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CONSULTING GEOLOGICAL ENGINEERS

VANCOUVER, B.C. (604) 688-2568

BOX 4127, WHITEHORSE, Y.T. Y1A 3S9 (403) 667-4415

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

WERNECKE JOINT VENTURE

DRILL REPORT

IGOR 1-26 CLAIMS

NTS 106E/2

Latitude 65°03' N Longitude 134°38' W

Work done May 23-July 30, 1980

090756

090756

W.D. Eaton, B.Sc.

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

January 23, 1981

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RECEIVED
25 FEB 1981
MINING RECORDER
MAYO, Y.T.
I.A. & N.D.

I certify that I am a geologist, having graduated from the University of British Columbia in 1980 with the degree of Bachelor of Science (Geology).

I am currently employed as project geologist by Archer, Cathro & Associates Limited, Vancouver, British Columbia.

W. Douglas Eaton, B.Sc.

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RECEIVED
25 FEB 1981
MINING RECORDER
MAYO, Y.T.
I.A. & N.D.

I certify that I am a geological engineer, having graduated from the University of British Columbia as a Bachelor of Applied Science in 1957.

I have practised my profession continuously since 1957 and have been in supervisory positions since 1963.

I am currently a senior partner with the geological consulting firm Archer, Cathro & Associates Limited.

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

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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

RECEIVED
18 FEB 1981
MINING RECORDER
MAYO, Y.T.
LA. & N.D.

AFFIDAVIT

I, Joan Mariacher, of Vancouver, B.C. make oath and say:

That to the best of my knowledge the attached Statement of Expenditures for exploration work on the Igor 1-26 mineral claims on Claim Sheet 106E/2 is accurate.

Joan Mariacher

Sworn before me at Vancouver, B.C.
this 21st day of
January, 1981.

Notary, Yukon Territory

Statement of Expenditures
Igor 1 - 26 Claims
May 23 - July 30, 1980

Drilling

E. Caron Diamond Drilling Ltd.	$41,302.88

E. CARON DIAMOND DRILLING LTD. 7 Roundel Road Whitehorse, Yukon. Phone (403) 668-2424 Telex 036-8-337

July 15, 1980

Invoice #- 793

IN ACCOUNT WITH:

Archer Cathro & Associates,
1016 Standard Building,
510 West Hastings St.,
Vancouver, B.C.

Drilling Charges July 1 to 15, 1980: (Igor Property)

Hole 009/50/BQ				
Testing				
2 man hrs.	@ $ 20.00 per hr.	= $ 40.00		
1 mach. hr.	@ $ 12.00 per hr.	= $ 12.00	$ 52.00	
Coring				
547 - 560 = 13 ft.	@ $ 21.75 per ft.	=	$ 282.75	$ 334.75
Hole 0010/50/BQ				
Moving				
50½ man hrs.	@ $ 20.00 per hr.	=	$ 1,010.00	
Waterline				
3 man hrs.	@ $ 20.00 per hr.	=	$ 60.00	
Time Not Accounted				
9 man hrs.	@ $ 20.00 per hr.	= $ 180.00		
4½ mach. hrs.	@ $ 12.00 per hr.	= $ 54.00	$ 234.00	
Testing				
2 man hrs.	@ $ 20.00 per hr.	= $ 40.00		
1 mach. hr.	@ $ 12.00 per hr.	= $ 12.00	$ 52.00	
Casing				
0 - 18 = 18 ft.	@ $ 20.00 per ft.	=	$ 360.00	
Coring				
0 - 494 = 494 ft.	@ $ 21.00 per ft.	=	$10,374.00	$12,090.00

#480

E. CARON DIAMOND DRILLING LTD. 7 Roundel Road Whitehorse, Yukon. Phone (403) 668-2424 Telex 036-8-337

Hole 0011/50/BQ				
Moving				
30 man hrs.	@ $ 20.00 per hr.	=	$ 600.00	
Testing				
4 man hrs.	@ $ 20.00 per hr.	= $ 80.00		
2 mach. hrs.	@ $ 12.00 per hr.	= $ 24.00	$ 104.00	
Casing				
0 - 20 = 20 ft.	@ $ 20.00 per ft.	=	$ 400.00	
Coring				
0 - 299 = 299 ft.	@ $ 21.00 per ft.	=	$ 6,279.00	$ 7,383.00
Hole 0012/50/BQ				
Moving				
56 man hrs.	@ $ 20.00 per hr.	=	$ 1,120.00	
Testing				
2 man hrs.	@ $ 20.00 per hr.	= $ 40.00		
1 mach. hr.	@ $ 12.00 per hr.	= $ 12.00	$ 52.00	
Time Not Accounted				
8 man hrs.	@ $ 20.00 per hr.	= $ 160.00		
4 mach. hrs.	@ $ 12.00 per hr.	= $ 48.00	$ 208.00	
Casing				
0 - 20 = 20 ft.	@ $ 20.00 per ft.	=	$ 400.00	
Coring				
0 - 133 = 133 ft.	@ $ 21.00 per ft.	=	$ 2,793.00	$ 4,573.00
Hole 0013/70/BQ				
Moving				
34 man hrs.	@ $ 20.00 per hr.	=	$ 680.00	
Reaming Cave				
14 man hrs.	@ $ 20.00 per hr.	= $ 280.00		
7 mach. hrs.	@ $ 12.00 per hr.	= $ 84.00	$ 364.00	
Testing				
2 man hrs.	@ $ 20.00 per hr.	= $ 40.00		
1 mach. hr.	@ $ 12.00 per hr.	= $ 12.00	$ 52.00	
Time Not Accounted				
12 man hrs.	@ $ 20.00 per hr.	= $ 240.00		
6 mach. hrs.	@ $ 12.00 per hr.	= $ 72.00	$ 312.00	
Casing				
0 - 20 = 20 ft.	@ $ 20.00 per ft.	=	$ 400.00	
Coring				
20 - 500 = 480 ft.	@ $ 21.00 per ft.	= $10,080.00		
500 - 501 = 1ft.	@ $ 21.75 per ft.	= $ 21.75	$10,101.75	$11,909.75

E. CARON DIAMOND DRILLING LTD. 7 Roundel Road Whitehorse, Yukon. Phone (403) 668-2424 Telex 036-8-337

Hole 0014/50/BQ				
Moving				
36 man hrs.	@ $ 20.00 per hr.	=	$ 720.00	
Waterline				
6 man hrs.	@ $ 20.00 per hr.	=	$ 120.00	
Time Not Accounted				
3 man hrs.	@ $ 20.00 per hr.	= $ 60.00		
1½ mach. hrs.	@ $ 12.00 per hr.	= $ 18.00	$ 78.00	
Casing				
0 - 10 = 10 ft.	@ $ 20.00 per ft.	=	$ 200.00	
Coring				
0 - 158 = 158 ft.	@ $ 21.00 per ft.	=	$ 3,318.00	$ 4,436.00
Items Consumed & Chargeable				
70 ft. BQ rods	@ $ 71.60/10' length	=	$ 501.20	
	+ 15 %	=	$ 75.18	$ 576.38
		Total Invoice:		$41,302.88

Total - 1598' = 25.85 /ft.

WESTMARK JOINT VENTURE

DRILL HOLE DATA
1980 PROGRAM
MAY - JULY, 1980

IGOR 1-26 CLAIMS
QUARTET LAKE AREA
NTS 106E/2

NOTE:- SEE DRILL REPORT BY W.D. EATON AND A.R. ARCHER, P.ENG., DATED JANUARY 23, 1981 FOR ADDITIONAL DETAILS

HOLE NO	METRES DEPTH	CLAIM LOCATION	# EXPENDITURES E. CARBON DIAMOND DRILLING
80I 006	95.8	IGOR 3	
007	83.9	3	
008	151.5	3	
009	138.8	5	
010	106.7	3	12,090.00
011	82.4	3	7,383.00
012	21.8	5	4,573.00
013	158.5	5	11,909.75
014	169.7	3	4,436.00
015	149.7	3	
016	90.6	3	
017	40.8	5	
018	151.8	5	
019	145.8	5	
020	139.7	5	
021	137.0	3	
022	125.5	5	
TOTAL	1948.2		

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Figure WJV 80-I48	Igor Property: Scale 1:400	Section Hole 80I013	L
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Figure WJV 80-I50	Igor Property: Scale 1:400	GRAFLOG B Hole 80I013	L
Figure WJV 80-I51	Igor Property: Scale 1:400	Section Hole 80I014	M
Figure WJV 80-I52	Igor Property: Scale 1:400	GRAFLOG A Hole 80I014	M
Figure WJV 80-I53	Igor Property: Scale 1:400	GRAFLOG B Hole 80I014	M
Figure WJV 80-I54	Igor Property: Scale 1:400	Section Hole 80I015	N
Figure WJV 80-I55	Igor Property: Scale 1:400	GRAFLOG A Hole 80I015	N

Figure WJV 80-I56	Igor Property: Scale 1:400	GRAFLOG B Hole 80I015	N
Figure WJV 80-I57	Igor Property: Scale 1:400	Section Hole 80I016	O
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INTRODUCTION

The Igor claims were staked by Ogilvie Joint Venture (OJV) in 1974 as a copper prospect, several weeks before the presence of uranium mineralization was recognized. Exploration that year and in 1975 included geological mapping, grid soil sampling, chip sampling of mineralized exposures, grab sampling of mineralized float trains, hand trenching, and ground and airborne radiometric surveys. This work outlined three zones of anomalous radioactivity (Zones A, B and C) plus a 3 metre by 10 metre area of outcrop averaging 2.5% Cu, and strong uranium, copper and molybdenum soil anomalies. The property was briefly optioned to Eldorado Nuclear Ltd. during 1976. In 1979 prospecting identified two additional zones, Zone D (copper-uranium) and Zone E (copper), while five diamond drill holes totalling 485.8 metres produced encouraging results including a 19.7 metre intersection grading 4.74% Cu and 0.089% U_3O_8. Composite sampling of the core returned cobalt values in the range of 200 ppm. Following the drilling, survey grid control was established over the main area of interest and air photos were flown over the entire claim block.

The 1980 Wernecke Joint Venture (WJV) exploration program included geological mapping and 1969 metres of diamond drilling in 17 holes.

PROPERTY AND LOCATION

The Igor property consists of 26 contiguous mineral claims recorded in the Mayo Mining District as follows:

Claim Name	Grant Numbers	Expiry Date
Igor 1-16	Y96124-Y96139	20 April, 1984
Igor 17-22	Y98050-Y98055	20 April, 1984
Igor 23-24	YA1194-YA1195	20 April, 1984
Igor 25F, 26F	YA1196-YA1197	20 April, 1984

The property is located at latitude 65°03' N and longitude 134°38' W within NTS claim sheet 106E/2, 175 km northeast of Mayo.

LOGISTICS

The WJV crew consisted of crew chief D. Eaton, geologist T. Stokes, senior assistant J. Cockell and junior assistants J. Staniforth and C. Bishop. Geologist J. Slater and junior assistant M. Gerasimoff were briefly assigned to the program. Drilling was contracted to Caron Diamond Drilling Ltd., Whitehorse. Helicopter support was provided by a contracted Hughes 500D, occasionally supplemented by a Bell 204 based at the Pan Ocean Oil Ltd. camp on Kiwi Lake, both chartered from Trans North Turbo Air (TNTA) of Whitehorse. The Igor camp was serviced by float-equipped, fixed wing aircraft to Kiwi Lake, 19 km to the north, and by wheel-equipped aircraft to an airstrip in the Bear River valley, 24 km to the southeast. Most fixed wing aircraft were chartered from Air North Ltd. which operates from bases at Mayo and Whitehorse.

The following is a summary of the program:

March	Fuel and lumber mobilized from Mayo to Kiwi Lake by Air North DC-3 aircraft.
May 19-20	WJV crew arrived in Whitehorse.
May 23-24	Camp and crew mobilized from Mayo to Bear Strip by Air North Islander aircraft. Hughes 500D ferries from Whitehorse to Bear Strip.
May 24-29	Camp set up on Igor property and drill site preparation started.
May 29	Drillers and cook arrive.
May 30-June 1	Drill moved from winter cache near Kiwi Lake to Igor property by helicopter.

June 1-July 25	1969.4 m (6499 feet) drilled in 17 holes.
July 26	Drill demobilized to Kiwi Lake using Hughes 500D and Bell 204.
July 27-30	Crew, camp and drill core demobilized from Igor to Mayo by Bell 204. Hughes 500D ferries to Whitehorse. Crew takes equipment and core to Whitehorse in five ton truck.

GEOLOGY

The Igor property is centered on a north-south trending ridge (Igor Ridge) flanked by the northward flowing Igor and Boris Creeks. Local elevations range from 1050 metres in creek bottoms to 1350 metres on the ridge. The property lies above tree line and vegetation is restricted to grass, moss and minor buckbrush on the lower slopes. Outcrop is most abundant near ridge crests and in creek cuts while talus and debris from extinct alpine glaciation normally obscure the hillsides. Geomorphology is strongly influenced by underlying geology and most gullies occupy fault traces.

The property geology is illustrated on Figure WJV 80-I1 in the pocket and consists of Helikian or older Quartet Group (Unit Hs) shales, phyllites, quartzites and siltstones folded into a broad, northeast-trending anticline with an irregular, 1100 metre wide breccia body cutting its core. At least two ages of faults occur on the property. The older structures exhibit north-south trends and steep dips and are probably associated with major faults in the Bonnet Plume and Wind River valleys that are part of Norris's Richardson Fault Array. These faults were active from Helikian to present and may be partially contemporaneous with the breccia bodies. A 0.5 m wide, slightly bleached, shear zone occupying the floor of Boris Creek is the best

exposed north-trending structure on the property. The younger structures are related to the Cretaceous Laramide orogeny. Most are east-trending, high angle (50°-75°) reverse faults several metres in width that probably represent imbrication along the leading edge of a thrust sheet. A few appear to be associated normal faults formed when the reverse faults reactivated following a post-orogenic change in the stress regime from compression to extension. These faults have thrust a slice of Paleozoic carbonate to within 200 m of the breccia contact. The absence of good stratigraphic markers below the largely eroded Paleozoic unconformity makes actual measurement of fault offsets difficult.

Figure WJV 80-I2 in the pocket illustrates detailed geology of the breccia and adjacent metasediments on the east side of Igor Creek. The breccia-metasediment contact is generally obscured but where exposed the phyllites and shales adjacent to the contact are characteristically bleached to a pale green colour and exhibit pervasive, north-south striking and steeply dipping cleavage. The bleached halo extends up to 200 metres beyond the breccia contact and is best developed on its eastern and southern margins. The breccia is partially fault bounded, suggesting that its original outline has been considerably modified. A small rockslide composed of metasediment boulders almost completely obscures the breccia on the west side of Igor Creek. Occasional breccia boulders in talus above the rockslide suggest that satellite breccias exist west of the main breccia body.

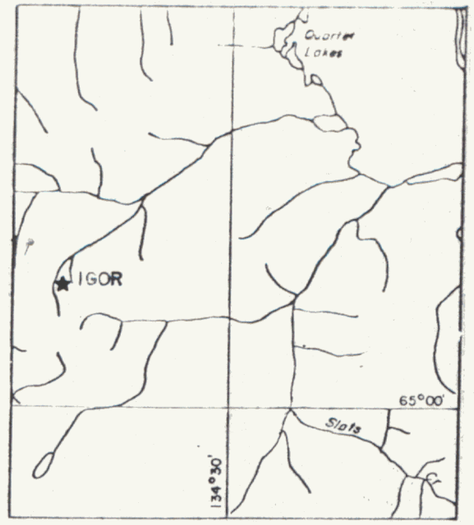
Figure WJV 80-I3 following this page is an idealized, east-west cross section (at 35+00N on the grid) through the breccia to demonstrate cross-cutting relationships and various features within the breccia. The breccia has been subdivided into four units on the basis of mineralogy and textures

600W 400W 200W 00 200E 400E 600E

1400
1300
1200
1100

IGOR CREEK

BORIS CREEK



LOCATION MAP

0 2 4 miles

LEGEND

GEOLOGY

HELIKIAN

Iron-Rich Breccia (HB4): high but variable concentrations of euhedral to massive magnetite-hematite with associated barite, pyrite, chalcopyrite & carbonates, both in matrix & replacing breccia fragments.

Chloritic Breccia (HB3): dark green chloritic matrix & fragments often hematitic, associated with HB4 & fault zones.

Red-Brown Breccia (HB1): heterolithic breccia with carbonate, chlorite & hematite matrix containing altered, subround Hs fragments. Pink to red-brown > grey to light green fragments. Breccia varies from matrix to fragment supported. Rarely foliated.

Light Green Breccia (HB2): strongly foliated, silvery grey to red-brown weathering breccia consisting of light green Hs phyllites, white to pink quartzite & tan-rusty Hs phyllite fragments in a tan to pink carbonate matrix. Breccia is always fragment supported. Weathers recessively compared to HB1

HELIKIAN, APHEBIAN?

Altered Quartet Group (Hsa): bleached, hematized & carbonatized equivalent of Hs, pale green phyllites, brown weathering grey siltstones and white-pink quartzites, occasionally limy

SYMBOLS

geological contacts: observed, approximate, inferred

high angle faults, normal & reverse

FIGURE WJV 80-I 3

ARCHER CATHRO & ASSOCIATES LTD

IDEALIZED EAST-WEST CROSS-SECTION

IGOR PROPERTY

WERNECKE JOINT VENTURE

Scale 1:5000

50 0 50 100 150 200 250

metres

which are described below in what is believed to be the order of formation (unit numbers used in previous reports have been retained even though Hb2 brecciation preceeded Hb1, and Hb3 resulted from alteration of Hb1 and Hb4).

Light green breccia (Hb2): strongly foliated, silvery-grey to red-brown weathering breccia consisting of light green phyllite, tan limy phyllite, and white to pink quartzite fragments in a tan to pink carbonate matrix. All fragments appear to be derived from beds exhibiting equivalent alteration to the adjacent bleached metasediments (Hsa). The breccia is fragment supported with matrix rarely exceeding five per cent of the rock. This unit forms flaggy talus and weathers recessively compared to the red-brown breccia (Hb1). The contact between this unit and the bleached metasediments is suspected to be gradational although it has not been observed.

Red brown breccia (Hb1): heterolithic breccia with a fine grained carbonate, chlorite, and hematite matrix enclosing altered, subrounded metasediment fragments (Hsa). These fragments differ from the Hb2 fragments in that many exhibit alteration not observed in the adjacent metasediments at Igor. Most fragments are altered to a pink to red-brown colour indicating hematization and albitization. The breccia is rarely foliated and varies from matrix to fragment supported with the matrix averaging twenty per cent of the rock. Hb1 contains numerous large blocks of Hb2 and bleached metasediments and exhibits sharp contacts with both units.

Iron-rich breccia (Hb4): includes two phases possibly of different age. The older phase is well foliated and may be time equivalent to Hb2. It has a dark colour and consists of 1-2 mm, platy hematite grains, comprising 40 to 90% of the rock, mixed with carbonate (either dolomite or ankerite) plus or minus chlorite and pyrite. Contacts between this unit and the surrounding Hb2 are often gradational. The younger phase occurs as vein-or dyke-like zones

that rarely contain breccia fragments and cut all other breccia units. It characteristically contains 5 to 50% euhedral magnetite crystals and/or hematite pseudomorphs of magnetite in a matrix of coarse grained, tan to pink barite and/or carbonate (dolomite and ankerite are most common but calcite, siderite, and rhodonite? are locally abundant). This phase is rarely foliated, has sharp contacts, and hosts the highest concentration of copper, uranium and cobalt.

Chloritic breccia (Hb3): consists of zones in which iron oxides, sulphides, and carbonates occurring in both breccia fragments and matrix have been pervasively altered to dark green chlorite. The zones have gradational contacts and are closely associated with highly fractured, slickensided rocks suggesting that they represent alteration along post breccia fault planes.

MINERALIZATION

Mineralization at the Igor property is confined to the breccia body and includes (in order of abundance) hematite, magnetite, barite, pyrite, chalcopyrite and pitchblende. These minerals occur in all four breccia units but are most concentrated in late Hb4 zones. Common gangue minerals are dolomite, ankerite, siderite, calcite and quartz.

Hematite normally occurs as disseminated, platy, 1-3 mm grains and comprises 5-25% of unit Hb1, 0-20% of Hb2, 0-40% of Hb3, and 40-90% of early Hb4. The platy crystal habit and complete absence of remnant magnetism suggest that these grains crystallized directly as hematite.

