

**Assessment Report**

describing

**Geological and geochemical sampling**

on the

**Luc 1-27 and Cowley 4-5 claims**

**094011**

latitude 60° 34', longitude 134° 55'

NTS 105D/10

in the

Whitehorse mining district  
Yukon Territory

registered owners:

James Coyne  
Rob Hamel  
Northwest Enterprises Inc.

prepared for:

James Coyne  
of  
H. Coyne and Sons Ltd.

prepared by:

Owen Peer, geologist  
Cordilleran Resource Company Ltd.

work completed:

November 15 to 29, 1997



This report has been examined by  
the Geological Evaluation Unit  
under Section 53 (4) Yukon Quartz  
Act and is allowed as  
representation work in the amount  
of \$ 1600.00

*M. B. L.*  
for Regional Manager, Exploration and  
Geological Services for Commissioner  
of Yukon Territory.

## **1. Abstract:**

- Location:** the property is located adjacent to the southern limit of the city of Whitehorse in the eastern most corner.
- Access:** access to the property is gained along existing cat trails from Booth Road, Mary Lake subdivision.
- Deposit Type:** copper and gold skarns in the Whitehorse Copper Belt.
- Stage of Project:** exploration.
- Host Rocks:** Cretaceous diorite batholith of the Coast Plutonic Complex supporting siliceous limestone skarn pendants of the Triassic Lewes River Group.
- Physiography:** gently sloping terrace of the Yukon River valley cut by 20 meter deep canyons hosting the modern drainage systems; terraces are covered in 1-4 meters of glacial till; less than 10% of area is outcropping of bedrock.
- Mineralized Target:** copper and gold skarnified limestone pendants.
- Schedule:** winter 1998, review and consolidation existing geophysical data from 1960 through 1990; spring 1999, infill geophysics to delineate drill targets on the ground using high resolution magnetic surveys; summer 1999, drilling of the geophysical targets using a portable drill rig.

## **2. Recommendations:**

See recommendation at end of report.

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## **6. Introduction:**

Mr. Jim Coyne of H. Coyne and Sons Ltd., contracted the author to evaluate the Luc claim block and outline a work program for the area. H. Coyne and Sons Ltd. has the right to acquire an interest in the claims by performing work on them. Mr. Jim Coyne owns the nearby Cowley claims.

The Luc and Cowley claims unequivocally fall in the Whitehorse Copper Belt. They are located between the Gem and Cowley Park deposits. The claims also cover part of the green belt surrounding the Mary Lake and Cowley Creek subdivisions. The claims are valid and subject to the Quartz Mining Act. Due to the proximity of the claims to the subdivisions discretion is a consideration while designing any exploration program. Claim staking within city limits is still allowed.

The aim of this study was to follow up anomalous values found during trenching on Luc 6 claim last year. Mr. Coyne also requested that the author determine the potential for the existence of disseminated mineralization in the diorite.

To this end a traverse running parallel to Cowley Creek along the valley bottom was laid out and a return proposed along the height of land. This route is perpendicular to the strike of the Whitehorse Copper Belt. A detour to sample the trench on Luc 6 was included. This amounted approximately a 5 kilometre traverse. The arrival of snow and the sloughing in trench A reduced the traverse into the three components.

## **7. Location, Access and Infrastructure:**

The Luc and Cowley claims are located adjacent to the southern limit of the city of Whitehorse near the eastern corner (see figure 1). The claims are accessed from Booth Road in the Mary Lake subdivision along existing cat trails. The trails now form part of a network used by local outdoor enthusiasts. The trails see no regular maintenance.

