

LOC NO.	1129	RD.
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ASSESSMENT REPORT

GEOCHEMISTRY & GEOLOGY

of the

**HOUSTON-TOMMY PROPERTY**  
 (Nels 5-8, Tel 1-24, Ter 1-8 Claims)

N.T.S. 93 L/06 E

Latitude  $54^{\circ} 23' N$   
 Longitude  $127^{\circ} 06' W$

OMINECA MINING DIVISION

NORANDA EXPLORATION COMPANY, LIMITED  
 (no personal liability)

GEOLOGICAL SURVEY  
 BRANCH REPORT

1989

REPORT BY: MARK LISKOWICH  
 FIELD GEOLOGIST

OCTOBER, 1989

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### **SUMMARY**

A total of eighteen man-days were spent working on the Houston-Tommy claims between Aug 13 and 21, 1989. This work consisted of geological mapping, prospecting, and soil and rock sampling on a number of grids.

The claim groups, which are located 30 km west of Houston, B.C. in the Telkwa Range of the Hazelton Mountains, have produced a number of rock and soil Au, Ba and Cu anomalies.

Future work should focus on those portions of Noranda's ground that has not yet been worked, i.e., Ter 1-8 and on areas hosting previously identified geochemical anomalies.

## INTRODUCTION

### PURPOSE

The Houston-Tommy claims were staked in 1987 by Noranda personnel. These claims were staked after a government regional geochemical release. Follow-up work on these claims, by Noranda personnel in 1988, identified anomalies in both the rocks and soils on these claims. The purpose of this 1989 program was to map geology and to sample rocks and soils on these claims in greater detail. The objective was to locate more anomalous zones and extend those previously identified.

### LOCATION AND ACCESS

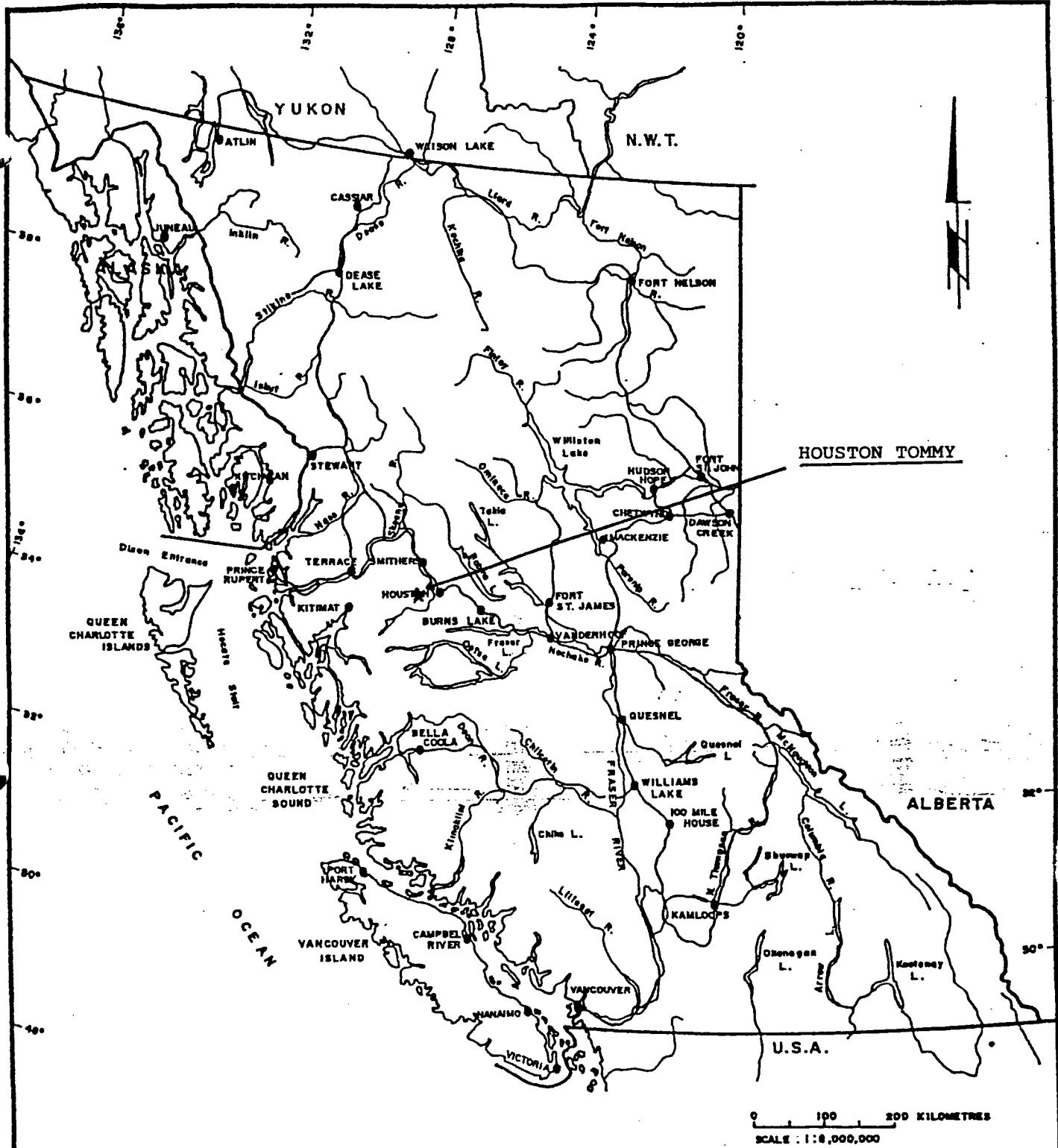
The property is located approximately 30 kilometres west of Houston, in the Telkwa Range (Figure 1 and 2). Access was by helicopter from the town of Houston. Trenches and old cat trails on the property suggest that a cat trail has been pushed into the property.

The claims lie within the Telkwa Range of the Hazelton Mountains. The property lies east of Houston Tommy Creek and south of Emerson Creek. The relief ranges from flat alpine plateaus to mountainous creek valleys. The elevation ranges from 1160 to 1830 meters.

The vegetation is composed of alpine mosses, grasses and low lying shrubs. Tree line is at approximately 1500 meters. The creek valleys are heavily forested with small spruce and fir trees.

