

# ARCHER, CATIRO

AND ASSOCIATES LTD.

CONSULTING GEOLOGICAL ENGINEERS

Box 4127, WHITEHORSE, Y.T. Y1A 3S9 667-4415

STANDARD BUILDING, VANCOUVER, B.C. 688-2568

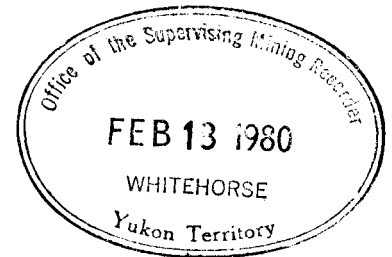
1016 STANDARD BUILDING  
510 WEST HASTINGS STREET  
VANCOUVER, B.C.  
V6B 1L8

DRILL REPORT  
OTIS 11-20 CLAIMS



Latitude 65°02'N; Longitude 134°23'W

Work done June 20 to 25, 1979



JANUARY 15, 1980

A.R. Archer, B.A.Sc., P.Eng.

Consulting Engineer

090580

TABLE OF CONTENTS

	<u>PAGE</u>
Introduction -----	1
Property, Location and Access -----	1
Geology -----	2
Mineralization -----	2
Diamond Drilling -----	3
General -----	3
Radiometric Logging -----	3
Results -----	4
Conclusions and Recommendations -----	5

ILLUSTRATIONS IN POCKET

Log of Drill Hole 79-01, Otis Claim

Figure WJV 79-0-1 - Geology, Otis Claims - Scale 1:1,000

INTRODUCTION

During 1979 Wernecke Joint Venture (WJV) drilled 450 feet in 1 hole on the Otis property. Work was conducted under the direction of geologist Uwe Schmidt during the period June 20 to 25, 1979. Overall supervision was provided by the writer.

PROPERTY, LOCATION AND ACCESS

The Otis property consists of 10 contiguous Otis claims registered at the Mayo Mining Records Officer as follows:

<u>Claim Name</u>	<u>Grant Numbers</u>	<u>Expiry Date</u>
Otis 11-20	Y97436-Y97445	17 March, 1980

The claims are recorded in the name of Archer, Cathro and Associates Ltd. on behalf of Wernecke Joint Venture (Chevron Canada Ltd., Aquitaine Company of Canada Ltd.).

The property is located on claim sheet 106E/1 at approximately latitude 65°02'N and longitude 134°23'W. Access during 1979 was by helicopter from a camp on the Igor claims, some 12 km to the west. Access to the Igor camp was by helicopter from Kiwi Lake, some 19 km to the north, or from a bush airstrip in the Bear River valley, 24 km to the southeast. Kiwi Lake lies 190 km north-east of Mayo.

## GEOLOGY

The Otis claims were staked over a north-striking fault which separates Quartet Group (Unit Hs) slates to the east from Fairchild Lake Group phyllites and calc-silicates to the west, as illustrated on Figure 0-1 in the pocket. Both groups exhibit weak breccia-related alteration even though the nearest outcropping breccia body lies 700 m north of the drill site. Breccias in this district form in diatreme-like pipes and are an important control for uranium mineralization.

The fault is a major structure that forms a linear between 30 m and 60 m wide and can be traced for a length of 6 km. The linear is covered by overburden and rock rubble, except for a small exposure some 125 m north of the drill site.

## MINERALIZATION

The north-striking fault on the Otis claims is weakly mineralized with brannerite. The best mineralized portion of the fault is immediately north of Otis Creek, in the area shown on Figure 0-1 in the pocket, where mineralization occurs in float scattered throughout the rubble within the fault linear over a horizontal distance of 360 m and a vertical range of 120 m. The float is largely composed of calc-silicates of the Fairchild Lake Group containing scattered brannerite crystals that are surrounded by brick red hematite alteration halos up to 10 cm across. The average grade of the radioactive float is estimated to be 0.2%  $U_3O_8$  and the abundance of float suggests that no more than 30 cm of the 30 m wide linear is mineralized.

A 2 m wide portion of the fault was observed in outcrop at one locality where it is composed of highly brecciated calc-silicates tightly cemented with chlorite, quartz and hematite. No anomalous radioactivity was detected in the outcrop.

## DIAMOND DRILLING

### General

The WJV drilling was contracted from E. Caron Diamond Drilling Ltd., Whitehorse, Yukon using a BBS-1 model drill powered by a 4 cylinder Lycoming diesel engine and equipped with hydraulic head and wireline attachments. The hole was drilled using BQ rods and water circulation and no sludges were collected because core recovery exceeded 95 per cent.

