	0.08	72	0.15	7	77	0.43	283	85
54	385 - A	5	0.2	3.49	15	500	0.6	5	2.65	0.2	67	9	21	43	3.37	1.65	16	10	0.93	745	3	0.09	6	0.09	11	138	0.08	98	48
55	B	5	0.4	0.05	5	6	0.2	5	0.05	0.2	8	2	272	10	0.63	0.02	3	1	0.02	111	15	0.01	7	0.01	2	2	0.01	6	4
56	C	40	0.4	4.75	12	389	0.3	5	4.78	0.3	84	37	29	2458	6.44	1.01	15	17	2.44	958	5	0.09	26	0.11	2	156	0.62	324	54
57	D	40	0.2	5.09	14	107	0.3	5	4.60	0.2	86	32	21	919	7.04	0.15	19	13	2.18	777	3	0.10	18	0.11	10	258	0.63	273	65
58	E	50	0.2	2.08	8	537	0.3	5	2.49	0.2	72	5	31	22	2.83	0.78	19	7	0.72	502	4	0.12	5	0.09	9	83	0.14	97	38
59	F	20	0.2	3.39	15	129	0.2	5	3.41	0.2	67	22	55	529	6.64	0.28	16	10	1.86	553	4	0.10	24	0.11	2	185	0.42	230	38
60	G	30	0.4	4.93	18	18	0.3	5	8.33	0.2	65	48	41	242	10.23	0.07	15	6	0.35	710	6	0.05	16	0.09	2	373	0.47	271	24
61	H	5	0.4	4.19	27	163	0.4	5	4.51	0.2	76	16	51	142	6.84	0.34	16	13	2.43	1071	4	0.21	23	0.08	2	226	0.49	285	65
62	I	10	0.2	4.36	17	144	0.3	5	3.24	0.2	60	12	41	82	6.55	0.38	12	17	2.80	852	2	0.15	25	0.09	2	243	0.53	285	55
63	J	50	0.2	1.77	5	234	0.2	5	1.12	0.2	33	9	130	44	2.68	0.43	7	5	0.43	263	137	0.08	8	0.06	2	98	0.19	70	25
64	K	10	0.2	1.94	33	13	0.4	5	4.59	0.2	72	24	46	58	36.12	0.06	20	5	0.30	2150	7	0.05	83	0.11	2	47	0.07	100	82
66	385 - L A	800	1.2	3.22	8	716	0.3	5	1.09	0.2	32	75	69	5503	8.37	0.91	10	12	2.32	659	4	0.07	32	0.09	2	41	0.30	160	61

9307  
Date rec'd Aug

NORANDA EXPLORATION COMPANY, LIMITED

0384

White - On.  
Yellow - Field

LAB \_\_\_\_\_

PROJECT NO. 127/A4 PROPERTY Sixip

N.T.S.

CERT. NO. \_\_\_\_\_

GRID REFERENCE \_\_\_\_\_

DATE August 1978

3725 PK

SAMPLE REPORT

SAMPLE #	DESCRIPTION	TYPE	WIDTH	ASSAYS			CO-ORDINATES		SAMI
A	Massive QV partly Bull Gtz in 14 near <sup>Plat. Anorthite</sup> <del>in</del> <sup>Composite</sup> <del>cont</del> 1 KLP-177						2860N	1710E	LEI
B	Bleached chl-ep aug (porph) 2% py	o/c	grab				4925E	5377N	
C	Sheared, chloritic, carbonitized microdi, locally magnetic	o/c	grab				4925E	5700N	
D	Prop alt. aug porph, no v.s., ep ff, bleached, very rusty <sup>locally magnetic</sup>	o/c	grab				5700N	4800E	
E	Aug porph, Mc >> Az on ff, rare dis Mc, pervasive ep	o/c	grab				5700N	4700E	
F	Aug porph, ep ± qz ff, Mc ff, local d. Mc	Chip	3m				5700N	4660E	
G	Microcline, epidotized, trace sulf, silicified	o/c	grab				5700N	4625E	
H	Sheared microdi, wk ep., trace sulf, hb → chl	o/c	grab					4620E	
I	Microcline, chloritized Hls, 2% d. Py							4600E	
J	Weakly shd, chl-ep-und, microdi, trace v. py							4585E	
K	Strongly propylitic aug porph, ep ff.						5700N	4500E	
L	Chl. und., locally carbonitized, tr. py, epidotized	o/c	grab				5500N	4327E	
M	Weakly sheared und., irreg qz-und vein						5500N	4362E	
N	Strongly propylitized aug porph, py ff						5500N	4420E	
O	Aphanitic und, Mc ff, rare (local) ep ff	o/c	grab				5500N	4471E	
P	Very fract. aug. porph, no v.s., ep ± qz ± carb veins	o/c	grab				"	4600E	
Q	Qz-und / local sheared chl und, 5% py, Mc	o/c	grab				"	4614E	
R	Aug porph, ep-py veins, variably mag for wk carb	Taken					5500N	4800E	
S	Bleached aug porph, 15% fgd py, local ep.	o/c	grab				5575N	4880E	
T	Aug porph, weakly magnetic, slightly gossanous	o/c	grab				5250N	5193E	
U	Bleached aug porph, wk. carb alt.	o/c	grab				5700N	4720E	
V	Wk. prop. alt. aug porph, 10% fgd py	o/c	grab				5700N	4370E	
W	Sheared, chl. aug porph, weak pervasive carbonite, minor dis. sulf, Mc-und ff	o/c	grab				4250E	5750N	