Magnetite is restricted to late Hb4 zones and occurs as euhedral, occasionally skeletal, 3 to 15 mm crystals that are often wholly or partially replaced by hematite, pyrite, chalcopyrite or chlorite. Magnetite and its

pseudomorphs normally comprise between 5% and 70% of late Hb4 zones.

Barite commonly occurs as fine disseminations within the breccia matrix, as veins filling late fractures and as massive lenses or pods up to 3 m wide and 15 m long in the late Hb4 zones. It usually exhibits a white to tan colour but has a pink to brick red colouration in the vicinity of pitchblende. Unaltered magnetite is most abundant in the barite lenses.

Pyrite is disseminated as fine grains and 1-3 mm pyritohedrons in the breccia and locally in the surrounding metasediments but rarely exceeds 10% of the rock. Cobalt values in the range of 200 to 500 ppm are common from pyrite-rich areas. Recent work indicates that although two colours of pyrite are commonly present, there is no obvious relationship between colour and cobalt content and only a moderate correlation exists between abundance of pyrite and cobalt content. Assay results indicate that cobalt is most abundant in late Hb4 zones. The highest cobalt assay obtained from the property to date is 1200 ppm cobalt from a specimen of Unit Hb4 estimated to contain 90% pyrite. Recent microprobe studies of cobalt-rich specimens conducted at Queen's University detected cobalt values ranging from 0 to 1.6% in pyrite and failed to detect cobalt in other minerals. The cobalt is unevenly distributed with individual pyrite grains in a single specimen commonly producing different cobalt values, including some instances where a cobalt-bearing pyrite grain is surrounded by totally barren pyrite grains.

Chalcopyrite is the only significant copper mineral on the property and occurs widely disseminated throughout the breccia matrix and in high grade lenses within Hb4 zones. Chalcopyrite-bearing breccia fragments are rare but where present are similar to weakly mineralized, hematized and albitized envelopes surrounding fractures in argillites observed elsewhere in the

district and probably represent fragments of similar material that have been incorporated into the breccia. Chalcopyrite in the Hb4 zones usually occurs as fine disseminations but also replaces the cores and rims of magnetite crystals, occurs with quartz and/or barite filling fractures, and is occasionally massive.

Pitchblende and brannerite occur on the property in three modes:

(1) pitchblende is associated with yellow secondary uranium minerals, barite and minor chalcopyrite, discontinuously filling joint-like fractures in units Hb2 and 4;

(2) pitchblende is disseminated in chalcopyrite-rich Hb4 zones; and

(3) brannerite occurs as blebs in a few narrow fractures in bleached metasediments adjacent to the breccia.

DIAMOND DRILLING

General

The 1980 WJV drilling was contracted from E. Caron Diamond Drilling Ltd., Whitehorse, Yukon, using a Longyear "Super 38" drill powered by a diesel engine and equipped with hydraulic head and wireline attachments. All holes were drilled using BQ rods and water circulation. No sludges were collected because core recovery exceeded 95 percent.

Drilling was relatively trouble free. Permafrost was present in all holes but did not require the addition of calcium chlorite to the water except during radiometric probing. The core was logged in British units to conform with lengths of drill rods used but was later converted to metric units by computer (use of computer logging is discussed in detail in the following section). Drill logs with assays, radiometric logs, and sections are enclosed

in the pocket and the location of the drill collars is illustrated on Figure WJV 80-I1 in the pocket. Drill core is stored in the H.S. Bostock core library in Whitehorse.

Computer Logging

All core from the 1980 drilling was logged using Geolog forms obtained from International Geosystems Corporation, Vancouver. This information was later entered into computer files for storage and computer-generated drill logs and summary graphic logs were produced for this report. The Geolog System requires that regular, quantitative observations be recorded using predefined symbols for a wide variety of geological variables deemed to be significant on the property and permits verbal description to supplement the shorthand notation. In addition to geological observations, technical information (such as type of drill, rod size, collar elevation, hole azimuth and dip, etc.), assay results, assay information (sample numbers, certificate numbers, and laboratory), and radiometric readings (counts per second in sample bag with Scintrex BGS-ISL scintillometer) were also entered on the forms. Computer output for each hole includes complete listings of the information as entered on the log forms including comments, assay table for each hole with necessary assay information, and two summary graphic strip logs on which 14 key geological variables including rock type, abundance of various minerals, fracture density and others are displayed using symbols so that they may be compared to Mount Sopris radiometric logs and assay histograms shown on the same page at the same scale. The computer listings, assay tables and summary graphic logs (GRAFLOGS A and B), plus hand drafted sections for each drill hole are included in the pocket. A copy of the Geocoder explaining interpretation of the output and listing computer codes and symbols used is presented in Appendix I.

Assays and Radiometric Logging

Radioactive and sulphide-rich sections of drill core were split and geochemically analyzed at Chemex Labs Ltd., North Vancouver, B.C. for uranium, copper, and cobalt in parts-per-million (ppm) with the exception of samples estimated to contain in excess of 400 ppm uranium or 4000 ppm copper which were assayed in percent using standard assay procedures. Composite samples were later prepared and geochemically analyzed for molybdenum and silver in ppm and gold in ppb. The gold analyses were done by a "combo" technique consisting of a fire assay followed by neutron activation while copper, molybdenum and silver values were obtained by atomic absorption spectrometry of a hot acid extraction.

All holes, except 80I22 where the equipment malfunctioned, were 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 probed. 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 holes were 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. Radiometric charts have been reproduced along with assays and summaries of geological variables on GRAFLOGS A and B for each hole and are included in the pocket.

Drill Results

In 1979 five holes totalling 485.8 metres were drilled: four holes (79I001, 2, 4 and 5) were on north-south section lines intended to intersect potentially mineralized east-west structures while a fifth (79I003) was aimed at a suspected north-south structure. Drilling in 1980 consisted of seventeen holes totalling 1969 metres and included 6 holes (80I009, 12, 13, 16, 18 and 19) to complete north-south section lines, 7 holes (80I007, 8, 15, 17, 20, 21 and 22) on east-west section lines, 3 holes (80I006, 10 and 11) to determine the geometry of a zone intersected in hole 79I003, and 1 hole to explore below Zone E, an outlying copper occurrence. The drilling has shown that:

(1) major east-west fault zones are traceable into subsurface, offset lithology and north-south structures, and are unmineralized;

(2) small east-west faults that form good surface linears contain minor chalcopyrite and exhibit moderately anomalous radioactivity, usually cannot be traced into subsurface;

(3) the best concentrations of uranium, copper and cobalt occur in zones of late Hb4 breccia apparently occupying an irregular fault plane striking 012° and dipping between 65° and 75° west;

(4) the trend toward decreasing uranium in the northern portion of the breccia body continues into the subsurface;

(5) there appears to be a crude mineral zonation in high grade zones with the highest cobalt values surrounding a copper-uranium rich core; and

(6) magnetic anomalies often occur above the mineralized Hb4 zones.

Table 1 following this page summarizes drill hole information and assay results for all holes drilled to date. Of the 2454.8 metres drilled, 647.9 metres (26.4%) have been split and assayed and have returned an average grade of 70.8 ppm U_3O_8, 4126 ppm copper and 152.7 ppm cobalt including 35.1 metres (5.4%) grading greater than 500 ppm U_3O_8, 75.7 metres (11.7%) grading greater than 1.0% copper, and 166.3 metres (25.6%) grading greater than 250 ppm cobalt. The best intersections were obtained from holes 79I002, 79I003, 80I010, 80I015, and 80I020. All but 79I002, which produced an intersection 15 metres below the projected position of Zone B, are from lens-like zones of Hb4 or adjacent Hb1 that appear to lie on a fault plane striking 012° and dipping 65° to 75° W. The surface trace of this structure which is shown on Figure WJV-11 in the pocket passes through or near several of the surface showings and is apparently offset by a strong east-west fault. Mineralization is irregularly distributed along the 012° fault plane with width and grades of intersections varying from hole to hole including two holes which failed to produce intersections where expected. Magnetic profiles often show positive anomalies where the mineralized Hb4 zones are projected to surface, however some of these profiles have shallower slopes on their eastern side than their western side suggesting an easterly rather than westerly dip.

090756

Table 1

1979 AND1980 IGOR DRILLING SUMMARY

HOLE NUMBER	TARGET	GRID COORDINATES	COLLAR ELEVATION	DEPTH (m)	DIP	AZIMUTH	NO. OF SAMPLES	METRES SAMPLED	AVERAGE PPM U_3O_8	HIGHEST ASSAY IN LBS U_3O_8	AVERAGE PPM CU	HIGHEST ASSAY IN % CU	AVERAGE PPM CO	HIGHEST ASSAY IN PPM CO	BEST INTERSECTIONS
79I001	Zones "A" and "B"	34+01N, 0+14E	1280 m	143.9	-50°	015°	33	38.8	20	1.56/0.3 m	590	0.86/0.45 m	340	1150/1.52 m	
79I002	Zones "A" and "B"	34+41.5N,0+04E	1265 m	75.8	-50°	015°	7	6.4	241	2.31/0.45 m	15350	3.39/0.45 m	256	430/0.45 m	0.451 lb U_3O_8,1.33% Cu, 184 ppm Co/6.5 m
79I003	Mineralized float	36+00N, 0+10E	1198 m	81.4	-60°	330°	21	30.9	676	4.82/1.52 m	36029	8.70/1.52 m	295	615/1.52 m	0.862 lb U_3O_8, 2.01% Cu, and 207 ppm Co/7.6 m 1.77 lb U_3O_8, 4.74% Cu, and 325 ppm Co/19.7 m
79I004	Mineralized float	37+66N,0+46.5W	1108 m	90.9	-50°	180°	16	23.3	6	0.03/1.52 m	7001	1.74/1.52 m	476	1000/1.52 m	1.49% Cu and 520 ppm Co/6.1 m
79I005	Mineralized float	36+60N,0.46.5W	1144 m	94.6	-50°	180°	10	12.7	11	0.06/1.52 m	1095	0.79/1.52 m	195	1200/1.52 m	0.79% Cu and 1200 ppm Co/1.5 m
80I006	Zone "D"	36+00N, 0+10E	1198 m	75.8	-50°	035°	4	6.1	136	0.40/1.97 m	2344	0.46/1.52 m	152	360/1.52 m	0.376 lb U_3O_8, 0.34% Cu, 105 ppm Co/3.5 m
80I007	Possible N-S structure	36+60.5N,0+46.5W	1144 m	83.9	-50°	095°	3	5.0	197	0.59/2.12 m	7063	1.66/1.52 m	291	355/2.12 m	0.590 lb U_3O_8, 0.48% Cu, 355 ppm Co/2.1 m 0.297 lb U_3O_8, 1.66% Cu, 350 ppm Co/1.5 m
80I008	Strong magnetic anomaly and 1974 Cu	37+66N,0+46.5W	1108 m	151.5	-45°	090°	13	18.4	15	0.17/1.70 m	2789	1.86/1.70 m	147	575/0.67 m	0.172 lb U_3O_8, 1.86% Cu, 320 ppm Co/1.7 m
80I009	N-S section line	35+27.5N,0+97.5W	1169 m	138.8	-50°	015°	34	48.9	61	1.42/1.52 m	468	0.14/1.52 m	201	655/1.52 m	1.418 lb U_3O_8, 0.07% Cu, 655 ppm Co/1.5 m 0.899 lb U_3O_8, 0.05% Cu, 575 ppm Co/1.7 m
80I010	Zone "D"	35+95.5N,0+43W	1169 m	106.7	-50°	063°	30	39.4	249	4.14/1.82 m	20169	9.62/1.82 m	215	550/0.76 m	0.310 lb U_3O_8, 2.80% Cu, 317 ppm Co/5.4 m 1.714 lb U_3O_8, 6.14% Cu, 358 ppm Co/10.6 m
80I011	Zone "D"	35+95.5N,0+43W	1169 m	82.4	-75°	063°	0								
80I012	N-S section line	33+36.5N,0+97.5W	1230 m	21.8	-50°	190°	2	15.2	21	0.06/10.61 m	741	0.08/10.61 m	21	22/4.55 m	
80I013	E-W fault zones	33+82N,0+44.5E	1302 m	158.5	-50°	215°	23	43.5	21	0.32/1.27 m	2421	1.44/1.58 m	107	560/1.58 m	1.09% Cu, 336 ppm Co/6.1 m
80I014	Zone "E"	38+90N,0+35E	1073 m	169.7	-50°	030°	4	6.8	23	0.12/0.33 m	6119	1.92/0.33 m	78	192/0.33 m	1.58% Cu, 106 ppm Co/2.2 m
80I015	N-S fault, 1974 Cu, & mineralized float	37+13N,0+52W	1142 m	149.7	-50°	090°	31	46.2	61	2.84/1.58 m	3457	2.36/1.58 m	176	1100/1.03 m	0.198 lb U_3O_8, 0.56% Cu, 251 ppm Co/26.6 m including 2.84 lb U_3O_8, 2.36% Cu, 132 ppm Co/1.6 m
80I016	N-S section line	37+13N,0+52W	1142 m	90.6	-50°	180°	4	8.6	10	0.05/1.61 m	4101	0.58/3.09 m	331	400/1.27 m	
80I017	Hematite Zone	33+36.5N,0+97.5W	1230 m	40.3	-50°	090°	0								
80I018	N-S section line	33+36.5N,0+97.5W	1230 m	151.8	-50°	000°	4	15.7	32	0.12/2.36 m	293	0.31/0.97 m	120	164/5.39 m	
80I019	N-S section line	35+27.5N,0+97.5W	1169 m	145.8	-50°	180°	25	76.4	15	0.10/3.03 m	744	0.35/2.88 m	126	570/3.03 m	
80I020	Possible N-S structure	35+27.5N,0+97.5W	1169 m	139.7	-50°	090°	52	135.5	44	2.28/1.97 m	1348	1.44/1.97 m	110	790/1.52 m	0.670 lb U_3O_8, 0.63% Cu, 301 ppm Co/11.2 m including 2.280 lb U_3O_8, 1.44% Cu, 345 ppm Co/2.0 m
80I021	Possible N-S structure	35+90.5N,1+58W	1124 m	137.0	-50°	090°	7	20.0	7	0.48/0.3 m	404	0.12/2.42 m	39	56/4.42 m	
80I022	E-W section line	34+03N,0+09E	1279 m	125.5	-50°	090°	21	48.5	11	0.19/1.52 m	522	0.35/1.52 m	153	720/1.52 m	
TOTALS				2454.8			344	647.9	70.8		4126		152.7		

CONCLUSIONS AND RECOMMENDATIONS

Exploration to date has shown that the Igor property has both high grade and low grade-large tonnage potential for uranium, copper, and cobalt, assuming cobalt is extractable. Further work should include detailed magnetic surveys, electromagnetic and induced polarization surveys, metallurgical studies to determine extractability of cobalt contained in the pyrite, and, depending upon results of the surveys and tests, either drilling of specific targets exploring for high grade zones or grid drilling to evaluate the property's low grade-large tonnage potential.

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES LIMITED

W.D. Eaton, B.Sc.

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

APPENDIX I

KEY TO GEOLOG

80.170 GEOLOG® SYSTEM
International Geosystems Corporation

FLAGS & KEYS

Upper Tier / Lower Tier L	The KEY	The FLAG Fields HORIZON & SPECIAL FLAGS		
	Fields	ZONE FLAGS		
	1	2	3	4

The KEY

The KEY gives special 'key' information to the System. If the KEY field is blank, the System will ignore the entry, the whole 80-column line or row of geodata, assay data or remarks though the entry will be keyed into the System. If, however, the KEY field contains X, the System & the data entry operator will ignore the entire entry. Therefore, the geologist may use the X Key in front of any line containing his notes or question marks, etc., or diagrams, sketches or sections for his own use later.

I IDENTITY KEY: if Flag = DEN, entry gives all the basic information on the accompanying GEOLOG, including the unique ID of the Project & Subproject and of the Drillhole/traverse; by whom it was geologged and when, etc. The headings for this entry are displayed in the topmost yellow header marked 'a' at right side. If I is followed by Flag = PRJ then the entry gives the ID of the Company or Organization & of the Property or Project.

S SURVEY DATA: This Key must always be followed by a 3-digit number from the sequence 000 to 999, where 000 = collar or beginning of a drillhole/traverse, which numbers are survey turning points, which mark the beginning and end of straight-line segments or legs of a traverse. (In the case of drillholes, they are points at which down-the-hole deviations are measured, which after computer analysis become points of tangency to a smooth curve.) The S-entry gives the From:To extent of each leg and its azimuth and vertical angle and/or the co-ordinates of the beginning of each leg = its From-footage. The headings for each of the fields for this entry are displayed on the white header 'd'. Thus, the N, E and Elev of the S000-entry refers to the collar or beginning pt. Also given, in F(39-50)S, is the Hash Total or algebraic sum of the total depth (in the first leg only), the azimuth, vertical angle, northing, easting & elevation, if entered. Note that azimuth & vertical angle are given in degrees & decimals of degree (or grads, if so specified for project).

/ UPPER TIER geodata entry: The headings for the Upper Tier fields are displayed in the yellow geodata header 'f'; the / may be replaced with K

L LOWER TIER geodata entry: The headings for the Lower Tier fields are displayed in the green geodata header 'i'.

K KEY HORIZON: Where an identified horizon, such as a fault, contact or marker, intersects a drillhole/traverse at the From-footage of an Upper Tier entry, the normal slash(/) Upper Tier Key can be replaced with K, thereby indicating to the System that this is regarded as a key horizon. A unique 3-character Flag, such as F/3, C/7 or M/5, must be entered in the Flag field, which Flag becomes the unique-for-the-project label for that horizon and will appear on crossections, plans and slice-maps where this horizon is present. To be considered identified, the horizon must have been clearly recognized and correlated in at least 1 or 2 other DH/traverses.
Note in particular that an identified horizon Flag cannot be entered in a Lower Tier Flag field because such a Flag must be preceded by K in col 1 and K cannot replace the L Key, only the / Key. However, if in any particular situation where the Upper Tier Flag field is occupied by some important Flag, then make a point entry, ie., From=To= footage where that Key Horizon occurs, with Key=K and Flag= unique label.

R REMARK ENTRY: All normal remarks must have Key = R and a From:To to inform the System and the user to what interval the Remark refers. They are written in free any Remark is the same as the preceding entry, it can be left blank. No limit is placed on the number of Remarks.

X ENTRY: Anything written on any line with X in the key field is ignored by the System and data entry operator.

A ANALYSIS DATA: Assays, analyses, probe, geochem & other analysis data. See detailed instructions.

F FORMATTED REMARK: Unless otherwise given, Formatted Remarks will contain ten 6-column fields, 9 corresponding to the 9 assay fields and the 10th=zeroeth below the assay sample number. The accompanying Flag, unique when in combination with F, identifies, the type of data entered, such as MAG for magnetic susceptability; SCN for Scintillometer readings, etc.

H HASH TOTAL ENTRIES: See detailed instructions.

