

ASSESSMENT REPORT

DRILLING PROGRAMME ON THE NORTH GROUP MINERAL CLAIMS

ATLIN M. D.

NTS 114P/12E & W LAT 59° 44' LONG 137° 44'

CLAIM OWNER AND OPERATOR: FALCONBRIDGE LIMITED

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**11,763**

Author: T. E. Chandler

November 10, 1983

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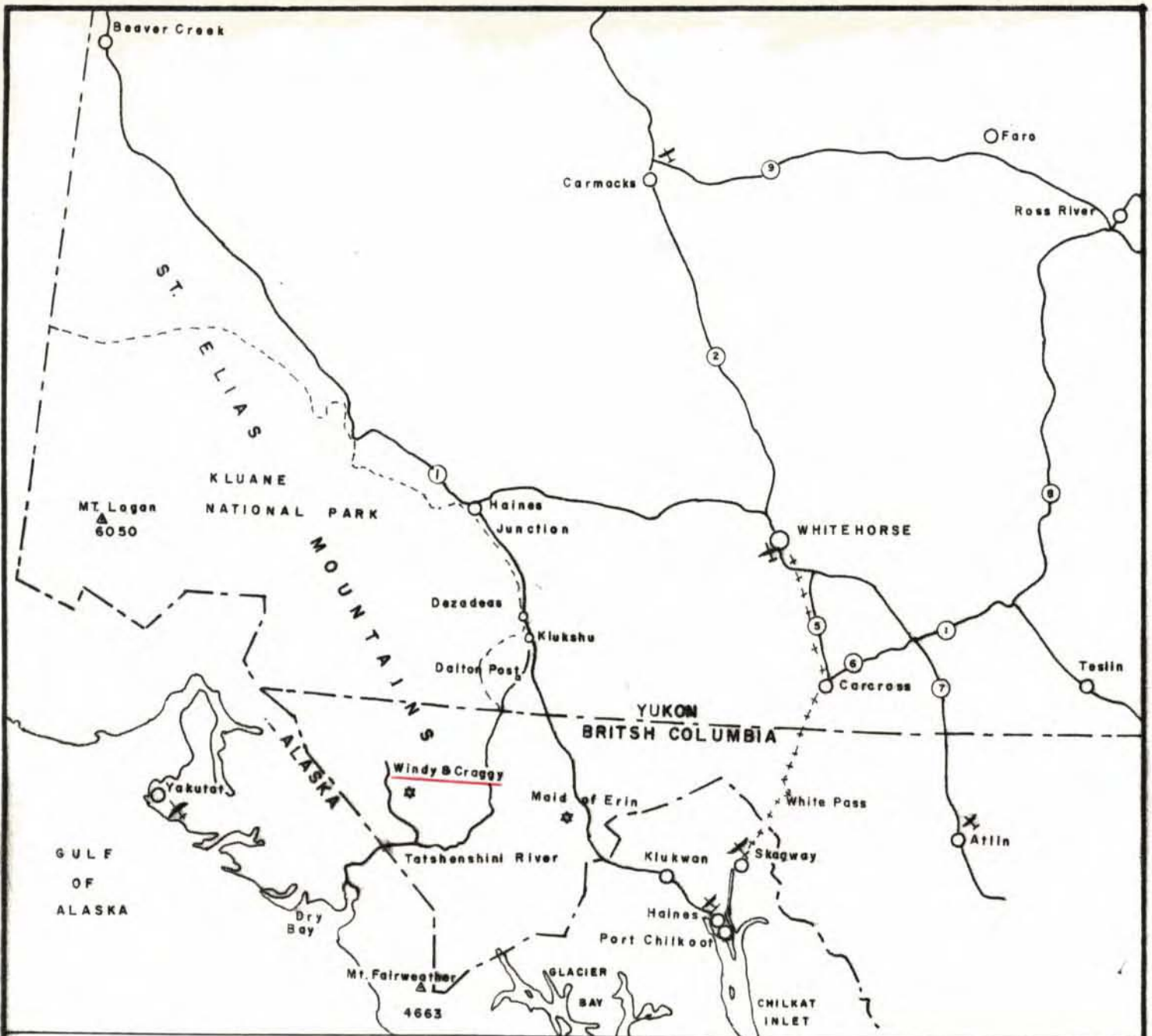
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### INDEX MAP

### BRITISH COLUMBIA & YUKON



SCALE 1:2,500,000

## INTRODUCTION

The North Group Mineral Claims consist of the Windy #5, #7 and #8 two-post Located Claims and the W-C-1, 2, 18, 19, 20, 21, and 23 FR Modified Grid Located Claims, as per Fig. 2

The zone of recent drilling is located on a NW striking ridge between two glaciers 28km due north of the junction of the Alsek and Tatshenshini Rivers in the extreme NW corner of British Columbia. It is accessible by helicopter from the Haines Cut-Off Road (66km) or Whitehorse (200km) or by float plane to the base camp at Tats Lake and thence by helicopter 12km north to the property at elevations 1550 to 2000m. There is no road or trail access to the drilling operation site. Daily crew changes, equipment supply and drill moves were completely dependent on helicopter support throughout the programme.

A total of 4140.7m of diamond drilling was completed in the period June-September, 1983 at a total cost exceeding \$1,028,000.00 or \$248/m. Apportionment of expenditures has been made on an average cost/meter basis for assessment credit distribution as detailed in the accompanying Statement of Expenditures.

## GENERAL GEOLOGY

The Windy Craggy sulphide deposit consists of a large essentially conformable massive body within altered, chloritized basic volcanics, cherty tuffs and minor argillaceous meta-sediments at or in close proximity to a regional contact between a massive suite of intermediate to basic, occasionally pillowed, volcanics and an extensive sequence of dominantly sedimentary rocks, consisting of calcareous to non-calcareous carbonaceous argillites, minor siltstones and argillaceous limestones and intercalated lensy intermediate volcanic flows and tuffs. Due to problems of limited access, harsh climate and precipitous topography the regional geological information is quite limited especially with regard to the ages and stratigraphic relationships of the major rock-units and the nature and degree of structural complications.

Reconnaissance mapping by Campbell and Dodds of the GSC, 1979 has subdivided this portion of NW British Columbia into a series of discrete and distinct terranes separated by major NW-SE striking faults. The Windy Craggy deposit occurs within terrane 3, the largest in areal extent and forming part of the Alexandran allochthonous terrane described by Monger et al, GSC. The majority of the lithologies in this terrane have been informally lumped as the Kaskawalsh Group from tentative correlations with similar rocks described in the Kluane area of the Yukon. Subdivisions within this group consist of an extensive suite of shales, carbonates and greywackes of presumed Ordovician-Silurian age, probably correlative with the argillite sequence observed at Windy Craggy, and local accumulations of ?Cambro-Ordovician pillow basalts, flows and breccias represented by the massive volcanic suite adjacent to the Windy Craggy zone. The area as a whole is intruded by a variety of plutonic rocks ranging from Paleozoic to Tertiary in age. The age assignments of portions of these broad groups have been changed due to recent conodontal assemblage studies by M. Orchard of the GSC (personal comm.) Conodont assemblages in the shales/argillites/limestone rocks adjacent to the Windy Craggy deposit give lower Norian ages (Upper Triassic). These new age dates may have implications for the pillow basalt Assemblage which could also be of Upper Triassic age instead of Cambro-Ordovician as previously suspected.



Work completed on the Windy Craggy property to date has concentrated on testing the extent and character of the massive sulphide zone by means of necessarily wide-spaced drilling due to the large size of the deposit and the scarcity of suitable drilling sites in the rough topography. Surface exposure of the sulphide zone is limited to a margin of weathered sulphides and gossan along its southern contact. The major portion of the sulphide deposit occurs under an extensive snow cap and glacial ice cover at elevations ranging from 1560 to 1800 metres. From the information obtained during the drilling programmes, the sulphides occur both as stringer-type veins and as layered bands and thick massive horizons essentially conformable to the enclosing strata and host rocks, dipping steeply to the NE over most of its strike length. However, evidence from bedding attitudes in relation to well developed foliation and cleavage as well as some observed minor structures, suggest that the entire assemblage has been isoclinally folded with the secondary open folds trending at right angles to the primary isoclinal structures.

Further speculation on the exact nature of the structure of the deposit will require more detailed mapping or drilling data than presently available. The inferred strike extent of the sulphide zone from drill intercepts is over 1000 metres and is open at both ends. An inferred thickness of over 100 metres is exhibited along most of the above strike length.

Sulphide mineralogy exhibits a broad zoning variation. The major metallic minerals are pyrrhotite and pyrite with subordinate chalcopyrite and minor sphalerite. Sideritic gangue, cherts and magnetite are locally abundant. Pyrrhotite is the dominant sulphide mineral in the southern portion of the zone. Most of the north western holes intersect dominantly pyritic sulphides with subordinate pyrrhotite and zones of significant sphalerite content. Both pyrite and pyrrhotite are cobaltiferous.

#### DRILL LOGS AND INTERPRETATION, DDH 19-83 and 21-83.

Detailed logs for diamond drill holes 19-83 and 21-83 are appended to this report. Drill hole 19-83 was completed to a depth of 490.1m, DDH 21-83 to a depth of 373.2m both in the Windy #8 claim of the North Group Mineral Claims as detailed in Fig. 2 .

The drilling contractor was Longyear Canada using 1 Longyear Fly 38 drill rig and 1 Longyear 44 rig. Both rigs were wintered over 1982-1983 for this year's programme.

All core was transported to the Tats Lake base camp for logging and sampling. Split core samples were sent by float plane to Bondar Clegg in Whitehorse for assaying by normal assay methods. Pulps and rejects are presently stored at Bondar Clegg's lab offices in Whitehorse. The remaining split and unsplit core was transported to the Delta exploration office of Falconbridge Ltd. Dip tests on drill holes were conducted with a Sperry-Sun single shot instrument.

The logs are selfexplanatory and a legend is present for interpretation of the graphic log record and abbreviations used. The wireline drill method used was in Imperial measurement but the logs have been converted to the metric system.