Drilling proved to be relatively trouble free. Permafrost was present but did not require the addition of calcium chloride to the water except during radiometric probing. The core was logged in British rather than metric units to conform with the lengths of drill rod used. The drill log with assays and radiometric log is enclosed in the pocket and the location of the drill collar is shown on Figure 0-1 in the pocket. Drill core is stored at the H.S. Bostock core library in Whitehorse.

### Radiometric Logging

The hole was radiometrically logged using a Model 1000-C Portable Borehole Logger, manufactured by Mount Sopris Instrument Company, Delta, Colorado, on loan from Chevron Canada Ltd. The Mount Sopris logger is equipped with a 4.82 cc thallium-activated, sodium iodide crystal housed in a 3.18 cm diameter probe 1.1 m long that is attached to a 304 m cable. It records total-count gamma radiation in counts-per-second (cps) on metric chart paper moving at a speed of 1 cm per metre of hole probe. Available scales range from 0-50 cps up to 0-50,000 cps. Most WJV logs were run at a 200 cps chart width. The hole was probed at a speed of approximately 2 m per minute, about twice the recommended speed, because of the

permafrost hazard. Also, the core barrel was removed prior to probing to allow easier extraction of the drill rods in case the hole began to freeze. The radiometric chart is attached to the right hand margin of the drill log, which has been given a scale that converts the metric chart directly to hole footage.

### Results

The hole cut weakly fractured Quartet Group phyllite to 415 feet and chloritic calc-silicates of the Fairchild Lake Group from there to its final depth of 450 feet. Core recovery was 100 per cent. A two foot wide zone of gouge at 401 feet probably represents the main fault. The phyllite between the fault and the chloritic calc-silicate contact is weakly brecciated and contains numerous graphite coated slickensides. No mineralization was present.

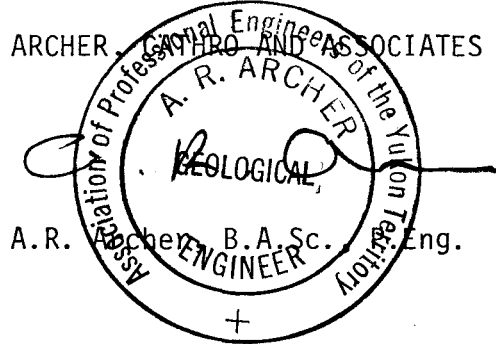
Specimens of core were routinely assayed geochemically at 50 ft intervals and returned values ranging from 1.5 ppm U to 3.0 ppm U and 8 ppm Cu to 46 ppm Cu in the phyllite. A single sample from the chloritic calc-silicate returned 12 ppm U and 4 ppm Cu. The radiometric log indicates uniform backgrounds of 30 cps in the phyllite and 40 cps in the chloritic calc-silicate.

CONCLUSIONS AND RECOMMENDATIONS

The drill hole on the Otis claims intersected the north striking fault about 300 feet vertically below surface. Core recovery was 100% and no evidence of mineralization was found in core or with the Mount Sopris gamma probe. This hole intersected the fault where it has Quartet Group slates on the hanging wall and Fairchild Lake Group calc-silicates on the footwall. It is possible that the fault would be better mineralized where more competent calc-silicates occur on both walls.

No further work is recommended.

Respectfully submitted,  
ARCHER, GAYTHRO AND ASSOCIATES LTD.



/mc

WJV 1979 OTIS DIAMOND DRILL LOG LEGEND

GEOLOGY

HELIKIAN, POSSIBLY APHEBIAN

Hs

Quartet Group

olive green to black and silvery weathering, black to grey slate, phyllite and siltstone, platy to blocky cleavage rusty weathering on some fracture planes

Hs<sub>1</sub>

black and white interlaminated graphitic phyllite

Hs<sub>a</sub>

olive green to grey weathering light and dark grey interlaminated weakly chloritic phyllite, weakly altered equivalent of Hs

Hcsa

Altered Fairchild Lake Group

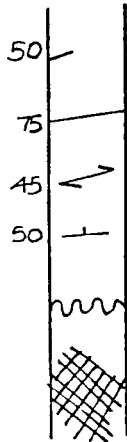
light grey to grey-green, resistant weathering limy phyllite and calc-silicate bearing marble, brecciated, hematized and mineralized intermittently with bronnerite