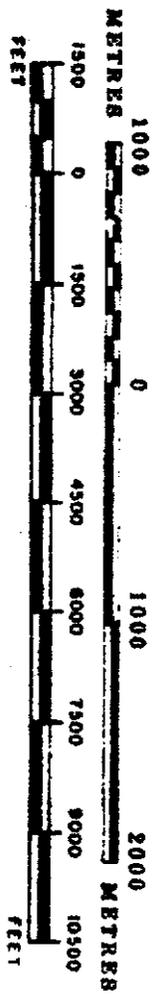
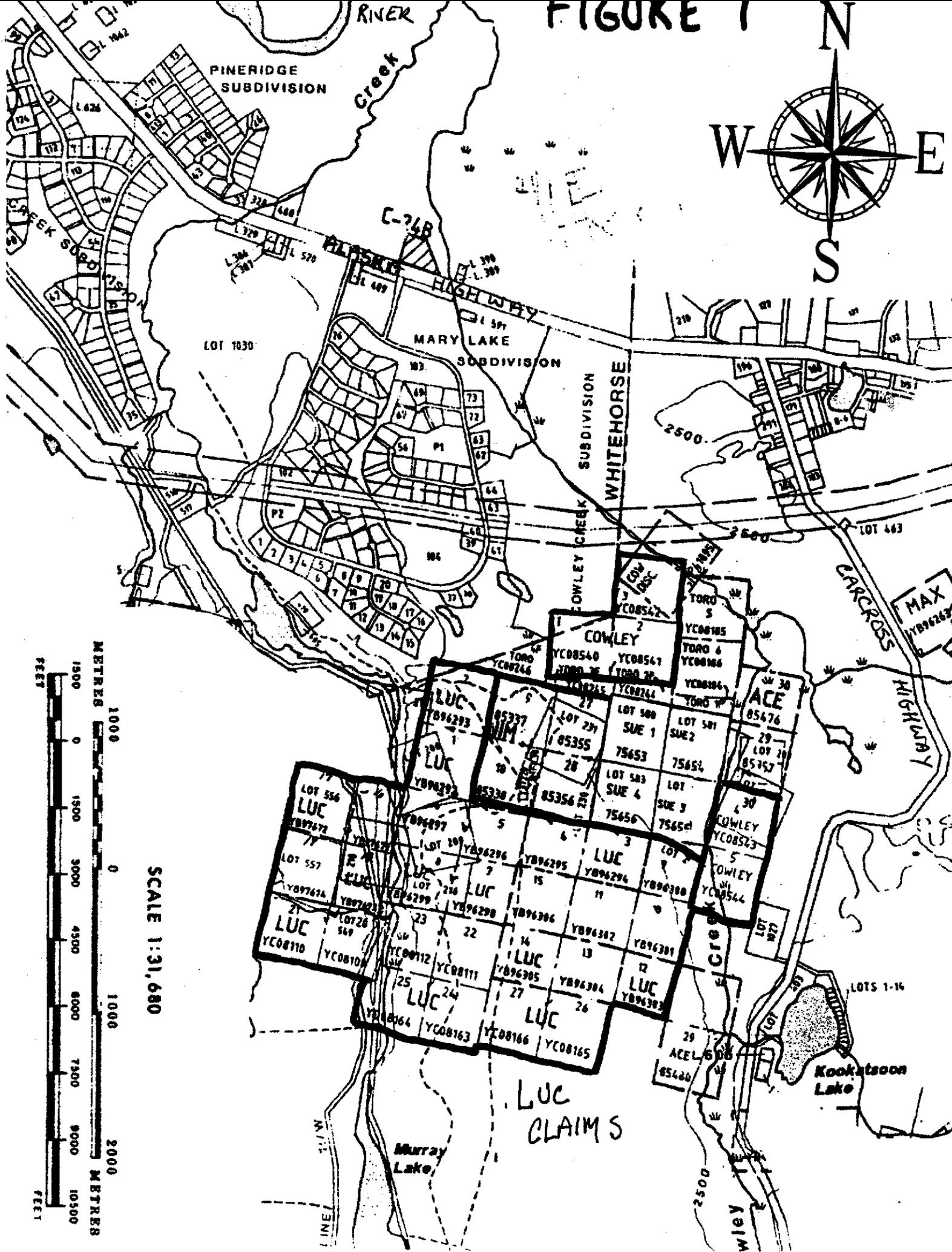
The claims are located at latitude 60° 34', longitude 134° 55', near the intersection of the Klondike highway and the Alaska highway.

Whitehorse is a capital city in a predominantly resource based economy and as such has the necessary services available to pursue any mining activity. The downtown core is 20 minutes from the claims. The claims have cellular telephone coverage, and are crossed by the White Pass rail road.

## **8. Land Status and Property Description:**

Claim status is recorded in table 1. Figure 1 indicates the claims proximity to the city subdivisions. Staking of mineral claims is still possible within city limits. There is currently no legislation planned to restrict those rights. A two year moratorium on staking within the city limits was lifted June 30, 1998.

FIGURE 1



SCALE 1:31,680

LUC CLAIMS

The Luc claim block is bisected by the Cowley Creek drainage system, a salmonoid spanning stream on its lower reaches.