HORIZON FLAGS

BRS	bedrock surface
C/	contact (CON,CNT)
C/1 } C99	identified contacts
D/	dyke, dike (DYK,DIK)
D/1 } D99	dykes identified
F/	fault (FAL,FLT)
F/1 } F99	faults identified
F/C	fault contact
M/	marker, m. bed (MBD)
M/1 } M99	markers identified
PAR	parting in coal seam
SEM	seam
S/C	seam of coal
S/1 } S99	seams identified
SH/	shear
SH1 } SH9	shears identified
SIL	sill
SL1 } SL9	sills identified
TPS	topographic surface
U/	uncomformity (UNC)
U/1 } U/9	identified unconformities
V/	vein (VEN)
V/1 } V99	veins identified

NOTE: Identification Horizon Flags must be unique at least for all of a sub-project and preferably for whole project

ZONE FLAGS

BRX	breccia zone
CAP	caprock
DØX	dissem oxide zone
DSX	" sulphide "
F/W	footwall
FWP	footwall,probable
FRC	sig.fracture zone
FRX	fresh rock, primary
GRF	graphite zone
H/W	hanging wall
HWP	" ",probable
LAT	laterite
MSX	massive sulphides
ØVB	overburden (Ø/)
PIP	pipe
REG	regolith
STF	strataform
SIG	significant zone
STR	stringer zone
SUP	supergene zone
SØX	" oxide " (SUØ)
SSX	" sulphide " (SUS)
TRN	transition zone
TR1 } TR9	transition zone identified
VØX	vein oxides
VSX	vein sulphides
WTH	Weathered zone (WET)

SPECIAL FLAGS

The appropriate KEY, in brackets, precedes each Special Flag

(/)END	flags end of = last entry for each DH/traverse
(/)EØT	end of traverse = first entry after last geodata entry of interval that extends to end of DH or traverse
(R)HED	flags a Header Remark that always precedes the geodata, regardless of where entered; requires no From:To
(R)SUM	flags a Summary Remark, that always comes at the end of the geodata, regardless of where entered; requires no From:To
(R)HLT	flags a Highlighter Remarker, which together with R-Heds & R-Sum's, are management oriented; required From:To
(R)ASA	assay data interleafed with geodata
(R)ASY	remarks concerning assay data - stays with assay tables at end of GEOLOG
(A)UMM	units & metal or mineral, assay header
(A)LAB	assay lab
(A)TYP	type of material assayed - core, soil, silt,etc
(A)MTH	method of extraction & assaying
(A)001 } (A)999	assay file nos. uniquely defined for whole project
(S)100 } (S)999	survey turnin pts or survey points
(R)SAM	flags sample taken
(R)SPC	" specimen taken
(R)STN	" stained specimen
(R)THN	" thin section

COLOUR CODES

The LC-Colour Code is an abbreviated, 2-character version of a much more detailed LBHU-Colour Code. LC stands for Lightness-Colour, and

Lightness L-Scale		Colour Range C-Scale		Examples	
W	white	R	Red	8R	pale red
9	palest	U	brown (Umber)	3U	dark brown
8	pale	Ø	Orange	7Ø	light orange
7	light	T	Tan	5T	medium tan
6	lighter(m.light)	Y	Yellow	9Y	palest yellow
5	medium	L	Lime (Y-G)	2L	v.dark lime
4	darker (m.dark)	G	Green	4G	darker green
3	dark	Q	aQua (B-G)	8Q	pale aqua
2	very dark	B	Blue	1B	darkest blue
1	darkest	V	Violet (B-P)	7V	light violet
N	black (Noir)	P	Purple	8P	pale purple
	(No lightness)	M	Mauve (P-R)	W	white
($=	-ish suffix)	W	White	9A	palest gray
R$	reddish	A	grAy	8A	pale gray
U$	brownish	N	Noir	7A	light gray
Ø$	orangish	RØ	reddish orange	6A	lighter gray
T$	tanish	ØR	orangish red	5A	medium gray
Y$	yellowish	BA	bluish gray	4A	darker gray
G$	greenish	AB	grayish blue	3A	dark gray
B$	bluish	GA	greenish gray	2A	v.dark gray
P$	purplish	AG	grayish green	1A	darkest gray
W$	whitish	GB	greenish blue	N	black
A$	grayish	BG	bluish green	* * * * * *	
YG	yellowish green	UG	brownish green	7C	leucocratic
GY	greenish yellow	GU	greenish brown	5C	mesocratic
YL	yellowish lime		etc., etc.	3C	melanocratic

Grayness Scale
W white
9A palest gray
8A pale gray
7A light gray
6A lighter gray
5A medium gray
4A darker gray
3A dark gray
2A very dark gray
1A darkest gray
N black (Noir)

In Geosystem Colour, the three components of colour are Lightness, Brightness and Hue. Think of the 24 hues as being equally spaced around the equator of the colour sphere. The Lightness is the vertical component along the axis of the sphere, with white at the north pole, black at the south pole and medium gray at the intersection of the axis with the equatorial plane. The third component, Brightness, is the radial distance from the axis: full brightness (ie., brilliant) can only be attained at the equatorial surface of the sphere.

L-Scale of LIGHTNESS		B-Scale of BRIGHTNESS	
W	white		
9	palest -c	9	brilliant
8	pale (v.light)	8	v.bright
7	light -c	7	bright
6	lighter (m.l.)	6	brighter
5	medium -c	5	moderate
4	darker (m.d.)	4	duller
3	dark -c	3	dull
2	v.dark -c	2	v.dull
1	darkest -c	1	grayish
N	black (Noir)	A	gray

-c = any colour

HU	Range of HUES
R	RED
OR	orangish-red
U	BROWN (Umber)
RO	reddish-orange
O	ORANGE
YO	yellowish-orange
T	TAN
OY	orangish-yellow
Y	YELLOW
GY	greenish-yellow
L	LIME
YG	yellowish-green
G	GREEN
BG	bluish-green
Q	AQUA
GB	greenish-blue
B	BLUE
PB	purplish-blue
V	VIOLET
BP	bluish-purple
P	PURPLE
RP	reddish-purple
M	MAUVE
PR	purplish-red
R	RED (repeated)

LBHU Code	E x a m p l e s
96R	palest brighter red (pink)
53U	medium dull brown
79O	light brilliant orange
7 T	light (moderate*) tan
87Y	pale bright yellow
53YG	med. dull yellowish-green
34BG	dark duller bluish-green
22B	v.dark v.dull blue
3 BP	dark (moderate*) bluish-purple
65RP	lighter moderate reddish-purple
1A	darkest gray
2A	v.dark gray

any L value 1 to 9
L B N U with a B value = any colour

* moderate presumed because B value left blank

Lower tier: 28 29 30 31 and any HU

Geosystems Corporation Vancouver, Canada

IGNEOUS, METAMORPHIC & CHEMICAL	PARTICLE DIAMETER RANGE	ASSGN VALUE	SYM BOL	THE S-SCALE FOR GRAIN OR PARTICLE SIZE <<FOR GENERAL WORK> <FOR DETAIL WORK>>	BOL	ASSGN VALUE	VOLCANI-CLASTICS
Glassy	mm	.003 mm	0	CLAY SIZE	A	mm .003	
Extremely fine grained (aphanitic)	2^{-8}=.004 to 2^{-7}	.008	1	V.FINE SILT	B	.006	fine ash
				FINE SILT	C	.011	
	2^{-6}=.016 to 2^{-5}	.03	2	MEDIUM SILT	D	.022	
				COARSE SILT	E	.044	
Fine grained	2^{-4}=.06 to 2^{-3}	.12	3	V.FINE SAND	F	.088	coarse ash
				FINE SAND	G	.177	
	2^{-2}=.25 to 2^{-1}	.5	4	MEDIUM SAND	H	.354	
				COARSE SAND	I	.707	
Medium grained (granular)	2^{0} = 1 to 2^{1}	2	5	GRIT	J	1.41	
				GRANULE	K	2.83	
Coarse grained	2^{2} = 4 to 2^{3}	8	6	V.SMALL PEBBLE	L	5.66	small lapilli
				SMALL PEBBLE	M	11.3	
Very coarse grained	2^{4} = 16 to 2^{5}	3.2 cm	7	MEDIUM PEBBLE	N	22.6	large lapilli
				LARGE PEBBLE	Ø	45.3	
Pegmatitic	2^{6} = 64 to 2^{7}	13 cm	8	SMALL COBBLE	P	90.5	cobble-size bombs & blocks
				LARGE COBBLE	Q	181	
Megapegmatitic	2^{8} =250 to 2^{9}	½m	9	SMALL BOULDER	R	362	boulder-size bombs & blocks
				MEDIUM BOULDER	S	724	
Extra-coarse megapegmatitic	2^{10}= 1m to 2^{11}	2m	X	LARGE BOULDER	T	1450	extra large bombs & blocks
				V.LARGE BOULDER	U	2900	

39/ 40/ 42/

Sym bol	Assgn Value
-	.01
-	.03
(	.1
e	.3
)	1
+	2.5
=	5
1	10
2	20
3	30
4	40
5	50
6	60
7	70
8	80
9	90
X	100

% Coarse-Fraction

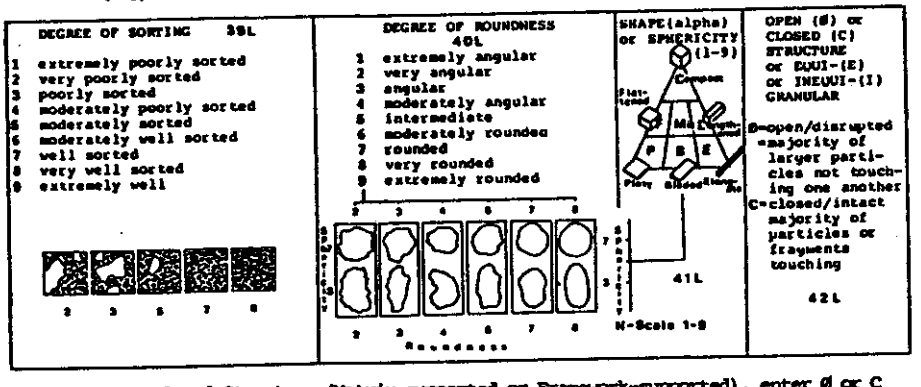
41/

This %-scale, used for the Per Cent C_F, is the G - Scale

NOTE: 1. It is quite permissible to intermix the alphabetic symbols with the numeric symbols of this S-Scale, whenever detail work demands it — no conflict ensues by doing so.

2. Use the S-Scale for Fine Fraction (P_F), Coarse Fraction (C_F) and Max Particle (M_xP) in F(39,40,&42)/

3. For Seriate Texture, in which the Grain Size varies gradually or continuously, enter significant Fine Particle size in P_F, in F(39)/ and the large end of the range in M_xP, in F(42)/



For Open or Closed Structure (Matrix-supported or Framework-supported), enter Ø or C in F(42)L

For Degree of Sorting (S_R) and Degree of Roundness (R_N), enter 1 to 9 in F(39,40)L

For Shape, enter C,F,M,L,P,B OR E (see triangular diagram) or, for Sphericity, 1 to 9 in F(41)L.

MINERALS

AC actinolite
AD adularia
AB albite
AM almandite
AL alunite
AX amphiboles,gen
AA andalusite
AG anglesite 68Pb
AH anhydrite
AN anorthite
AP apatite
AR aragonite
AS arsenopyrite 45As
AO asbestos
AU augite
AT axinite
AZ azurite (see M:) 58Cu
AE aegerine

BA barite
BE beryl
BI biotite
B: biotite : hornblende min.comb'n,undif*
BI biotite alone
B> BI>HB
B= BI=HB
B< BI<HB
HB hornblende alone

BS bismuthinite 70Bi
BO bornite 63Cu
BR brochantite 56Cu

CA calcite (see D:)
CB carbonates,gen
CT cassiterite 79Sn
CE cerussite 77Pb
CH chalcanthite 25Cu
CC chalcocite,gen 80Cu
C$ " on ec.min
C. " on gangue
CP chalcopyrite 35Cu
CL chlorite
CD chloritoid
CR chromite 46Cr
CK chrysocolla 36Cu
OL chrysolite(olivine)
CS chrysotile
CN cinnabar 86Hg
CY clay
C: clay : muscovite min.comb'n,undif*
CY clay alone
C> CY>MU
C= CY=MU
C< CY<MU
MU muscovite alone

CX clinopyroxene,gen
CZ clinozoisite
CF coffinite
CU copper,native
CO cordierite
CV covellite
CI cuprite

DC dickite
DG digenite
DI diopside
DO dolomite
D: dolomite : calcite min.comb'n,undif*
DO dolomite alone
D> DO>CA
D= DO=CA
D< DO<CA
CA calcite alone

EN enargite
ES enstatite
EP epidote
ER erythrite 30Co

FO forsterite
FA fayalite
FT famatinite
FX feldspars,gen
FD feldspathoids,gen
FR ferberite W
FM ferrimolybdite 40Mo
FL fluorite 49F
GL galena 86Pb
G: galena : sphalerite min.comb'n, undif*
GL galena alone
G> GL>SL
G= GL=SL
G< GL<SL
SL sphalerite alone

GA garnet
GS glass,gen
GN glauconite
GC glaucophane
GO goethite
GD gold Au
GR graphite C
GR greenockite 78Cd
G$ greisen,gen
GY gypsum

HA halite
HV helvite
HE hematite,earthy 70Fe
HS hematite,specularite
H: hematite : magnetite min.comb'n,undif*
HE hematite alone
H> HE>MG
H= HE=MG
H< HE<MG
MG magnetite alone

HB hornblende (see B*)
HU huebnerite 61W
HM hydromica (IL)
HY hypersthene

IL illite (HM)
IM ilmenite 32Ti

JD jadeite
JA jarosite
JO jordisite 60Mo

KA kaolin
KY kyanite
KF K-spar,orthoclase
K: K-spar : plagioclase min.comb'n,undif*
KF K-spar alone
K> KF>PF
K= KF=PF
K< KF<PF
PF plagioclase alone

LM laumontite
LW lawsonite
LU leucite
LE leucoxene
LI limonite
MF mafics,gen
MA magnesite 48MgO
MG magnetite(seeH:) 72Fe
MC malachite 58Cu
M: malachite : azurite min.comb'n,undif*
MC malachite alone
M> MC>AZ
M= MC=AZ
M< MC<AZ
AZ azurite alone

MN manganite 68Mn
MT marcasite
MR mariposite
ML melnikovite
MI micas,gen
MO molybdenite 60Mo
MZ monazite
MM montmorillonite
MU muscovite (see C:)
MS sericite

NF nepheline
NI niccolite 44Ni

OL olivine(chrysolite)
OP opal
OQ opaques,gen
OX oxides,gen
OR orthopyroxene,gen

PH phlogopite
PF plagioclase(see K:)
PT platinum Pt
PO powellite 58Mo,W
PS psilomelane Mn
PY pyrite 47Fe
PL pyrolusite
PX pyroxene,gen
PP pyrophyllite
PR pyrrohotite 60Fe
PN pentlandite

QZ quartz,gen
QA quartz,agate
QC quartz-carbonate
QH quartz,chert
QM quartz,amethyst
QX quartz,crystals
QS quartz-sericite
QT quartz-tourmaline
QR quartz,rutilated
QV quartz vein,massive

RC rhodochrosite Mn
RN rhodonite Mn
RU rutile 60Ti

SA sanidine
SC scapolite
SZ scorzalite
SF sericite-fluorite assemblage
SH scheelite 64W
MS sericite (MU)
SE serpentine
SD siderite 48Fe
SI sillimanite
SV silver
SS silver & sulphosalts
SO sodalite
SL sphalerite (see G:) 67Zn
SP sphene
ST staurolite
SB stibnite 72Sb
SU sulphates,gen
SX sulphides,gen
SR sperrylite

TA talc
TL tellurides,gen Te
TN tennantite 50CU 56Sb+As
TE tenorite 80Cu
TT tetrahedrite Cu+Sb
TX TT,TN undif
TZ topaz
TO tourmaline
TR tremolite

UR uraninite(pitchblende 92U+
UX uranium minerals,gen

VA vanadinite 73Pb,11V
VE vesuvianite

WD wad Mn + other
WO wollastonite
WF wolframite 62W
WN wulfenite 56Pb+26Mo

ZE zeolites,gen
ZI zircon
ZO zoisite

XX any mineral
YY " "
ZZ " "
XY " "

X1) minerals identi-
X2) fied elsewhere
Y1) or later

A D D E N D U M :

RECAP SUMMARY OF SOME IMPORTANT
G E N E R A L M I N E R A L S

AX amphiboles
CB carbonates
CC chalcocite
CX clinopyroxene
FX feldspars
FD feldspathoids
GL glass
G$ greisen
LI limonite
MF mafics
OQ opaques
OX oxides
PF plagioclase
PX pyroxenes
QZ quartz
SF sericite-fluorite assemblage
SS silver & sulphosalts
SU sulphates
SX sulphides
TL tellurides
TX TT,TN undif
UX uranium min's
ZE zeolites

RECAP SUMMARY OF
MINERAL COMBINATIONS*

B: biotite : hornblende

C: clay : muscovite

D: dolomite : calcite

G: galena : sphalerite

H: hematite : magnetite

K: K-spar : plagioclase

M: malachite : azurite

SPECIAL N O T E : Any two-letter Mineral Code followed immediately by a G-Scale estimated percentage presence of that mineral becomes a three-character QALMIN (QM1 or QM2) in fields F(32-34)/L or a simple abbreviation for use in Remarks.

*min.comb'n,undif=mineral combination, undifferentiated. For instance, use B: where proportion of BI & HB cannot be given.

The first 4 letters of a rock type name is its preferred Code (granite = GRAN), but if 4th letter is a vowel (as in aplite) that vowel is replaced by the next consonant: (aplite = APLT, andesite = ANDS). If double letter occurs in first part of word (as in agglomerate) one is dropped: (agglomerate = AGLM). However, all Codes must be unique; consequently, some have to be irregular. When forming irregular Codes, important sounds (such as CH, SH, TH and non-silent vowels) are preserved if possible; drop unimportant vowels (Eg, fault = FAUL or FALT - the latter is preferred because silent U is dropped and T preserved; or in FLag weathered = WET or WTH - the latter is preferred because TH is preserved; and in diatomite = DIAT - both vowels are preserved because neither is silent). F may replace PH (amphibolite = AMPH or AMFB).