SYMBOLS

———— major geological boundary

- - - - - minor subdivision

STRUCTURE



joint with angle to core

vein or mineralized fracture with angle to core axis

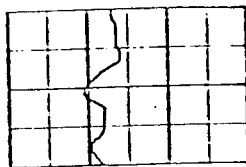
foliation to core axis

bedding to core axis

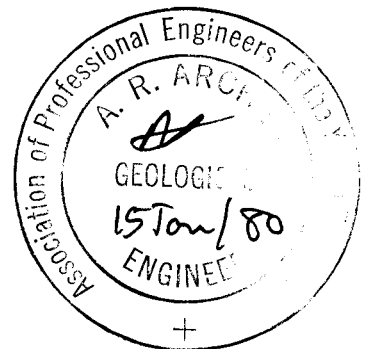
fault indicated by gouge

core broken into small fragments

RADIOMETRIC LOG



total count radioactivity in counts per second  
at 20 cps/cm scale



GEOLOGICAL DESCRIPTION	SAMPLE NUMBER	RADIO-ACTIVITY IN CPS BGS-ISL	GEOCHEMISTRY AND ASSAY				% RECOV	GEOLOGY	STRUCTURE $\frac{\lambda}{\text{to core}}$	HOLE DEPTH (FEET)	MOUNT SOPRIS GAMMA PROBE LOG
			$^{238}\text{U}$ ppm U	ppm Cu							
Bedrock  QUARTET GROUP Hs: LIGHT AND DARK GREY INTERLAMINATED LIMY PHYLLITE Hsa: light and dark grey interlaminated, weakly chloritic limy phyllite. Weakly developed spotted foliation at 70° to core axis. Hairline calcite filled fractures 5 to 10 per foot at 20 to 30° to core axis. Core is broken up parallel to foliation at 6 to 10 fractures per foot.	H54577	90 Background	1.5	46			15	Hsa	70 30	5	Scale 1cm=20cps 
							80			10	
							85			15	
							15			20	
							90			25	
							90			30	
							90			35	
							90			40	
							90			45	
							90			50	
							20 30	55			
							20 30	60			
							20	65			
						20		70			
						75		75			

# DRILL HOLE LOG

GEOLOGICAL DESCRIPTION	SAMPLE NUMBER	RADIO-ACTIVITY IN CPS BGS-ISL	GEOCHEMISTRY AND ASSAY				% RECOV	GEOLOGY	STRUCTURE $\frac{L}{\%}$ to core	HOLE DEPTH (FEET)	MOUNT SOPRIS GAMMA PROBE LOG											
			(%U <sub>2</sub> O <sub>8</sub> ) ppm U	ppm Cu																		
Hsa continued Laminae of pyrite and pyrrhotite occur in light grey bands at 70° to core axis and also with calcite in hairline fractures at 10 and 20° to core.		90					0	Hsa		80												
----- Gradational Contact -----							100			90												
DARK GREY LAMINATED PHYLLITE Hs: dark grey laminated phyllite with minor light grey laminations. Abundant calcite filled hairline fractures occur near fracture zones at 0 and 20° to core axes. Displacements of 1/4" occur near fractures. Trace amounts of pyrite and pyrrhotite occur in this unit.	H54578		2.0	14			50		20 00	95												
							65			100												
							65			105												
		100/90						Hs		110												
										115												
										120												
										125												
							100	calcite	30	130												
										135												
										140												
										145												
	H54579		2.0	16						150												