Table 1 List of Concessions

Claim	Grant Number	Expiry Date	Registered Owner	% Owned
Luc 1-2	Y B 9 6 2 9 2 - YB96293	13-Dec-98	Norwest Enterprises Inc.	100
Luc 3-9	Y B 9 6 2 9 4 - YB96300	13-Dec-99	Norwest Enterprises Inc.	100
Luc 10	YB96301	13-Dec-98	Norwest Enterprises Inc.	100
Luc 11	YB96302	13-Dec-99	Norwest Enterprises Inc.	100
Luc 12-14	Y B 9 6 3 0 3 - YB96305	13-Dec-98	Norwest Enterprises Inc.	100
Luc 15	YB96306	13-Dec-99	Norwest Enterprises Inc.	100
Luc 16-18	Y B 9 7 6 7 1 - YB97673	20-May-00	Norwest Enterprises Inc.	100
Luc 19	YB97674	20-May-99	Norwest Enterprises Inc.	100
Luc 20-23	Y C 0 8 1 0 9 - YC08112	20-Aug-99	Norwest Enterprises Inc.	100
Luc 24-27	Y C 0 8 1 6 3 - YC08166	3-Sept-99	Rob Hamel	100
Cowley 4-5	Y C 0 8 5 4 3 - YC08544	20-Feb-99	James Coyne	100

### 9. History, and Previous Work:

The Luc and Cowley claims fall within the Whitehorse Copper Belt. A wealth of literature exists on this belt. The most relevant work being Tenney 1981. The Copper Belt is a 30 km long, northwest trending chain of copper skarns located within the limits of the city of Whitehorse. The Belt stretches from the Cowley Park deposit at its southern most end to the War Eagle deposit at the northern end. The first deposit staked on this belt was the Copper King deposit staked in 1898.

The Yukon Index to Mining Assessment Reports lists 32 non-confidential reports on file covering the area of the claims and 1 kilometre around them. A list of those report

index numbers is listed below. A number of those reports are magnetic geophysical reports. The geophysical data spans a considerable time period 1965 to the present. The data is oriented on individual mine grids. A consolidation of this material translated to UTM coordinates and recontoured would make it very usable.

Index to mining assessment records pertaining to Luc and Cowley claims.

090899	017943	018879	018880	018881	019134
019594	060007	060008	060012	060524	060526
060583	060892	061232	061253	091116	091118
091119	091120	091121	093447	060690	092025
061173	060011	091789	092042	061172	061254
060689	060893				

These reports are available from Deines Microfilm Service, 11725-105 Avenue, Edmonton, Alberta T5H 0L9. Phone (403) 451-6500 or fax (403) 452-3456.

The most recent work on the Luc claims was performed in 1997 under the supervision of Mr. Lee Pigage. Mr. Pigage's sampling returned anomalous copper and gold values from trench A on the Luc 6 claim. Extensive sampling near the War Eagle deposit has shown that samples taken from the glacio-fluvial erosional surface are reduced in assay values. A depth of 10 cm is required to eliminate sampling biases.

The A trench was resampled to follow up the anomalous assays and to determine if the same sampling biases exist at the southern end of the claims.

## **11. Regional Geology:**

A number of regional studies have been completed covering the Whitehorse trough and the associated Copper belt. A Cretaceous diorite batholith of the Coast Plutonic Complex supports siliceous limestone skarn pendants of the Triassic Lewes River Group. The ore bearing skarns occur as either a silicate rich skarn or as a magnesium rich skarns. In communications with Mr. Marshal Smith a former geologist for the Hudson Bay Mining and Smelting Co., he believes the type of skarn to be related to its protolith. Magnesium rich skarns to dolomite protoliths and silicate rich skarns to limestone protoliths. The silicate rich skarns are extremely hard and were used primarily by the company as a grinding agent in the milling process. The silics rich skarns proved to be uneconomical by themselves.

## **12. Property Geology:**

The property is mainly covered in glacio-fluvial sediments. Outcropping occurs along heights of land, ridges and in stream drainages. Recent work by Pigage 1997 revealed the presence of diorite and limestone in trenches on the property. The same trenching also revealed fracture filling chlorite in diorite.

Kindle 1963 describes the Brown and Black Cub mineralized showing located at the south end of Mary Lake. The showings exposure is preferential due to its location near outcropping.

### **13. 1998 Sampling Program:**

Two traverse along the Cowley Creek drainage and return along the ridge were achieved. A total of four kilometres of traverse were mapped. No new exposures of Lewes River Group were found. This was expected as prospectors over time must have covered the area carefully. Alteration is restricted to the northern portion of the travers.