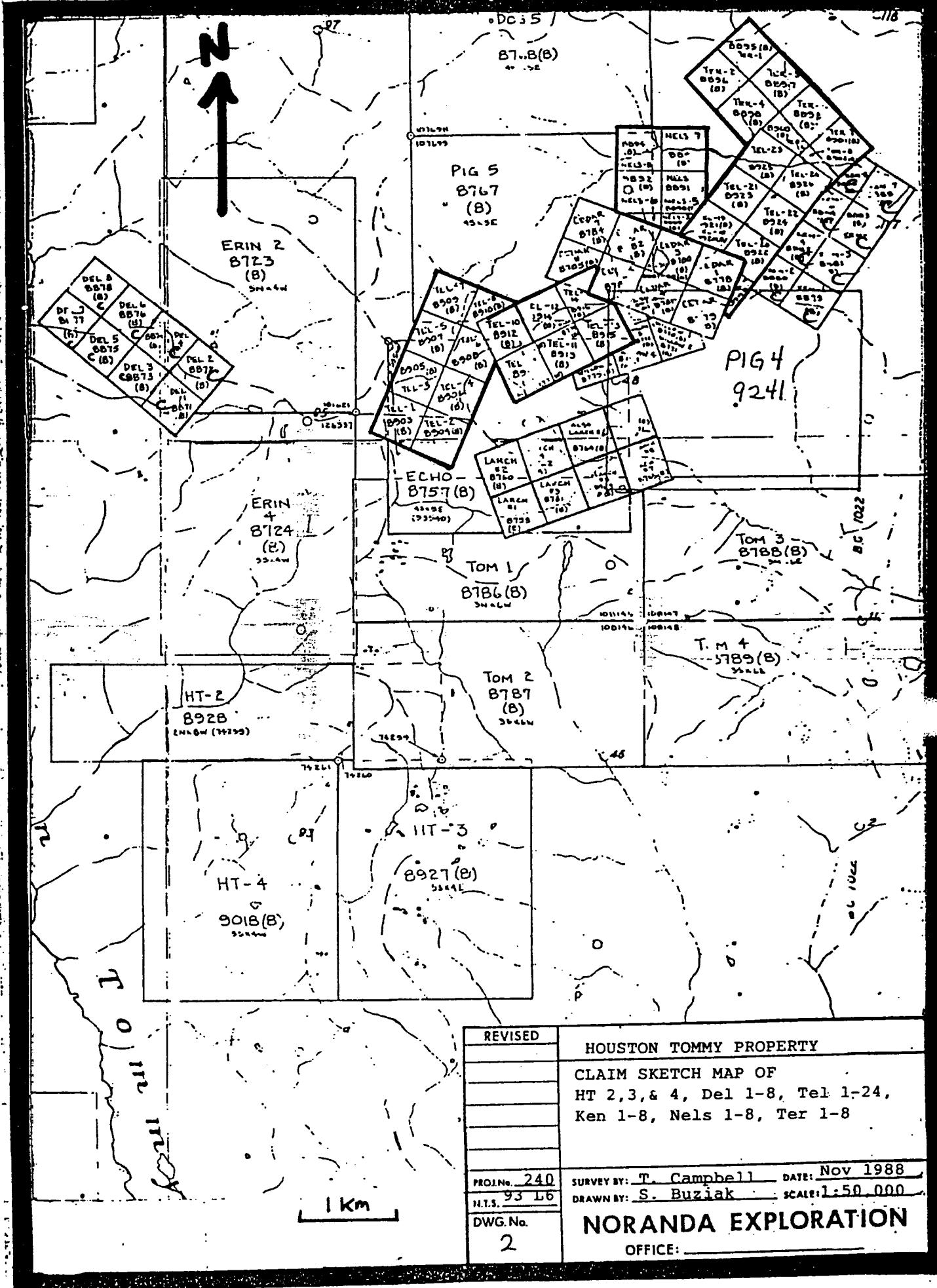
### PROPERTY

Originally, the property was comprised of a fifty-six unit block of three modified grid claims; HT-2, HT-3, HT-4, and seven blocks of two-post claims. However, as of August 31, 1989 several of these claims have been allowed to lapse, namely the HT-2, HT-3, HT-4, Del 1-8, and Ken 1-8. Currently Noranda holds the Nels 3-8, Tel 18-24, and Ter 1-8 claims, which make up the TER group. Noranda also holds the TEL group, which consists of the Tel 1-18 claims. All of these claims are in good standing (Table 1).



0 100 200 KILOMETRES  
SCALE : 1:8,000,000

REVISED	HOUSTON TOMMY PROPERTY			
	LOCATION MAP			
PROJ. NO. 240				
N.T.S. 93L6				
DWG. NO. 1				
SURVEY BY: T. Campbell DATE: Nov 1988				
DRAWN BY: S.K.B. SCALE: 1:8,000,000				
<b>NORANDA EXPLORATION</b>				
OFFICE: PRINCE GEORGE, B.C.				



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TABLE 1 List of Claims, Houston-Tommy Property

CLAIM	RECORD #	UNITS	RECORD	DATE/DUE	GROUP
Nels 5	8891	1	Aug 31	1991	TER
Nels 6	8892	1	Aug 31	1991	TER
Nels 7	8893	1	Aug 31	1991	TER
Nels 8	8894	1	Aug 31	1991	TER
Tel 1	8903	1	Aug 31	1991	TEL
Tel 2	8904	1	Aug 31	1991	TEL
Tel 3	8905	1	Aug 31	1991	TEL
Tel 4	8906	1	Aug 31	1991	TEL
Tel 5	8907	1	Aug 31	1991	TEL
Tel 6	8908	1	Aug 31	1991	TEL
Tel 7	8909	1	Aug 31	1991	TEL
Tel 8	8910	1	Aug 31	1991	TEL
Tel 9	8911	1	Aug 31	1991	TEL
Tel 10	8912	1	Aug 31	1991	TEL
Tel 11	8913	1	Aug 31	1991	TEL
Tel 12	8914	1	Aug 31	1991	TEL
Tel 13	8915	1	Aug 31	1991	TEL
Tel 14	8916	1	Aug 31	1991	TEL
Tel 18	8920	1	Aug 31	1991	TER
Tel 19	8921	1	Aug 31	1991	TER
Tel 20	8922	1	Aug 31	1991	TER
Tel 21	8923	1	Aug 31	1991	TER
Tel 22	8924	1	Aug 31	1991	TER
Tel 23	8925	1	Aug 31	1991	TER
Tel 24	8926	1	Aug 31	1991	TER
Ter 1	8895	1	Aug 31	1991	TER
Ter 2	8896	1	Aug 31	1991	TER
Ter 3	8897	1	Aug 31	1991	TER
Ter 4	8898	1	Aug 31	1991	TER
Ter 5	8899	1	Aug 31	1991	TER
Ter 6	8900	1	Aug 31	1991	TER
Ter 7	8901	1	Aug 31	1991	TER
Ter 8	8902	1	Aug 31	1991	TER
		---			
Total		33 units			