CODE FORM	SHORT FORM	ROCK TYPE NAME
ACID		acidic rock, gen
ADAM	AD	adamellite =
(QZMZ)	QM	quartz monzonite
AGLM	AG	agglomerate
AGXX	AG	" alt'v form
ALAS	AL	alaskite
ALNT		alnoite
AMPH	AM	amphibolite
AMFB	AM	" alt'v form
ANDS	AN	andesite
AN/D		" dyke
AN#F		" flow
AN$L		" sill
ANOR		anorthosite
APLT	AP	aplite
AP/D		" dyke
ARGL	AR	argillite
ARKS	AK	arkose
AUTC	AC	autoclastic rock
BENT	BN	bentonite
BN/B		" bed
BASL	BS	basalt
BS/D		" dyke
BS#F		" flow
BASC		basic rock,gen(MAFC)
BIOC	BC	bioclastic rock,gen
BONE		bone coal
BRXX	BR	breccia,gen
BRAC		autoclastic breccia
BRAF		" flow "
BRAI		" intrusion "
BRCQ		carbonate-quartz "
BRQC		quartz-carbonate "
BRVC		volcaniclastic "
BRVL		volcanic "
BRCL		chlorite "
CARB		carbonatite
CRBN		" alt'v form
CHER	CH	chert
CLIN		clinopyroxinite (or use PERD,CX)
CYSH	CS	clayshale
CLAY	CY	claystone
O/CY		clay unconsol,as in overburden
COAL	CO	coal
COAN		" anthracite
COSA		" semi-anthracite
COBT		" bituminous
COSB		" cub-bituminous
COLG		" lignite
(BONE)		" bone
CONG	CG	conglomerate
CGXX	CG	" alt'v form
CGEC		" epiclastic
CGEV		" epivolcaniclast.
CGIG		" igneous
CGVL		" volcanic
CGVC		" volcaniclastic
COQN	CQ	coquina
DACT	DC	dacite
DIAB	DB	diabase
DB/D		" dyke
DB$L		" sill
DIAT	DI	diatomite
DYKE	D/	dyke(dike)rock
	/D	" alt'v form
DIOR	DR	diorite
DR/D		" dyke
DR$L		" sill
DRIF		drift, glacial
DOLM	DO	dolomite
DORF		" reef
DO/B		" bed
DUNT		dunite
ECLG		eclogite
EPIC	EC	epiclastic rock*
EPVC	EV	epivolcaniclastic* (*see Definitions)
EXTR	EX	extrusive rock
FALT		fault(zone)or FAUL
FELS	FL	felsite
FLOW	#F	flow rock
GABR	GB	gabbro
GNIS	GN	gneiss
GNES	GN	" alt'v(regular)
GRAN	GR	granite
GRTC	GT	granitic rock
GRNT	GT	" alt'v form
GRDR	GD	granodiorite
GD/D		" dyke
GRFL		granofels
GRBL		granoblastite
GRLT		granulite=granolite
GSCH	G#	greenschist
GSTN	GS	greenstone
GWAC	GW	greywacke=graywacke
GWTF		" tuff
GRIT		grit
HARZ		harzburgite(PERD,OL)
HBIT		hornblendite
HORN		hornfels
HRNF		" alt'v form
(BRHY)		hypocrystaline brec
IGNS	IG	igneous rock
IGNM		ignimbrite
INTR	IN	intrusive rock
JASP		jasper
JSPD		jasperoid
KIMB		kimberlite
LAHR		lahar
LAMP	LM	lamprophyre
LM/D		" dyke
LAPL	LP	lapillistone
LATR		laterite
LATT	LT	latite
LAUR		laurvikite
LAVA	LV	lava
LHER		lherzolite
LIMS	LS	limestone
LS/B		" bed
LSRF		" reef
LSSQ		" sequence
LOST		lost core
MAFC	MF	mafic rock,gen
MFIC	MF	" alt'v form
MFVL		" volcanic
(TRAP)	TP	mafic rock = trap
MARB		marble
MARL		marl or marlstone
MSXX	MX	massive any min XX
MSOX		" oxides
MSSI		" silicates
MSSU		" sulphates
MSSX		" sulphides
MARK		meta-arkose
MTBC	MB	metabioclastite
METM	MT	metamorphic rock,gn.
MTDB		metadiabase
MTSD	MS	metasediments,gen
MTVL		metavolcanics,gen
MTVC		metavolcaniclastics,gen
MIGM		migmatite
MILL		mill-rock
MINT		minette
MONZ	MZ	monzonite
MUDS	MD	mudstone
MYLN		mylonite
MISS		unlogged part of DH
NELS		nelsonite
NPSY		nepheline syenite
NORD		nordmarkite
NORT		norite
OLGB		olivine gabbro
ORGN		orthogneiss
ORPY		orthopyroxinite(PERD
OVER	O/	overburden= CX)
O/CY		clay, unconsol
O/GV		gravel "
O/SN		sand "
O/SI		silt "
O/MD		mud "
(SOIL)		soil
(TILL)		till, glacial
PAGN		paragneiss
PEGM	PG	pegmatite
PERD		peridotite
PERT		perthosite
PHON		phonolite
PHYL	PH	phyllite
PICR		picrite
PPXX	PP	porphyry,gen
PPFX		" ,feldspar
PPFQ		" ,feldspar-quartz
PPQF		" ,quartz-feldspar
PPQZ		" ,quartz
PYRC	PC	pyroclastic rock
(AGPC)		" agglomerate
(BRPC)		" breccia
PYRX		pyroxenite
QZIT		quartzite
QZDR	QD	quartz diorite
QZGB	QG	quartz gabbro
QZMZ	QM	quartz monzonite
QZPH	QP	quartz phyllite
QZ/V		quartz vein(s)
QZVN		" alt'v form
RHYL	RY	rhyolite
RHYD	RD	rhyodacite
ROCK	RX	rock,gen
RX-1		rock-1 *
RX-2		rock-2 *
(EC-1)		epiclastic-rock-1 *
(EV-1)		epivolcaniclas.-1 *
(MS-1)		metased.-rock-1 *
(VL-1)		volcanic-rock-1 *
(VC-1)		volcaniclas-rock-1* (*identified later)
SCH#	S#	schist
SCHS	S#	" alt'v form
SCYL		scyelite
SEAT		seatearth
SEDM	SD	sedimentary rock
SERP		serpentinite
SAND	SN	sandstone
(O/SN)		sand unconsol
SILT	SI	siltstone
(O/SI)		silt unconsol
SHAL	SH	shale
SNSI		sandstone with SI *
SNSH		" with shale *
SNCG		" with conglom *
SHSI		" with siltstone*
SISN		siltstone with SN *
SISH		" with shale *
SICG		" with conglom * (*interbedded,<50%)
SLAT	SL	slate
SOIL		soil (overburden)
SYEN	SY	syenite
SYDR		syenodiorite
TACT		tactite
TILL		till, glacial
TLIT		tillite
TING		tinguaite
TONL		tonolite
TRAC	TC	trachyte
TCAN		trachyandesite
TRAP	TP	trap
TRON		tronghjemite
TUFF	TF	tuff
TFAQ		" ,aquagene
TFLP		" ,lapilli
TFXT		" ,crystal
TFXL		" ,crystal lapilli
TFWL		" ,welded
TUFS		tuffasite
ULMF	UM	ultramafic rock
ULBS	UB	ultrabasic,alt'v
VOLC	VL	volcanic rock
VLCC	VC	volcaniclastic rock
VEIN	/V	vein
<<<<	<<	microveins
>>>>	>>	macrovein
WEBS		websterite
WEHR		wehrlite

NOTE THAT 1) The above table is alphabetic by rock type names, not by their Codes

2) Some rock types have more than one Code: the second is an alternative form; both are acceptable by the System and both may be used in the same project and same log, as for instance to distinguish between two different rock units having the same rock type

3) Codes in brackets are the Codes of rock types not in their alphabetic position

G - S C A L E

FOR PERCENTAGE ESTIMATES

Assgn Value	Scale Value	Description and Range
0	0	Absent
.01	.	Trace = <.02
.03	-	.02 to <.05
.1	(	.05 to <.2
.3	*	.2 to <.5
1	)	.5 to < 2
2.5	+	2 to < 3
5	=	3 to < 7
10	1	7 to <15
20	2	15 to <25
30	3	25 to <35
40	4	35 to <45
50	5	45 to <55
60	6	55 to <65
70	7	65 to <75
80	8	75 to <85
90	9	85 to <100
100	X	100%
.07	/	Present: Est. impossible
0	?	Possibly present

SCALES

N-SCALES

AMOUNT OR INTENSITY	D E G R E E	COMPARISON	M O D E
0 nil			0 not —d
1 extremely low —x	1 extremely —x	1 considerably —x	1 extremely poorly —d
2 very low —x	2 very —x	2 much —x	2 very poorly —d
3 low —x	3 —x	3 —x	3 poorly —d
4 fairly low —x	4 fairly —x	4 slightly —x	4 fairly poorly —d
5 intermediate, medium	5 intermediate	5 equal, equally	5 moderately —d
6 fairly high —x	6 fairly —y	6 slightly —y	6 fairly well —d
7 high —x	7 —y	7 —y	7 well —d
8 very high —x	8 very —y	8 much —y	8 very well —d
9 extremely high —x	9 extremely —y	9 considerably —y	9 extremely well —d
X exceptionally high			

where —x =
fracturing or fracture intensity
permeability
porosity

where . . . —x	where . . . —y
angular	rounded
cold	hot
dull	sharp
dull	bright
fragile	tough
hetero-geneous	homo-geneous
light	heavy
dark	light
low	high
narrow	wide
short	long
slow	fast
small	large
soft	hard
thin	thick
weak	strong
less(than) "	more(than) "
greater "	lower "
higher "	leaner "
richer "	lighter "
heavier "	darker "
paler "	smaller "
larger "	

where —d =
banded
bedded
cemented
consolidated
crystalized
disseminated
drained
formed
fossilized
graded
indurated
preserved
rounded
sorted

GRAYNESS	LIGHTNESS	BRIGHTNESS
N black (Noir)	N black	A grAy
1 darkest gray	1 darkest —c	1 grayish —c
2 very dark gray	2 v.dark —c	2 very dull —c
3 dark gray	3 dark —c	3 dull
4 med.dark gray	4 med.dark —c	4 mod.dull —c
5 medium gray	5 medium —c	5 moderate
6 m.light gray	6 m.light —c	6 mod.bright —c
7 light gray	7 light —c	7 bright —c
8 pale gray	8 pale —c	8 very bright —c
9 palest gray	9 palest —c	9 brilliant —c
W white	W white	

where —c =
any colour

ALTERATION FACIES
PORPHYRY or GENERAL MODEL

+ diagnostic; abundant • commonly pres;mod. " – uncom. & minor ø original	ALTERATION MINERALS								
	QZ	KF	BI	MS	CY MM KA	CL	EP	CB	OTHER
0 Fresh,Primary Rock	ø	ø	ø						
1 Propylitic	–	ø	ø	–		+	+	+	AB,ZE
2 Montmorillonitic	–		–	–	• +	–		•	
3 Intermediate Argillic	–		•	•	+ –				
4 KF-Stable	+	ø		+	–				
5 Phyllic/Greissenous	+			+	–				TØ,FL,TE
6 Advanced Argillic	+			+	+				PP,TØ,AL
7 Potassic	•	+	+	+					MG,AH,TØ,AK
8 Chlori-Potassic	•	+		–		+			
9 Silicic/QZ Flooding	+	•	•	•					

SCALES

M - S C A L E

MODE OF OCCURRENCE OR 'HOW'

DEGREE OF PERVASIVENESS INCREASING

Symbol	Description
0	Fresh, primary rock (Z) *(Z for Zero)*
1	Amygdaloids (A), minor Macroveins (>) and/or scattered Crystals (D)
2	Macroveins (>) and Veins (V)
3	Veins (V) and Dalmationite (Y) { Sp@ts (@) or Patches (O) *(as in Quilts)*
4	Veins (V), and/or occasional Envelopes (E)
5	Veins (V), and/or abundant Envelopes (E)
6	Pervasive (P) or Disseminations (D) } *LESS THAN* { Veins (V), Microveins (<) Selvages (S), Envelopes (E)
7	" " } *EQUAL TO* { " "
8	" " } *GREATER THAN* { " "
9	Pervasive (P) or Disseminations (D), Veins (V), Microveins (<), Selvages (S) & Envelopes (E) with much Breccia filling (#), StockWorK (K) and/or $heeting ($)
X	Massive (M) and/or Laminated/Bedded (L)

Symbol	Description
A	Amygdaloids, cavity fillings
B	Blebs
#	breccia fillings
C	Coatings & encrustations
*	clasts
D	Disseminations & scat.x'ls
E	Envelopes
F	Framework crystals
G	Gouge
H	
I	eyes, augen
J	interstitial
K	stocKworK
L	Laminations/bedded
M	Massive
N	Nodules
@	sp@ts
P	Pervasive
Q	patches, as in Quilts
R	Rosettes & x'l clusters
S	Selvages
$	$heeting
T	sTainings, as in Tarnish
U	eU-hedral crystals
V	Veins
>	macroveins
<	microveins, frac fillings
W	boxWork
X	Massive and/or laminated/bedded
Y	dalmationite
Z	fresh, primary rock

G - S C A L E

FOR PERCENTAGE ESTIMATES

Assgn Value	Scale Value	Description and Range
0	0	Absent
.01	.	Trace = <.02
.03	-	.02 to <.05
.1	(	.05 to <.2
.3	•	.2 to <.5
1	)	.5 to < 2
2.5	+	2 to < 3
5	=	3 to < 7
10	1	7 to <15
20	2	15 to <25
30	3	25 to <35
40	4	35 to <45
50	5	45 to <55
60	6	55 to <65
70	7	65 to <75
80	8	75 to <85
90	9	85 to <100
100	X	100%
.07	/	Present: Est. impossible
0	?	Possibly present

NUMERIC M-SCALE OF . . .

AMOUNT OR INTENSITY	DEGREE	COMPARISON	MODE	GRAYNESS	LIGHTNESS	BRIGHTNESS
0 nil			0 not —d	N black (Noir)	N black	A grAy
1 extremely low —x	1 extremely —x	1 considerably —x	1 extremely poorly —d	1 darkest gray	1 darkest —c	1 grayish —c
2 very low —x	2 very —x	2 much —x	2 very poorly —d	2 very dark gray	2 v.dark —c	2 very dull —c
3 low —x	3 —x	3 —x	3 poorly —d	3 dark gray	3 dark —c	3 dull
4 fairly low —x	4 fairly —x	4 slightly —x	4 fairly poorly —d	4 med.dark gray	4 med.dark —c	4 mod.dull —c
5 intermediate, medium	5 intermediate	5 equal, equally	5 moderately —d	5 medium gray	5 medium —c	5 moderate
6 fairly high —x	6 fairly —y	6 slightly —y	6 fairly well —d	6 m.light gray	6 m.light —c	6 mod.bright —c
7 high —x	7 —y	7 —y	7 well —d	7 light gray	7 light —c	7 bright —c
8 very high —x	8 very —y	8 much —y	8 very well —d	8 pale gray	8 pale —c	8 very bright —c
9 extremely high —x	9 extremely —y	9 considerably —y	9 extremely well —d	9 palest gray	9 palest —c	9 brilliant —c
X exceptionally high				W white	W white	

where —x = fracturing or fracture intensity, permeability, porosity

where . . . —x	—y
angular	rounded
cold	hot
dull	sharp
dull	bright
fragile	tough
hetero-geneous	homo-geneous
light	heavy
dark	light
low	high
narrow	wide
short	long
slow	fast
small	large
soft	hard
thin	thick
weak	strong

where . . . —x	—y
less (than)	more (than)
less "	greater "
lower "	higher "
leaner "	richer "
lighter "	heavier "
darker "	paler "
smaller "	larger "

where —d = banded, bedded, cemented, consolidated, crystalized, disseminated, drained, formed, fossilized, graded, indurated, preserved, rounded, sorted

where —c = any colour

T - S C A L E

M O D E T H I C K N E S S

R a n g e	Assgn Value	Scale Value	B e d d i n g Description	Splitting or Textural Term	
< 2mm	1 mm	0	varved	fissile	F$
2 to < 5mm	3 mm	1	laminated		
5 to < 2cm	1 cm	2	very thin	flaggy	FY
2 to < 5cm	3 cm	3	t h i n	slabby	SB
5 to <20cm	10 cm	4	med. thin		
20 to <50cm	30 cm	5	m e d i u m	blocky	BK
.5 to < 2 m	1 m	6	med. thick		
2 to < 5 m	3 m	7	t h i c k		
5 to <20 m	10 m	8	very thick	massive	MX
>20 m	30 m	9	extrmly thk		

GEOLOG® SYSTEM

80.170 International Geosystems Corporation

STRUCTURE

Upper Tier /	B_1 =T_2 MODE THK-NESS	STRUC 1 Feature I D		STRIKE AZIMUTH clockwise from True North			Neg Sign if Tops down	D I P to right o r PLUNGE (linear)	
Lower Tier L	B_1 =T_2	STRUC 2 Feature I D		AZIMUTH			T or B	D I P o r PLUNGE	
	48	49	50	51	52	53	54	55	56

The azimuth of a strike is measured clockwise from True North and is expressed as a 3-digit number, even if less than 100°, as for instance, 037 and 175, to distinguish from dips, which are 2-digit. An azimuth that is due north is better expressed as 360 rather than 000.

The strike of a dipping planar feature that is not vertical could be given as either of two values which would differ by 180°; however, in GEOLOG, use the convention of facing along that direction of strike that places the direction of dip to observer's right.

If tops are down, still take strike so that dip is to right, but record a minus sign(-) in col 54, making the angle of dip negative.

If planar feature is vertical, face strike direction that places the presumed top or youngest surface to the right.

If taking attitude of planar feature having thickness, such as dyke, distinguish attitude of top with T in 54 from attitude of bottom with B. However, normally record attitude of top of dyke when From-footage marks intersection with top and record attitude of bottom surface when From-footage marks bottom.

F E A T U R E I D E N T I T I E S

AX axis of any fold
- may replace x with:
  A anticline
  S syncline
  D drag fold, etc.

BN banding
BD bedding; B1, B2 . . specific beds (alt.form, B/)

CV cleavage; 1C, 2C . . specific cleavages
C/ contact ; C1, C2 . . " contacts (alt.form, CH)

D/ dyke; D1, D2 . . specific dykes (alt.form, DK)
- may use DT = dyke top, DB = dyke bottom

F/ fault; F1, F2 . . specific faults (alt.form, FL)
FB flow banding
FZ fault zone
FS fracture set (SF = single fracture)

GN gneissosity

JS joint set (SJ = single joint)

LS lens
LN lineation; S1, S2 . . . specific lineations

S/ seam; S1, S2 . . . specific seams
SH shear
$/ stringer
SS slickensides

U/ unconformity; UA angular unconformity

V/ vein; V1, V2 . . specific veins
<< microveins
>> macrovein
VC vein, calcite
VQ vein, quartz
etc.

T - S C A L E

M O D E T H I C K N E S S

Range	Assgn Value	Scale Value	Bedding Description	Splitting or Textural Term	
< 2mm	1 mm	0	varved	fissile	F$
2 to < 5mm	3 mm	1	laminated		
5 to < 2cm	1 cm	2	very thin	flaggy	FY
2 to < 5cm	3 cm	3	t h i n	slabby	SB
5 to <20cm	10 cm	4	med. thin		
20 to <50cm	30 cm	5	m e d i u m	blocky	BK
.5 to < 2 m	1 m	6	med. thick		
2 to < 5 m	3 m	7	t h i c k		
5 to <20 m	10 m	8	very thick	massive	MX
>20 m	30 m	9	extrmly thk		

The B_1 and B_2 in F(48)/L, for bedding mode thickness, can also be used for the more general T_1 and T_2, for mode thickness of planer features, such as dykes, coal seams, veins, etc., which must be identified in the feature I D fields, F(49-50)/L.

Slope stability engineering requires width (thickness) of all discontinuities and the material, if any, filling them.

TEXTURES

AM	algal matted
A*	amygdaloidal
AB	animal bored, burrowed
AP	aplitic
AG	augen structured
BN	banded
BD	bedded
BC	bioclastic
BI	bioturbaceous= disturbed by animals
BK	blocky
BT	botryoidal
BR	brecciated
(C	casted
(X	crystal-casted
(F	flute-casted
(L	load-casted
CA	cataclastic
CM	chilled margin
CT	clastic
CS	closed-structured, intact, framework supported
CG	clay-galled
CC	concretionary
KR	crackled
CR	crenulated
XB	cross-bedded
XC	cross-cutting
DF	drag-folded= en ech. shearing
EQ	equigranular
FZ	feldspar zoned
F$	fissile
FY	flaggy
FL	flaser-structured
FT	flattened
FB	flow banded
F2	folded slightly
F3	" lightly
F5	" moderately
F7	" strongly
F9	" tightly
FØ	foliated
FS	fossiliferous
F(	"-calcareous
FC	"-carbonaceous
FF	"-faunal
FG	"-graphitic
FM	"-marine
FN	"-non-marine
FP	"-plants
GP	glomero-porphyritic
GN	gneissic
G;	graded-bedded
GT	granitic
GB	granoblastic
GL	granulose
GF	graphic
GY	greasy, sectile
HT	heterogeneous
HØ	homogeneous
HF	hornfelsic structured
IM	imbricated
IQ	inequigranular
IB	interbedded
IN	interstitial
LM	laminated
LB	lensoid-banded (streaky)
LN	lenticular
LE	lineated
LS	listric-surfaced
LL	lit-par-lit
LT	lithic
>>	macroveined
MX	massive
<<	microveined
MC	mud-cracked
MY	mylonitic
ND	nodular
ØS	open-structured -disrupted, matrix-supported
PW	partings & whisps of coal
PG	pegmatitic
PL	peletoidal
PS	penecontemp.slumped
PH	phyllitic
PI	pisolitic, pea-like
PK	poikilitic
PP	porphyritic
PB	porphyroblastic
TG	ptigmatic
RP	rain-printed
RW	reworked
R7	strongly RW
R5	mod. RW
R3	lightly RW
R2	slightly RW
RB	ribbon-like, -banded
RM	ripple-marked
M7	strongly RM
M5	mod. RM
M3	lightly RM (etc.)
RA	asymmet. RM
RS	symmet. RM
SC	schistose
SR	scoured
SB	slabby
SL	slaty
SS	soft sediment slumping
SP	sparry
SK	stockworked
SW	stromatolitic
ST	stylolitic
TC	trachytic, trachytoid
TG	ptigmatic
UF	uniform textured
VV	veined
VS	vesicular
VG	vuggy
WL	welded