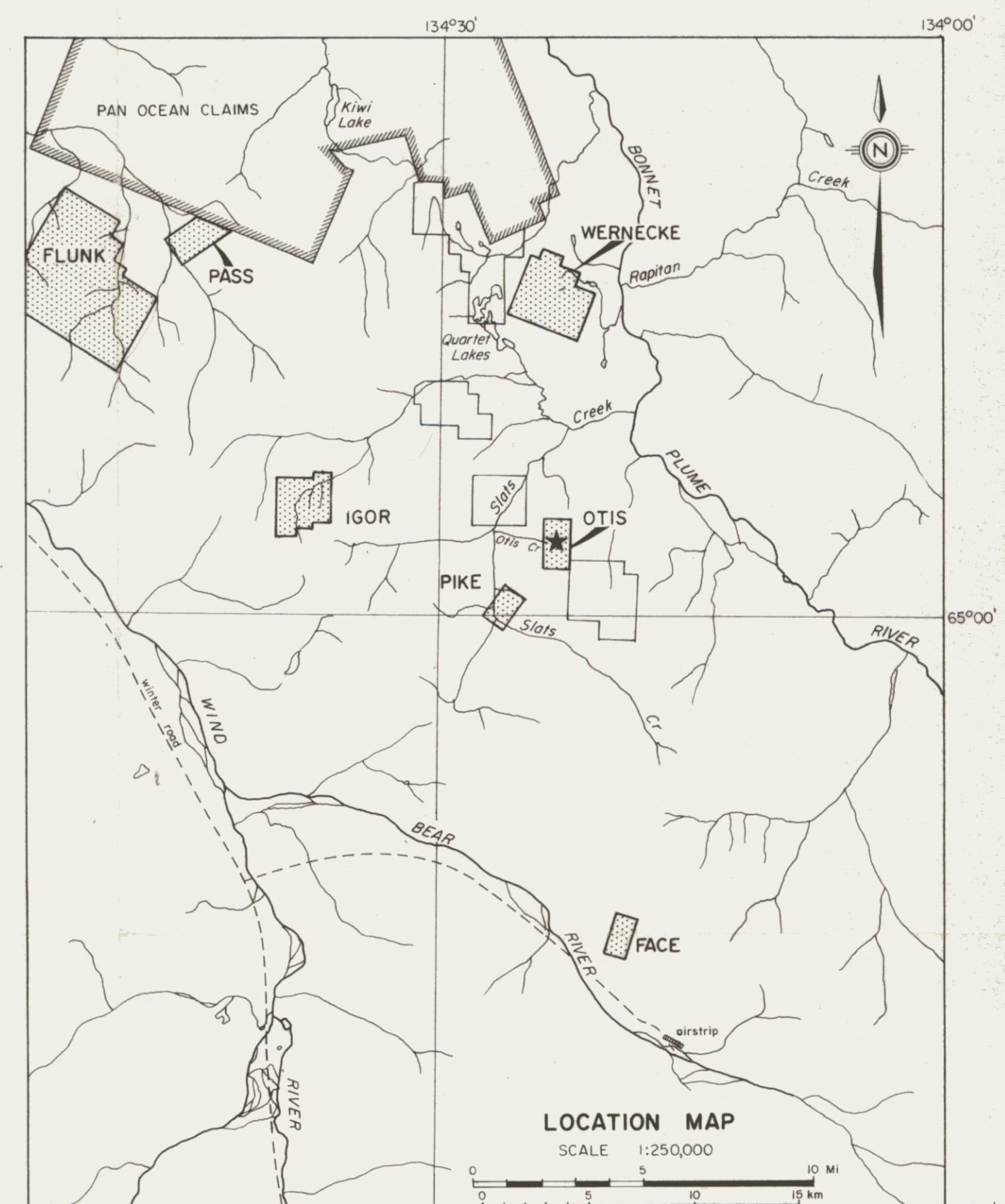
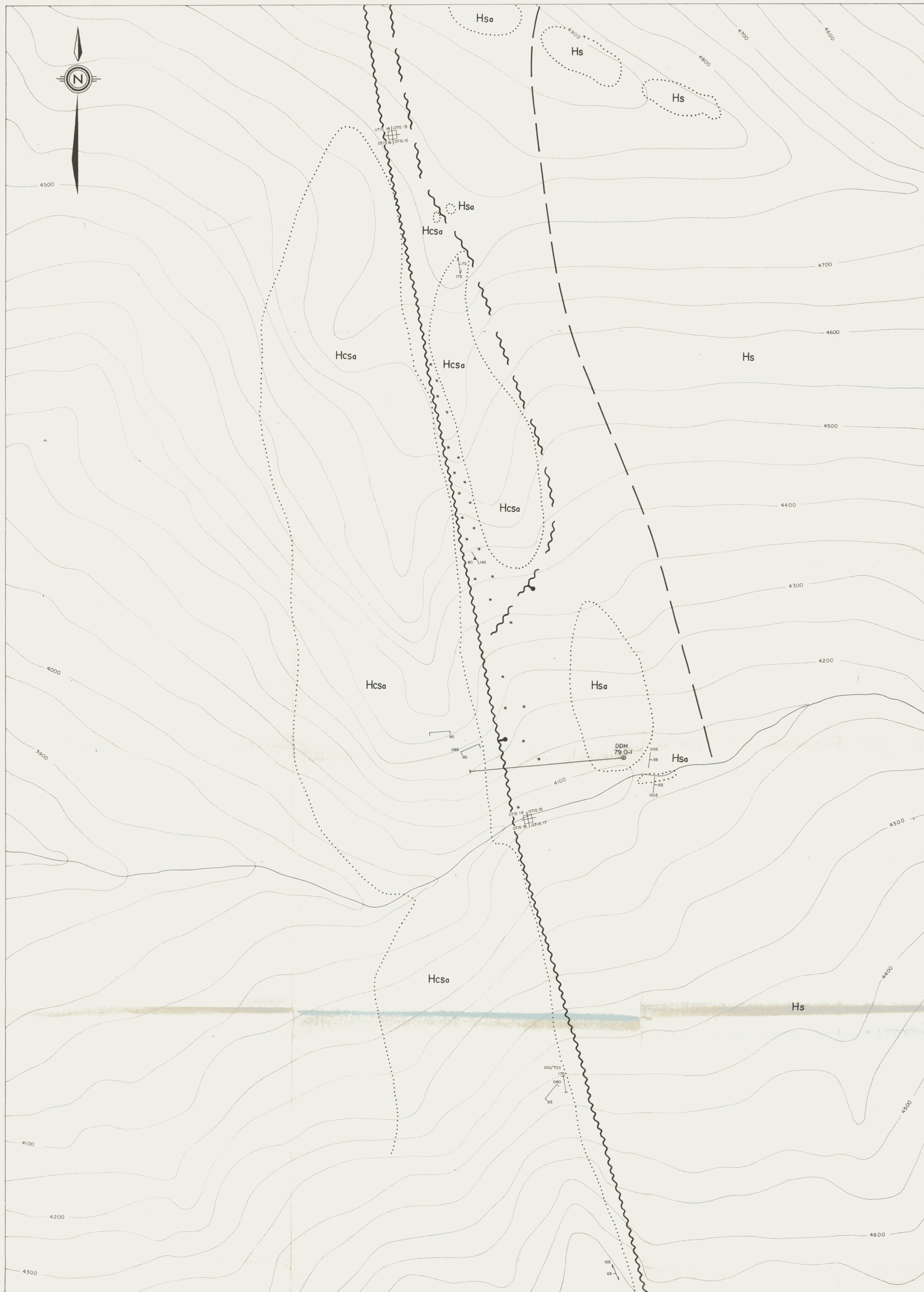