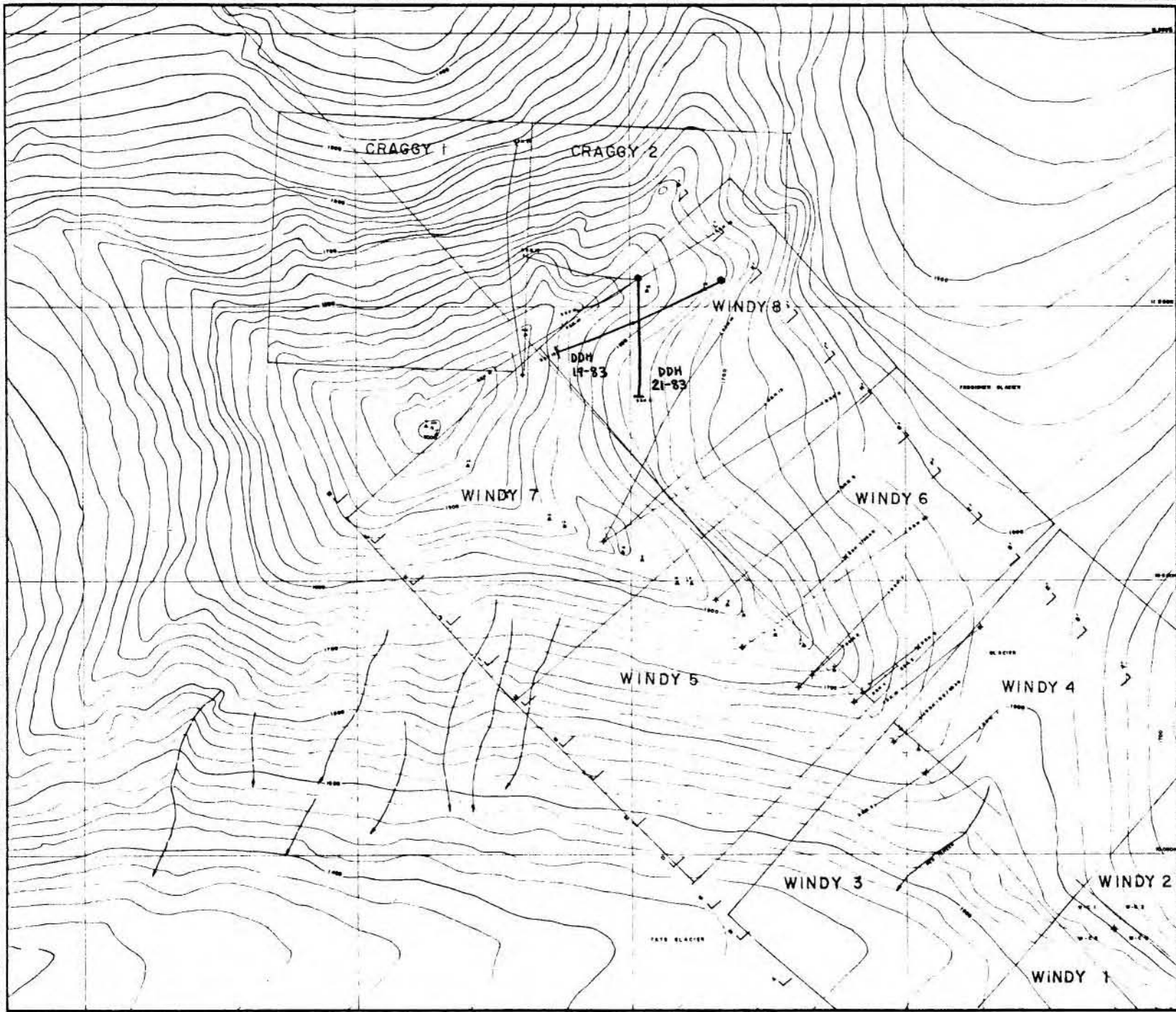


Fig. 3



FALCONBRIDGE LIMITED	
WINDY CRAGGY COPPER PROPERTY	
BY STAKE AND BEARINGS LONG 1974/85	
Geology	
MAPPING PLANT	
DRAWN BY	
DATE OF WORK: Summer 83	MAP SHEET NO.
DRAWN BY: J. S. ST.	FILE NO.
DATE: 01/83	N.T.S. NO. 114.P.12

STATEMENT OF EXPENDITURES

1.- <u>Direct drilling charges-Longyear Canada:</u>		
June 20 - Sept 10, 1983		\$ <u>458,813.05</u>
2.- <u>Fuel costs: (Applicable to Drilling programme)</u>		
225 drums Jp-4		
170 " Low Pour Diesel		
32 " Stove Oil		
15 " Reg. Gas		
442 @ \$225.28/drum (see explanatory note-page)		<u>99,573.76</u>
3.- <u>Helicopter support: June 16 - Sept. 21</u>		
Crew Shuttle, Equipment transport, Pacific Helicopters 500 D		<u>182,607.29</u>
Midwest Helicopters 204B to move Longyear 44 rig		<u>6,603.36</u>
4.- <u>Fixed Wing Support: Air North Charter &amp; Training Ltd.</u>		
March 23-April 8: Drill Supply Transport Dezadeash to Tats Lake		<u>11,173.15</u>
June 18-Sept.17: Camp Supply. Whitehorse to Tats Lake		<u>20,603.63</u>
June 18-Sept. 17: Drill equip/Mud/supplies & drill core + Empty Drum Backhaul		<u>56,134.38</u>
5.- <u>Field Expenses &amp; Supplies:</u>		
<u>Camp operation: June 16 - Sept. 17</u>		
Andronik Expediting Ltd., Services: \$ 8,936.93		
Camp Bldg. materials, hardware etc: 1,720.69		
First aid supplies 774.22		
VHF & HF Radio rentals, purchase + NWTEL charges: 4,621.15		
Propane, motor oils 466.68		
Freight, postage, parcel express services: 393.20		
		<u>16,912.87</u>
<u>Drilling &amp; Field supplies: March 1-April 8, June 1-Sept. 18/83</u>		
Drill muds, additives, core boxes: \$44,474.42		
Field Packs, Bear flares, supplies: 1,657.17		
Waterline pipe and fittings: 2,383.52		
Directional survey tool rental, other rentals: 4,608.19		
Contract Blaster-Drill site prep: 1,582.49		
		<u>54,705.79</u>

6.- Camp board chargeout: (To Longyear Canada)  
 June 23 to Sept. 16: 590 Man/days @ \$19/manday \$ 11,210.00  
 (Longyear charge to Falconbridge & support staff personnel)

7.- Travel, Board, Lodging to/from field: March, June-Sept. 83  
 Fuel, truck rental, repairs: \$ 1,713.70  
 Hotels/meals 4,427.33 (94 man-days)  
 Airfare 3,150.86  
 Camp equip/drill core transport: 2,869.00  
12,160.89 12,160.89

8.- Assays Bondar-Clegg July-Sept. 1983:  
 928 Samples Assayed for Cu, Co, Zn, Ag, Au @ \$30.00/sample 27,840.00

9.- Wages  
1 Project Geologist  
 12 Office days: Feb. 24, 25, 28, March 1-4, 7-11  
 Contract tenders, fuel haul logistics & planning, field preparation  
 10 Field days: Mar. 14-25 Supervision; fuel & drill supply hauls to  
 Tats Lake.  
 29 Office days: Mar 28-31, April 12-15, 20-22, May 16-20, 24-27,  
 June 6-10, 13-16 - Supervision end of fuel haul,  
 Helicopter contract tenders, map & field supplies  
 Miscellaneous field preparations.  
 89 Field days: June 17-25, 27, 29-30, July 1-23, 25-27, 29-31,  
 Aug 1-19, 24-26, 28-31, Sept. 1-6, 8-23.  
 Camp set-up and logistics, project coordination and supervision,  
 Core logging/sampling, drill hole testing. Demobilization.  
 19 Office days: Sept. 26-30, Oct. 3-5, 11-14, 20, 21, 24-28,  
 core log & drill section preparation, data  
 assessment, report writing.  
 Total: 159 days @ \$185/day 29,415.00

1 Surveyor/Draftsman/Camp Manager  
 9 Office days: May 25-27, 30, 31, June 6-10, 13-16: Map &  
 Field equipment maintenance, preparation and  
 organization.  
 73 Field days: June 17-25, 27-30, July 6-11, 16-31, Aug 1-3,  
 10-22, 25-27, 29-31, Sept. 4-12, 14-20.  
 Camp operation/supervision, maintenance. Drill  
 hole surveying, field draughting.  
 16 Office days: Sept, 22, 23, 26-30, Oct. 3-7, Oct. 11-14.  
 Draughting sections and plans for reports.  
 Total: 98 days @ \$150/day 14,700.00

1 Field Geologist

11 Office days: May 24-27, June 6-10, 13, 14-Map, supply,  
field equipment preparation, organization and  
loading for transport.

75 Field days: June 15-25, 27-30, July 1-31, Aug 1-14, 17-31.  
Camp set-up, core logging and sampling, section  
preparation. Drill hole testing.

3 Office days: Sept 3-5 - Core log preparation.

Total: 89 days @\$85/day \$ 7,565.00

1 Field Geologist

20 Field days: Sept 4-23. Core logging/sampling.

14 Office days: Sept 26-30, Oct. 3-7, 11-14. Computer entry of  
assay data, core log and section preparation.

Total: 34 days @ \$85.00/day 2,890.00

1 Surveyor/Field Assistant

5 Office days: June 8-10, 13,14 - Field equipment organization,  
preparation, loading. Supply purchase.

58 Field days: June 15-25, 27, 28, July 6-11, 16-31, Aug 1-4,  
10-22, 25-27, 29-31, Surveyor's assistant.  
Camp building/maintenance. Core splitting.

Total: 63 days @ \$75/day 4,725.00

1 Geotechnician

2 Office days: June 13, 14 - Field equipment organization/loading

100 Field days: June 15-25, 27-30, July 1-31, Aug 1-31, Sept. 1-23  
Core splitting, sampling, core logging, rock  
mechanics.

Total: 102 days @ \$70/day 7,140.00

1 Field Assistant

17 Field days: Sept. 6-22 - Core splitting/sampling. Camp demob.  
Miscell.

Total: 17 days @ \$70/day 1,190.00

1 Field Assistant

11 Field days: Sept. 13-23 - Core splitting/sampling

Total: 11 days @ \$60/day 660.00

1 Sampler

33 Field days: Aug. 8-31, Sept 1-9 - Core splitting/sampling

Total: 33 days @ \$45.00/day 1,485.00

TOTAL WAGES

69,770.00

TOTAL EXPENDITURES

\$1,028,108.20



Explanatory Note - Detail of costs to arrive at Fuel cost/drum.

Raw fuel (289 drums JP4, 150 drums low pour diesel, 25 drums stove oil)	\$ 76,813.00
Transport to staging point (Dezadeash)	4,634.75
Applicable Air Transport charges to Tats Lake	26,204.95
Avgas consumed	10,058.80
Ancillary costs: Food/lodging for Aircrews & labour	
Dezadeash Lodge	1,869.73
Runway construction Dezadeash Lake	2,700.00
Labour/lodging truck rentals -Dezadeash Lodge	1,771.32
Local transport truck rental	461.48
Snowmobile rental + 2 man labour crew Tats Lake	1,770.00

In-season fuel costs: June 20-Sept. 6

Raw fuel cost: (15 drums Reg. gas, 9 drums JP-4, 26 drums Low pour diesel, 10 drums stove oil)	9,421.80
Air transport cost (Whitehorse to Tats Lake)	<u>9,472.32</u>
Total expenditure	145,178.15
Less credit for drum returns	<u>(27,131.00)</u>

TOTAL COST FOR 524 DRUMS \$ 118,047.15

All in cost per drum: \$ 225.28



Application of Expenditures

Total drill-related costs are detailed in the Statement of Expenditures. A total of 4,140.7 metres were drilled in the programme at total cost of \$1,028,108.20. The proportional cost/meter of drilling is calculated as slightly more than \$248.00. This is significantly lower than the \$383.00/meter costs incurred during the 1982 programme. The reduced costs are due primarily to a threefold increase in total drill meterage being averaged against relatively high fixed overheads, resulting in lower costs in a meter basis.

The apportionment of expenditures utilized this average cost/meter as the most reasonable means of cost distribution for a totally drill-oriented programme.

Applicable expenditures to North Group

DDH 19-83: 490.1m x \$248/meter = \$121,544.80

DDH 21-83: 373.2m x \$248/meter = 92,553.60

TOTAL \$214,098.40

The work credits requested are detailed on the attached Statement of Exploration and Development.



FALCONBRIDGE LIMITED

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Chief Gold Commissioner  
Ministry of Energy, Mines  
and Petroleum Resources  
Parliament Buildings  
Victoria, B. C.  
V8V 1X4

STATEMENT OF QUALIFICATIONS

Dear Sir:

This is to state that I have obtained a BSc(Hons) 1975 in Geology from Carleton University, Ottawa, Ont., and have worked as a geologist for Falconbridge Limited since 1976.