80.170 GEOLOG®SYSTEM
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TYPIFYING & QUALIFYING MINERALS

TYPIFYING MINERALS AND QUALIFYING MINERALS, MINERALS & DESCRIPTORS

Rock-Forming Minerals	2-Code for Typifying Minerals	3-Code Qualifying, Materials, Miner-als & Descriptors	
actinolite	AC	AC%	actinolitic
albite	AB	AB%	albitized
		AMG	amygdaloidal
		AM%	" , % amyg's
andalusite	AA	AA%	andalusic
		ARG	argillaceous
		ARK	arkosic
		BEN	bentonitic
		BIØ	bioclastic
biotite		BI%	biotitic
		BIT	bituminous %
		BLN	bleached, n= 1-9, N-Scale
		BR%	breccia %
calcite		CAL	calcareous
		CA%	calcitic
		CB%	% carbonates
		CR%	carbonaceous,%
		CH%	cherty, %
clay		CY%	clayey
clinozoisite		CZ%	clinozoisitic
		CCR	coaly& co.rash
		CPW	" partings and whisps
		CØ%	" per cent
		CØB	cobbly
		CG%	conglomeratic
cordierite	CØ	CØ%	% cordieritic*
		CØQ	coquinoid
		CQ%	% coquina
		XT%	% crystals
dolomite	DØ	DØ%	dolomitized,ic
epidote	EP	EP%	epidotized
		EVP	evaporitic
		EV%	" per cent
feldspar,gen	FX	FX%	feldspathic
		FLD	feldspathoidal
		FE%	ferruginous
garnet	GA	GA%	garnetiferous
glaucophane	GC	GC%	glaucophanous
graphite	GR	GR%	graphitic
		GRT	gritty
		GY%	gypsiferous
hematite		HE%	hematitic
hornblende		HB%	hornblendic
hypersthene		HY%	hypersthenic
jadeite		JD%	jadeite %
K-spar		KF%	K-feldspathic
kyanite		KY%	kyanitic
laumonite		LM%	laumonitic
lawsonite		LW%	lawsonitic

limonite		LI%	limonitic
		LIM	limey
		LP%	lapilli %
		LT%	lithic % (RX%)
		LCn	leached, n=1-9 N-Scale
micas,gen.	MI	MI%	micaceous
montmorillonite	MM	MM%	montmorillonic
muscovite	MU	MU%	muscovitic
" sericite	MS	MS%	sericitic
		MT%	matrix %
		MUD	muddy
nepheline	NF	NF%	nephelinitic
olivine	ØL	ØL%	olivine %
		ØQZ	orthoquartztic
		PAR	partings
		PEB	pebbly
		PHS	phosphatic
pyrite	PY	PY%	pyritic
		PYN	pyritic-nodular
		PYT	pyritic-tubes
pyrophyllite	PP	PP%	pyrophyllitic
pyroxene		PX%	pyroxinitic
pyrrhotite	PR	PR%	pyrrhotitic
quartz,gen	QZ	QZ%	quartzitic,ose
- agate	QA	QA%	agatized
- chert	QC	QC%	cherty, %
- vein,mass.	QV	QV%	mass. QZ-VN
		RX%	% rock frags
		RTL	rootlets
rutile	RU	RU%	rutilitic
sericite	MS	MS%	sericitic
serpentine	SE	SE%	serpentinized
siderite	SD	SD%	sideritic
silliminite	SI	SI%	silliminitic
		SAN	sandy
		SN%	" %
		SIL	silty
		SIF	silicified -siliceous
		SHL	shaly
		SLT	slatey
		S-E	seat-earth
staurolite	ST	ST%	staurolitic
topaz	TZ	TZ%	topaz %
tourmaline	TØ	TO%	tourmalinized
tremolite	TR	TR%	tremolitic
		TF%	tuffaceous
		VS%	vesicular
		XN%	xenolithic
zeolite	ZE	ZE%	zeolitic
zoisite	ZØ	ZØ%	zoisitic

NOTE : The third character, %, present in many of the 3-character codes, is to be either replaced with a G - Scale percentage estimate of the amount of the mineral or material present, . . . or left blank

COAL MATERIALS SUMMARY

PET	peat, peaty
LIG	lignite,-ic
SBT	sub-bituminous
BIT	bituminous
BTH	", high volatile
BTM	", med. volatile
VTL	", low volatile
SMA	semi-anthracite
ANT	anthracite

RECAP SUMMARY
Clayey to Cobbly

CY%	clayey
MUD	muddy
SH%	shaly
SIL	silty
SN%	sandy
PEB	pebbly
CØB	cobbly

* cordierite and coal have the same 2-letter code = CØ, but both are not likely to occur together

G E O L O G S Y S T E M

G L O S S A R Y O F T E R M S

Including Abbreviations Used In
The GEOFORM Headers

I N T R O D U C T O R Y C O M M E N T S

This Glossary of Terms is more than just a dictionary. Opposite each term or its abbreviation, listed and cross-referenced alphabetically, is a definition or explanation of the term, together with, in many cases, an explanation of how to use it to achieve various results or goals. For this reason, the user is urged to read through this Glossary of Terms section of the GEOCODER, with some thoroughness.

G E O L O G S Y S T E M

G L O S S A R Y O F T E R M S

INCLUDING ABBREVIATIONS USED IN THE GEOFORM HEADERS

A — the Key = A is to be entered in C1 (column 1) to activate each assay entry and other A-entries containing one or more types of A-data, such as coal sample analyses, geochem data, magnetic susceptibility measurements and so on

A1, A2 . . A9 — the nine assay or A-data fields from C26-80 (ie, from column 26 to 80) six columns wide and separated from each other by double vertical lines; the field for A1 is simply referenced by the expression F(27-32)A; that for A2, by F(33-38)A, where F is for field, the 27 to 32 and 33 to 38 are the columns included in each field, and A is the Key for all A entries, to be entered in C1

Active Line — is any line of data or remarks, or any Header, which is ready to be entered or keyed directly into the System (or indirectly by way of punched cards). To be active the entry cannot have a blank Key field, F(1);

- inactive — if the Key field is blank, the entry is said to be inactive

- de-activated — any entry in which an x has been entered in the Key field is said to be de-activated

Active Page — is any page of GEOFORM that is complete and ready to be keyed directly into the System (or indirectly by means of punched cards). To be an Active Page it must have an ID-entry (the topmost yellow Header entry, line b) completed from C1-24 with identity information and from C77-80 with Page-Of- See Rule R-12

Active Page 1 — to be active, Page 1 of GEOFORM must be more complete than all other pages. It must have the ID-entry complete from C1-38, at least, and from C77-80; it must have an active IP-entry, with Company and Project names; it must have an active Survey entry S-000; it must have an active Upper Tier Scales entry, /SCL, indicating whether the measurements are in the metric or footric system (MT.2 or FT.2 in F(13-16)/SCL) and in what units the Recovery is measured

A-data — any quantitative measurements such as assay and geochem data, radiometric counts per second readings, veins per metre counted, and so on that refer to measured intervals

A-File — A-data or Assay data file -- See Annn, next page

A-entry — any 80-column line of A-data and/or information pertaining to A-data that has Key = A in C1

AGE — geologic age of a formation, such as KU- for Upper Cretaceous, JL- for Lower Jurassic, M-- for Mississippian, PN- for Pennsylvanian, PR- for Permian, TR- for Triassic, T-- for Tertiary, and so on, or any clearly recognizable system; AGE is a Lower Tier or L entry in F(21-23)L

AGI — As Above PGI - identical to the preceding PGI (Principal Geologic Interval) in C(21-46,57-80)/L except as modified C-by-C (column-by-column); if two or more AGIs are entered so as to form a continuous string with a preceding PGI, then each AGI is a duplicate of that preceding (unmodified) PGI, in the sectors C(21-46, 57-80)/L except as modified C-by-C - regardless of how many repeat intervals are interspersed.

AMAX From-To- — when Key = A and Flag = MAX, then From-To- is an interval that includes two or more assay or A-intervals and the one to nine A-values are the respective maximum A-values for that interval; and

AMIN From-To- — is the same as for AMAX except the respective A-values are the minimums for that interval; the System checks to make sure that the A-value entered in the several A-entries are not greater or less than these respective maximums and minimums; if any are found that are, an error message is given by GEOEDIT

Annn or A-File — Key/Flag general expression for an Assay File or A-File, in which nnn is any integer from 001 to 999; for any one project, each A-File must have a unique definition as to what the file contains

Assay data — one type of A-data -- See A-data

ASY — with Key=R and Flag=ASY, this type of remark refers to assay or A-data and the System sorts such remarks in accordance with their From-To- but interleafed with the assay data, not with the geodata

A-type General Remarks — See Rule R-3(d) and also General Remarks and General A-Remarks

AUMM — Key/Flag for A-Header that defines each A-field as to units: % or PC, PM (parts per million), PB (parts per billion), OZ (ounces per ton), G (grams per tonne), etc., and as to mineral, metal or material, such as CU, PB, MOS2, ZN and so on

AZM — azimuth; entered in the Survey or S-entry, in F(27-32)S, is the azimuth of the drillhole/traverse at the beginning of each straight leg of a traverse (ie, at the turning points) or at the points where down-the-hole surveys measure the vertical angle and azimuth of drillholes - which are normally continuous curves, except for the special case of wedged holes; the azimuth is recorded in degrees and decimals, with the decimal point in C30; C31-32 may be left blank if no decimal parts; and also
azimuth of structural features, entered in the Upper Tier and/or Lower Tier fields, F(51-53)/L, with the identity of the structural feature being recorded in the corresponding adjoining F(49-50)/L structure ID; for the azimuth of planar features, record that strike direction which places the dip direction to the observer's right; for vertical features, assumed tops are to the right

B1, B2 — bedding mode thickness, major and minor, respectively, for the interval, recorded in the Upper and Lower Tier fields, F(48)/L, using the T-Scale; more generally, think of B1 and B2 being re-

B1, B2 (Continued)	placed with T1 and T2, either of which is the mode thickness of dykes, veins, beds, sills, fault zones, etc., identified in the adjoining ID fields, Struc 1 ID and Struc 2 ID, F(49-50)/L
BI	biotite: see Mineral List under M
BRS From-To-	a Flag indicating the bedrock surface occurs at the From-footage
BRX From-To-	a Zone Flag indicating that this interval is within a breccia zone
CAP From-To-	a Zone Flag indicating that this interval is in the caprock
CB	carbonates, gen: see Mineral List under M
CF	coarse fraction grain size, recorded in F(40)/; in porphyry, for example, the phenocrysts constitute the coarse fraction; use S-Scale
%C	percentage coarse fraction, recorded in F(41)/; use G-Scale
CL	chlorite: see Mineral List under M
Clockwise	all azimuths are measured clockwise from True North

COLOUR

- LC-Colour Code

The LC-Colour Code is an abbreviated, 2-character version of a much more detailed LBHU-Colour Code. LC stands for Lightness-Colour, where L and C are as follows:

Lightness L-Scale		Colour Range C-Scale		Examples	
W	white	R	Red	8R	pale red
9	palest	U	brown (Umber)	3U	dark brown
8	pale	Ø	Orange	7Ø	light orange
7	light	T	Tan	5T	medium tan
6	lighter(m.light)	Y	Yellow	9Y	palest yellow
5	medium	L	Lime (Y-G)	2L	v.dark lime
4	darker (m.dark)	G	Green	4G	darker green
3	dark	Q	aQua (B-G)	8Q	pale aqua
2	very dark	B	Blue	1B	darkest blue
1	darkest	V	Violet (B-P)	7V	light violet
N	black (Noir)	P	Purple	8P	pale purple
	(No lightness)	M	Mauve (P-R)	W	white
($=	-ish suffix)	W	White	9A	palest gray
R$	reddish	A	grAy	8A	pale gray
U$	brownish	N	Noir	7A	light gray
Ø$	orangish	RØ	reddish orange	6A	lighter gray
T$	tanish	ØR	orangish red	5A	medium gray
Y$	yellowish	BA	bluish gray	4A	darker gray
G$	greenish	AB	grayish blue	3A	dark gray
B$	bluish	GA	greenish gray	2A	v.dark gray
P$	purplish	AG	grayish green	1A	darkest gray
W$	whitish	GB	greenish blue	N	black
A$	grayish	BG	bluish green	* * * * * *	
YG	yellowish green	UG	brownish green	7C	leucocratic
GY	greenish yellow	GU	greenish brown	5C	mesocratic
YL	yellowish lime		etc., etc.	3C	melanocratic

- LBHU-Colour Code

Grayness Scale	
W	white
9A	palest gray
8A	pale gray
7A	light gray
6A	lighter gray
5A	medium gray
4A	darker gray
3A	dark gray
2A	very dark gray
1A	darkest gray
N	black (Noir)

In Geosystem Colour, the three components of colour are Lightness, Brightness and Hue. Think of the 24 hues as being equally spaced around the equator of the colour sphere. The Lightness is the vertical component along the axis of the sphere, with white at the north pole, black at the south pole and medium gray at the intersection of the axis with the equatorial plane. The third component, Brightness, is the radial distance from the axis: full brightness (ie., brilliant) can only be attained at the equatorial surface of the sphere.

L-Scale of LIGHTNESS		B-Scale of BRIGHTNESS	
W	white		
9	palest -c	9	brilliant
8	pale (v.light)	8	v.bright
7	light -c	7	bright
6	lighter (m.l.)	6	brighter
5	medium -c	5	moderate
4	darker (m.d.)	4	duller
3	dark -c	3	dull
2	v.dark -c	2	v.dull
1	darkest -c	1	grayish
N	black (Noir)	A	gray

-c = any colour

HU,	Range of HUES
R	RED
OR	orangish-red
U	BROWN (Umber)
RO	reddish-orange
O	ORANGE
YO	yellowish-orange
T	TAN
OY	orangish-yellow
Y	YELLOW
GY	greenish-yellow
L	LIME
YG	yellowish-green
G	GREEN
BG	bluish-green
Q	AQUA
GB	greenish-blue
B	BLUE
PB	purplish-blue
V	VIOLET
BP	bluish-purple
P	PURPLE
RP	reddish-purple
M	MAUVE
PR	purplish-red
R	RED (repeated)

LBHU Code	E x a m p l e s
96R	palest brighter red (pink)
53U	medium dull brown
79O	light brilliant orange
7 T	light (moderate) tan
87Y	pale bright yellow
53YG	med. dull yellowish-green
34BG	dark duller bluish-green
22B	v.dark v.dull blue
3 BP	dark (moderate) bluish-purple
65RP	lighter moderate reddish-purple
1A	darkest gray
2A	v.dark gray

COM From-To- composite sample pulp, when Key=A and Flag=COM, for the specified interval, From-To-

COMPANY in the IP entry (IPRJ, line c), the company or organization name is entered in the field, F(5-44)IP, centred between C24-25, exactly as the user wishes to see it appear on all computer output reports; it need be entered only on Page 1 of GEOFORM for each drillhole/traverse; the property or project and sub-project name is entered in the field, F(45-80)IP, centred between C62-63

CO-ORD SYSTEM co-ordinate system: UTM if Universal Tranverse Mercator; GRD if property grid; MCG if metric claim grid, etc.; note that if the orientation of the grid, etc., is not True North and if the Northings and Eastings are not True, but Grid-northings and -eastings, then the Grid Azimuth must be given in F(63-68)ID, with decimal point in C66; it should also be noted in a Header Remark or General Remark on page 1 of each GEOLOG

CP chalcopyrite: see Mineral List under M
CY clay: see Mineral List

C/ , CON,CNT contact Flag, 3 alternative forms
C/1 . . C99 Flags of identified contacts: if preceded by Key=K instead of /, such identified contacts become the unique labels of Key Horizons; on request, Key Horizons are displayed, with those labels, on computer output such as Crossections, Correlation Fences, Disectional Slicemaps, etc.

DEN the Flag of the ID-entry or IDENtity entry, being line b of GEOFORM and the topmost entry on each page of the GEOLOG of all drillhole/traverses; for Page 1 of every drillhole/traverse, the ID-entry must be filled-out at least from C1-38 and Page-of- in F(77-80)ID; for all other pages, at least from C1-24 and Page-of-; to activate these entries, enter I in C1

DEPTH total depth or length of the drillhole/traverse; entered in F(20-26)S, with decimal point in C24; if no decimal parts, C25-26 may be blank in the S-entry; on Page 1, with Flag=000, if there is no down-the-hole survey, enter From=0 (in C8) and To = footage of Total Depth in F(11-16)S, and, in addition, enter Total Depth in F(20-26)S, with decimal point in C24; if, however, a down-the-hole survey has been run, with Key/Flag = S000, make To = D 1 = footage at which first down-the-hole measurement was taken; for example

Key/Flag	From	-To-	AZM	V-ANG	Comment
S000	0	D 1	AZM 0	V-ANG 0	as measured at collar
S001	D 1	D 2	AZM 1	V-ANG 1	" " " From=D 1
S002	D 2	D 3	AZM 2	V-ANG 2	" " " From=D 2
S003	D 3	D 4	AZM 3	V-ANG 3	" " " From=D 3
:	:	:	:	:	
S00n	D n	D(n+1)	AZM n	V-ANG(n+1)	" " " From=D n

where n = nth or last down-the-hole measurement

if the nth or last measurement is taken at total depth, then at S00n From = To = D n = Total Depth

DIP to Rt or PLUNGE

dip to right of planar features, such as bedding, dykes, veins, etc.: observe the strike (or at least record it) so that the direction of dip is to the observer's right; or, if the dip is vertical, so that assumed tops are to the right;
or plunge of linear features; dips are always down and unsigned; if, however, dips are known to be overturned, then enter the dip as an angle that is greater than 90°; dips are recorded either in F(54-56)/ or F(54-56)L, with the ID of the feature recorded in the corresponding Structure ID field, F(49-50)/L

DRILLHOLE/ TRAVERSE
DH/traverse
dh/trav

a general term encompassing drillholes and traverses of all types that helps to emphasize that not only drillholes can be effectively geologged but also trenches, roadcuts and cliffs, underground openings such as drifts, crosscuts, shafts and raises, and outcrops, by stretching a tape from A to B or from A to B to C and back to A, or by geologging along grid lines or claim boundaries; the type of traverse becomes part of the unique label for each drillhole/traverse of a project that must be entered in F(17-24)ID on the first line at the top of every GEOFORM - the type occupies the middle of that field, being C20-21; a list of types follows:

- Types

DH drillhole, kind unspecified	CH core hole
RH rotary hole, not cored	PH percussion hole
TR traverse, kind unspecified	TU traverse, underground
TS traverse, surface	TB traverse, open pit bench
GW grid-walk traverse	RW random-walk traverse
RT right-turn triangular traverse	LT left-turn triangular traverse
RC roadcut	GL gridline
TN trench	OC outcrop, from A to B
UD underground drillhole	

Note also that for any project, each type of drillhole/traverse may run from 001 to 999, without conflict

DRILLERS

in field F(42-45)ID, the initials of the drilling company or the first and last initials of two of the drillers - their names are an important part of the permanent records

DRILLING TIME

in F(54-56)ID, from which average drilling time per metre can be obtained, is quite possibly a useful statistic for all drillholes in a project, possibly distinguishing altered rock from unaltered, etc.

DRI

Ditto Repeat Interval - duplicates parts of a PGI, from C21-46 and C57-80, both Upper and Lower Tier, except as modified C-by-C; can be used effectively as a rapid means of improving the local accuracy of the initial, more general description given in a PGI

DOX From-To-

a Zone Flag indicating that this interval is in a disseminated oxide zone

DSX From-To-

a Zone Flag indicating that this interval is in a disseminated sulphide zone

D/ , DYK,DIK

a dyke Horizon Flag - three alternative forms; the upper or top surface is taken to be a horizon

D/1 . . D99 — Flags of identified dykes: if preceded by Key=K instead of /, such identified dykes become the unique labels of Key Horizons; on request; Key Horizons are displayed, with those labels, on computer output such as Crossections, Correlation Fenches, Disectional Slicemaps, etc.