APPENDIX III

STATEMENT OF COSTS

NORANDA EXPLORATION COMPANY, LIMITED  
STATEMENT OF COSTS

PROJECT: SOUP GROUP

DATE: APRIL 8, 1994

TYPE OF REPORT: GEOCHEMICAL

- a) Wages:  
No. of Mandays : 8 mandays  
Rate per Manday: \$245.00/manday  
Dates From : August 16 - 20, 1993  
Total Costs : 8 x \$245.00 \$1,960.00
- b) Food and Accommodations:  
No. of Mandays : 8 mandays  
Rate Per Manday: \$30.37/manday  
Dates From : August 16 - 20, 1993  
Total Costs : 8 x \$30.37 \$ 242.96
- c) Transportation:  
No. of Mandays : 8 mandays  
Rate Per Manday: \$30.97/manday  
Dates From : August 16 - 20, 1993  
Total Costs : 8 x \$30.97 \$ 247.76
- d) Instrument Rental:  
Type of Instrument:  
No. of Mandays :  
Rate Per Manday:  
Dates From :  
Total Costs :
- Type of Instrument:  
No. of Mandays :  
Rate Per Manday:  
Dates From :  
Total Costs :

e) Analysis: 63 soils, 34 rocks @ \$13.80/sample \$1,338.60

f) Cost of preparation of Report: \$ 670.00

Author : 1 manday @ \$270.00/manday = \$270.00

Drafting: 1 manday @ \$225.00/manday = \$225.00

Typing : 1 manday @ \$175.00/manday = \$175.00

g) Other:

Contractor:

Pacific Western Helicopters Ltd.

0.5 hours x \$725.00/hour (including fuel) \$ 362.50

**TOTAL COST \$4,821.82**

h) Unit Costs for Geochemistry:

No. of Mandays: 8 mandays

No. of Units : 97 samples

Unit Costs : \$49.71/sample

Total Cost : 97 x \$49.71 \$4,821.82

NORANDA EXPLORATION COMPANY, LIMITED  
(CORDILLERA DIVISION)

DETAILS OF ANALYSES COSTS

PROJECT: SOUP GROUP

<u>ELEMENT</u>	<u>NO. OF DETERMINATIONS</u>	<u>COST PER DETERMINATION</u>	<u>TOTAL COSTS</u>
ICP (30 Element) + Geochem Au	63 Soils	\$13.80	\$ 869.40
ICP (30 Element) + Geochem Au	34 Rocks	\$13.80	\$ 469.20
			<hr/>
			\$1,338.60

**APPENDIX IV**  
**STATEMENT OF QUALIFICATIONS**

**STATEMENT OF QUALIFICATIONS**

I, D. Graham Gill of the City of Vancouver, Province of British Columbia, hereby certify that:

I am a geologist residing at 5442 - 7th Avenue, Delta, B.C.