Geological personnel involved in core-logging and related tasks worked under my direct supervision. S. Lear graduated from The University of British Columbia in 1981 with a B.Sc. in Geology. M. Forster also graduated from U.B.C. in 1982 with a B.Sc. in Geological Engineering.

Yours truly,

FALCONBRIDGE LIMITED

T. E. Chandler  
Project Geologist

TEC/gd

A P P E N D I X    A

DETAILED DRILL LOGS

DDH 19/83

DDH 21/83

# DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Inclination	Bearing	PROPERTY	Length	HOLE No.	Page#
-51°	S 56° 12' W	WINDY CRAGGY	489.51 m	19 -83	
Collar		Location	Hor. Comp.	Sheet	of
		Section K - K'	/ Vert Comp.	1	11
Borehole surveys listed at end of log		Elevation	Bearing	Logged by	
		1766.60 m	S 56° 12' 30" W	M. Forster	
		Coordinates	Begin	Sampled by	
		11,050.34	Aug 6/83	M. Forster/J. Fenwick-Wilson/S. Lear	
		9,665.94	/Completed	Driller	
			Aug 18/83	Longyear 38 Rig #2	
			Core size	Recovery	
			NQ/BQ	98 %	

11,763

DEPTH (metres)		RECOV'Y	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC I: 500	SAMPLES			ASSAYS			g/mt.	
From	To	RQDCore				No.	From	To	m	Cu.%	Co.%	Zn.%	Ag.
0	214.05	53 97	Chlorite altered volcanics and chloritic schistose volcanics, some silicified, with chloritic schist intervals, and occ. stringer sulphides.										
0	12.40		Casing (NW). No recovery.										
12.40	108.40	54 97	Dark green, chloritized dacitic tuffs (?), strongly foliated with several very strongly foliated chloritic schistose volcanics and occ. chloritic schist intervals. Chloritized dacitic tuffs and chloritic schistose volcanics are f. g. to aphanitic, with a strong chlorite alteration. Contains several to nmrs. calcite/dolomite infilled amygdules, fine wisps to 3mm. Several irregular calcite/dolomite/± qtz. veinlets to 5mm, with occ. stringers, blebs, and patches of Py/minor Po. Occ. light grey green qtz. veins/pods to 10 cm. Some Py/minor Po sulphides as blebs, stringers, and discrete crystals. Chloritic schists are dark green, soft, very strongly foliated, and slightly fissile. Closely fractured, some slickensided. Slightly weathered to 27.0m with weathering and iron oxides penetrating up to 5mm along fractures. Followed by fresh rock with iron oxide/occ. chlorite partial to complete coatings on fracture surfaces, and some weathering of Py to iron oxides.	Foliation 14m = 30° 16m = 25° 18-26m = 30° 28m = 25° 30m = 30° 32m = 35° 34-42m = 30° 44-53m = 25-30° 54-76m = 30-35° 78-94m = 35-40° 96-110 m 30° - 35°	12.40								
			12.60-13.35m: Highly weathered, green brown.										
			12.60-12.90m: Brecciated, rough fragments.										
			16.70-17.68m: Very closely fractured.										
			18.25-19.45m: Highly weathered, green brown, very closely fractured.										
			31.80-32.35, 37.78-38.17, 40.15-40.85, 41.87-42.20, 42.92-43.56, 44.43-										
			46.60m: Chloritic schistose volcanics.										
			40.21-40.39, 40.50-40.55m: Minor shears along foliation. Soft clay/silt containing subrounded rock fragments to 3 cm.	Shears at 40.30-40.53									
			46.62-52.45m: Slightly weathered, penetrating up to 3mm along fractures. Occ. malachite traces on fractures. Contains interval of moderately weathered chloritic schist with kinks in foliation between 51.67-51.80m.	30°									
			54.94-58.50, 60.17-61.50m: Chloritic schistose volcanics.										
			58.50-59.40m: Chloritic schist.										
			59.90-84.00m: Contains some qtz/calcite/± dolomite veins/veinlets to 15 cm. Some of interval is irregularly silicified particularly in vicinity of qtz/calcite/± dolomite veins. Blebs and stringers of Py/minor Po/trace Cp increased to approx. 5%.										
			65.62-66.35, 68.36-71.56, 80.14-80.40, 83.90-88.75, 90.72-91.30m: Chloritic schistose volcanics.										
			69.95-70.67, 87.18-87.56m: Chloritic schist.										
			81.54-84.00m: Nmrs. qtz/calcite/dolomite veinlets containing Py/minor Po/trace Cp.										
			90.82-91.15, 93.80-94.90, 95.60-95.88, 96.85-97.23m: Very closely fractured										

### GRAPHIC LOG LEGEND

	Limestone
	Argillaceous Limestone
	Silty Limestone
	Siltstone
	Argillite
	Calcareous Argillite
	Intermediate volcanic flow/tuff
	" , porphyritic
	" , cherty or silicified
	Chert, silicified breccia
	Gossan
	Sulphides

### ABBREVIATIONS and SYMBOLS

po	
py	pyrite
cp	chalcopyrite
occ.	occasional
nmrs.	numerous
qtz.	quartz
dissem.	disseminated
RQD	Rock Quality Description
F	Fault or Shear Zone



# DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Inclination		Bearing		PROPERTY		Length		HOLE No. 19 - 83		Page #	
Caliber				Location		Hor. Comp / Vert Comp.		Sheet 2 of 11			
				Elevation		Bearing		Logged by			
				Coordinates		N		Sampled by			
						E		Driller			
						Core size		/Recovery %			

DEPTH (metres)		RECOVERY		DESCRIPTION	INTERSECTION ANGLE	GRAPHIC I: 500	SAMPLE NUMBER	FROM M	TO M	LENGTH M	%CU	%CO	%ZN	AG s/MT	AU s/MT
From	To	RQD	Core												
				92.60-99.21, 100.63-100.88, 102.81-103.89, 105.77-105.97, 107.60-108.40m: Chloritic schistose volcanics.											
				93.00-95.45, 96.35-97.60, 97.95-98.40, 101.20-101.55m: Chloritic schist intervals.											
108.40	164.75	43	97	Chloritic schistose volcanics with chloritic schist intervals. Chloritic schistose volcanics are dark green, aphanitic, strongly foliated, occ. to several rounded to subrounded calcite infilled amygdules, fine wisps to 5mm. Chloritic schists are dark green, soft, very strongly foliated, slightly fissile. Several irregular qtz-calcite veins and veinlets, with occ. dolomite/ferrodolomite, hairfine to 15cm, usually associated with or in vicinity of some Py/minor Po/trace Cp as rounded blebs and stringers. Occ. semi-massive Py/minor Po/trace Cp stringers with associated qtz-calcite. Occ. small discrete Py crystals. Closely fractured, some weakly slickensided, occ. partial iron oxide coatings on fracture surfaces. Occ. weathering of Py sulphides to iron oxides.	Foliation: 112-120-35°-40° 122 - 128 40° 130m = 45° 132 - 142 40° 144 - 146 45° 148 - 154 40° 156m = 35° 158 - 164 40°										
				108.68-109.60, 111.25-115.30, 117.20-119.70, 122.50-123.40, 127.71-127.86: Chloritic schist intervals.			79401	135	138	3	.35	.038	0	0	.14
				116.70-117.30: Very closely fractured along foliation.			79402	138	141	3	.18	.030	0	0	.14
				127.86-128.28: Pale green ash flow, strongly foliated, sheared contacts.			79403	141	144	3	.27	.029	0	5.0	.10
				130.22-130.51, 132.15-133.72, 138.00-139.85, 140.90-142.75, 147.35-148.05			79404	144	147	3	.33	.032	0	3.5	.07
				150.70-151.30, 153.60-155.00, 155.70-158.70, 159.80-160.45, 163.25-164.50: Chloritic schist intervals.			79405	147	150	3	.26	.030	0	0	.07
				140.40-160.30: Increased qtz-calcite veinlets and stringer sulphides. Approximately 4% Py/minor Po/trace Cp.			79406	150	153	3	.22	.031	0	0	.07
				158.08-158.65, 159.80-160.00: Very closely fractured. Slightly sheared along foliation.			79407	153	156	3	.43	.027	0	0	.07
							79408	156	159	3	.41	.019	0	0	0
							79409	159	162	3	.33	.029	0	0	0
							79410	162	164.75	2.75	.06	.007	0	0	0
164.75	172.25	80	100	Silicified chlorite altered dacitic tuffs, with occ. stringer Po sulphides. Dark green, massive, aphanitic, moderate chlorite alteration, very siliceous verging on a chloritic chert. Occ. qtz-calcite veinlets with Po and/or Cp. Nms. Po/some Py, Cp sulphides as stringers and pods, often associated with minor amounts of qtz-calcite, occ. with small irregular magnetite blebs to 2mm. Nms. Po/trace Cp rounded to irregular blebs to 5mm, some dissem. lenticular Po. Weakly foliated. Closely to moderately closely fractured, some slickensided, often with chloritic stilpnomelane, or stilpnomelane, occ. gypsum, and/or partial iron oxide coatings on fractures. Modal composition. Po 10%, Py 3%, Cp 1%. Upper contact at 40°, along foliation, gradational over approx. 10 cm.	Upper contact 40° Gradational Foliation 166-172 - 40°										
							79411	164.75	167.25	2.50	.40	.066	0	0	0
							79412	167.25	169.75	2.50	.44	.085	0	0	0
							79413	169.75	172.25	2.50	.43	.032	0	0	0
172.25	177.70	49	98	Chlorite altered dacitic tuffs. Dark green, v. f. g. to aphanitic, strong chlorite alteration. Strongly foliated often verging on chloritic schistose volcanics. Some calcite and qtz-calcite veinlets to 3cm, some displaced up to 5mm along foliation, occ. with f. g. Py blebs.	Upper contact 40° gradational										
							79414	172.25	175	2.75	.04	.005	0	0	0





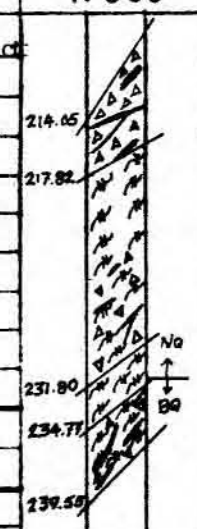


# DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Inclination	Bearing	PROPERTY	Length	HOLE No.	19 - 83	Page #
Location	Hor. Comp	Verl Comp	Sheet	4	of	11
Elevation	Bearing	Logged by				
Coordinates	N	Begin	/Completed	Sampled by		
	E	Core size	/Recovery %	Driller		