EASTING or E — entered in F(61-70)S, with decimal in C68, is assumed to be in the same units as the From-To- (unless otherwise specified) and due east unless Grid Azimuth is not zero, in which case Grid-east is rotated by the same amount that Grid-north is rotated; in the abbreviated Survey S-entry,

S nnn From -To- TD/L AZM V-ANG HASH N E EL

S is the Survey Key; **nnn**, the Turning Pt of a traverse with straight legs or the points at which azimuth and vertical angle are measured in down-the-hole surveys, at footage from the collar=**From** (actually, the azimuth and vertical angle of the tangent at that From-point to the continuous curve of the drillhole); **From**, the point at which the measurements are made; **-To-**, the footage at which the next measurement is made; **TD/L**, the total depth or length of the drillhole/traverse, which must be entered when Flag=000 but need not be filled in at other turning points unless one wishes to, for the sake of the appearance of completeness; **AZM**, the azimuth taken at the From-point, looking ahead to the To-point; **V-ANG**, the vertical angle, negative if down, measured at the From-point; **HASH**, the hash total or algebraic total of TD/L, AZM, V-ANG, N, E, and EL; **N**, the northing (or, if negative, the southing) of the nnn-point (which also corresponds to the From-point); **E**, the easting (or, if negative, the westing) and **EL**, the elevation (or, if negative, the subsea elevation) of that same nnn-point or From-point

ELEVATION or EL — entered in F(71-80)S, with decimal in C78, is in the same units as the From-To-; it is the elevation of the nnn-point (which corresponds to the From-point) - see Easting, above; elevation is included in the Hash Total entered in F(39-50)S, with decimal in C48

ENVIR or ENV — the environment of emplacement of a rock body or mass, entered in F(24-25)L, below the left end of the Rock Type field, F(24-27)/; it includes the environment of deposition, lithification and solidification; a partial list includes:

AC	autoclastic	LG	lagoonal
AL	allochthonous	MR	marine,gen
AO	aeolian	MS	marine, shallow
AT	autochthonous	MM	marine, moderate
BK	brackish-water	MD	marine, deep
CO	continental	NM	non-marine
EC	epiclastic (non-volcanic)	PC	pyroclastic
EV	epivolcaniclastic	PL	plutonic
FL	fluvial/fluviotile	SD	sedimentary
GF	glacio-fluvial	SV	sub-volcanic
GL	glacial, glacio-lacustrine	VL	volcanic,gen
LC	lacustrine	VC	volcaniclastic

EP — epidote: see Mineral List under M

F-Scale — used for fracture density or fracture intensity

Assgn Value	Scale Value	Description	Notes
0	0	unfractured	See FI, steep, moderate and low
1	1	slightly fractured	
3	2	very lightly fractured	It can be seen that the
6	3	lightly "	assigned value of each
10	4	m. lightly "	scale value is the sum of
15	5	moderately "	the scale values from 0;
21	6	m. well "	for instance, the assigned
28	7	well "	value of scale 2 is 3 =
36	8	very well "	0+1+2; of scale 3 is 6 =
45	9	extremely well "	0+1+2+3 and so on.
55+	X	shattered	

F Rnn From-To- - Formatted Remark — the Key = F is for the Formatted Remark, the Flag for which takes the form, Rnn, where nn is any positive integer from 01 to 99, which has the general form

F Rnn From-To- F(17-80)F, where the user may define how he wishes to divide the field, F(17-80)F, what headings he wishes associated with each subfield, where the heading may become the name associated with the data or information stored in each field; for instance, the

F R02 From-To- — Formatted Remark included as line o on GEOFORM has the Key/Flag=FR02, which is defined as having an initial 4-column field, F(17-20)F, followed by ten 6-column fields, F(21-26,27-32,33-38, 39-44,45-50,51-56,57-62,63-68,69-74,75-80)F, which, as shown on GEOFORM, have the headings, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 respectively; this is a very general form and was chosen because it has exactly the same format as the Assay or A-entry, so that the double vertical lines clearly mark the boundaries of the R02 fields on GEOFORM and what the eleven fields contain can be described in a Remark or Header Remark or, alternatively, F R01

F R01 From-To- — From-To-, which also has the same format, serves the purpose of inserting its eleven headings into all F R02 entries following it, until another F R01 is encountered that has a different set of headings; any of its headings may be blank, in which event the corresponding F R02 field will also be blank, blanking out the presently contained digit, being one of 0 to 9; thus, if F R01 is defined in, say, the first drillhole of a project and one wishes it to remain constant throughout the project, one needs only enter FR02 followed by the comment, in brackets, (SAME AS IN HOLE 001), or whatever, after C16, near the beginning of each GEOFORM

F/ , FAL,FLT — a fault Horizon Flag, three alternative forms; if a fault has appreciable thickness, its median surface is taken as the horizon

F/1 . . F99 — Flags of identified faults, that is, ones that have been clearly recognized and correlated between three or more drillhole/traverses; if preceded by Key=K instead of /, such Flags become the unique labels of Key Fault Horizons; on request, Key Horizons are displayed, with those labels, on computer output such as

F/1 . . F99 (Continued) — Crossections, Correlation Fences, Disectional Slicemaps, etc.; if more than 99 are required, one may have an additional hundred by using the form 00F to 99F

F/C — Flag of a fault contact

FA — Facies of alteration, entered in F(77)/, using a scale of 0=fresh rock to 9 = silicic/quartz flooding: see A-Scale

FF — fine fraction grain size, entered in F(39)/, using the S-Scale; in conglomerates, for instance, the matrix is the fine fraction

FI_S — fracture intensity of steep fractures, being those fractures at an angle greater than 60° to the perpendicular to the core axis; use the F-Scale, 0 to X (X=10) and enter in F(43)/; if one wishes to use the simple N-Scale, one must enter N in F(47) of the /NAM entry on Page 1 of the GEOFORM for that or each drillhole; see F-Scale

FI_M — fracture intensity of moderate fractures, being those between 30 and 60° to the perpendicular to the core axis, and entered in F(47)L; see F-Scale

FI_L — fracture intensity of shallow fractures, being those at less than 30° to the perpendicular, and entered in F(48)L ; the sum of these three fracture intensities is the total fracture intensity, so that if the total of the three F-Scale values exceeds 5, yet the fracture intensity, total, is not considered to be above moderate or 15 fracture per metre at right angles to the fractures, then one or more of the individual values entered should be adjusted down; see F-Scale

FLAG — a Flag flags things of importance; whereas Keys separate all entries into relatively few classes, the many Flags that may be selected to accompany a Key have the effect of creating a large number of meaningful subclasses; Flags can be entered in either or both the Upper and Lower Tier, in F(2-40)/L; Horizon Flags should be entered in the Upper Tier, because K (for Key Horizon) is interchangeable with / but not with L of the Lower Tier; consequently, enter Zone Flags in the Lower Tier in order to reserve the Upper for Horizons

FLAGS — See tables of Horizon Flags, Zone Flags and Special Flags, KEYS & FLAGS, p.__

FORMAT — the Format 6B, Version 02, Spec 01, in F(5-10)ID, informs the Systems the exact restraints under which the geodata and A-data and other information is entered onto GEOFORM Version 6B 02-01; drillhole/traverses geologged on version 6B 02-01 should be able to be mixed or batch mixed with others on the same project that have been geologged on a different Format and Version; that is why this specification must be entered at the beginning of each GEOLOG, so that the System is immediately informed as to which sub-system it must activate and to process the data contained in the following entries until it encounters the /END Key/Flag,

FORMAT (Continued)

indicating the end of that GEOLOG; if the next entry is an IDEN entry with a different Format in F(5-10)ID, then the System must call up that different sub-system

FORM'N

formation name, entered in F(21-23)L, if not used for AGE, and taking the form, xx+, where xx are any two letters suggestive of the formation name, such as MB+ for the Moosebar formation

FROM
FROM-footage
From-metrage
Footric system

From-footage, the beginning of every interval or entry; the term, footage, is deemed to include the term, metrage, applicable when using metric units; FROM is always the distance from the collar or starting point of a drillhole/ traverse to the beginning of an interval, measured along the drillhole, even if curved, or along a traverse, regard less of changes in direction; FROM is normally positive (through in some special instances FROM and TO can be negative, as in the Grid Walk) land is entered in F(5-10), which requires a decimal point (unless inferred decimal is on the right side of C10) in the case where C16 of F(13-16)/SCL, on Page 1 of GEOFORM, contains examples given at the right (which apply equally well to TO-footages) are interpreted as shown on the right hand side; see examples a to l However, if C16 of F(13-16)/SCL contains the pre-printed 2, then the double vertical line between C8-9 (and between C14-15 in the TO-field) becomes the assumed decimal point. Examine examples m to r

5	6	7	8	9		EXAMPLES
.	0	0	0	0	1	a = .0001
		1	2	.	7	b = 12.7
	1	2	.	7		c = 12.70
1	2	.	7			d = 12.70
9	9	9	9	9	.	e = 99999.
9	9	9	9	9	9	f = 999999.
			8	5	7	g = 857.
			1	0	0	h = 100.
		2	0	0	0	i = 2000.
		-	1	5	0	j = -150.
	-	3	5	.	8	k = -35.8
-	4	6	7	.	3	l = 467.3
		4	5			m = 45.
		4	5	6		n = 45.6
	1	4	5	6	7	o = 145.67
					5	p = .05
-	9	9	9			q = -999.
9	9	9	9	9	9	r = 9999.99

From-To-
- Interval
- From dominant

the general expression of an interval; the FROM is declared to be dominant over the TO and in consequence the From-footage is used to locate features of interest that intersect a drillhole/traverse at a point, such as a contact of fault; one may have a tendency to Flag such a feature as soon as the To-footage reaches or touches it; one must wait, however, until the next entry to Flag it, when the From- footage locates or marks it

From=To-
- Point entry

the general expression of a Point entry, in which the FROM equals the TO, a very useful type of entry, particularly for adding additional information for which no more space was available in the PGI (or in a repeat interval entry) such as structure measurements at several points within an interval; because a Point entry has no length, if one observes a massive blob of pyrite and reports it in a Point entry as massive, 100%, it has essentially no effect other than to draw attention to the occurrence at that point; also, it is useful for recording and indicating where a sample has been taken: R SAM From=To-; or where a specimen was selected for thin section work: R THN From=To-

FRC — Flag indicating a significant fracture zone; enter in F(2-4)L

FRX — Flag indicating a significant zone of fresh, primary rock; enter in F(2-4)L

F/W — footwall; enter in F(2-4)L

FWP — probable footwall Flag; enter in L

Fields of GEOFORM — are precisely defined specified groups of one or more columns, associated with one or more types of entries, each field having a unique name, such as Key, Flag, From, To, ROCK, QM2, and so on; a field has the generalized forms:

F(C1-C2)E
or F(C)E if only one column wide
or F(C1-C2)EE' if field is associated with 2 types of entries
or F(C1-C2,C3-C4,C5..)E if multiple fields are referenced
where
F = field
C1 = column number included at left side of field
C2 = column number included at right side of field
E = entry type, E' = second entry type, etc.
such as

/ = Upper Tier entry	L = Lower Tier entry
ID = IDENTity or ID-entry	IP = IPRJ or IP-entry
S = Survey or S-entry	F = Formatted or F-entry
/SCL Upper Scales entry	LSCL Lower Scales entry
/NAM Upper Names entry	LNAM Lower Names entry
A = Assay or A-entry	H = Hash entry
R = Remark entry	K = Key Horizon entry

Fields associated with the ID-entry — The fields associated with the ID-entry, the topmost Header on each GEOFORM, are as follows: The Key field of the IDEN or ID-entry; to activate this entry, enter Key=I in F(1)ID; that is, enter the letter I in column 1 in the yellow line b on GEOFORM

F(1)ID

F(2-4)ID — The Flag field of the ID-entry: note that the required Flag = DEN has been pre-printed in this field

F(5-8,9-10)ID — FORMAT/VERSION-SPEC = 6B02-01 has been pre-printed in this field, to identify to the System the specifications of the particular GEOFORM used on a particular project

F(11-16)ID — Unique Project ID or Sub-Project ID, up to 6 characters, left-justified, must be entered in this field on all active pages of GEOFORM; (in this GEOCODER the statement, 'unique for the project', will be seen many times; for example, an identified contact, C/Z, must be unique for the project; that is, for the whole part of an area that has a unique Project ID or Sub-Project ID code; when a project becomes large and complex, one does not want a number of different, unrelated features having the same label)

F(17-24)ID — ID of Drillhole/traverse; can be given in the form, F(17-19, 20-21,22-24)ID, where the first part, 17-19, is the Prefix of any three characters, suggestive of the project name but may be the year (80) and one letter; the second part, 20-21, is the type of drillhole/traverse (see under Drillhole/traverse - types); and the third part is the number of the drillhole/traverse, selected sequentially from the sequence, 001 to 999

F(25-28)ID	Size of Core or Hole, such as BQ, AQ, etc. or diameter in mm, right justified
F(29-30,31-33, 34-35)ID	Date geologged, given as YR, MON, DY (which is the metric form) or DY, MON, YR (if you insist), where MON is always the first 3 letters of the month
F(36-38, 39-41)ID	Geologged By, Assisted By, are the initials of the geologist or geologists that geologged it
F(42-45,46-48, 49-50)ID	Drilled By or Drillers, initials of drillers or abbreviation of drilling company; and the month and year when drilled (see comment below)
F(51-53, 54-56)ID	Rig Type and Drilling Time in Hours. Comment: if the space provided in these 2 fields and in the preceding 3 fields, from C42-56, is insufficient for the purposes of a particular project, one may elect to enter more extensive information either by (1) abbreviations or codes that are explained in a Project Specification Sheet or in a General Remark (R Gnn) (See General Remarks) or (2) in a Header Remark (R HED) or (3) in a Formatted Remark (F Rnn)
F(57-59)ID	Surveyed BY -- initials of the surveyor
F(60-62)ID	Co-ord System -- such as, UTM; GRD = grid; PGD = property grid; MCG = metric claim grid; etc.
F(63-68)ID	Grid Azimuth, in degrees and decimals, with decimal in C66, gives the azimuth of Grid North
F(69-76)ID	not assigned; some use this space for information on casing in holes. One may specify in Project Specification Sheet how this space is to be used.
F(77-80)ID	Page-Of- : must be filled in for each active page of GEOFORM
F(1) **Key Field**	The Key field for all entries. The permissible Keys are I, S, /, K, L, R, X, A, F, H (See Keys & Flags)
Fields associated with the IP-entry	The second Header, being the IP-entry on the greenline c contains only four fields, of which the first two are
F(1,2-4)IP	Key/Flag = I PRJ
F(5-44)IP - Company Name	Company Field, centred between C24-25, laid out exactly as one wishes the Company name or names to appear on computer printer output reports; need only be entered on Page 1
F(45-80)IP - Property or Project Name	Property or Project and Sub-Project Names field, centred between C62-63, laid out as one wishes them to appear on printer output reports
Fields associated with the S-entry	The Third Header, being the S-entry on the white line e contains 11 fields in which is entered survey data related to the first leg or part of the drillhole/traverse. Subsequent S-entries will give down-the-hole survey data or azimuth, vertical angle, and From-To- lengths of legs along surface or underground traverses
F(1,2-4)IP - collar or beginning point	The Key/Flag field of the S-entry. On Page 1, as a Header, Key = S and Flag = 000 (zero, zero, zero), which is the collar or beginning point of a drillhole/traverse; subsequent S-entries will contain the Flags 001, 002, ... which are the points at which down-the-hole readings of azimuth and vertical angle are taken
F(5-10,11-16)S'	The From-To- fields. In the S'-Header, Flag = 000, From = 0.0 = distance from Collar and the From-To- gives the interval to the next survey point, 001; when Flag = 001, From = distance from collar to survey point 001 and the From-To- gives the interval between 001 and the next point, 002; when Flag = 002, From = distance from collar to survey point 002 and the From-To- gives the interval between 002 and the next point, 003; and so on

F(20-26)S'	TOTAL DEPTH/LENGTH, with decimal in C24
F(27-32)S'	AZM, the bearing measured clockwise from True North, in degrees and decimals, with decimal in C30
F(33-38)S'	V.ANG., the vertical angle measured from the horizontal, in degrees and decimals, with decimal in C36, positive when horizontal or angled up, negative when angled down
F(39-50)S'	HASH TOTAL = TOTAL DEPTH + AZM + V.ANG + N + E + EL (algebraic total), totalled from source data if possible. The System re-totals these factors as entered into the System, and compares to HASH TOTAL. Helps eliminate transcription and data entry errors and improve quality of the data
F(51-60,61-70, 71-80)S - N, E and EL - S, W and SS	Northing or N (Southing or S' if negative), Easting or E (Westing or W if negative), and Elevation or EL (Sub-Sea or S'S' if negative); note in particular that these co-ordinates give the 3-D location of Turning Point (or Survey Station Point) that is identified and entered as a Flag of the same entry as its co-ordinates; and the From is the distance along the drillhole/ traverse from 000 to that survey point; and in each case, the From-To- gives the interval between Turning Points
F(17-19)S'	Blank, unassigned field
F(2-4)/L	Flag field, C2-4 (column 2 to 4), Upper and Lower Tier; the Upper Tier Flag field is for Horizon Flags and Special Flags; the Lower Tier Flag field is mainly for Zone Flags
F(1,2-4)/L	Key/Flag field, Upper & Lower Tier
F(5-10)	FROM or From field, with inferred decimal, marked by a double vertical line, between C8-9, if on Page 1 the /SCL-entry has 2 in C16; that is, in F(13-16)/SCL, either MT.2 or FT.2 has been entered; if, however, an x is in C16 of that entry, then a decimal must be entered with each FROM (and each TO) unless it has no decimal parts and is right-justified in the 6-column field in which case the System infers a decimal to the right of C10 (or C16 of the To-field); see examples under FROM
F(13-16)/SCL	by entering M in C13 in the /SCL entry, metric units are being used; but if F is entered, the foot is the unit of measure
F(5-10,11-16)	From-To- field; the interval referenced by an entry
F(5-10,11-16)S	From-To- field of the Survey or S-entry
F(5-10,11-16)A	From-To- field of an Assay or A-entry
F(17-20)/	Recovery or Recov field, Upper or slash (/) Tier; although the units of Recovery and the default position of the decimal can be
F(17-20)/SCL	specified in F(17-20)/SCL (the Upper Tier Scale entry), such as MT.1 or FT.1 or PC.0 (percent, no decimal place) it is suggested that it may be simpler to include a decimal with each recovery entry
F(17-20)L	Rock Quality Designator or RQD field; units and the default
F(17-20)LSCL	position of decimal can be specified in F(17-20)LSCL (the Lower Tier Scale entry); see last entry
F(21-22)/	Type-Modifier or T-MOD field
F(23)/	Percentage of Mix or %Mix or %M field
F(21-23)L	AGE or Formation field
F(24-27)/	Rock Type or ROCK field
F(24-25)L	Environment of Emplacement or ENVIR field or ENV field

F(26-27)L

Rock Body Qualifier (RTQ) (designated on the present GEOFORM 80-128 as RBD = Rock Body Descriptor). The RTQ Codes are the 2-letter Short Forms of the Rock Type Codes, as for example:

AN	andesitic	FL	felsitic	RD	rhyodacitic
AP	aplitic	GB	gabbroic	S#	schisty,-ose
AR	argillaceous	GR	granitic	SN	sandy
AK	arkosic	GN	gneissic	SH	shaly
BN	bentonitic	HR	hornfelsic	SI	silty
CH	cherty	LT	latitic	SL	slaty
CY	clayey	LS	limey	SY	syenitic
CO	coaly	MF	mafic	TC	trachytic
CG	conglomeratic	MZ	monzonitic	TF	tuffacious
DC	dacitic	PG	pegmatitic	UM	ultramafic
DB	diabasic	PH	phyllitic	VL	volcanic
DR	dioritic	PP	porphyritic		etc.
DO	dolomitic	RY	rhyolitic		

Also, the Provenance or source of rock particles can also be entered here:

M*	metamorphic
X*	mixed
P*	plutonic
Y*	pyroclastic
S*	sedimentary
V*	volcanic, gen.