REGIONAL GEOLOGY:

The area is underlain by lower to mid Jurassic volcanics and sediments of the Hazelton group. The group consists primarily of andesitic and rhyolitic flows with associated tuffs and breccias. Small masses of granodiorite, quartz-monzonite, or diorite intrusives occur in the map area (GSC Memoir 223). The intrusives are part of the Late Cretaceous Bulkley intrusives(?). The volcanics are thought to be part of the Telkwa Formation (GSC Bulletin 270).

PREVIOUS WORK:

In 1967, a series of silts were collected in the area by Applegate (AR 1189). In 1974, two diamond drill holes were completed by Granges Exploration (AR 5094). The holes are located on the Tel 3 and 4 claims. Approximately 70 boxes of BQ drill core are located on the Tel 4 claim. The holes were drilled to evaluate copper concentrations in the intrusives that underlie the volcanics. Other signs of advanced exploration including trenches, were observed on the Del 1-8 claims. Noranda personnel have collected stream sediment samples in previous years. Silting was done in this area as part of the Smithers map sheet RGS release of 1987.

1988:

Noranda personnel undertook a program of grid soil, reconnaissance soil, silt and rock sampling, and geological mapping. Analyses of the samples revealed several large Au and Pb/Zn soil anomalies, 9 silt anomalies, and 9 rock anomalies.

### WORK UNDERTAKEN

Two men (Erskine Wigmore and Mark Liskowich) spent 18 man days working on the Houston-Tommy claims. Four of these man days were required to mobilize and demobilize the camp. The remaining 14 man days were also spent on the claims. These 14 man days were used to flag lines, prospect, map, rock and soil sample.

All lines were compassed and picketed and soil sampled every 50 metres, with the exception of some portions of the 10,000 grid and 20,000 grid baselines (see Figure 3). Where the opportunity existed, rock samples were taken. These samples were given tag numbers and were flagged. Mapping was done at 1:5,000 scale using the grids for control (Figure 5).

In total, 9.55 km of line were flagged. 168 soil samples and 25 rock samples were taken.

### RESULTS

#### GEOLOGY & PROSPECTING:

During the 1988 work, some felsic volcanics as well as some intrusives were encountered. These volcanics were subdivided into three types.

- R1 Brown Rhyolite
- R2 Grey Rhyolite
- R3 Red Rhyolite

The intrusives that were observed in 1988 were subdivided into:

- I1 Granite
- I2 Monzonite

A Tuff (T) of questionable composition and a dark grey hornfels (H) were also observed in 1988.

The areas traversed in 1989 were underlain primarily by andesitic rocks, most probably flows. The appearance of these andesites vary locally from light grey fine grained rocks to green porphyritic (phenocrysts of plagioclase) rocks, which often contain up to 5% epidote, to extremely well rusted rocks, to a calcareous andesite breccia with clasts up to 50 cm long.

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At L40,135N/40,000E a green, fine grained, slightly calcareous, andesite topographically underlies a rusted porphyritic andesite.

At L19,675N/20,025E, rusty rhyolite is found topographically below calcareous, andesite breccia.

The andesites that were observed on the property by Noranda personnel were divided into 7 types. (See Figures 4 and 5).

- A1 Grey Andesite
- A2 Green Calcareous Andesite
- A3 Rusty Andesite
- A4 Andesite with abundant Epidote
- A5 Andesitic Feldspar Porphyry
- A6 Green and maroon Andesite with small amount of fragmental clasts.
- A7 Brecciated Andesite

Old core was located at L10,900N/9,900E. This core consists of light grey andesite, andesite breccia, and quartz diorite. The collars of these drill holes were not found.

Most of the rocks encountered contain background levels of mineralization (trace to 2% pyrite). However, localized outcrops, notably on Erskine's Ridge (see sample location maps), contain small veinlets (1-3 cm wide) of pyrite +/- quartz along with small pyrite, quartz pods (5 to 10 cm across).

#### GEOCHEMISTRY:

##### Rocks -

A total of 25 rock samples were taken from the Houston-Tommy claim groups in 1989. Of these 25 samples, 16 were found to be anomalous in one or more elements.

These samples are described in Appendix 5. The lab results for these rocks are listed in Appendix 4. Their locations are given in Figures 4 and 5.

Minimum and maximum values that Noranda has obtained are listed below in Table 2.

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TABLE 2 Geochemical analyses of rock samples collected from  
the Houston-Tommy Property

Element	Low Value	Threshold	High Value
Mo	1 ppm	10 ppm	17 ppm
Cu	2	100	1188
Pb	2	30	17
Zn	22	250	342
Ag	.1	1.6	8.0
Au	.001	0.010	.660
As	5	100	28
Sb	2	10	16
Bi	2	10	45
Ba	22	400	1073
Mn	159	2000	1457
Fe	2.00%	7.0%	15.84%

The best rock geochemical anomalies for precious metals that Noranda personnel have collected include:

Sample #	Location	Au (ppb)	Ag (ppm)	Other	Rock Type
105565	L40200N/39965E	280	2.4	673 Cu	andesite
108006	Erskine's Ridge	660	8.0	1188 Cu	andesite
108010	Erskine's Ridge	260			sulphide veinlet

Soils -

A total of 171 soil samples were taken from the Houston-Tommy claims in 1989. 137 of these samples were found to be anomalous in one or more elements.

The locations for these 171 samples can be found on Figure 3. Lab results for these samples are listed in Appendix 4.

Table 3 summarizes the lowest and highest values that Noranda personnel have obtained to date.

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TABLE 3 Geochemical analyses of soil samples collected from the Houston-Tommy Property.