DEPTH (metres)	RECOV'Y	DESCRIPTION	INTERSECTION	GRAPHIC	SAMPLE	FROM	TO	LENGTH	%CU	%CO	%ZN	AG	AU
From	To		ANGLE	1: 500	NUMBER	M	M	M				g/MT	g/MT
214.05	217.82	73	100	Light green grey to white chert with numerous Po veinlets/fracture infillings	Upper contact								
				irregular stringers, streaky patches and dissem. lenticles. Occ Py as f.g.-	35°								
				m.g. euhedral to anhedral blebs and stringers. Occ. Cp as irregular concen-	Foliation	79428	214.05	217.82	3.77	.35	.077	0	0
				trations and blebs along margins of Po. Closely fractured, often with stilt-	216m = 40°								
				nomelane or chlorite occ. with partial gypsum and /or iron oxides along									
				fractures. Modal composition Po 20%, Py 1%, Cp 0.5%. Upper contact at 35°,									
				approx. aligned with foliation.									
				217.18-217.82: Massive Po interval with some cherty calcareous pods/									
				stringers.									
217.82	310.33	34	98	Chloritic schistose volcanics and chlorite altered volcanics with chloritic									
				schist intervals, and occ. stringer sulphides.									
217.82	231.80	60	99	Dark green chloritized dacitic to andesitic tuffs with chloritic schist, and	Upper contact								
				chloritic schistose volcanics. Chloritized dacitic to andesitic tuffs and	60°								
				chloritic schistose volcanics are aphanitic to f. g., strongly foliated, with	Foliation	79429	217.82	221.25	3.43	.17	.028	0	0
				a strong chlorite alteration. Occ. Py crystals and Po lenticles. Occ.	218-226 -40°								
				calcite and qtz-calcite infilled irregular amygdules to 4mm. Occ. irregular	228-232	79430	221.25	224.65	3.40	.13	.012	0	0
				qtz-calcite veinlets to 2 cm. with blebs and patches of Py and some Po.	40° - 45°								.07
				Closely fractured, some slickensided, with chlorite, ± calcite, ± iron oxides		79431	224.65	228.20	3.55	.88	.037	0	0
				+ gypsum along fractures. Modal composition Py 0.5%, Po 0.2% to 224.65,									
				followed by stringer sulphide interval to 231.80 Po 7%, Py 1%, Cp 0.4%.									
				Upper contact at approx. 60°, irregular.									
				217.82-218.15: Chloritic schist, contorted, very closely fractured.		79432	228.20	231.80	3.60	.97	.058	0	0
				220.60-224.10: Chloritic schistose volcanics.									
				224.65-231.80: Silicified interval with several qtz/minor calcite veins									
				veinlets with Po/minor Cp irregular stringers and blebs,									
				some Py blebs and patches. Occ. Po/minor Py, Cp stringers									
				to 12 cm.		79433	231.80	234.77	2.97	.07	.007	.04	0
231.80	234.77	44	94	Chloritic schistose volcanics, as between 194.73-214.05 except only occ. ir-	Foliation								
				regular calcite infilled amygdules. Modal composition Py 1%, Po 0.1%, Cp	232-234-40°								.07
				trace. Upper contact gradational over 30 cm.									
234.77	239.55	58	98	Silicified chlorite altered dacitic tuffs with stringer Po sulphides.	Upper contact								
				Medium to dark green, aphanitic to f. g. moderate chlorite alteration, weakly	50°	79434	234.77	237.15	2.38	.83	.069	.02	0
				foliated very siliceous verging on a chloritic chert. Occ. qtz-calcite vein-	Foliation								
				lets with Po/minor Cp. Nms. Po/minor Py, Cp irregular stringers and pods	236-238-40°	79435	237.15	239.55	2.40	.69	.091	.01	0
				often associated with minor qtz-calcite, occ. with magnetite blebs to 3mm.									
				Nms. Po/trace Cp rounded to irregular blebs to 5mm, some dissem. Po lenticles									
				Closely fractured with chlorite, occ. calcite, and iron oxides on fracture									
				surfaces. Occ. weathering of sulphides to iron oxides. Modal composition Po									
				15%, Py 4%, Cp 1%, magnetite 0.25%. Upper contact at approx. 50°, irregular.									







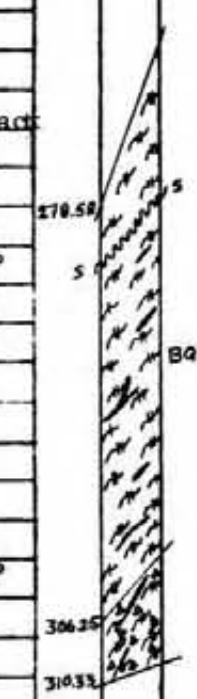


# DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Inclination		Bearing		PROPERTY		Length		HOLE No. 19 - 83		Page #	
Color				Location		Hor. Comp. / Vert. Comp.		Sheet 6 of 11		Logged by	
				Elevation		Bearing		Sampled by		Driller	
				Coordinates		N E		/Completed			
						Core size		/Recovery %			

DEPTH (metres)	RECOV'Y	DESCRIPTION		INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLE NUMBER	FROM M	TO M	LENGTH M	%CU	%CO	%ZN	AG s/MT	AU g/MT
		272.00-276.55: Slightly to moderately silicified.												
		276.55-278.58: Slightly contorted, rehealed, pseudo-breccia interval.												
278.58	306.25	20	97	Chloritic schistose volcanics with chloritic schist intervals. Dark green, very strongly foliated, aphanitic, strong chlorite alteration. Occ. to several rounded to irregular Qtz-ferrodolomite (?) / calcite pseudo-porphyrific blebs, fine wisps to 3mm, occ. with Po/minor Cp blebs. Occ. to several Qtz and Qtz-calcite veinlets, irregular, hairfine to 7 cm, usually with Po/minor Cp blebs and stringers, occ. with Py/minor Cp. Closely to very closely fractured, sometimes weakly slickensided. Polished chlorite surfaces. Occ. weathering of sulphides to iron oxides. Modal composition Po 8%, Py 2%, Cp 0.5%. Upper contact at 20°, irregular.	Upper contact 20°									
				278.58-279.80: Slightly contorted internal structure continuing from above interval.										
				280.70-281.35, 281.65-282.70, 283.70-304.00: Chloritic schist intervals.	Shear at 282.25m=40°									
				282.17-282.32: Minor shear along foliation, soft fissile chloritic schist fragments.										
				279.00-279.28, 279.75-278.25, 283.80-285.10, 285.70-286.25, 287.55-287.95, 290.40-291.08, 292.95-293.60, 294.20-296.00, 296.50-297.10										
				299.55-301.80, 302.75-303.80: Very closely fractured.										
306.25	310.33	42	99	Silicified chlorite altered dacitic tuffs. From 306.25 - 308.83m, have light to medium green, highly siliceous dacitic tuffs verging on a chloritic chert. Low to moderate chlorite content, aphanitic to f. g., weakly foliated. Numerous Po/minor Py, Cp stringers, blebs, and dissem. lenticles. Occ. discrete Py crystals. Occ. irregular Qtz-calcite veinlets with Po/minor Cp. Closely fractured. Modal composition Po 8%, Py 1%, Cp 1%. Upper contact at approx. 40°, irregular. From 308.83-310.33m, have light to medium green, slightly siliceous, slightly calcareous, non-mineralized, dacitic tuff. Moderate chlorite alteration, weakly to moderately foliated, with occ. Qtz-calcite veinlets.	Foliation 308 - 310 40°									
				307.30-308.63: Slightly contorted, rehealed pseudo-breccia interval with nmrs. microfractures.										
310.33	362.80	73	99	Chert with stringer sulphides with occ. dacitic tuffs.										
310.33	362.80	73	99	Light grey green chert, aphanitic, minor chlorite content, occ. verging on a very siliceous tuff. Contains nmrs. irregular Po/minor Cp intervals, stringers, blebs and dissem. lenticles. Some Po intervals are semi-massive due to 0.5-5mm chert grains, often aligned with foliation. Minor Cp as irregular patches along margins of Po, very occ. as fine wispy concentrations within Po. Very occ. Py as irregular f. g. patches and stringers. Trace magnetite as occ. blebs Po also contains occ. irregular blebs and patches of calcite and Qtz-calcite, very occ. with minor siderite.	Upper contact 70° Foliation 312-362-40°									





# DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Inclination	Bearing	PROPERTY	Length	HOLE No. 19 - 83	Page #
Collar		Location	Hor. Comp / Vert Comp.	Sheet 7 of 11	
		Elevation	Bearing	Logged by	
		Coordinates	N Begun / Completed	Sampled by	
			E Core size / Recovery %	Driller	

DEPTH (metres) From To	RECOV'y RQDCore	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLE NUMBER	FROM M	TO M	LENGTH M	%CU	%CO	%ZN	AG g/MT	AU g/MT
		Occ. chloritic stringers adjacent to Po stringers. Occ. dacitic tuff intervals as between 308.83-310.33m. Closely to moderately closely fractured, with thin coatings of chlorite and chloritic stilpnomelane. Stilpnomelane coatings within Po intervals. Occ. partial iron oxide coatings along fractures. Modal composition Po 20%, Cp 1.5%, trace Py and magnetite. Upper contact 70°, planar, polished.			79462	323	326	3	.92	.110	0	0	0
		324.52-324.71: Dacitic tuff, weakly to moderately foliated, approx. aligned with foliation.			79463	326	329	3	.31	.200	0	2.0	.07
		327.48-329.27: Semi-massive Po interval.			79464	329	332	3	.82	.110	0	0	.07
		335.87-336.44: Dacitic tuff interval. Contacts not aligned with foliation.			79465	332	335	3	.47	.044	0	1.5	.07
		350.50-351.93: Dacitic tuff as between 308.83-310.33m except moderately siliceous, occ. Po lenticles, blebs, and stringers, occ. subrounded calcite infilled amygdules. Upper contact gradational over 10cm, lower contact broken.			79466	335	338	3	.42	.037	0	0	.07
		357.29-358.70: Semi-massive Po interval.			79467	338	341	3	.59	.047	0	0	0
		360.20-362.80: Very siliceous tuff interval.			79468	341	344	3	.47	.090	0	0	0
		Chlorite altered volcanics, chloritic schistose volcanics, and chloritic schists with occ. stringer sulphides. Occ silicified and chert intervals with stringer sulphides.			79469	344	347	3	.54	.075	0	0	.07
		Chloritic schist, dark green, soft, slightly fissile. Occ. Po stringers, blebs and dissem. lenticles, some with irregular Cp concentrations near margins, occ. with minor amounts of qtz-calcite. Closely to very closely fractured. Po 3%, trace Cp. Upper contact gradational over 20 cm.	Foliation 364m = 40°		79470	347	350	3	.75	.087	0	0	0
		Semi-massive Po in a chlorite matrix. Po as stringers, streaky patches and dissem. lenticles. Minor Cp as irregular concentrations some patches and dissem. calcite. Closely fractured with partial coatings of stilpnomelane, chloritic stilpnomelane and iron oxides. Modal composition Po 70%, Cp 2%, gangue 28%. Upper contact at 40°, along foliation, intact.	Foliation 364-366 40° - 45°		79471	350	353	3	.30	.039	0	0	0
		Chert with occ. stringer Po sulphides. Dark grey to black chert, aphanitic, bedding partially distinct, sub-aligned with foliation. Several fine stringers, blebs, and dissem. lenticles of Po, often with fine blebs, stringers and dissem. calcite. Minor Cp as irregular concentrations along Po margins. Closely to very closely fractured with some partial coatings of chlorite, ± iron oxides, ± calcite. Po 15% Cp 0.5%. Upper contact at 45°, along foliation, intact.	Upper Contact 45° Foliation 366m = 45° 367m = 55° 368m = 50° Bedding 366m = 60° 367m = 65° 368m = 50°		79472	353	356	3	.65	.110	0	0	0
		367.20-367.42: Nms, light grey, irregular, qtz-calcite blebs.			79473	356	359.40	3.40	.48	.100	0	0	0
		367.84-368.22: Several chloritic stringers to 1 cm.			79474	359.40	362.80	3.40	.17	.025	0	0	0
362.80	449.38	44	99										
362.80	364.04	30	98										
364.04	365.99	75	100										
365.99	368.22	23	100										
					79475	362.80	365.99	3.19	.48	.060	0	0	.07
					79476	365.99	368.22	2.23	.56	.032	0	0	.27



# DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Inclination	Bearing	PROPERTY	Length	HOLE No. 19 - 83	Page #
Collar		Location	Hor. Comp / Vert Comp.	Sheet 8 of 11	
		Elevation	Bearing	Logged by	
		Coordinates	N Begun / Completed	Sampled by	
			E Core size / Recovery %	Driller	