(*The asterisk may be replaced by a G-Scale percentage; e.g.
M3 = 30% metamorphic provenance
P4 = 40% plutonic provenance
S6 = 60% sedimentary provenance)

F(28-29,30-31)/ Typifying rock-forming Minerals, TM1 and TM2
F(28-29)L LC Colour System or Lightness-Colour
F(30-31)L often pre-empted for TM3
F(28-31)L LBHU or Lightness-Brightness-Hue Colour System
F(32-34)/L Qualifying Minerals, Materials & Descriptors
F(35-36,37-38)/L Textures, TX1 & TX2, TX3 & TX4
F(39,40,41,42)/ Grain Size: Fine Fraction, Coarse Fraction, % Coarse, and Max Size Particle, all S-Scale except %C is G-Scale
F(39,40,41,42)L Degree of Sorting, N-Scale 1-9 C39
Degree of Roundedness, N-Scale 1-9 C40
Shape: C=Compact, F=Flattened, M=Mixed, L=Lengthened, P=Platy B=Bladed E=Elongated) C41
or Sphericity, N-Scale, 1-9)
Open or Closed, O or C; or Equi- or Inequigranular, E or I C42
F(43,44)/ Fracture Intensity, Steep, C43; Mineral Intensity on all fractures, C44
F(43,44)L Fracture Intensity, Moderate, C43; Fracture Intensity, Low, C44
F(45-46)/L Spares
F(47)/ Ri = Repeat Interval: enter
P = PGI D = DRI
R = GRI A = AGI
F(47)L Ri: use in the same way as F(47)/ in the event that only the Lower Tier is repeated
F(48)/L B1 & B2, bedding mode thickness, major & minor or T1 & T2, mode thickness of features such as dykes, sills, beds, veins, etc., identified in the adjoining ID field, F(49-50)/L
F(51-53,54-56)/L Azimuth and Dip to right of planar feature, identified in corresponding ID field, F(49-50)/L or Azimuth and Plunge of Linear feature, such as fold axis, similarly identified
F(57-58)/L QZ or quartz, How and Amount in Upper or slash /
KF or K-feldspar in Lower or L
F(59-60)/L BI or biotite in /
MU or muscovite/sericite in L
F(61-62)/L CY or clay in /
CL or chlorite in L
F(63-64)/L CB or carbonates, gen. in /
EP or epidote in L
F(65-66)/L MG or magnetite in /
HE or hematite in L
F(67-68)/ XX means that the 2-letter code of any mineral can be entered in this Upper field and
F(67-68)L the How & Amount of XX in this Lower field

G - S c a l e for estimating the percentage of any geologic factor when geologging

Assgn Value	Scale Value	Description & R a n g e
0	0	Absent
.01	.	Trace= <.02
.03	-	.02 to <.05
.1	(	.05 to <.2
.3	*	.2 to <.5
1	)	.5 to < 2
2.5	+	2 to < 3
5	=	3 to < 7
10	1	7 to <15
20	2	15 to <25
30	3	25 to <35
40	4	35 to <45
50	5	45 to <55
60	6	55 to <65
70	7	65 to <75
80	8	75 to <85
90	9	85 to <100
100	x	100%
.07	/	Present:Estimate not poss.
0	?	Poss.present

General Remarks are of two types:
(a) General A-Remarks that pertain to A-data, and
(b) General Remarks, unqualified

- General A-Remarks the first has the general form,

R Ann FROM-TO- GENERAL A-REMARK . . . .

where R = Key, Ann = Flag with nn = Reference Number = any integer from 01 to 99, prefixed by A, each such Flag being unique to the Project and representing a General A-Remark, written in the field F(17-80)R in one up to five lines, that the user may wish to use several to many times in one or more GEOLOGS; and From-To- = the interval to which the remark refers. Examples of General A-Remarks are (1) The detection limit for Au is .002 oz and for Ag is .01 oz/T and (2) Core severely ground; recovery locally poor.

- GAR.LIST is a list of General A-Remarks prepared by the user, with the Key and From-To- fields left blank, each A-Remark numbered in sequence in the Flag field, A01, A02, . . and written in the field F(17-80)R in one up to five lines (within that field, they can be laid out however one wishes)

- General Remarks Unqualified and (b) General Remarks, unqualified, have the form

R Gnn FROM-TO- GENERAL REMARK . . . .

where R = Key, Gnn = Flag with nn = Reference Number = any integer from 01 to 99, prefixed by G, each such Flag being to the Project, etc., as in General A-Remarks above

- GR.LIST is a list of General Remarks prepared by the user, with the Key and From-To- fields left blank, each General Remark numbered sequentially (on its first line only) in the Flag field, G01, G02 . . and written in the field F(17-80)R on one up to five lines

- To Call General Remarks — to call any General Remark, of either type, enter Key=R on GEOFORM on the line where the Remark is required; enter the Ref.No. of the Remark wanted, with prefix, as the Flag and enter a FROM and TO that will ensure that the Remark will be output in the required position: the simplest way of doing this is to make it a Point-Entry, with From=To=footage of that required position, as for instance = 0.0 if it is to be output at the beginning of a Geolog after Header Remarks. The disadvantage of using the Point form within the body of a Geolog is that one cannot then use the From-To- to indicate the interval to which the Remark specifically pertains; remember that the System will normally place it at the end of the interval to which it refers

GEOCODER — is the Users' Manual & Field Guide of the GEOLOG System

GEO.EDIT — is the computer program that edits Geologs and that endeavours to ensure that the quality of all the data meets the high standards of the Geolog System before it is added to the database of the Project; this is not to say that it is perfect -- it needs all the help it can get!

Geodata — is any estimated volume percentage presence, within any measured interval, of any mineral or specific rock type or mode particle size, etc., or is any classification dependent on estimating which of several features or factors present is the most prevalent or dominant for that interval, such as the shape of particles, or their degree of roundedness, or their degree of sorting; or which four or fewer textures warrant being reported for the interval, and etc.
the consistency and relative accuracy of geodata is more important than absolute accuracy. Pick two representative pieces of rock from the interval and examine them using binocular mike or at least a good hand lens, together with other aids, including hardness needles, acid, magnet and etc.

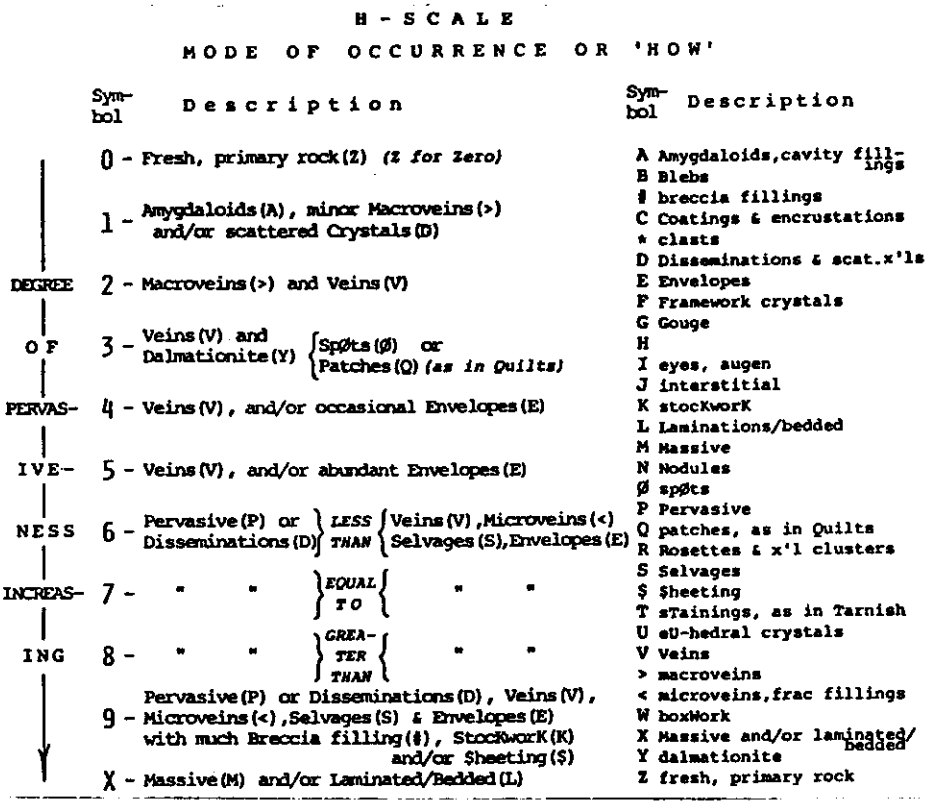
GEOFORM — is the standard two-colour form that can be readily modified, by using the many built-in options, to meet the requirements of different projects in a great variety of environments; the GEOFORM described in this GEOCODER is Format Version 6B02(Spec-01)
when a drillhole/traverse is geologged, all geodata, survey data and assay data and other A-data, remarks and summary remarks are entered into GEOFORMS, which are sequentially page-numbered.

GEOLOG — a set of one or more completed GEOFORMS, containing the geologged records of a drillhole/traverse, is referred to as the GEOLOG of that traverse

Grain
- characteristics
- Size S-Scale
- Sorting
- Roundedness
- Shape
- Sphericity
- Open or Closed

For grain characteristics, which includes (a) biomodal sizes, with percentage of coarse fraction, and also maximum particle (0 through 9 to X and letters A to U); (b) Degree of Sorting, 1 to 9; (c) Degree of Roundedness, 1 to 9; (d) Shape, C = Compact, F = Flattened, M = Mixed, L = Lengthened, P = Platy, B = Bladed, E = Elongate; (e) Sphericity, 1 to 9; (f) Open or Closed Structure, O or C, Equi or Inequi granular, E or I - - - See Grain, p.__

H-Scale
- used for the How or Mode of Occurrence



Use the letters and special symbols to report single mode occurrences; use the numbers 1 to 9 to report a bimodal or trimodal how of occurrence or the more complex situations;
the value of reporting the 'how' or mode of occurrence of all alteration and ore-type minerals, interval-by-interval, cannot be overemphasized -- statistical or geostatistical analyses of the resulting mass of geodata could well prove to be a real ore-body finder

HASH TOTAL

of total depth/length of drillhole/traverse + azimuth + vertical angle (minus if angled down) + Northing (minus if Southing) + Easting (minus if Westing) + Elevation (minus if Sub-sea), of the collar or starting-point of the drillhole/traverse, algebraically totalled on the survey records and reported in F(39-50)S, with decimal in C48; because the System rechecks the hash total, it serves as an excellent check against transcription and data entry errors; (note that no attention is paid to what the various units are used for the various factors; note that the vertical angle is negative if angled down and that azimuth is always positive)

- Hash Totals of Assays & other A-Data

of assays and other A-data are algebraic totals, regardless of units, for each entry (but do not include From-To- or sample numbers); because the hash total is (or should be) compiled from the original work sheets or the assay reports, and because the System re-totals all the A-values in each entry, it serves as an excellent check against transcription and data entry errors -- helps ensure the quality of the data. If the units of some of the A-data are, say, parts per million, and of others, percentage, the hash totals may occasionally exceed six figures. It is then

- H-Entries — necessary to enter the hash totals in an H-entry following each A-entry, with Key = H and with the From-To- either made the same as the immediately preceding A-entry or left blank (because the System automatically brings down the preceding From-To- -- see Rule R-2); otherwise, unless the right-hand 6-column field, F(75-80)A, is required for A-data, it may be used for the hash totals, provided -HASH- is entered in the A-UMM Header in that field F(75-80)A and TOTALS is entered in the A-LAB Header in same field. However, it is most important to be consistent. For any given A-File the hash totals must be either on the A-entry or on an H-entry, but not a mixture of both ways

- H-Entry with Flag = COM H-COM — If an H-entry has a Flag = COM (COM for composite), then the pairs of 6-column fields, F(21-26,27-32)H, F(33-38,39-44)H, F(45-50, 51-56)H, F(57-62,63-68)H, may contain the first and last sample numbers of one or more groups of samples included in that composite sample pulp, for the From-To- interval given in the immediately preceding A-COM entry -- and the hash total of those composite assays are given in this H-entry in the field, F(69-80)H

- A-CMP — with Key = A and Flag = CMP (an A-CMP entry) the entry contains computed composites, as opposed to composite pulps which are assayed; these require no hash totals. As computed composites can be calculated in many different ways, for any project if several different computed composites are calculated and saved in a database of any kind, one type can be differentiated from several others by Flags = CM1, CM2, . . . and described in an assay remark, R-ASY

I — Identity Key, used to activate the first Header

ID-entry — ID-entry and also the second Header IP-entry

IDEN — Key/Flag of the ID-entry, the topmost, yellow entry line b

IP-entry — The IP-entry is the second Header (green) in which is entered the Company name and the Property or Project and Sub-Project names

IPRJ — Key/Flag of the IP-entry

K — is the Key Horizon Key and is interchangeable with the Upper Tier Key = / (slash)

Key — The Key gives special 'key' information to the System and subdivides all entries into ten main classes, as follows

- I Identity data and information
- S Survey data
- / Upper Tier geodata, scale and units
- L Lower Tier geodata, scale and units
- K Key Horizon data and labels
- R Remarks
- X Non-processed comments, sketches, diagrams, etc.
- A A-data, which includes Assays, Analyses, geochem and geophysical data of all types
- F Formatted information
- H Hash Totals for edit control (See Keys & Flags, p.__)

MINERAL CODES

AC actinolite
AD adularia
AB albite
AM almandite
AL alunite
AA amphiboles,gen
AA andalusite
AG anglesite 68Pb
AH anhydrite
AN anorthite
AP apatite
AR aragonite
AS arsenopyrite 45As
AS asbestos
AU augite
AT axinite
AZ azurite (see M*) 55Cu
AE aegerine

BA barite
BE beryl
BI biotite
B* biotite : hornblende
| min.comb'n,undif
BI biotite alone
B>|BI>HB
B=|BI=HB
B<|BI<HB
HB hornblende alone

BI bismuthinite 70Bi
BO bornite 63Cu
BR brecheatite 56Cu

CA calcite (see D*)
CB carbonates,gen
CT cassiterite 79Sn
CE cerussite 77Pb
CH chalcanthite 25Cu
CC chalcocite,gen 80Cu
C$ " as ec.min
C. " as gangue
CP chalcopyrite 35Cu
CL chlorite
CD chloritoid
CR chromite 46Cr
CY chrysocolla 36Cu
OL chrysolite(olivine)
CS chrysotile
CN cinnabar 86Hg
CY clay
C* clay : muscovite
| min.comb'n,undif
CY clay alone
C>|CY>MU
C=|CY=MU
C<|CY<MU
MU muscovite alone

CX clinopyroxene,gen

CI clinozoisite
CF coffinite
CU copper,native Cu
CB cordierite
CV covellite 66Cu
CI cuprite 89Cu

DC dichite
DG digenite
DI diopside
DO dolomite
D* dolomite : calcite
| min.comb'n,undif
DO dolomite alone
D>|DO>CA
D=|DO=CA
D<|DO<CA
CA calcite alone

EN enargite
ES enstatite
EP epidote
ER erythrite 38Co

FO forsterite
FA fayalite
FT fematinite
FX feldspars,gen
FD feldspathoids,gen
FB ferberite W
FM ferrimolybdite 68Mo
FL fluorite 49F
GL galena 86Pb
G* galena : sphalerite
| min.comb'n,undif
GL galena alone
G>|GL>SL
G=|GL=SL
G<|GL<SL
SL sphalerite alone

GA garnet
GS glass,gen
GH glauconite
GC glaucophane
GE goethite
GD gold Au
GR graphite C
GR greenockite 78Cd
GI greisen,gen
GY gypsum

HA halite
HV halvite
HE hematite,earthy 70Fe
HS hematite,specularite

H* hematite : magnetite
| min.comb'n,undif
HE hematite alone
H>|HE>MG
H=|HE=MG
H<|HE<MG
MG magnetite alone

HB hornblende (see B*)
HU huebnerite 61W
HH hydremica (IL)
HY hypersthene

IL illite (HM)
IM ilmenite 32Ti

JD jadeite
JA jarosite
JD jordisite 68Mo

KA kaolin
KY kyanite
KF K-spar,orthoclase
K* K-spar : plagioclase
| min.comb'n,undif
KF K-spar alone
K>|KF>PF
K=|KF=PF
K<|KF<PF
PF plagioclase alone

LM lanmontite
LW lawsonite
LU leucite
LE leucoxene
LI limonite
MF mafics,gen
MA magnesite 48MgO
MG magnetite(see H*) 72Fe
MC malachite 58Cu
M* malachite : azurite
| min.comb'n,undif
MC malachite alone
M>|MC>AZ
M=|MC=AZ
M<|MC<AZ
AZ azurite alone

MN manganite 62Mn
MT marcasite
MR margarite
ML melnikovite
MI micas,gen
MO molybdenite 60Mo
MZ monazite
MM montmorillonite
MU muscovite (see C*)
MS sericite

NF nepheline
NI niccolite 44Ni

OL olivine(chrysolite)
OP opal
OQ opaques,gen
OX oxides,gen
OR orthopyroxene,gen

PH phlogopite
PF plagioclase (see K*)
PT platinum Pt
PW powellite 58Mo,W
PB pollucite Cs
PY pyrite 47Fe
PL pyrolusite
PX pyroxene,gen
PP pyrophyllite
PR pyrrhotite 60Fe
PN pentlandite

QZ quartz,gen
QA quartz,agate
QC quartz-carbonate
QH quartz,short
QM quartz,amethyst
QX quartz,crystals
QS quartz-sericite
QT quartz-tourmaline
QR quartz,rutilated
QV quartz vein,massive

RC rhodochrosite Mn
RH rhodonite Mn
RU rutile 60Ti

SA sanidine
SC scapolite
SZ scorzalite
SF sericite-fluorite assemblage
SH scheelite 64W
SS sericite (MU)
SE serpentine
SD siderite 48Fe
SI sillimanite
SV silver
SS silver & sulphosalts
SO sodalite
SL sphalerite (see G*) 67Sn
SP sphene
ST staurolite
SB stibnite 72Sb
SU sulphates,gen
SX sulphides,gen
SR sperrylite

TA talc
TL tellurides,gen Te
TN tennantite 3CU3AS+As
TW tenantite 3CU3AS+As
TE tenorite 80Cu
TT tetrahedrite Cu+Sb
TT TT,TN undif
TS topaz
TF tourmaline
TR tremolite

UR uraninite(pitchblend 92U+
UX uranium minerals,gen

VA vanadinite 73Pb,11V
VE vesuvianite

WO wad Mn + other
WF wollastonite
WF wolframite 63W
WU wulfenite 56Pb+26Mo

ZE zeolites,gen
ZI zircon
ZS zoisite

XX any mineral
YY " "
ZZ " "
ZY " "

X1) minerals identi-
X2) fied elsewhere
Y1) or later

ADDENDUM:

RECAP SUMMARY OF SOME IMPORTANT GENERAL MINERALS

AX amphiboles	TL tellurides
CB carbonates	TX TT,TN undif
CC chalcocite	UX uranium min's
CX clinopyroxene	ZE zeolites
FX feldspars	
FD feldspathoids	
GL glass	
GS greisen	
LI limonite	
MF mafics	
OQ opaques	
OX oxides	
PF plagioclase	
PX pyroxenes	
QZ quartz	
SF sericite-fluorite assemblage	
SS silver & sulphosalts	
SU sulphates	
SX sulphides	

RECAP SUMMARY OF MINERAL COMBINATIONS

B* biotite : hornblende

C* clay : muscovite

D* dolomite : calcite

G* galena : sphalerite

H* hematite : magnetite

K* K-spar : plagioclase

M* malachite : azurite

SPECIAL NOTE: Any two-letter Mineral Code followed immediately by a G-Scale estimated percentage presence of that mineral becomes a three-character QUALMAT (QM1 or QM2) in fields F(32-34)/L or a simple abbreviation for use in Remarks.

**min.comb'n,undif=mineral combination,undifferentiated. For instance,use B* where proportion of BI & HB cannot be given.

N-Scales

The N-Scales have scale values that range either from 1 to 9 or from 0 to X, where X is the Roman Numeral X = 10.

AMOUNT OR INTENSITY	DEGREE	COMPARISON	MODE
0 nil			0 not —d
1 extremely low —x	1 extremely —x	1 considerably —x	1 extremely poorly —d
2 very low --x	2 very --x	2 much --x	2 very poorly --d
3 low —x	3 —x	3 —x	3 poorly —d
4 fairly low --x	4 fairly --x	4 slightly --x	4 fairly poorly --d
5 intermediate, medium	5 intermediate	5 equal, equally	5 moderately —d
6 fairly high --x	6 fairly --y	6 slightly --y	6 fairly well --d
7 high —x	7 —y	7 —y	7 well —d
8 very high --x	8 very --y	8 much --y	8 very well --d
9 extremely high —x	9 extremely —y	9 considerably —y	9 extremely well —d
X exceptional high			

where --x = fracturing or fracture intensity, permeability, porosity

where . . . --x	where . . . --y	where . . . --x	where . . . --y	where --d =
angular	rounded	less(than)	more(than)	banded
cold	hot	less "	greater "	bedded
dull	sharp	lower "	higher "	cemented
dull	bright	leaner "	richer "	consolidated
fragile	tough	lighter "	heavier "	crystalized
hetero-geneous	homo-geneous	darker "	paler "	disseminated
light	heavy	smaller "	larger "	drained
dark	light			formed
low	high			fossilized
narrow	wide			graded
short	long			indurated
slow	fast			preserved
small	large			rounded
soft	hard			sorted
thin	thick			
weak	strong			

GRAYNESS	LIGHTNESS	BRIGHTNESS
N black (Noir)	N black	A grAy
1 darkest gray	1 darkest —c	1 grayish —c
2 very dark gray	2 v.dark --c	2 very dull --c
3 dark gray	3 dark —c	3 dull
4 med.dark gray	4 med.dark --c	4 mod.dull --c
5 medium gray	5 medium —c	5 moderate
6 m.light gray	6 m.light --c	6 mod.bright --c
7 light gray	7 light —c	7 bright —c
8 pale gray	8 pale --c	8 very bright --c
9 palest gray	9 palest —c	9 brilliant —c
W white	W white	

where --c = any colour

ALTERATION FACIES
PORPHYRY or GENERAL MODEL

+ diagnostic; abundant * commonly pres;mod. " – uncom. & minor ø original	ALTERATION MINERALS								
	QZ	KF	BI	MS	CY MH KA	CL	EP	CB	OTHER
0 Fresh,Primary Rock	ø	ø	ø						
1 Propylitic	–	ø	ø	–		+	+	+	AB,ZE
2 Montmorillonitic	–		–	–	* +	–		*	
3 Intermediate Argillic	–		*	*	+ –				
4 KF-Stable	+	ø		+	–				
5 Phyllic/Greissenous	+			+	–				TØ,FL,TE
6 Advanced Argillic	+			+	+				PP,TØ,AL
7 Potassic	*	+	+	+					MG,AH,TØ,AK
8 Chlori-Potassic	*	+		–		+			
9 Silicic/QZ Flooding	+	*	*	*					

ROCK TYPE CODES

The first 4 letters of a rock type name is its preferred Code (granite = GRAN), but if 4th letter is a vowel (as in aplite) that vowel is replaced by the next consonant: (aplite = APLT, andesite = ANDS).