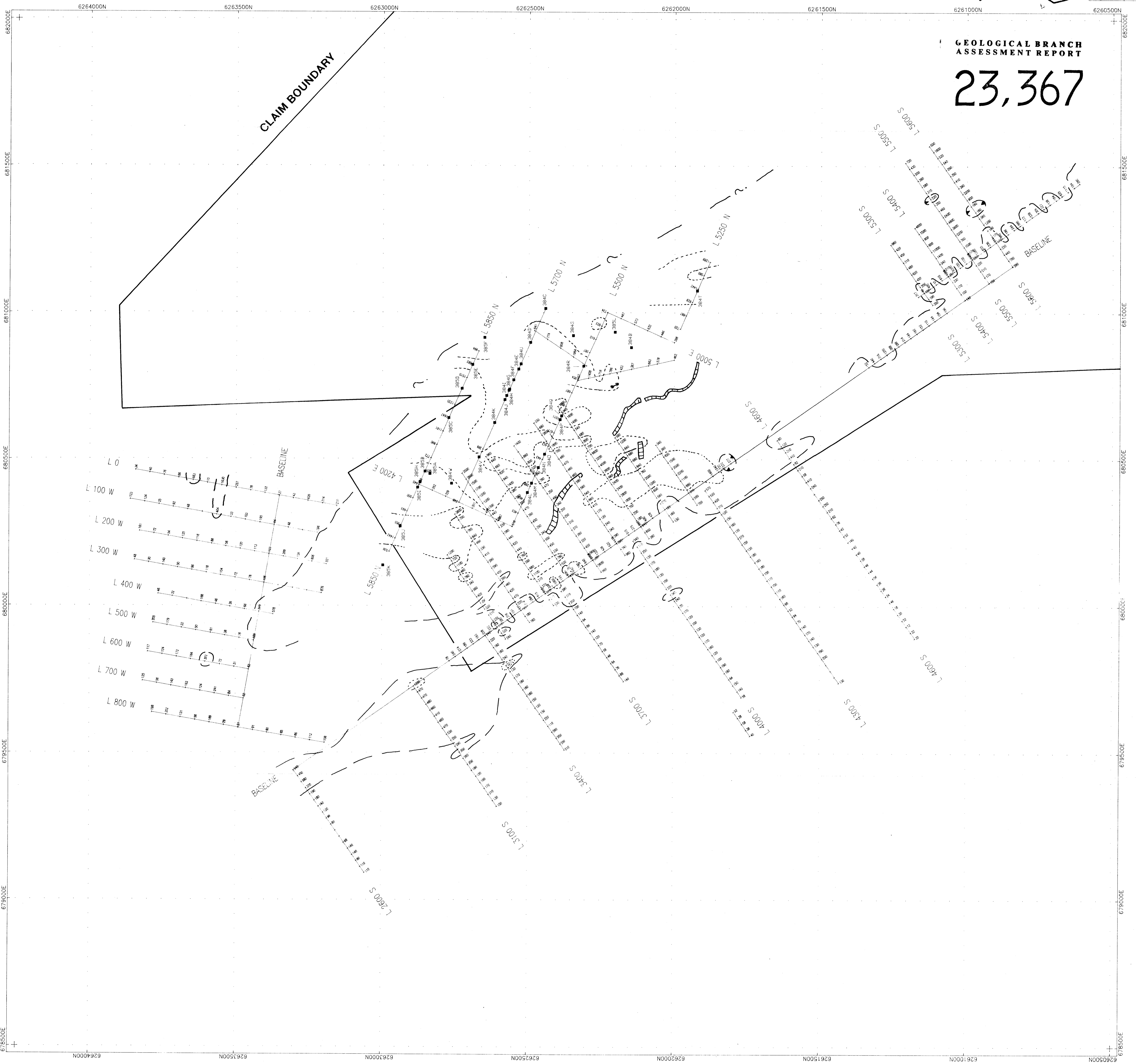
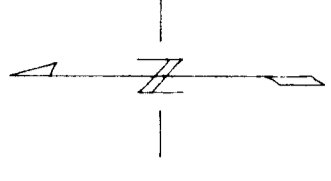
I have graduated from the University of British Columbia in 1983 with a BSc in geology.

I have worked in mineral exploration since 1979.

I have been a temporary employee with Noranda Exploration Company, Limited since May, 1983 and a permanent employee since November 1987.

I am a member in good standing of the Professional Engineers & Geoscientist of British Columbia.

  
\_\_\_\_\_  
D. Graham Gill, P. Geo.