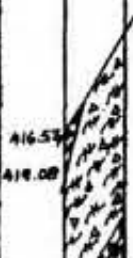

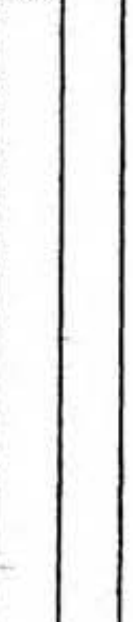
DEPTH (metres) From To	RECOVERY RQDCore	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1: 500	SAMPLE NUMBER	FROM M	TO M	LENGTH M	%CU	%CO	%ZN	AG g/MT	AU g/MT	
368.22	385.17	42	98	Medium to dark green chlorite altered dacitic to andesitic tuffs. Aphanic to very f. g., strongly foliated, strong chlorite alteration. Weakly silicified to 376.70m, weakly to moderately silicified to end of interval. Occ. calcite and qtz-calcite veinlets to 5mm, and qtz-minor calcite veins/pods to 10 cm, both irregular, with Po/minor Cp. Numrs. Po/trace Cp blebs and lenticles, occ. Po/minor Cp, minor calcite stringers. Occ. chlorite stringers. Several to nmrs. qtz-calcite and qtz, wispy, subrounded, or irregular, amygdules and pseudo-porphyrific to porphyritic blebs, often containing Po/minor Cp. Closely to very closely fractured with polished chlorite and occ. partial coatings of calcite and iron oxide staining. Po 4%, Cp 0.2%. Upper contact at 45°, along foliation.	Upper contact 45° Foliation 370 - 384 40°	79477	368.22	371.60	3.38	.11	.010	0	0	0
				368.22-368.74: Chloritic schist.										
				368.74-370.20: Chloritic schistose volcanics.										
				368.22-371.80, 373.25-374.70, 377.35-377.82, 378.45-378.85, 381.35-382.70: Very closely fractured.										
				375.18-375.39: Semi-massive Po stringer with qtz-calcite patches and veinlets, some Cp along margins of Po.										
385.17	387.72	29	100	Chert with occ. stringer Po sulphides. As between 365.99-368.22m. Dark grey with some lighter and darker beds. Po 15%, Cp 0.5%. Upper contact at 60°, intact.	Upper contact 60° Foliation 30° - 50° Bedding 20 - 50	79482	385.17	387.72	2.55	.22	.025	0	0	0
				385.17-386.05: Numerous microfractures.										
				385.95-386.74, 387.35-387.72: Very closely fractured.										
387.72	392.90	30	100	Chlorite altered dacitic to andesitic tuffs, as between 368.33-385.17m except only occ. calcite, qtz-calcite, and qtz amygdules and pseudo-porphyrific to porphyritic blebs. Without qtz-minor calcite veins/pods. Weakly silicified. Occ to several Po/trace Cp blebs and lenticles. Po 3%, Cp 0.1%	Foliation 388m = 40° 390m = 35° 392m = 40°	79483	387.72	391	3.28	.02	.008	0	0	0
				387.72-387.86, 388.47-389.36: Very closely fractured.										
				387.72-388.28: Chloritic schist.										
				391.18-391.76: Chloritic schistose volcanics.										
392.90	416.53	40	100	Chloritic schist with chert and silicified argillite intervals. Chloritic schists are dark green, soft to moderately soft, slightly fissile in places. Occ. to several stringers, streaky patches and disseminated lenticles of Po, occ. with irregular Cp concentrations, often with minor qtz-calcite. Occ. qtz-calcite veinlets to 5cm, often with Po/minor Cp stringers. Occ. irregular to subrounded calcite amygdules and qtz, qtz-calcite pseudo-porphyrific blebs. Pseudo-porphyrific blebs occ. contain Po grains. Chert intervals are medium grey to black, with some to nmrs. Po/minor Cp stringers and lenticles, some bedded. Silicified argillites are dark grey to black, occ. calcite veinlets, occ. to nmrs. Po/minor Cp blebs, and lenticles, some bedded. Closely to very closely fractured, with occ. minor calcite on fractures. Po 3%. Cp 0.1%. Upper contact gradational over 30 cm.	Foliation 394-406 40° 408-412 45° 414-416 40°	79484	391	394	3	.06	.005	0	0	0



# DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Inclination		Bearing	PROPERTY	Length		HOLE No. 19 - 83		Page #	
Collar			Location	Hor. Comp	Vert. Comp.	Sheet 9 of 11		Logged by	
			Elevation	Bearing		Sampled by		Driller	
			Coordinates	N	Begin / Completed				
				E	Core size / Recovery %				

DEPTH (metres)	RECOVERY		DESCRIPTION	INTERSECTION	GRAPHIC	SAMPLE	FROM	TO	LENGTH	%CU	%CO	%ZN	AG	AU
From	To	RQDCore		ANGLE	1:500	NUMBER	M	M	m				g/MT	g/MT
			393.75-398.20: Several fine siderite grains.											
			397.52-397.88: Nmsr. medium grey chert stringers to 12 cm, with some Po/ minor Cp, calcite, and siderite.			79485	394	397	3	.02	.006	0	0	0
			400.09-400.98: Medium to light green grey chert, some bedded. Contains some dark grey chert pods, probably highly silicified argillite.			79486	397	400	3	.16	.007	0	0	0
				Bedding:		79487	400	403	3	.06	0	0	0	0
			403.20-403.40: Medium grey bedded chert.	403.3m = 50°		79488	403	406.86	3.86	.02	.014	0	0	0
			402.55-403.40, 403.40-405.10, 409.30-409.60, 406.55-407.45, 411.25-411.72: Very closely fractured.			79489	406.86	409.97	3.11	.12	.017	0	0	0
			403.40-405.20: Chloritic schist.			79490	409.97	413	3.03	.16	.017	0	0	0
			406.86-409.97: Silicified argillite, very weak chlorite alteration. Bedded in opposite sense to foliation.	Bedding: 407-409 50°		79491	413	416.53	3.53	.04	.005	0	0	0
			411.72-412.70: Silicified argillite.											
416.53	419.08	72 100	Chert with occ. stringer Po sulphides. Light to medium grey chert as between 310.33-362.80m. Po 15%, Cp 0.3%, Py trace. Upper contact at 30° aligned with foliation, intact.	Upper contact 30°		79492	416.53	419.08	2.55	.29	.043	0	0	0
				Foliation: 418m = 40°										
419.08	433.05	52 98	Silicified chlorite altered dacitic tuffs with chloritic schist and chert intervals. Light to medium grey green, moderate to highly silicified, chlorite altered dacitic tuffs, verging on a chloritic chert in places. Aphanitic to f. g., with some intervals of occ. to several irregular calcite and calcite- qtz infilled amygdules, occ. containing Po blebs. Several calcite-qtz veins and veinlets with stringers and blebs of Po/minor Cp, ± streaky patches of Py/minor Cp, ± subrounded silicified tuff and chloritic schist fragments. Contains occ. to several Po stringers, blebs, and lenticles, and occ. discrete Py crystals. Chloritic schists are soft, slightly fissile, with nmsr. Po stringers and lenticles. Contain occ. silicified tuff intervals and subrounded fragments, and occ. subrounded chert fragments. Chert intervals are medium to dark grey green, some bedded, with moderate chlorite altera- tion, and occ. Po/trace Cp stringers and lenticles. Overall Po 2%, Py 1%, Cp 0.1%. Upper contact at 15° intact, not aligned with foliation.	Upper contact 15°		79493	419.08	422.50	3.42	.17	.050	0	0	0
				Foliation: 420-424=45° 426-432=40°		79494	422.50	426	3.50	.15	.032	0	0	0
						79495	426	429.60	3.60	.13	.020	0	0	0
						79496	429.60	433.05	3.45	.10	.033	0	0	0
			419.08-421.18: Chloritic schist.											
			422.74-423.38: Calcite-qtz vein /pod.											
			423.80-425.05, 426.45-427.11, 430.67-431.38: Chloritic schist intervals.	Bedding										
			429.60-430.03, 431.38-433.05: Chert intervals.	431.20m=25° 432.0m=25°										
433.05	449.38	57 99	Silicified chlorite altered dacitic tuffs with stringer Po sulphides. Dark green to black, strong chlorite alteration, very highly silicified, possibly a chloritic chert. Aphanitic, moderately well foliated. Occ. to nmsr. Po/ trace Cp blebs, stringers and lenticles, occ. with minor calcite, generally increasing down interval. occ. to several qtz-calcite veins and veinlets to	Foliation 434-444 40° 446-448 35°		79497	433.05	436.50	3.45	.03	.016	0	0	0



# DRILL HOLE RECORD

FALCONBRIDGE LIMITED

PROPERTY		Length		HOLE No. 19 - 83		Page #	
Callar	Inclination	Bearing	Location	Hor. Comp	Vert Comp	Sheet 10	of 11
			Elevation	Bearing		Logged by	
			Coordinates	N Begun	/Completed	Sampled by	
				E Core size	/Recovery %	Driller	

DEPTH (metres)	RECOV'Y	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLE NUMBER	FROM M	TO M	LENGTH M	%CU	%CO	%ZN	AG g/MT	AU g/MT
		12 cm. occ. with Po/trace Cp blebs and stringers. Closely fractured, often with polished chlorite, occ. chloritic stilpnomelane, occ. calcite, and occ. iron oxide staining on fractures. Po 20%, Cp 0.2%. Upper contact gradational over 30 cm.			79498	436.50	440	3.50	.06	.017	0	0	0
		437.81-437.97: Qtz-calcite vein/pod with intergrown qtz crystals to 3cm enclosing irregular to angular calcite, chlorite, and Po.			79499	440	443	3	.25	.094	0	0	0
		439.75-440.25, 440.70-441.25: Very closely fractured.			79501	443	446	3	.19	.065	0	0	.07
					79502	446	449.38	3.38	.21	.089	0	0	0
449.38	452.57	94 100 Massive to semi-massive Po sulphides.											
449.38	452.57	94 100 Massive to semi-massive Po in siliceous chlorite altered tuff matrix, gradually changing to dark grey to black chert matrix over interval. Cp as occ. disseminations and streaky patches along margins of Po. Trace magnetite as occ. disseminations. Some light grey irregular chert-minor siderite blebs, and occ. chlorite stringers. Closely to moderately closely fractured with chlorite or chloritic stilpnomelane, and occ. iron oxide staining along fractures. Modal composition Po 70%, Cp 1%, gangue 29%. Upper contact at 40°, along foliation, irregular.	Upper Contact 40° Foliation 450-452 40°		79503	449.38	452.57	3.19	.64	.140	0	0	.07
		449.67-449.80: Silicified chlorite altered volcanics stringer.											
		451.89-451.98: Chert stringer.											
452.57	484.90	54 98 Silicified interval of chert with stringer Po sulphides and silicified chlorite altered volcanics.			79504	452.57	455.50	2.93	.34	.052	0	0	.07
452.57	461.42	50 99 Chert with occ. stringer Po sulphides. Dark grey to black, aphanitic, weakly foliated, occ. bedding. Possibly a very highly silicified argillite. Nms. Po/minor Cp stringers, blebs, and dissem. lenticles. Po stringers occ. contain light grey chert pods. Occ. crosscutting qtz veinlets, hairfine to 3mm, some with Po/minor Cp. Closely fractured, some slickensided, with some stilpnomelane, occ. graphite, and occ. partial iron oxide coatings. Po 15%, Cp 0.1%. Upper contact at 60°.	Upper contact 60° Foliation: 454m=35° 455m=40° 456m=45° 458m=40° 460m=35° Bedding: 458 - 460 25°		79505	455.50	458.50	3.00	.22	.024	0	0	.07
					79506	458.50	461.42	2.92	.60	.031	0	0	.34
461.42	484.90	56 98 Silicified chlorite altered dacitic tuff with chert and chloritic schistose volcanic intervals. Medium to dark grey green, moderately to highly silicified, strong chlorite alteration, aphanitic, strongly foliated. Nms. chlorite stringers to 1 cm. Very occ. qtz-calcite veinlets to 3mm, with Po/minor Cp. Occ. to several irregular pseudo-porphyrritic qtz blebs, often with Po. Several Po/minor Cp stringers, blebs, and dissem. lenticles, generally decreasing down interval. Closely fractured, often weakly slickensided, with chlorite along fractures. Po 4% Cp 0.1%. Upper contact at 40° along foliation.	Upper contact 40° Foliation: 462-464 40° 466-468 35° 470-478 40° 480-482 35° 484m=40°		79507	461.42	465	3.58	.65	.030	0	0	.07
					79508	465	468	3	.18	.025	0	0	.07







# DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Inclination	Bearing	PROPERTY	WINDY CRAGGY	Length	373.84m (1226.5 ft.)	HOLE No.	21 - 83	Page#	
Collar	-50°	50° 23' W	Location	Section 9,500 E	Hor. Comp.	/ Vert. Comp.	Sheet	1 of 11	
Borehole surveys listed at end of log			Elevation	1836.36 metres	Bearing	S 0 23' W	Logged by	S. Lear	
			Coordinates	11,052.73 N	Begin	Aug 20/83 / Completed Aug 31/83	Sampled by	P. Boyle/M. Forster/S. Lear/C. Burge	
				9,515.07 E	Core size	NQ/BQ / Recovery 70 %	Driller	Longyear 38 Rig #2	

DEPTH (metres)		RECOV'Y	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLE NUMBER	FROM M	TO M	LENGTH M	%CU	%CO	%ZN	AG g/MT	AU g/MT
From	To	RQDCore												
0	12.19		Tricone; no core.											
12.19	13.11	11 23	Broken fragments of argillite above first block.											
13.11	21.59	19 59	Black calcareous argillite and grey-brown calcareous siltstone. Core is very broken and altered.											
13.11	15.85	31 52	Brecciated calcareous argillite. Breccia fragments are sub-rounded and elongated. Fragments vary from 6 to 45mm long with a mode of 10mm. Matrix is f. g., light grey, calcareous and less resistant than argillite fragments. Quartz-calcite veinlets rim argillite fragments and fill spaces between fragments as veinlets at 60° and 70°. Directions of elongation for argillite fragments: 13.11-13.43: 30° 13.77-13.94: 50° 14.76-15.06: 20°- 25° 15.06-15.85: Very broken core.	Contact at 15.06 = 60°		66176	12.19	15	2.81	.01	0	.01	0	0
15.85	21.59	12 72	Grey-brown siltstone; highly, calcareous with v.f.g. wavy carbonaceous bands at 0°, 65°, 30°. Calcite veinlets are common and are oriented at 30°, 55°, 70°. White clay-filled veinlets occur over lower 1.59m. They are oriented at 50°, 45°, 30° and are often off set by calcite-filled fractures. 17.27-17.42: Very broken core.	Banding: 0° 65° 30° Veins: 30° 55°		66177	15	18	3	.01	0	.07	0	0
21.59	134.24	1.3 29	Fault gouge with grey-green volcanic and argillite fragment. Volcanic fragments are highly altered in places. Black chert fragments are common in places.			66178	18	21	3	0	0	.01	0	0
21.59	26.10	3 71	Argillite and siltstone fragments as described above.			66179	21	24	3	.02	0	.05	0	.07
26.10	37.48	1.7 61	Mainly grey-green, m.g. to f.g. volcanic fragments. Minor argillite fragments from 26.10-29.42m. 26.69-27.59: Pseudo-porphyrific volcanics. Porphyries are angular, 2 to 4 cm. long and are filled with quartz-calcite. 29.42-37.48: Fragments of highly-altered, limonitic volcanics. Angular, open box-work texture developed in volcanic fragments. Pseudo-porphyrific over lower 17 cm.			66180	24	27	3	.01	.005	.03	0	.10
37.48	59.00	0 30	Argillite fragments and minor volcanic fragments. Argillite is grey-brown to grey; moderately to highly altered with quartz-calcite veinlets at 15°, 30°. 53.34-55.47: No core.			66181	27	30.48	3.48	.02	.006	.04	0	0
						66182	30.48	33	2.52	.08	0	.07	16.5	1.23
						66183	33	36.58	3.58	.03	0	.04	55.0	3.50
						66184	36.58	39	2.42	.13	0	.10	10.5	.83
						66185	39	42	3	.11	0	.08	14.5	.75
						66186	42	45	3	.06	0	.04	28.0	2.26
						66187	45	47.24	2.24	.06	0	.04	28.0	1.27
						66188	47.24	53.34	6.10	.13	0	.20	3.0	.27
						66189	53.34	56.40	3.06	.16	.006	.19	3.3	.31
						66190	56.40	59.44	3.04	.40	0	.20	6.5	1.77



# DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Inclination	Bearing	PROPERTY	Length	HOLE No. 21 - 83	Page #
Value		Location	Hor. Comp / Vert Comp.	Sheet 2 of 11	
		Elevation	Bearing	Logged by	
		Coordinates	N Begun / Completed	Sampled by	
			E Core size / Recovery %	Driller	

DEPTH (metres) From To	RECOV'Y RQDCore	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLE NUMBER	FROM M	TO M	LENGTH M	%CU	%CO	%ZN	AG g/MT	AU g/MT
59.00	68.58	4 33	Pseudo-porphyrific grey-green volcanic fragments. Pseudo-porphyrifics comprise up to 30% of rock. Discontinuous, wavy limonite and white clay veinlets. Minor gypsum on shear surfaces. 59.44-68.58 : Volcanic fragments have weathered pits (1mm long) some-times lined with limonite. Possibly formed from altered and eroded calcite-filled pseudo-porphyrifics.	Veinlets: 0°, 20°, 45°, 70°	66191	59.44	62.03	2.59	.20	0	.13	10.0	1.92
					66192	62.03	65.38	3.35	.09	0	.07	3.5	.21
					66193	65.38	68.58	3.20	.05	0	.05	2.3	.07
68.58	110.0	0 17	Conchoidally-fractured chips of black chert with fragments of altered volcanics. Fault gouge is poorly consolidated. Limonite and goethite staining is common. 83.82-89.81 : No core. 90.53-92.96 : No core. 99.06-102.11 : No core. 104.24-108.20: No core.		66194	68.58	71.63	3.05	.48	0	.08	3.3	1.10
					66195	71.63	75.59	3.96	.45	0	.08	2.0	1.30
					66196	75.59	78.33	2.74	.32	0	.07	3.8	.14
					66197	78.33	81.08	2.75	.30	0	.11	2.8	.34
					66198	81.08	97.54	16.46	.16	0	.12	13.0	.96
110.0	114.0	0 11	Black argillite fragments. Minor quartz-calcite veinlets.		66199	97.54	114.00	16.46	.13	0	.09	34.0	2.61
114.0	119.19	0 50	Altered volcanic fragments. Goethite and limonite-coated box-work developed around volcanics fragments over lower 35 cm.		66200	114.00	134.24	20.24	.07	0	.02	20.0	.55
119.18	134.09		Triconed; no core.										
134.09	134.24	0 93	Fault gouge with altered volcanic fragments.										
134.24	158.70	76 94	Grey-green f.g. volcanic flows. Volcanics are often chloritized and are increasingly silicified towards base of section. Sulphides occur as disseminated blebs, stringers and minor semi-massive zones. Gangue in sulphide zone is quartz-dolomite/calcite, chlorite with grey chert occurring in more silicified zones. Chlorite-coated fractures. Sulphide %'s over the entire section average: Po 20-25%, Cp 5%, Py 5%.										
134.24	139.56	79 88	Moderately chloritized volcanics with stringer to semi-massive sulphide zones as listed below. Gangue is quartz-dolomite and chlorite. Iron oxide veinlets with chlorite borders at 15°, 35° and 70°. Minor foliations outlined by chlorite over lower 2.30 metres are oriented at 25° to G. A. 134.37-134.75: Semi-massive sulphides grading into massive sulphides. 134.37-134.57: Semi-massive sulphide zone runs lengthwise along core. Bordered by a f. g. pyrite-rich vein at 0°-5° to G. A. Po borders Py with Cp most abundant in the innermost zone. Po 25%, Cp 10%, Py 5%. 134.57-134.75: Massive sulphides. Sulphides comprise 80% of rock. Py 50% Po 20% Cp 10%. 134.75-136.47: Stringer sulphides Po 15-25% Cp 1%. 136.47-137.22: Semi-massive sulphides.	Foliation 25°	66201	134.24	137	2.76	.75	.030	.03	1.5	.14
					66204	137	140	3	.85	.038	.04	0	.07





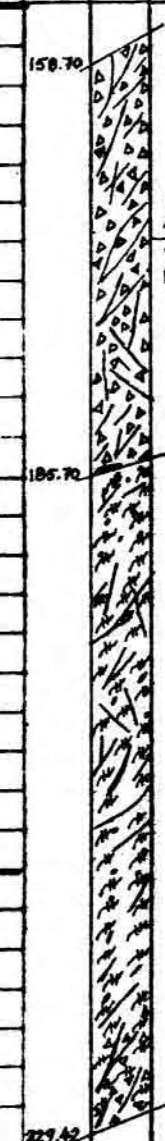


# DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Inclination	Bearing	PROPERTY	Length	HOLE No.	21 - 83	Page #
Collar		Location	Hor. Comp / Vert Comp	Sheet	4 of 11	
		Elevation	Bearing	Logged by		
		Coordinates	N Begun / Completed	Sampled by		
			E Core size / Recovery %	Driller		