Element	Low Value	Threshold	High Value
Mo	1 ppm	10 ppm	54 ppm
Cu	2	100	2247
Pb	4	30	50
Zn	20	250	544
Ag	.1	1.6	3.8
Au	0.001	0.010	.560
As	2	100	23
Sb	2	10	8
Bi	2	10	35
Ba	21	400	1975
Mn	34	2000	16015
Fe	1.19%	7.0%	15.73%

Some of the better soil geochemical anomalies are listed below:

Location	Au (ppb)	Other Elements
L50300N/50050E	100	
L50300N/50300E	510	3.37% Al, 121 ppm Cu
L40300N/40200E	178	
L40100N/39750E	560	3.8 ppm Ag, 289 ppm Zn, 2247 ppm Cu
L40100N/39800E	142	292 ppm Zn, 793 ppm Cu
L21300E/19550N	115	518 ppm Ba

See Figure 3 for grid locations.

All of the samples, soil, silt and rock, were analyzed for 30 elements by I.C.P. and Au by atomic absorption. The analytical data is presented in Appendix 3.

#### Geochemical Patterns -

Some interesting areas have been identified from the soil geochemistry of the Houston-Tommy creek area (Figure 3). A minor gold, copper, molybdenum, barium association can be seen in a number of samples. However, much more work is required before any major geochemical patterns can be identified.

## CONCLUSIONS

Of the rocks encountered, those found on Erskine's Ridge (see Figure 4 and 5) appeared to host the most promising mineralization. A number of anomalous soil and rock samples have been obtained throughout these claim groups. The most interesting of these samples appear on the Nels claims. Enough geochemical anomalies have been uncovered to warrant more work in the area.

## RECOMMENDATIONS

Soil geochemistry should be performed on those areas missed by Noranda personnel in August of 1989.

More time should be spent on mapping and rock sampling the rock faces (where possible) along both claim groups.

Soil, silt and rock sampling should be initiated on the Ter claims.

As well, a geophysical survey should be conducted over the entire area, i.e., magnetometer survey or possibly an I.P. survey.

## BIBLIOGRAPHY

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Kindle, E. D., 1954, Mineral Resources, Hazelton and Smithers Areas, Cassiar and Coast Districts, British Columbia, GSC Memoir 223, Ottawa, Ontario.

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STATEMENT OF QUALIFICATIONS

## STATEMENT OF QUALIFICATIONS

### RELEVANT TRAINING:

B.Sc. (1989)                      University of Regina  
    Regina, Saskatchewan  
    Geology

### RELEVANT EXPERIENCE:

May 1989 ...                      Field Geologist  
    Noranda Exploration Company, Limited  
    Prince George, B. C.

May 1988-Aug. 1988                Senior Geological Assistant  
    CaMeco/Sask. Mining & Development Corp.  
    La Rouge, Sask.

May 1987-Aug. 1987                Geological Assistant  
    Saskatchewan Mining & Development Corp.  
    La Rouge, Sask.

June 1986-Aug. 1986               Geological Assistant  
    Saskatchewan Energy & Mines  
    Precambrian Division  
    Regina, Sask.

### PROFESSIONAL AFFILIATIONS:

Member, Saskatchewan Geological Society.

Mark Liskowich  
Field Geologist  
July, 1989



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APPENDIX 1. List of Personnel  
Houston-Tommy Property

NAME	POSITION	DATES IN FIELD
Mark Liskowich	Geologist	13-21 August 1989
Erskine Wigmore	Assistant	13-21 August 1989

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APPENDIX 2. Statement of Costs  
Houston-Tommy Property

LABOUR:

18 man days at \$200.00 \$ 3,600.00

FOOD & ACCOMMODATIONS:

18 man days at \$50.00 \$ 900.00

SUPPLIES:

18 man days at \$20.00 \$ 360.00

TRANSPORTATION:

Helicopter time and gas \$ 1,332.00

TRUCK RENTAL:

1 week at \$900/month \$ 225.00

ANALYSIS:

168 soil prep at \$.85 \$ 142.80

25 rock prep at \$3.00 \$ 75.00

193 30 element ICP at \$6.25 \$1206.25

193 Au by Atomic Absorption at \$4.50 \$ 868.50

Total: \$ 2,292.55

FREIGHT ON SAMPLES \$ 100.00

REPORT PREPARATION:

Author 3 days at \$120 \$360.00

Drafting 1 day at \$150 \$150.00

Typing 1 day at \$100 \$100.00

Total: \$ 610.00

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TOTAL COST: \$ 9,419.55

or 18 man days at \$523.00/man day

Man days pro-rated:

Tel Group 7 man days at \$523.00 \$ 3,661.00

Ter Group 11 man days at \$523.00 \$ 5,753.00

### APPENDIX III

#### 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 (1OPPB)
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 4**