4  
**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

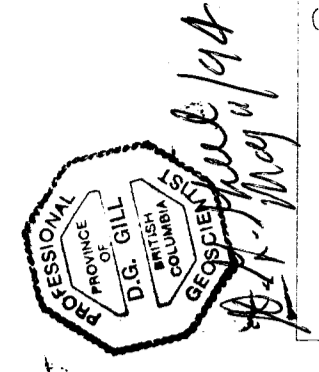
**23,367**

**DDH**  
Rock Sample Location and Sample Number

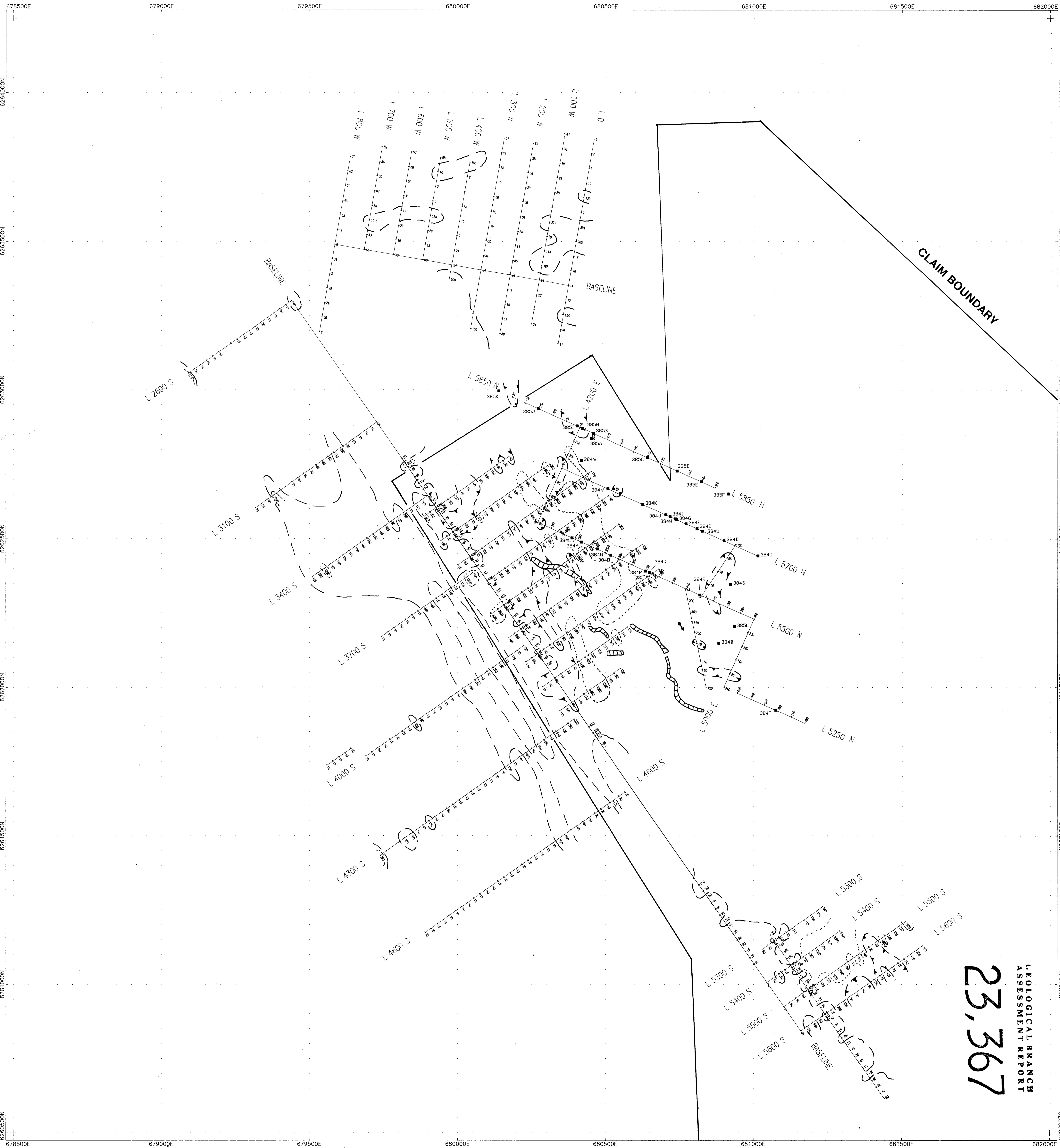
**300 ppm Cu Contour**

**750 ppm Cu Contour**

**Exposed Skarn Miniz**



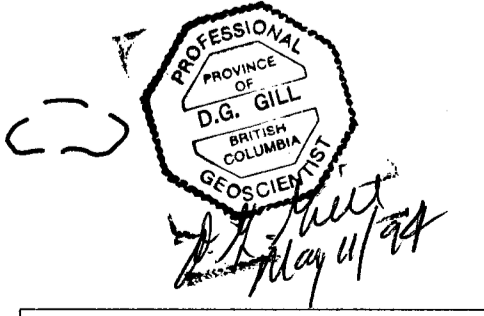
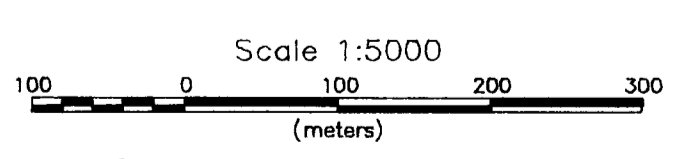
SOUP CLAIMS  
KIVULU PROJECT  
Grid Soil Geochemistry  
Copper in ppm  
Map Coordinates: UTM for Zone 09  
Processed By: P. Fenton Date: April 11, 1994  
NORANDA EXPLORATION COMPANY, LIMITED



23,367

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

-  **DDH**
-  **384T** Rock Sample Location and Sample Number
-  **100 ppb Au Contour**
-  **500 ppb Au Contour**
-  **Exposed Skarn Minlz**



SOUP CLAIMS
KLIYUL PROJECT
Grid Soil Geochemistry
Gold in ppb
Map Coordinates : UTM for Zone 09
Processed By : R. Fenton Date : April 11, 1994
NORANDA EXPLORATION COMPANY, LIMITED