The drainage from Mary Lake south along Cowley Creek from Luc 2 through Luc 1, Luc 6, Luc 8 to Luc 23 exposed equigranular hornblende diorite. Ten rock samples from the exposed outcrops were gathered. The samples have been sent for geochemical analysis.

Luc 1 and Luc 6 claims revealed the only alteration and mineralization encountered. The diorite is locally altered. The alteration is mainly restricted to fracture filling chloritic alteration. Minor amounts of disseminated alteration occurs. Approximately 15% of the surface area of the rock is altered. Alteration is restricted to the feldspars. The alteration is not found in adjacent outcropping plus or minus 50 metres. The alteration is believed to be extremely narrow in nature. Hand trenching along the ridge in the thin sediments would reveal this. Three samples have been sent for thin section analysis.

A Brown and Black Cub showing, located at the southern end of Mary Lake reveals mineralized limestone and diorite. This showing, not on the claims, is located west of Luc 1.

An outcropping on Luc 8 near the rail road bed revealed fine grained mafic xenoliths up to 10 centimetres in diameter in equigranular diorite. There was no indication of alteration.

The last outcropping encountered was on Luc 23. The relief becomes less at the higher elevations as the drainage enters the Carcross valley. The outcropping was equigranular hornblende diorite. Last sample was taken from the ridge on Luc 23.

Trench A on Luc 6 the western most trench was resampled. Five one meter long samples were collected. The proses was arduous as the trench had slough considerably. The samples were collected from well below the bed rock surface layer. Stabilization was achieved by using a plywood channel 30 centimetres wide. The cross bracing (2X4) between the plywood blinded the bed rock in two places for each sample. The blinding is considered insignificant in view of the total sample length. The source of the anomalies is believed to be a result of oxidation and not due to economic mineralization.

### **13. Summary, and Recommendations:**

The potential for disseminated mineralization in the diorite is extremely limited. Further exploration on the Luc and Cowley claims should focus on the magnetite rich skarn deposits.

It is the opinion of the author that no more intrusive exploration options should be undertaken until proven non-intrusive methods have been exercised. Historical in the Whitehorse Copper Belt magnetite rich skarns have been required for economic deposits. The magnetite responds well to magnetic surveys (Tenney 1981). Improvements in magnetometers have led to accurate high resolution magnetic surveys. Advances in computing power and programs since the historical data was gathered have led to better graphing and contouring techniques. Mr. Pigage's recommendations of existing geophysical survey data from assessment reports being compiled into one file and replotted using UTM coordinates should be followed. Inaccuracies will arise from the translation of the individual mine grids to UTM's. These inaccuracies can be reduced by transverse high resolution magnetic geophysics. A minimum of geophysical line kilometres would be required. Definite anomalies should be followed up by portable rig drilling. Servicing these small drill rigs can be accomplished by ATVs. A minimum of land would require clearing.

### **14. Selected References:**

Kindle, ED., 1964: Copper and Iron resources, Whitehorse Copper Belt, Yukon Territory. GSC paper 63-41.

Pigage, L., 1997: Luc Claims, Whitehorse mining district, unpublished assessment report.

Tenney, D., 1981: The Whitehorse Copper Belt: Mining, Exploration and Geology 1967-1980. DIAND bulletin # 1.

### **15. Limitations:**

The work performed in this report was carried out in accordance with our contract. The conclusions presented herein are based solely upon the scope of services and time and budgetary limitations described in our contract.

The report has been prepared in accordance with generally accepted geological practices. No other warranties, either expressed or implied, are made as to the professional services provided under the terms of our contract and included in this report.

The services performed and outlined in this report were based, in part, upon visual observations of the property. Our opinion cannot be extended to portions of the property which were unavailable for direct observation or situations reasonably beyond

the control of the Cordillera Resource Company Ltd.

The objective of this report was to assess the geology and mineral potential of the property, within the context of our contract and existing environmental regulations within the applicable jurisdiction. Evaluating compliance of past or future owners with applicable local, territorial and federal government laws and regulations was not included in our contract for services.

The conclusions of this report are based in part, on the information provided by others. The possibility remains that unexpected conditions may be encountered on the property in locations not specifically investigated. Should such an event occur, the Cordillera Resource Company Ltd. must be notified in order that we may determine if modifications to our conclusions are necessary.

### **15. Statement of Qualifications:**

I, Owen Peer, do hereby certify that I am an independent consulting geologist with offices at 147 Fox Farm Road, Whitehorse, Yukon Territory.