**ANALYTICAL RESULTS**









Noranda Exploration Co. Ltd. PROJECT 8909-020 277 FILE # 89-3377

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SAMPLE#	No	Cu	Pb	Zn	Ag	Wt	Co	Mn	Zr	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Tl	B	Al	Na	K	V	As <sup>a</sup>	PPB
	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM			
L21000E 20600N	1	17	15	121 <sup>b</sup>	.2	6	5	590	2.20	6	5	ND	1	18	1	2	2	.46	.09	.118	5	19	.39	249	.04	3	2.29	.01	.05	2	117	
L21000E 19550N	1	47	26	335 <sup>b</sup>	.2	14	12	1865	4.99	12	5	ND	2	42	1	2	2	.67	.20	.057	14	29	1.20	395	.10	9	1.34	.01	.07	1	117	
L21000E 19900N	2	20	8	141	.3	13	10	1551	4.13	3	5	ND	1	32	1	2	2	.91	.14	.138	5	41	.86	337	.08	4	2.03	.01	.12	1	5	
L21000E 19850N	1	51	9	117	.1	10	7	997	4.12	9	5	ND	1	29	1	2	3	.47	.10	.090	10	22	.78	355	.05	2	1.71	.01	.09	1	117	
L21000E 19800N	3	96	11	168	.4	22	11	2196	4.94	8	7	ND	3	28	1	2	2	.60	.18	.067	12	40	1.18	374 <sup>b</sup>	.11	8	1.71	.01	.15	1	117	
L21000E 19750N	8	91	15	216	.1	12	12	1484	5.16	9	5	ND	1	13	1	4	2	.58	.09	.066	9	27	.89	393	.09	4	1.76	.01	.12	1	117	
L21000E 19700N	3	48	8	138	.4	5	5	521	2.25	2	5	ND	1	17	1	2	2	.40	.08	.111	6	16	.39	223 <sup>b</sup>	.02	7	2.31	.01	.05	1	117	
L21000E 19650N	4	41	8	128	.1	6	5	571	2.96	7	5	ND	1	14	1	2	2	.43	.08	.114	6	16	.44	276	.02	4	2.63	.01	.07	1	117	
L21000E 19600N	2	20	12	127	.3	7	6	1910	3.49	3	5	ND	1	13	1	2	2	.52	.09	.138	6	22	.41	165	.02	8	2.33	.01	.07	1	117	
L21000E 19550N	3	41	9	172	.1	7	8	1017	4.99	9	5	ND	1	13	1	6	5	.59	.16	.129	5	25	.37	289	.02	2	2.06	.01	.07	1	117	
L21300E 20000N	1	13	15	221 <sup>b</sup>	.2	5	17	3111	4.38	7	5	ND	1	27	1	2	4	.59	.12	.094	5	17	.75	4277	.13	4	2.32	.01	.12	1	9	
L21300E 19550N	1	19	13	219 <sup>b</sup>	.1	8	19	2524	4.51	11	6	ND	1	24	1	2	2	.67	.22	.139	6	20	1.19	473 <sup>b</sup>	.07	5	1.10	.01	.17	1	117	
L21300E 19800N	1	22	13	152	.3	7	8	1384	3.77	5	8	ND	1	16	1	2	2	.54	.10	.135	7	20	.70	281	.05	4	1.70	.01	.12	1	117	
L21300E 19850N	1	30	9	129	.2	8	6	759	2.92	4	5	ND	1	26	1	2	2	.48	.10	.148	6	21	.60	336	.03	4	1.16	.01	.09	1	117	
L21300E 19800N P	5	79	13	166	.2	16	12	1164	4.38	9	8	ND	2	29	1	2	2	.62	.14	.102	11	36	1.00	4067	.08	6	1.16	.01	.09	1	117	
L21300E 19750N P	12 <sup>b</sup>	18	214	.2	10	12	1235	4.97	15	5	ND	1	19	1	8	3	.63	.13	.111	11	23	.97	306	.08	3	1.70	.01	.11	1	117		
L21300E 19700N P	5	72	10	165	.1	10	11	958	4.56	8	5	ND	1	17	1	2	3	.69	.09	.088	10	25	.92	361	.08	2	1.33	.01	.08	1	117	
L21300E 19650N P	1	89	13	211	.1	13	11	1037	4.61	5	5	ND	1	22	1	2	2	.75	.12	.102	8	30	1.06	447	.08	2	1.11	.01	.10	1	117	
L21300E 19600N	3	71	13	201	.3	12	9	721	4.00	7	5	ND	1	17	1	2	2	.74	.17	.101	11	29	1.00	4524 <sup>b</sup>	.06	4	1.33	.01	.07	1	117	
L21300E 19550N	3	50	11	185	.1	13	10	1023	4.82	7	5	ND	1	16	1	2	4	.79	.13	.145	6	39	.00	510 <sup>b</sup>	.03	3	1.70	.01	.07	1	117	
L30000E 30350N	5	49	1	56	.1	2	3	289	5.75	6	5	ND	1	11	1	3	7	.32	.02	.097	8	9	.23	90	.02	3	2.36	.01	.08	1	117	
L30000E 30300N	5	68	9	69	.2	5	5	407	5.98	10	7	ND	1	12	1	3	3	.52	.04	.062	6	20	.33	102	.03	5	2.06	.01	.04	3	117	
L30000E 30250N	6	110 <sup>b</sup>	6	85	.1	3	6	303	7.23 <sup>b</sup>	14	5	ND	1	5	1	6	3	.30	.02	.063	9	13	.28	49	.02	2	2.43	.01	.03	1	5	
L30000E 30200N	4	31	9	61	.4	4	4	614	3.39	7	5	ND	1	15	1	2	2	.47	.04	.071	6	16	.21	90	.03	2	1.87	.01	.04	1	5	
L50000E 50350N	2	12	7	33	.2	2	2	135	3.71	3	5	ND	1	3	1	2	2	.32	.02	.038	6	9	.11	28	.03	1	1.73	.01	.02	2	3	
L50000E 50400N	6	20	9	42	.1	2	5	749	3.23	3	5	ND	1	6	1	2	2	.43	.04	.041	6	9	.23	336	.03	2	1.44	.01	.04	2	117	
L50000E 50350N	31	11	91	.2	5	6	452	3.42	4	5	ND	1	19	1	2	2	.44	.10	.083	8	17	.33	663 <sup>b</sup>	.03	2	1.63	.01	.09	2	1		
STD C/AU-S	17	61	42	132	6.7	71	31	1031	4.06	42	22	8	30	18	10	15	20	.58	.46	.088	39	55	.02	175	.07	39	1.94	.06	.13	12	19	