DEPTH (metres)	RECOV'Y	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLE NUMBER	FROM M	TO M	LENGTH M	%CU	%CO	%ZN	AG g/MT	AU g/MT
From	To												
158.70	185.70	92	96	Light grey to grey-green chert rich host; possibly replacing volcanics. Host rock has a mottled appearance over the top 11 metres with irregular (2 to 3 mm long) patches of whitish chert in grey chert. Gradational contact with underlying chloritic volcanics as unit is increasingly chloritized over lower 5.2 metres. Disseminated to stringer sulphides with minor semi-massive sections. Gangue is quartz-calcite-siderite, chlorite and grey chert. White gypsum is common on fracture surfaces. Sulphide % for entire section: Po 25-30%, Cp 3-5%, Py 5%. Changes from NQ to BQ size core at 169.77 metres.									
				158.70-169.77: Stringer sulphides Po 35%, Cp 5%, Py 3%.	66211	159	162	3	1.28	.063	.03	0	.07
				168.40-168.65: Semi-massive sulphides. Po 55%, Py 5%, Cp 2%.	66212	162	165	3	.70	.090	0	0	.07
				169.77-180.52: Stringer sulphides with semi-massive zones. Po 25-35%, Cp 10%, Py 3%.	66213	165	168	3	.69	.072	0	0	0
				177.40 : 4.5 cm wide quartz-calcite vein at 90° to C. A. with Cp 40%, Po 10%. Vein: 90°	66214	168	169.77	1.77	.34	.097	.02	0	.07
				177.67-178.17: Irregular quartz-calcite veining at approximately 60°.	66215	169.77	172	2.23	1.02	.077	.18	0	.07
				178.17-179.42: Semi-massive sulphide zone at 0° to 30°. Po 50%, Cp 20%, Trace reddish-brown sphalerite.	66216	172	175	3	1.19	.072	.04	0	.07
				179.71-179.99: Semi-massive sulphides. Po 70%, Py 5%, Cp 2%.	66217	175	178	3	1.04	.051	.04	1.5	.10
				180.52-185.54: Disseminated to stringer sulphides. Po 25%, Py 10-12%, Cp 2-8%.	66218	178	181	3	1.16	.080	.17	1.8	.14
				185.54-185.70: Semi-massive sulphides Po 60%, Cp 1%.	66219	181	184	3	.40	.073	.01	0	.14
185.70	229.42	79	98	Grey-green chloritic volcanics; f.g. with pseudo-porphyrines 1 to 3 mm wide of quartz-dolomite. Porphyrines sometimes have Po or Py cores and comprise up to 15% of host rock. Below 217.24 metres, pseudo-porphyrines are filled with quartz-calcite. Quartz-dolomite veinlets (2 to 5 mm wide) are common from 185.70-217.24 metres and are oriented at 10°, 80°, 60°. Gypsum plates are common on fracture surfaces. Volcanics are partially silicified near lower contact with underlying cherty unit. Disseminated to stringer sulphide zone with minor semi-massive sulphides listed below. Quartz-calcite and chlorite gangue. Average sulphide %'s for entire section: Po 10%, Py 12-15%, Cp 2-3%.									
				185.70-186.41: Disseminated sulphides Py 5%, Po 3%, Cp 2%. Veins: 10°, 80°, 60°	66220	184	187	3	1.01	.062	.01	0	.14
				186.41-187.32: Stringer to disseminated sulphides. Plates of pearly white to translucent gypsum cover 5% of fracture surfaces. Also chlorite and sulphides on fractures. Po 15-20%, Py 10%, Cp 3-5%.	66221	187	190	3	.49	.037	0	0	.07
				187.32-192.02: Mainly disseminated sulphides. Py 5-8%, Po 3%, Cp 1%. Vein: 10°	66222	190	193	3	.31	.029	.03	0	.14
				187.98 : 2 to 6 cm wide vein at 10°. Py 70%, Cp 2%.									
				189.01 : 15 cm long semi-massive zone. White gypsum on fracture surfaces. Fine-grained Py 60%, Po 5%, Cp 2%. Trace reddish-brown sphalerite.	66223	193	196	3	1.62	.050	.09	0	.01
				192.02-196.80: Stringer sulphides, Po 30%, Py 5%, Cp 5-10%.									





# DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Inclination	Bearing	PROPERTY	Length	HOLE No.	21 - 83	Page #
Location	Hor. Comp	Location	/ Vert Comp.	Sheet	5 of 11	
Elevation	Bearing	Elevation		Logged by		
Coordinates	N	Coordinates	Begin / Completed	Sampled by		
	E		Core size / Recovery %	Driller		

DEPTH (metres)	RECOV'Y	DESCRIPTION	INTERSECTION	GRAPHIC	SAMPLE	FROM	TO	LENGTH	ZCU	ZCO	ZZN	AG	AU
From	To												
		196.80-202.70: Disseminated to stringer sulphides. Rock is closely fractured in places. Py 15%, Po 5-8%, Cp 1%.			66224	196	199.34	3.34	.37	.036	.08	0	.34
		202.70-206.53: Stringer sulphides. White gypsum on fracture surfaces. Po 30%, Py 10%, Cp 10%.			66225	199.34	202.39	3.05	.45	.036	.01	0	0
		206.53-211.0 : Disseminated sulphides with minor semi-massive zone described below. Py 5%, Po 1%, Cp trace.			66226	202.39	205.44	3.05	1.23	.054	0	0	.07
		206.80 : 28 cm section of Py 25-30%, Cp 5%, Po 3%.			66227	205.44	208	2.56	1.50	.046	0	0	.07
		208.21 : 26 cm section of Py 25%, Cp 1%.											
		209.04 : 79 cm section of Py 30%, Po 20%, Cp 8-10%.			66228	208	211	3	.66	.047	0	0	.31
		210.83 : 12 cm section of Py 15%, Cp trace.			66229	211	214	3	.31	.016	0	0	.14
		211.0 -217.24: Disseminated sulphides with veinlets of quartz-calcite and sulphides at 30°, 70°, 40°. Py 10-15%, Po 2%, Cp 2%.	Veins: 30°, 70°, 40°		66230	214	217	3	.28	.021	0	0	.07
		217.24-219.66: Disseminated, veinlet and semi-massive sulphides; mainly pyrite. Fine, chlorite-coated veinlet/fractures at 25° - 30° to C. A. give a chipped and pitted appearance to the core. Py 15-20%.	Fractures: 25° - 30°		66231	217	220	3	.40	.045	.01	0	0
		217.45-217.71: Semi-massive sulphides Py 70%, Cp 1%.											
		219.66-229.42: Disseminated to stringer sulphides. Some quartz-calcite veinlets with sulphides at 75°, 10°, 30°, Py 15%, Po 10%, Cp 2%.	Veins: 75°, 10°, 30°		66232	220	223	3	.56	.053	0	0	.07
					66233	223	226	3	.33	.040	0	0	0
					66234	226	229	3	.09	.015	0	0	0
229.42	264.07	54 96 Green, f.g. chloritic volcanics with grey chert-rich zones possibly after volcanics. Stringer, disseminated and minor semi-massive sulphides. Average sulphide X's for entire section: Po 15-20%, Py 15%, Cp 2-3%.											
229.42	237.65	56 95 Grey, cherty host; chloritized near sulphide stringers. Fine, chlorite-coated veinlet/fractures give a chipped and pitted appearance to core as above (217.24m to 219.66m). Chlorite, gypsum and sulphides on fracture surfaces. Disseminated to stringer sulphides with quartz-calcite and chlorite gangue.			66235	229	232	3	.76	.039	.01	0	0
		229.42-233.11: Po 25%, Py 10%, Cp 10%.			66236	232	235	3	.49	.051	.01	0	.07
		233.11-237.65: Py 20%, Po 10%, Cp trace.			66237	235	238	3	.19	.036	0	0	0
237.65	245.01	66 97 Grey-green volcanics; f.g., highly chloritized. Quartz-calcite pseudo-porphyrines form up to 20% of rock. Irregular 3 to 5mm wide gypsum-chlorite veins at 238.15m and 243.01 m at approximately 0° to 5° to C. A. Rock is closely fractured in places with chlorite and minor gypsum on fractures. Gradational contact with underlying chert zone. Disseminated to stringer sulphides as described above. Py 10%, Po 3%, Cp trace.	Veins 0° to 5°		66238	238	241	3	.07	.013	0	0	0
					66239	241	244	3	.05	.014	0	0	0
245.01	247.61	96 98 Grey, cherty host with up to 10% calcite-siderite pseudo-porphyrines. Fine quartz-siderite veinlets at 60°- 70°. Stringer sulphides with calcite-siderite, grey chert and minor chlorite gangue. Po 25%, Py 10%, Cp 3%.	Veins: 60° to 70°		66240	244	247	3	.23	.046	0	0	0



















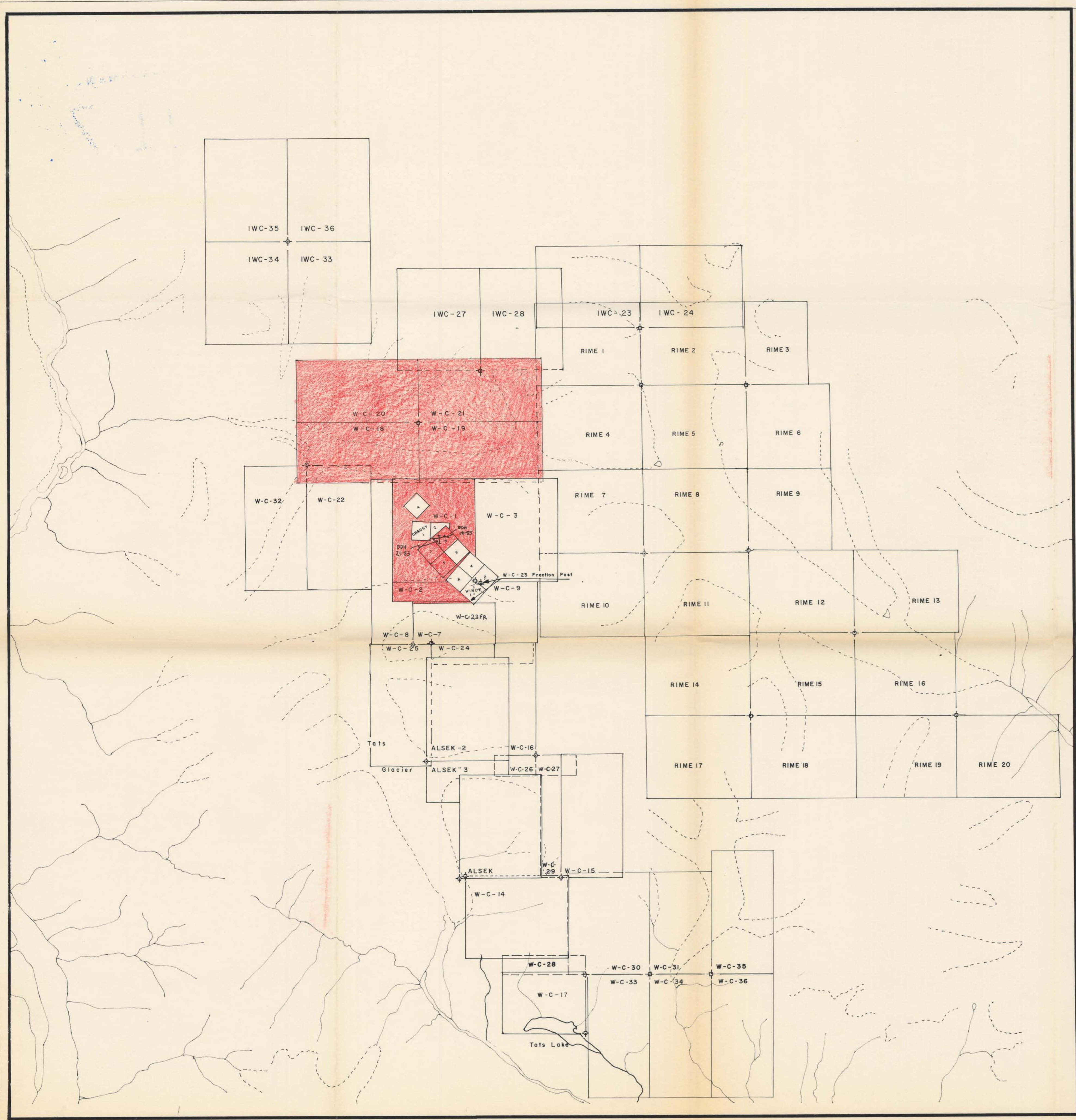
# DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Inclination	Bearing	PROPERTY WINDY CRAGGY	Length	HOLE No. 21 - 83	Page #
Color		Location	Hor. Comp / Vert. Comp.	Sheet 11 of 11	
		Elevation	Bearing	Logged by	
		Coordinates	N Begun / Completed	Sampled by	
			E Core size / Recovery %	Driller	