I further certify that:

1. I graduated from the University of Victoria with a Bachelor of Science in Physics, and in Earth and Ocean Sciences.
2. I have practiced in my profession for over ten years both as an independent consultant and as a geologists for mining companies in Canada and overseas.
3. I have no investment interest in the property, nor do I expect to receive directly or indirectly any interest in the property described in this report.
4. I have based this report on field work carried out directly by myself.

Dated this 9 day of December, in Whitehorse, Yukon Territory.



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Consulting Geologist

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## Appendix A: Statement of Costs

Preparation for field work (1/2 day @ \$350.00)	\$ 175.00
Field work: geological and sampling (2.5 day @ \$350.00)	\$ 875.00
Analysis of samples (15 samples @ \$22.25)	\$ 333.75
Report writing (1 day @ \$350.00)	\$ 350.00
Total	\$ 1,733.75

### Division of Costs

Luc 2	16%	\$ 277.40
Luc 1	16%	\$ 277.40
Luc 6	36%	\$ 624.15
Luc 8	16%	\$ 277.40
Luc 23	16%	\$ 277.40

**Geological Map**  
showing sample locations  
on LUC Claims

504000

505000

Mary Lake

6716000

White Pass Yukon  
Rail Road

Calc-silicate skarn float  
in cat trench

815 ★

814 ★

813 ★

★ 812

★ 806

★ 807

★ 808

★ 809

★ 810

★ 811

Calc-silicate skarn?

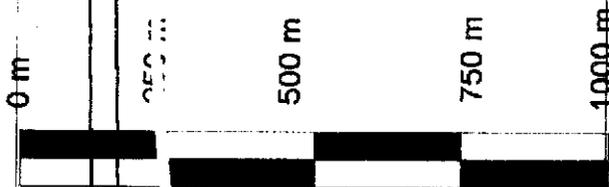
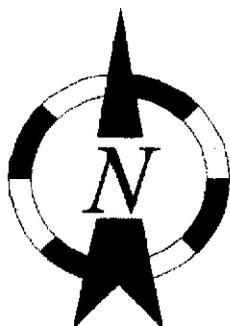
6715000

Diorite outcrops  
covered by  
Glacio-fluvial sediments

Trench A  
samples

~~816~~ 801 → 805  
~~817~~  
~~818~~  
~~819~~  
~~820~~

6714000



## Appendix B: Sample Description

Sample Number (unique),	Location (in UTM NAD-27 Northing by Easting),	Description
812-801	Trench A 2.5-3.5 meters (measured from northern most end at 6714742 by 504651 in direction 210°),	channel chip sample from below surface layer of greenish tinged equigranular hornblende diorite, fracture filling chloritic alteration, trace pyrite
812-802	Trench A 3.5-4.5 meters,	channel sample of dyke material, oxidized, showing cubic and other forms remenant of pyrite and other sulphides
812-803	Trench A 4.5-5.5 meters,	channel chip sample from below surface layer of greenish tinged equigranular hornblende diorite, fracture filling chloritic alteration, trace pyrite
812-804	Trench A 5.5-6.5 meters,	channel chip sample from below surface layer of greenish tinged equigranular hornblende diorite, fracture filling chloritic alteration
812-805	Trench A 6.5-7.3 meters,	channel chip sample from below surface layer of greenish tinged equigranular hornblende diorite, fracture filling chloritic alteration
812-806	6714730 by 504262,	channel chip sample from outcrop of green white equigranular diorite, minor alteration of feldspars, fractur filling chlorite alteration
812-807	6714609 by 504249,	chip sample from outcrop of equigranular diorite, fresh
812-808	6714523 by 504238,	channel chip sample from outcrop of equigranular diorite, fresh
812-809	6714403 by 504281,	channel chip sample from outcrop of equigranular diorite, fresh
812-810	6714235 by 504277,	channel chip sample from outcrop of equigranular diorite, fresh
812-811	6713784 by 504455,	channel chip sample from outcrop of equigranular diorite, fresh, contained mafic xenoliths
812-812	6714966 by 504392,	channel chip sample from outcrop of equigranular diorite, fresh

- 812-813 6715152 by 504401, channel chip sample from outcrop of equigranular diorite, fresh
- 812-814 6714384 by 504417, channel chip sample from outcrop of equigranular diorite, moderate alteration of feldspars
- 812-815 6714508 by 504421, channel chip sample from outcrop of equigranular diorite, fine grain disseminated pyrite less than 1% surface area