# DRILL HOLE LOG

PROJECT WJV HOLE 790-1 LOCATION \_\_\_\_\_ CORE SIZE \_\_\_\_\_ STARTED \_\_\_\_\_ FINISHED \_\_\_\_\_ PAGE 6 OF 6  
 CLAIM GROUP \_\_\_\_\_ LENGTH \_\_\_\_\_ DIP \_\_\_\_\_ AZIMUTH \_\_\_\_\_ COLLAR ELEVATION \_\_\_\_\_ DRILLED BY \_\_\_\_\_ LOGGED BY \_\_\_\_\_

GEOLOGICAL DESCRIPTION	SAMPLE NUMBER	RADIO-ACTIVITY IN CPS BGS-ISL	GEOCHEMISTRY AND ASSAY			% RECOV	GEOLOGY	STRUCTURE / TO core	HOLE DEPTH (FEET)	MOUNT SOPRIS GAMMA PROBE LOG	
			(%U <sub>2</sub> O <sub>8</sub> ) ppm U	ppm Cu							
Hs continued											
								30	380		
								60	385		
							Hs		390		
									395		
	H54584		2.0	16	<10				400		
----- Gradational Contact -----									405		
BLACK AND WHITE, GRAPHITIC INTERLAMINATED PHYLLITE Hs1: crenulated, graphitic phyllite-shale with tectonic breccia in calcite matrix; graphitic slickensides.						100	Hs1	40	410		
									415		
GREY-GREEN CHLORITIC, LIMY LAMINATED PHYLLITE AND CALC-SILICATE Hcs a: highly deformed, weakly limy with calcite filled fractures.							HSCA		420		
									425		
								20	430		
									435		
									440		
									445		
	H54585		12.0	4	<10				450		

End of Hole



**GEOLOGY**

HELIKIAN, POSSIBLY APHEBIAN

- Hs** Quartet Group  
olive green to black and silvery weathering, black to grey slate, phyllite and siltstone, platy to blocky cleavage rusty weathering on some fracture planes
- Hs<sub>1</sub>** black and white interminated graphitic phyllite
- Hsa** olive green to grey weathering light and dark grey interminated weakly chloritic phyllite, weakly altered equivalent of Hs
- Hcsa** Altered Fairchild Lake Group  
light grey to grey-green, resistant weathering limy phyllite and calc-silicate bearing marble, brecciated, hematized and mineralized intermittently with brannerite

**LEGEND**

- bedding inclined
- foliation inclined
- fault defined, approximate
- geological boundary defined, approximate
- outcrop
- diamond drill hole
- fault zone
- mineralized talus fragment  
400-1000 cps (865-15L)

Figure WJV 79-01

ARCHER, CATHRO & ASSOCIATES LTD

**GEOLOGY**

OTIS CLAIMS  
\* WERNECKE JOINT VENTURE