DEPTH (metres) From To	RECOVY RQDCore	DESCRIPTION				INTERSECTION ANGLE	GRAPHIC 1: 500	SAMPLES				ASSAYS			g/mt.	
		Depth (metres)	Inclination	Azimuth	Remarks			No.	From	To	m	Cu.%	Co.%	Zn.%	Ag.	Au.
DIRECTIONAL SURVEYS																
		0	-50°	180° 23'	Transit survey											
		30.5m	-53°	315°	Sperry sun in casing											
		61.0m	-53.5°	002°	Sperry sun in casing											
		91.4m	-54.0°	059°	Sperry sun											
		115.8	-53.5°	043°	" "											
		161.5	-57.0°	187°	" "											
		216.4	-57.0°	177°	" "											
		285.0	-57.0°	180°	" "											
		340.5	-57.0°	179°	" "											
		E. O. H. 373.84m														





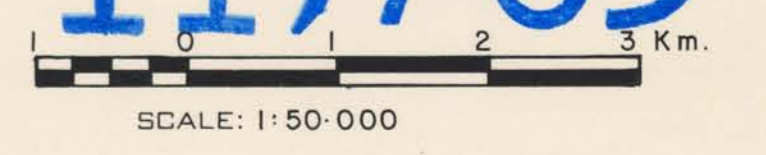
- GROUP STATUS**
- North
  - Central
  - South
  - Ungrouped

- LEGEND**
- Geddes Area Agreement
  - Tats Lake-Geddes Webster
  - Kowall Option
  - Noranda Claims
  - St. Joe Minerals
  - Falconbridge Survey Claims

Noranda and St. Joe Minerals Claim are located from Government Claim Map

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**11,763**



<b>FALCONBRIDGE LIMITED</b>		
PROPERTY: Windy & Craggy Claims		
LOCATION: St. Elias Mtn. Lat. 59°44' Long. 137°45'		
TYPE OF MAP: Claims location		
WORKING PLACE:		
BASED ON:		
DATE OF WORK:	MAP REF. NO.:	FIG. NO.:
DRAWN BY: G.T.		2
DATE: April 1983	N.T.S. NO.: 114-P-12	



BASE LINE

BASE LINE

2000m

1900m

1800

1700

1600

1500

1400

1300

1200

2000m

1900m

1800

1700

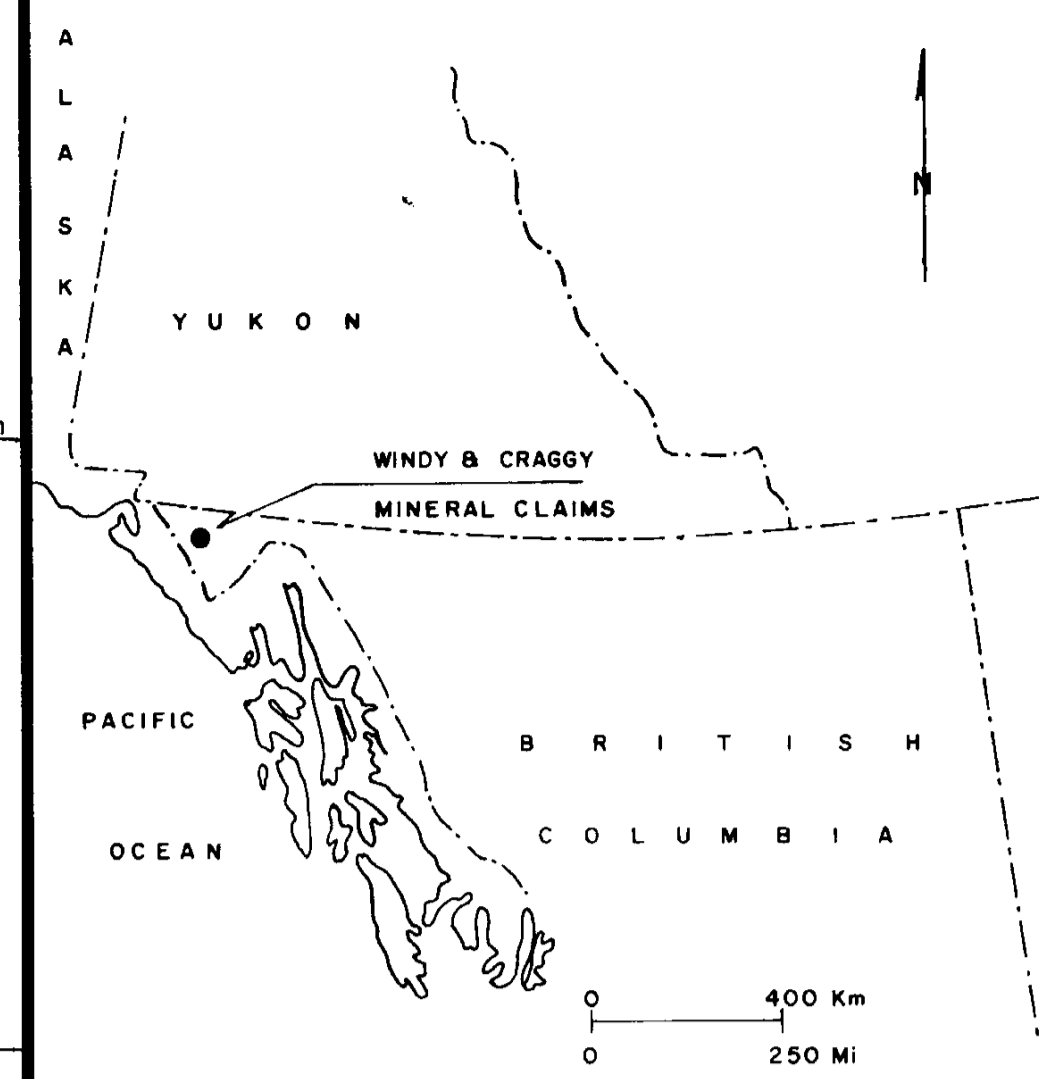
1600

1500

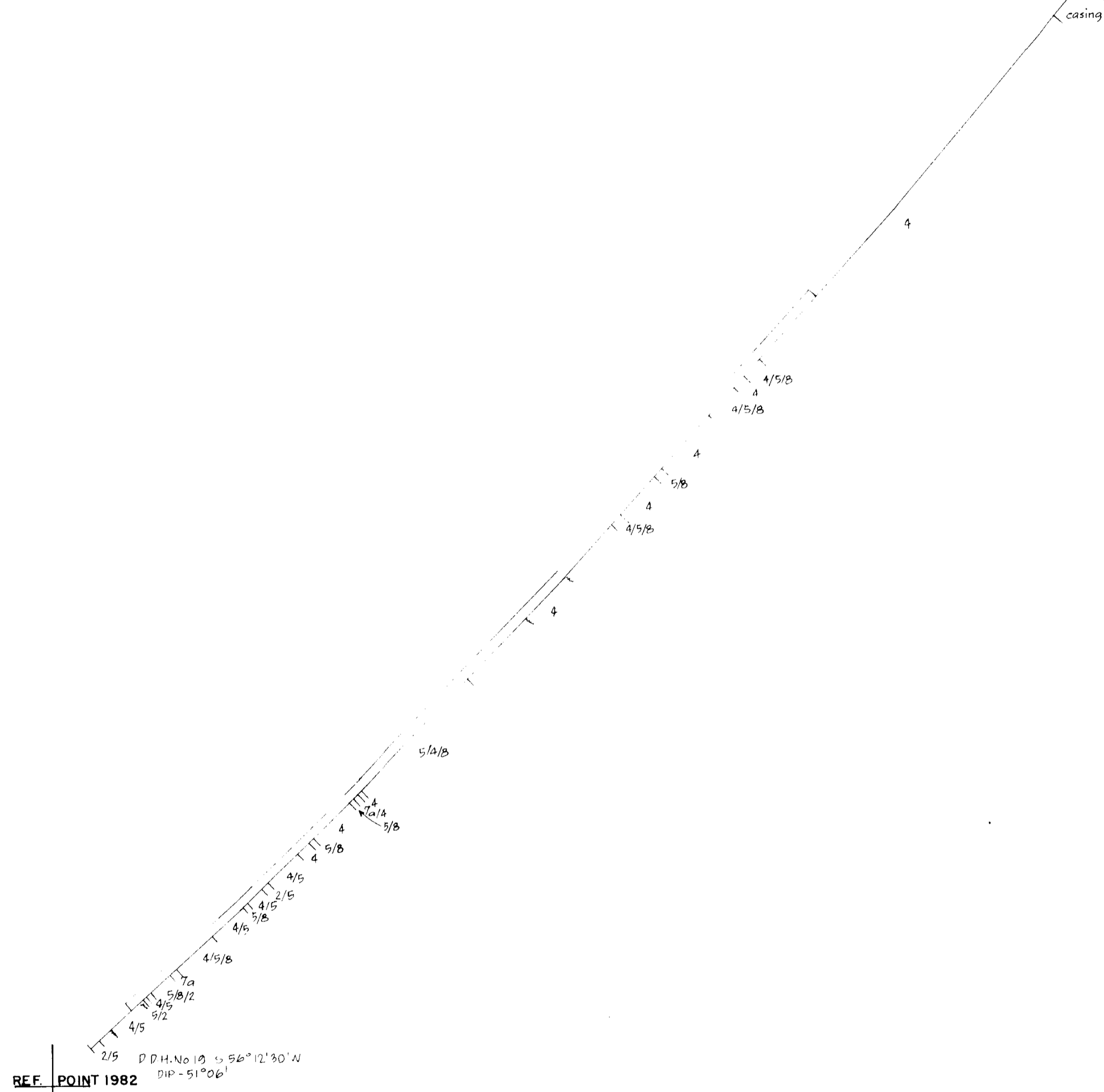
1400

1300

1200



INDEX MAP SCALE 1:160,000



UNIT	THICKNESS (m)	CONTACT	REMARKS
1	1.0	1	
2	1.0	1	
3	1.0	1	
4	1.0	1	
5	1.0	1	
6	1.0	1	
7	1.0	1	
8	1.0	1	

**GEOLOGY LEGEND**

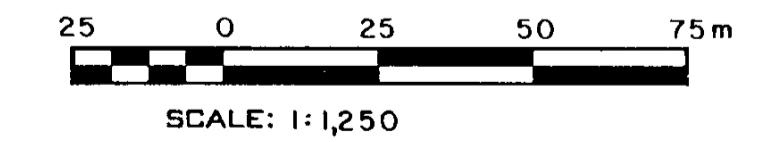
- 1 Limestone/calcareous argillite
- 2 Argillite/siltstone
- 3 Undifferentiated flows,tuffs,rare dykes
- 3b Basic dykes
- 4 Chloritic altered volcanics
- 5 Cherty or siliceous zones
- 6 Gossan
- 7 Sulphides,pyritic
- 7a Sulphides,pyrrhotitic
- 8 Disseminated or stringer sulphides

**GRADE RANGES**

- +3.00% Cu
- ▣ 2.50-2.99% Cu
- ▨ 2.00-2.49% Cu
- ▧ 1.00-1.99% Cu
- ▦ -1.00% Cu
- ▤ 2.0-7.0g/t Au
- ▣ +7.0g/t Au

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

11,763



SCALE: 1:1,250

**FALCONBRIDGE LIMITED**

PROPERTY:	WINDY CRAGGY COPPER PROPERTY	
LOCATION:	St. Elias Mtn. B.C. Lat. 59°44' Long. 137°45'	
TYPE OF MAP:	Section K-K', D.D.H. No. 19	
WORKING PLACE:		
BASED ON:		
DATE OF WORK:	Summer 83	MAP REF. NO.:
DRAWN BY:	I. T.	FIG. NO.:
DATE:	Oct. 83	N.T.S. NO.: 114-P-12
		4