BEGIN	Type	Frac	Sample ID	Au30	Ag	Cu	Pb	Zn	Mo	Ni	Co	Cd	Bi	As	Sb	Fe	Mn
1850001	J	2	806	6	-0.2	41	12	39	4	10	6	1.4	-5	16	-5	2.17	201
1850002	J	2	807	8	-0.2	43	10	36	5	12	9	1.3	-5	14	-5	2.34	254
1850003	J	2	808	6	-0.2	47	11	35	2	11	7	2	-5	12	-5	2.19	256
1850004	J	2	809	7	-0.2	41	14	61	-1	15	9	1.2	-5	12	-5	2.81	339
1850005	J	2	810	7	-0.2	60	19	62	3	20	10	1.4	-5	11	-5	3.09	341
1850006	J	2	811	7	-0.2	63	6	44	-1	22	11	0.3	-5	15	-5	3.25	385
1850007	J	2	812	12	-0.2	87	4	43	5	28	11	1.2	-5	7	-5	2.04	184
1850008	J	2	813	30	-0.2	236	4	30	7	31	18	1.9	-5	10	-5	3.01	352
1850009	J	2	814	21	-0.2	44	16	34	4	27	27	1.8	-5	6	-5	10	661
1850010	J	2	815	-5	-0.2	57	14	53	-1	16	12	-0.2	-5	16	-5	3.41	454
1850011	J	2	816 801	5	-0.2	72	19	52	1	25	14	1.4	-5	10	-5	5.26	488
1850012	J	2	817 802	-5	-0.2	72	19	77	-1	23	12	-0.2	-5	8	-5	4.07	428
1850013	J	2	818 803	4	-0.2	134	2	52	2	66	13	1.4	-5	22	-5	2.67	512
1850014	J	2	819 804	7	-0.2	81	2	25	4	60	15	1.5	-5	14	-5	2.21	327
1850015	J	2	820 805	4	-0.2	95	12	33	3	43	13	1.2	-5	12	-5	2.36	125

END

Te	Ba	Cr	V	Sn	W	La	Al	Mg	Ca	Na	K	Sr	Y	Ga	Li	Nb	Sc	Ta
-10	97	34	31	-20	-20	7	1.09	0.82	2.11	0.04	0.19	27	4	-2	13	-1	-5	-10
-10	56	42	35	-20	-20	5	1.25	0.93	2.1	0.03	0.32	43	3	-2	11	-1	-5	-10
-10	43	43	37	-20	-20	3	1.41	1.01	1.13	0.04	0.21	29	4	-2	12	-1	-5	-10
-10	45	27	36	-20	-20	9	1.2	1.13	1.19	0.04	0.24	31	5	-2	12	-1	-5	-10
-10	36	32	20	-20	-20	6	1.35	1.01	2.1	0.03	0.3	21	4	-2	14	-1	-5	-10
-10	121	95	21	-20	-20	6	1.62	1.38	2.2	0.04	0.33	28	5	3	24	-1	-5	-10
-10	44	47	77	-20	-20	7	1.66	1.32	1.45	0.02	0.81	143	7	4	14	-1	-5	-10
-10	42	43	44	-20	-20	3	7.34	1.16	1.6	0.03	0.77	1019	12	5	12	-1	-5	-10
-10	36	60	397	-20	-20	9	1.14	0.94	2.84	0.06	0.2	343	16	8	9	-1	-5	-10
-10	130	9	65	-20	-20	7	1.43	1.63	2.44	0.07	0.25	344	7	-2	13	-1	-5	-10
-10	112	60	76	-20	-20	5	1.88	1.76	1.39	0.06	0.3	37	7	3	21	-1	-5	-10
-10	110	60	38	-20	-20	4	1.86	0.76	3.29	0.05	0.31	253	6	3	21	-1	-5	-10
-10	220	83	62	-20	-20	4	2.43	1.44	2.84	0.03	0.23	233	8	-2	15	-1	-5	-10
-10	154	63	47	-20	-20	6	2.19	1.26	2.86	0.04	0.45	33	5	-2	13	-1	-5	-10
-10	1020	57	59	-20	-20	8	1.56	1.18	1.2	0.02	0.83	42	6	4	8	-1	-5	-10

Ti	Zr
0.05	3
0.05	3
0.07	2
0.06	3
-0.01	3
-0.01	1
0.05	1
0.05	2
0.09	-1
0.08	3
0.05	2
0.01	2
0.05	2
0.05	3
0.05	1