Soil

n = 27

$\Sigma = 171$

## Noranda Exploration Co. Ltd. PROJECT 8909-020 277 FILE # 89-3377

Page 6

SAMPLE#	No PPM	Cu PPM	Pb PPM	Zn PPM	Ag PPM	NI PPM	Co PPM	Mn PPM	Fe PPM	As PPM	U PPM	Au PPM	Th PPM	U PPM	Cd PPM	Sb PPM	Bi PPM	V PPM	Ca %	P %	La PPM	Cr PPM	Hg PPM	Ba PPM	Tl PPM	D PPM	Al PPM	Na PPM	K PPM	V PPM	Au/ PPB			
105558	1 60	10 38	.3 2	2 17	430 5.68	12 5	ND	2 19	1 2	2 2	1037 .81	.062	3	1 .43	24 237	2 .75	.07	.05	1 6															
105559	1 25	2 31	.2 5	6 4	251 2.85	5 5	ND	3 2	1 2	2 2	10 .04	.023	4	1 .18	27 .04	2 .50	.03	.07	1 3															
105560	2 13	3 15	.1 5	4 194	3.43	5 5	ND	3 3	1 2	2 2	12 .07	.021	4	5 .16	87 .08	4 .73	.03	.11	1 1															
105561	1 22	3 22	.1 6	6 38	227 2.43	5 5	ND	4 12	1 2	2 12	7 .13	.030	5	5 .22	56 .02	2 .41	.04	.13	1 4															
105562	1 16	5 157	.2 64	21 916	3.89	8 5	ND	1 25	1 2	2 2	100 .90	.033	2	6 2.37	1073 237	9 2.52	.06	.45	1 1															
105563	1 9	8 27	.1 2	4 196	6.76	12 5	ND	2 3	1 1	2 12	10 .03	.063	5	2 .10	22 .01	6 .50	.02	.15	2 3															
105564	2 18	7 42	.2 5	8 405	3.46	10 6	ND	2 5	1 4	2 14	14 .04	.046	7	5 .18	43 .03	3 .41	.03	.07	3 1															
105565	1 5 118 417	7 41 2.47	1 4	9 379	6.93	26 5	ND	2 5	1 2	31 7	09 .048	.048	5	2 .29	39 .01	4 .73	.01	.15	1 1															
105566	1 5 5 57	.1 4	5 570	4.23	26 5	ND	1 5	1 3	2 13	.07	.044	4	4 .01	77 .02	2 .23	.01	.10	1 1																
105567	1 7 8 105	.1 3	5 902	3.73	13 5	ND	2 5	1 5	2 21	.13	.051	7	4 .16	314 .01	2 .44	.02	.06	1 1																
105568	1 11 11 88	.1 4	3 887	2.65	16 5	ND	2 8	1 5	2 11	1.10	.015	9	4 .11	273 .01	2 .81	.02	.06	1 1																
105569	2 2 4 77	.1 5	2 401	2.00	5 5	ND	2 3	1 2	2 8	.04	.019	9	5 .35	293 .06	2 .53	.04	.20	1 1																
105570	1 86 6 111	.2 3	22 765 417 457	7 5	ND	1 20	1 2	2 22	.81	.018	2	2 1.03	265 237	2 .36	.06	.16	1 1																	
105571	1 12 12 146	.1 2	17 1457	6.58	8 5	ND	2 30	1 2	2 21	1.73	.061	4	1 1.62	34 417	4 1.69	.04	.05	1 1																
105572	1 1227 4 3427	.4 4	15 410	6.73	7 5	ND	2 20	1 2	2 21	.57	.069	3	3 1.58	159 .17	2 1.56	.08	.17	1 5																
105573	1 56 17 186	.3 3	9 1810	4.69	15 5	ND	2 52	1 2	2 37	.01	.094	4	3 1.01	160 237	9 1.57	.03	.05	1 1																
105574	1 91 2 29	.1 3	10 159	5.00	5 5	ND	2 2	1 417	2 14	.04	.033	4	3 .28	66 .02	2 .44	.04	.02	1 1																
105575	5 96 9 120	.1 4	4 341	5.49	5 5	ND	2 7	1 2	2 53	.07	.041	6	6 .34	156 .04	6 .73	.02	.31	1 1																
108004	2 57 4 44	.1 20	15 401	3.09	8 5	ND	3 417	1 2	2 77	1.80	.060	6	39 1.36	109 .19	637 1.90	.06	.13	1 1																
108005	1 27 14 226	.1 6	1 1312	3.08	11 5	ND	2 73	1 2	2 46 237	.081	5	6 .66	83 .18	4 1.34	237	.19	1 1																	
108006	5 11807 3 172	4.07 39	26 926 13.87	7 5	ND	1 10	1 2	2 15 237	.16	.044	2 139	1.86	108 .12	2 2.07	.02	.12	1 1																	
108007	5 81 2 128	.1 52	37 846	3.93	5 5	ND	1 39	1 2	2 89 1.00	.034	2 77 1.93	109 237	5 2.11	.07	.54	1 1																		
108008	1 3007 5 73	1.3 66	31 947	3.05	7 5	ND	1 85	1 2	2 66 237	.039	2 57 .82	45 237	2 1.09	.01	.01	1 1																		
108009	2 62 8 196	.2 67	67 1303 1127	10 5	ND	1 36	1 2	2 21 1.86	.020	2 102 3.16	72 207	9 1.95	.01	.13	1 1																			
108010	2 58 7 44	.2 11	10 106 67.307	20 5	ND	1 7	1 2	2 21	.13	.030	3 14 .38	33 .03	5 .07	.02	.09	1 1																		
STD C/AU-R	17 62	36 132	6.6 68	30 1023	3.02 41	17 7	37 47	18 15	23 59	.43	.091	38 55	.07	174 .07	33 1.01	.06	.14	11 515																

Rock n = 25

**APPENDIX 5**  
**SAMPLE REPORTS**

## NORANDA EXPLORATION COMPANY, LIMITED

N.T.S. 934/6EAREA / PROPERTY Houston - Tommy - 277

Collection

DATE

Aug 29/89

Aug 15/89

GCI #

## SAMPLE REPORT

Lab Code:

PROJECT 277

SAMPLE NO.	LOCATION & DESCRIPTION outcrop / float	% SULPHIDES	TYPE material	WIDTH m	ppb Au	SAMPLED BY
105558	rx. sample of massive Andesite, with rusted veins and small calcite stringers. Nothing special 20100 N/20000 E	trace	Rock	grab		A.I.
105559	Silicified dacite (?) Andesite. outcrop found in creek. L 30400 N/29865 E	2-5%	ROCK	grab		A.I.
105560	L 30400 N/29850 E. outcrop is SAME AS ABOVE.	2.5%	ROCK	grab		A.I.
105561	L 30400 N/30125 E. float in talus at base of Erskine's ridge. Most of talus is not mineralized. Sample is well rusted Andesite-silicic	2-5%	ROCK	talus grab		A.I.
105562	L 30200 N/30800 E - talus at base of Erskine's ridge. Andesite. well rusted possibly CPY - possible V.G.??	trace 1%	Rock	talus		A.I.

report by:

G - GEOCHEM

A - ASSAY

## NORANDA EXPLORATION COMPANY, LIMITED

N.T.S. 93L/6EAREA / PROPERTY Houston - Tammy 277Collection DATE September Aug 16/89

GCI #

## SAMPLE REPORT

Lab Code:

PROJECT: 277

SAMPLE NO.	LOCATION & DESCRIPTION outcrop / float	% SULPHIDES	TYPE material	WIDTH m	ppb Au/kg	Cu	Mo	SAMPLED BY
105563	L 40155 N/40000 . extremely rusted altered light green por. andesite chlorite.	to-1%	ROCK GRAB					✓/✓
105564	L 40140 N/29990 E . Rusted andesite on ridge face . Por. with Jaaper and gtz pods.	to-1%	rock Grab	280	2.4	673	17	✓/✓
105565	L 40200 N/29965 E Extremely rusted ? altered rock . Andesite (?)		rock Grab					✓/✓
105566	L 40150 N/40100 E . on cliff edge altered lt. gray purplish andesite Rusted, with gtz. stringers/pods . light	to-1%	Rock Grab					✓/✓
105567	L 40190 N/40150 E . Lt. gray - andesite highly altered well rusted andesite. small quartz stringers , altered	none visible	rock Grab					✓/✓
105568	L 19675 N/20025 E . Well rusted phyllite found <sup>topographically</sup> below andesitic breccia	none visible	Rock Grab					✓/✓

report by:

G - GEOCHEM

A - ASSAY

## NORANDA EXPLORATION COMPANY, LIMITED

N.T.S. 95L/6E

AREA / PROPERTY Houston-Tommy

Collection

DATE Sept 26/89 Aug 17/89

GCI #

## SAMPLE REPORT

Lab Code:

PROJECT: 277 General

SAMPLE NO.	LOCATION & DESCRIPTION outcrop / float	% SULPHIDES	TYPE material	WIDTH m	ppb Au	SAMPLED BY
105569	L 20000 E / 19925 N . light grey andesite with sulfides on fracture surfaces and in small veinlets	2-5%	Rock	Fishbone		✓/✓
105570	L 20100 E / 19990 N Edge of ridge grey green fine grained andesite slightly chloritic. Epidote. Sulfides found in small veinlets and disseminated throughout rock.	2%	Rock	Grabs		✓/✓
105571	L 2100 E / 20055 N fine grained and extremely hematized. small gte stringers throughout.	NONE VISIBLE	Rock	Grabs		✓/✓
105572	L 20 225 E / 20015 N . brownish grn. 10-15% Rock Grabs Andesite well rusted. disseminated sulfides	10-15%	Rock	Grabs		✓/✓
105573	L 20275 E / 20020 N Brown Andesite Edge of valley, 5-10% Epidote	NONE VISIBLE	Rock	Grabs		✓/✓

report by:

G - GEOCHEM

A - ASSAY

## NORANDA EXPLORATION COMPANY, LIMITED

N.T.S. 93L/6E  
 Collection DATE Sept 5/89 Aug 19/89  
 PROJECT: 277 General

AREA / PROPERTY Houston Tarnary

GCI #

## SAMPLE REPORT

Lab Code:

SAMPLED  
BY

SAMPLE NO.	LOCATION & DESCRIPTION outcrop / float	% SULPHIDES	TYPE material	WIDTH m	ppb Au							
105574	L 50300 N / 50300 E. Well rusted dacitic rx. in talus. disseminated sulfides & small sulfide veinlets. Rx type of sample also found in % near 154. Aug 18/89	2-5%	Rock	talus								M.J.
105575	Well rusted, on ridge. may be on cedar claimns?	none visible	Rock	mass								M.J.
108004	sample of old core on 10,000 grid diorite to qtz. diorite. med. grn. disseminated sulfides as well as small veinlets of sulfides. CPY(?)	1-3%	Rock	CORE 12in long								M.J.
108005	sample of old core on 10,000 grid andesitic breccia, calcareous on fracture surfaces. tr. of epidote. Sulfides disseminated throughout & on fracture surfaces.	tr-2%	Rock	13metres of core								M.J.

report by

G = GEOCHEM

A = ASSAY

## NORANDA EXPLORATION COMPANY, LIMITED

N.T.S. 93L/6E

AREA / PROPERTY Houston - Tommy

Collection

DATE Aug 20/89

GCI #

## SAMPLE REPORT

Lab Code:

PROJECT General 277

SAMPLE NO.	LOCATION & DESCRIPTION outcrop / float	% SULPHIDES	TYPE material	WIDTH m	ppb Au	SAMPLED BY
108006	Lt. grey andesite, lots of Epidote, chlorite to 2% Rock Grav. Very rusted, bits of Qtz. ERSKINE'S Ridge	to 2%	Rock	Grav.		✓/✓
108007	Andesite. Example of well rusted sulfide poor in %c. Epidote is common small stringers of sulfides present ERSKINE'S Ridge	2-5%	Rock	Grav.		✓/✓
108008	Extremely rusted spot in Andesite 2-5% Rock Grav. with lots of Epidote ERSKINE'S Ridge	2-5%	Rock	Grav.		✓/✓
108009	Extremely rusted 10 cm wide shear, Qtz stringers throughout shear trending $\approx 106^\circ$ dip $065^\circ N$ ERSKINE'S RIDGE	2-5%	Rock	Grav.		✓/✓
108010	Very rich sulfide rich (90%+ in 15% of) Rock front veinlet in small friable rock found in creek under snow bridge PY, As (?) . Couldn't have travelled very far. ERSKINE'S RIDGE	15%	Rock	front		✓/✓

report by:

G = GEOCHEM

A = ASSAY



### LEGEND


ROCK TYPES	
Andesite	intrusives
A <sub>1</sub> grey	I <sub>1</sub> granite
A <sub>2</sub> chloritic calcareous	I <sub>2</sub> monzonite
A <sub>3</sub> rusty	V <sub>1</sub> kyanite
A <sub>4</sub> with abundant epidote	R <sub>1</sub> brown
A <sub>5</sub> porphyry (feldspar)	R <sub>2</sub> grey
A <sub>6</sub> chloritic & purple breccia	R <sub>3</sub> red
A <sub>7</sub> breccia	Tuff
Hornfels	T
H <sub>1</sub> dark grey	tuff
	Desert
cp chalcopyrite	G Gossan
ca calcite	J Jasper
PY pyrite	
hem hematite	
mal malachite	
SYMBOLS	
circle	soil sample
square	silt
cross	rock sample (bedrock)
outcrop	outcrop
slash	gossan
triangle	talus fan
trail	trail
dot	abd. camp
cat	cat trench
square with dot	claim post
circle with dot	rock sample (float)

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

19,332

REVISED	HOUSTON - TOMMY	
	TEL, TER AND NELS	
	CLAIMS	
	GEOLOGY AND ROCK SAMPLE LOCATIONS	
PROJ. No. 240	SURVEY BY: M.L.	DATE: Aug. 1969
NTS 931/5E	DRAWN BY: S.K.B.	SCALE: 1:50,000
DWG. No.		
NORANDA EXPLORATION		
OFFICE PRINCE GEORGE, B.C.		

FIG. 5



LEGEND

ROCK TYPES	
Andesite	intrusives
A <sub>1</sub> grey	I <sub>1</sub> granite
A <sub>2</sub> chloritic calcareous	I <sub>2</sub> monzonite
A <sub>3</sub> gossan	Rhyolite
A <sub>4</sub> with abundant epidote	R <sub>1</sub> brown
A <sub>5</sub> porphyry	R <sub>2</sub> grey
A <sub>6</sub> chloritic & purple brx	R <sub>3</sub> red
A <sub>7</sub> brx	Tuff
Hornfels	
H dark grey	
cp chalcopyrite	
ce calcite	
py pyrite	
hem hematite	
mal malachite	
SYMBOLS	
○ soil sample	
■ silt	
■■■ rock	
○○○ outcrop	
gossan	
△ talus fan	
— trail	
▲ abd. camp	
— cat trench	
△△△ rock (Arrow)	

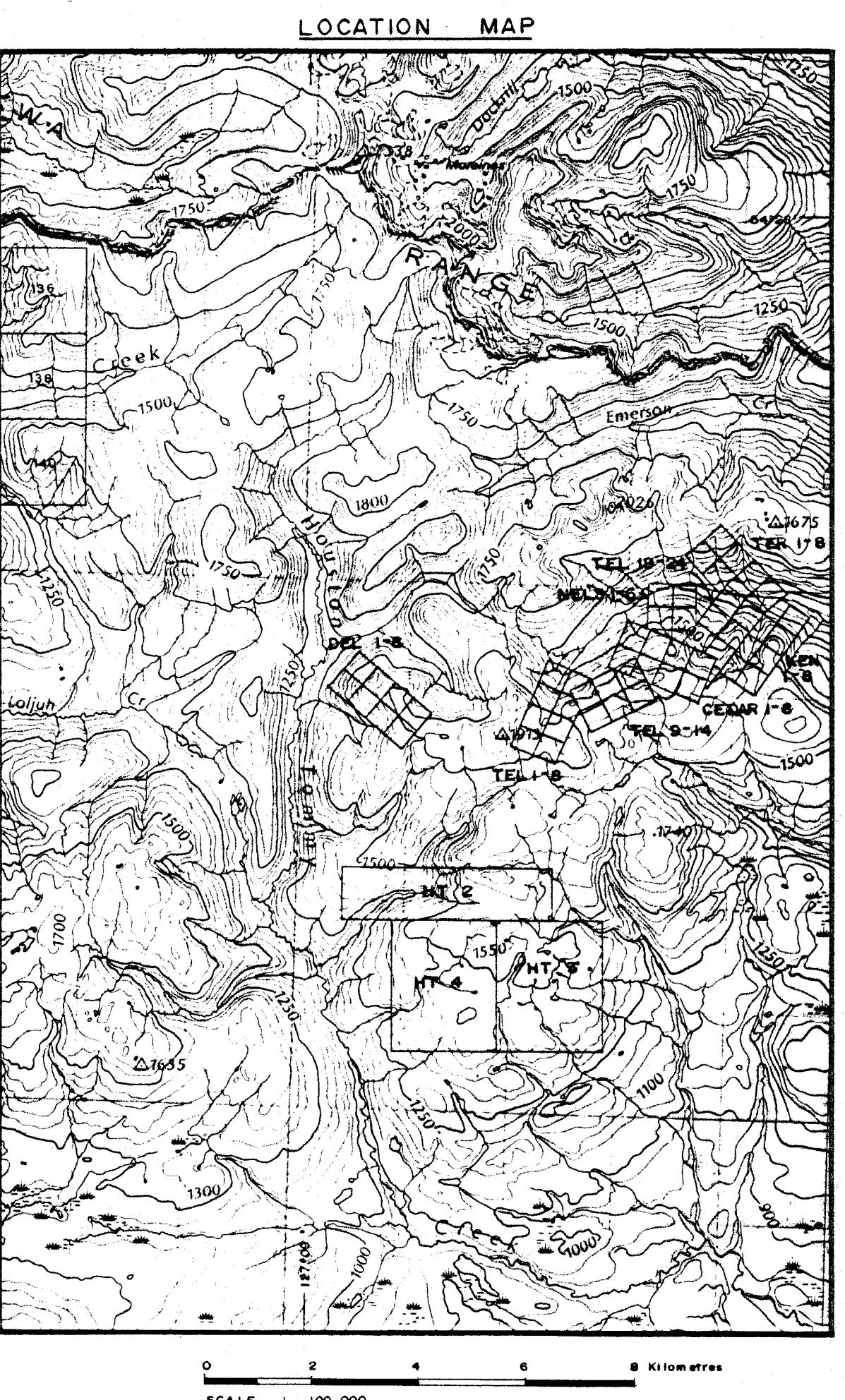
GEOLOGICAL BRANCH  
ASSESSMENT REPORT

19,332

Map Sheet Index

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1

REVISED D.M. Oct., 1969	HOUSTON - TOMMY
	TEL, TER AND NELS
	CLAIMS
	GEOLOGY AND ROCK SAMPLE
	LOCATIONS
PROJ. No. 240	DATE: Aug. 1968
N.T.S. 55L/5.E.	SCALE: 1:10,000
DWG. No.	OFFICE PRINCE GEORGE, B.C.
FIG. 4	NORANDA EXPLORATION



### LEGEND

#### SYMBOLS

6500+ soil sample

5500+ silt

4500+ rock

3500+ outcrop

2500+ gossan

1500+ talus fan

1000+ trail

abd. camp

cat trench

ROMA Early Noranda Soil

TD Alta Silt

SDS Alta Soil

CBG Composite

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

**19,332**

Map Sheet Index  
2  
1

REVISED	HOUSTON - TOMMY	
M.L. Sept. 1, 1989	T.C.	DATE Aug. 1988
TEL, TER AND NELS CLAIMS		
SILT AND SOIL SAMPLE LOCATIONS		
PROJ. No. 240	SURVEY BY T.C.	SCALE 1:10,000
N.T.S. 93L/5E	DRAWN BY S.K.B.	FIG. 3
DWG. No.	NORANDA EXPLORATION	
OFFICE PRINCE GEORGE B.C.		