If double letter occurs in first part of word (as in agglomerate) one is dropped: (agglomerate = AGLM). However, all Codes must be unique; consequently, some have to be irregular. When forming irregular Codes, important sounds (such as CH, SH, TH and non-silent vowels) are preserved if possible; drop unimportant vowels (Eg, fault = FAUL or FALT - the latter is preferred because silent U is dropped and T preserved; or in Flag weathered = WET or WTH - the latter is preferred because TH is preserved; and in diatomite = DIAT - both vowels are preserved because neither is silent). F may replace PH (amphibolite = AMPH or AMFB).

CODE FORM	SHORT FORM	ROCK TYPE NAME
ΣΣΣΣ		acidic rock,gen
ADAM	AD	adamellite =
[QEMZ]	QM	quartz monzonite
AGLM	AG	agglomerate
AGZZ	AG	" alt'v form
ALAS	AL	alaskite
ALMT		almatic
AMPH	AM	amphibolite
AMFB	AM	" alt'v form
ANDS	AN	andesite
AN/D		" dyke
AN=F		" flow
AN=L		" sill
ANQR		anorthosite
APLT	AP	aplite
AP/D		" dyke
ARGL	AR	argillite
ARKS	AK	arkose
AUTC	AC	autoclastic rock
BENT	BN	bentonite
BN/B		" bed
BASL	BS	basalt
BS/D		" dyke
BS=F		" flow
BASC		basic rock,gen(MAFC)
BIOC	BC	bioclastic rock,gen
BQME		bone coal
BRZZ	BR	breccia,gen
BRAC		autoclastic breccia
BRAF		" flow
BRAI		" intrusion
BRCQ		carbonate-quartz
BRQC		quartz-carbonate
BRVC		volcaniclastic
BRVL		volcanic
BRCL		chlorite
CARB		carbonatite
CRBN		" alt'v form
CHER	CH	chert
CLIN		clinopyroxinite (or use PERD,CX)
CYSH	CS	claystone
CLAY	CY	clay
Ø/CY		clay unconsol,as in overburden
COAL	CP	coal
CBAN		" anthracite
CBSA		" semi-anthracite
CBBT		" bituminous
CBBB		" sub-bituminous
CBLC		" lignite
[BONE]		" bone
CONG	CG	conglomerate
CGXZ	CG	" alt'v form
CGEC		" epiclastic
CGEV		" epivolcaniclast.
CGIG		" igneous
CGVL		" volcanic
CGVC		" volcaniclastic
CPGN	CD	coquina
DACT	DC	dacite
DIAB	DB	diabase
DB/D		" dyke
DBSL		" sill
DRIF		drift, glacial
DOLM	DO	dolomite
DORF		" roof
DO/B		" bed
DUNT		dunite
ECLG		eclogite
EPIC	EC	epiclastic rock*
EPVC	EV	epivolcaniclastic* (*see Definitions)
EXTR	EX	extrusive rock
FALT		fault(none)or FAUL
FELS	FL	felsite
FLOW	(F	flow rock
GABR	GB	gabbro
GNIS	GN	gneiss
GNZZ	GN	" alt'v(regular)
GRAN	GR	granite
GRTC	GT	granitic rock
GRAT	GT	" alt'v form
GRDR	GD	granodiorite
GR/D		" dyke
GRFL		granofels
GRBL		granoblastite
GRLT		granulite=granolite
GRCH	GS	greenschist
GRST	GS	greenstone
GWAC	GN	greywacke=greywacke
GWTF		" tuff
GRIT		grit
HARZ		harzburgite(PERD,PL)
HBLT		hornblendite
HORF		hornfels
HRNF		" alt'v form
(BANY)		hypocrystaline brec
IGNE	IG	igneous rock
IGNB		ignimbrite
INTR	IN	intrusive rock
JASP		jasper
JSPD		jasperoid
KIMB		kimberlite
LAHR		lahar
LAMP	LM	lamprophyre
LM/D		" dyke
LAPL	LP	lapillistone
LATR		laterite
LATT	LT	latite
LAUR		leurvikite
LAVA	LV	lava
LHER		lherzolite
LIME	LS	limestone
LS/B		" bed
LSAF		" roof
LSSQ		" sequence
LOST		lost core
MAFC	MF	mafic rock,gen
MFIC	MF	" alt'v form
MVL		" volcanic
(TRAP)	TP	mafic rock = trap
MARB		marble
MARL		marl or marlstone
MSIX	MX	massive any min XX
MAGI		" oxides
MSSI		" silicates
MSSU		" sulphates
MSSI		" sulphides
MARK		meta-arkose
MTBC	MB	metabioclastite
METM	MT	metamorphic rock,gn.
MTDB		metadiabase
MTSD	MS	metasediments,gen
MTVL		metavolcanics,gen
MTVC		metavolcaniclast-ics,gen
MIGM		migmatite
MILL		mill-rock
MINT		minette
MONZ	MZ	monzonite
MUDS	MD	mudstone
MYLN		mylonite
MIXS		unlogged part of BH
NELS		nelsonite
NFSY		nepheline syenite
NORD		nordmarkite
NORT		norite
OLGB		olivine gabbro
ORGN		orthogneiss
OPXT		orthopyroxinite(PERD
OVER	Ø/	overburden= CX)SYEN
Ø/CY		clay, unconsol
Ø/GV		gravel "
Ø/SD		sand "
Ø/SI		silt "
Ø/MD		mud "
(SOIL)		soil
(TILL)		till, glacial
PAGN		paragneiss
PEGM	PG	pegmatite
PERD		peridotite
PERT		perthosite
PHON		phonolite
PHYL	PH	phyllite
PICR		picrite
PFXX	PP	porphyry,gen
PFFX		" ,feldspar
PFFQ		" ,feldspar-quartz
PFQP		" ,quartz-feldspar
PFQZ		" ,quartz
PYRC	PC	pyroclastic rock
(AGPC)		" agglomerate
(BRPC)		" breccia
PYRX		pyroxenite
QZIT		quartzite
QZDI	QD	quartz diorite
QZGB	QG	quartz gabbro
QZMZ	QM	quartz monzonite
QZPH	QP	quartz phyllite
QZ/V		quartz vein(s)
QZVN		" alt'v form
RHYL	RY	rhyolite
RHYD	RD	rhyodacite
ROCK	RX	rock,gen
RX-1		rock-1 *
RX-2		rock-2 *
(EC-1)		epiclastic-rock-1 *
(EV-1)		epivolcaniclas.-1 *
(MS-1)		metased.-rock-1 *
(VL-1)		volcanic-rock-1 *
(VC-1)		volcaniclas-rock-1* (*identified later)
SCHI	SI	schist
SCHZ	SI	" alt'v form
SCYL		soapylite
SXAT		saxtaarth
SXON	SD	sedimentary rock
SERP		serpentinite
SAND	SN	sandstone
(Ø/SN)		sand unconsol
SILY	SI	siltstone
(Ø/SI)		silt unconsol
SHAL	SH	shale
SNSI		sandstone with SI *
SWSH		" with shale *
SWCG		" with conglom *
SNSI		" with siltstone*
SISH		siltstone with SH *
SISH		" with shale *
SICG		" with conglom * (*interbedded,50%-)
SLAT	SL	slate
SOIL		soil (overburden)
SYNT	SY	syenite
SYNO		syenodiorite
TACT		tactite
TILL		till, glacial
TLIT		tillite
TING		tinguaite
TOML		tomalite
TRAC	TC	trachyte
TCAN		trachyandesite
TRAP	TP	trap
TRQM		trondhjemite
TUFF	TF	tuff
TFAQ		" ,aquagene
TFLP		" ,lapilli
TFXT		" ,crystal
TFXL		" ,crystal lapilli
TFWL		" ,welded
TUFS		tuffasite
ULMF	UM	ultramafic rock
ULBS	UB	ultrabasic,alt'v
VOLC	VL	volcanic rock
VLCC	VC	volcaniclastic rock
VEIN	/V	vein
<<<<	<<	microveins
>>>>	>>	macroveins
WEBS		websterite
WEHR		wehrlite

ROCK TYPE CODES The first 4 letters of a rock type name is its preferred Code (granite = GRAN), but if 4th letter is a vowel (as in aplite) that vowel is replaced by the next consonant: (aplite = APLT, andesite = ANDS).

If double letter occurs in first part of word (as in agglomerate) one is dropped: (agglomerate = AGLM). However, all Codes must be unique; consequently, some have to be irregular. When forming irregular Codes, important sounds (such as CH, SH, TH and non-silent vowels) are preserved if possible; drop unimportant vowels (Eg, fault = FAUL or FALT - the latter is preferred because silent U is dropped and T preserved; or in Flag weathered = WET or WTH - the latter is preferred because TH is preserved; and in diatomite = DIAT - both vowels are preferred because neither is silent). F may replace PH (amphibolite = AMPH or AMFB).

ROCK TYPE QUALIFIER RTQ

The RTQ codes are the 2-letter Short Forms of Rock Type Codes. They are to be entered in F(26-27)L (shown on present GEOFORM 80-128 as RBD = Rock Body Descriptor). A partial list follows:

AN	andesitic	FL	felsitic	RD	rhyodacitic
AP	aplitic	GB	gabbroic	S#	schisty,-ose
AR	argillaceous	GR	granitic	SN	sandy
AK	arkosic	GN	gneissic	SH	shaly
BN	bentonitic	HR	hornfelsic	SI	silty
CH	cherty	LT	latitic	SL	slaty
CY	clayey	LS	limey	SY	syenitic
CO	coaly	MF	mafic	TC	trachytic
CG	conglomeratic	MZ	monzonitic	TF	tuffacious
DC	dacitic	PG	pegmatitic	UM	ultramafic
DB	diabasic	PH	phyllitic	VL	volcanic
DR	dioritic	PP	porphyritic		etc.
DO	dolomitic	RY	rhyolitic		

Also, the Provenance or source of rock particles can also be entered here:

M*	metamorphic
X*	mixed
P*	plutonic
Y*	pyroclastic
S*	sedimentary
V*	volcanic, gen.

(*The asterisk may be replaced by a G-Scale percentage; e.g.
M3 = 30% metamorphic provenance
P4 = 40% plutonic provenance
S6 = 60% sedimentary provenance)

Rule R-1: Every entry onto GEOFORM must include a From-To-, actual or implied, except all the GEOFORM Header entries other than the S-entry

Every line or entry of data or remarks requires a From-To- in order to inform the GEOLOG System where each entry belongs in the total sequence of entries that describes a drillhole/traverse, what interval it describes or modifies, and how it interrelates to other entries

If the From-To- fields are left blank, it must be perfectly clear, from the Rules, how the System is to determine, without ambiguity, what footage to assign to the From and To in any such entry

If in doubt, enter a From-To-

Rule R-2: For any entry having either or both of the From-To- fields blank, the System will bring down from a preceding entry the closest, non-blank, corresponding From and/or To, UNLESS: Key = R and Flag = HED or SUM or one of the G-numbers or A-numbers from the sequence G01 to G99 or A01 to A99

Rule R-3: If in any Remark entry (that is, with Key=R) and, in addition,
(a) if Flag = HED, the System will set From = To = 0.0 and will relocate, if necessary, on computer printer output, this Header Remark immediately above the initial interval of geodata output, regardless of where entered between the S000 and /END entries and, if there are several Header Remark entries, they will be placed in the same order as they are originally entered;
(b) if Flag = SUM, the System will set From = To = total depth/length of the drillhole/traverse and will relocate on output, if necessary, this Summary Remark immediately below the final interval of geodata output (including any associated remarks) and above any assay tables and remarks pertaining thereto;
(c) if Flag = G01 to G99 and (i) From-To- is not blank, the System will copy, from a prepared list of numbered General Remarks, that particular flagged Remark into that location or (ii) if From-To- is blank, will copy that General Remark onto a

separate page that precedes every drillhole/traverse output, or, on option, every nth drillhole/traverse;

(d) if Flag = A01 to A99 (with From-To- blank), the System will copy, from a prepared list of numbered Assay/Analysis General A-Remarks, the particular General A-Remark flagged and output it above any assay tables and headers and below Summary Remarks from (b) above

The initial geologic description of any interval along a drillhole/traverse is contained in what is called a Principal Geologic Entry or Interval* or PGI

Rule R-4: The System expects and requires a continuous string of PGI's, from the collar or starting point, 000, to the end of the drillhole/traverse, EOT (end of traverse), without gap or overlap

The presence of all gaps and overlaps are reported by the GEO.EDIT in error messages. No final output can be produced until all critical errors have been corrected

A PGI may be monolithic or multilithic; that is, it may consist of only one rock type with uniform characteristics, such as granite, or of several rock types, interbedded, intermixed or otherwise interrelated. For instance, the interval might be an interbedded sequence of sandstone, shale and siltstone; an intermixed suite of rock types in a breccia, conglomerate or agglomerate; or partially assimilated fragments of andesite as xenoliths in diorite

In order to do full justic to each rock type present, each must be described in a separate entry - each rock type with its specific characteristics, together with the alteration, mineralization and deformation that is associated with it, must be given equal time and equal space in order not to create any uninten-

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*The terms, interval and entry, as used herein, are almost interchangeable. All types of entries, whether geologic, assay or geophysical, etc., are always linked with From-To- intervals along drillhole/traverses and so the act of entering or of making an entry of a certain type of data establishes a certain type of interval, each with its set of rules as to how the System handles it.

tional bias or to hide or blur any subtle relationships that might be revealed by analysis between certain rock types and/or their characteristics and certain alteration/mineralization assemblages

To accomplish this, the Repeat Interval concept was developed several years ago and added to the GEOLOG System. A repeat interval or geological repeat interval entry, referred to as an RI or GRI repeats all or part of a PGI. No limit is placed on the number of repeat intervals that may pertain to all or any part of a PGI. Some may describe additional rock types present. Others may deal with superimposed alteration, mineralization and structure

Rule R-5: A Geologic Repeat Interval (GRI) must not extend beyond the From-To- limits of the PGI which it modifies. Within those limits, however, one or more GRI's may repeat all or any part of the PGI and may overlap or gap one another (See Figure 3)

Rule R-6: All GRI's have a Rock Type and a %Mix

The %Mix informs the System what percentage of the From-To- interval of the GRI is made up of its specified Rock Type

If no other GRI repeats this same interval, then the balance, 100% - %Mix of this GRI, must be made up of the Rock Type of the PGI

If several GRI's overlap this same interval, then the part made up by the PGI is 100% - (%M_1 + %M_2 +...)

Rule R-7: The %Mix of the PGI must be left blank

If the %Mix of the PGI is entered by mistake and 'P' is entered in F(47)/, the System will ignore the %Mix in F(23)/

If %Mix is entered in the PGI and P is not entered in F(47)/, GEOEDIT will give an error message to the effect that a PGI is missing for that interval

Rule R-8: The Ditto Repeat Interval, DRI, falls within the From-To- limits of the preceding PGI and duplicates it in F(21-46,57-80)/L, except as modified column-

by-column; any factor not wanted in this DRI must be zeroed-out by entering a zero, as for instance, the How of Occurrence when the Amount of a mineral present in this interval has been modified to zero

Having described a longer interval in a PGI, its principal rock type and characteristics, its alterations and ore-type mineralization associated with and/or superimposed on that principal rock type, one can effectively and efficiently 'fine tune' that general description by using one or more DRI entries covering shorter intervals, making modifications column-by-column as required

Rule R-9: The As Above Geologic Interval, AGI, is identical to the last PGI, in C(21-46,57-80)/L, except as modified column-by-column; any factor not wanted in this AGI must be zeroed-out by entering a zero, as for instance, the How of Occurrence when the amount of mineral present in this interval has been modified to zero

When a repeat interval of any type repeats and modifies part but not all of a PGI, it breaks that PGI in two or three smaller intervals called Elemental Interval (EI's). No two adjoining EIs are geologically identical. If a single repeat interval (GRI) repeats and modifies the central part of a PGI but not either end segments, there will be created three EI's, the two outer ones being geologically identical and the adjoining central one different

In Figure 3, note that in the second PGI, the Repeat Interval breaks PGI_2 into three Elemental Intervals, EI 2a, 2b and 2c, of which 26 is geologically different from the two adjoining ones, 2a and 2c

This is important. Four descriptions have created six uniquely different descriptions. Provided that the average length of elemental intervals or EI's of a drillhole/traverse is about the same as the assay interval (if constant) or average assay (if not constant), we have a viable geostatistical situation

Rule R-10: The Elemental Intervals, EI's, are the parts into which a PGI is fragmented by one or more repeat interval entries, not all of which extend over the whole of the PGI : no two adjacent EI's (originating from the same PGI) are geologically identical

Finally, another type of entry that is used for describing a feature occurring at a point along the drillhole/traverse, such as a contact or fault, is the Point Entry, in which the From = To

Rule R-11: A Point entry is any entry onto GEOFORM in which its From = To; on computer printer output, this Point entry is placed ahead of elemental intervals having the same From but in which the To is greater than the From

Rule R-12: Every active page of GEOFORM must have the IDEN Header entry completed from column 1 to 24 and 77 to 80, which includes the Key = I and Flag = DEN, the Project -ID, DH/traverse -ID and Page/Of fields

Rule R-13: Every active Page 1 of GEOFORM must have the following Header entries:
(a) IDEN entry completed from column 1 to 38 at least and 77 to 80
(b) S000 entry completed from 1 to 80 (see Rule R-14)
(c) /NAM (for Upper Tier Names): if not entered with any changes, all fields are as shown by default
(d) /SCL (for Upper Tier Scales): if not entered, or if entered but certain fields left blank, then by default: measurements are metric, and From:To measured in metrics with 2 places of decimals (MT.2) (enter F in C13 for FT.2 meaning feet with 2 places of decimals) (in both cases, the assumed decimal point is the double vertical lines between C8-9 and C14-15 it is not necessary to write in zeros if no decimal parts) %Mix in F(23) and %C in F(41) are G-Scale and all Amounts in all even-column numbers in the alteration and ore-type minerals sector are G-Scale

Exception 2: If Key = R and Flag = SUM , then FROM = TO = footage of total depth or end of traverse, so that the System will place them immediately following the last geodata entry and/or Remark pertaining to the last interval described in the drillhole/traverse - but not after assay data tables.

A - DATA

The term, A-data, encompasses many classes and types of quantitative data. It includes all types of assay measurements; analyses of materials, like coal and bitumen; and measurements of physical, electrical, magnetic and chemical properties of rock samples, drill core or rocks in situ, including those obtained by down-hole probes.

Because assay data is of primary importance in exploration, evaluation and mine development work and is, at the same time, one of the most commonly used classes of A-data, assay data will be specifically dealt with first. This will simplify the presentation and make it appear more relevant to every day problems associated with organizing, recording and editing large quantities of this kind of exploration data. What is true for assay data is basically true for all classes of A-data. Any differences will be dealt with later.

The GEOLOG System includes extensive and sophisticated editing facilities for assisting in removing all human recording and transcription errors and errors of 3-dimensional position.

A-FILES

An A-File is a permanent computer file into which A-data, such as assay data, is entered, after it has been fully edited. Each A-File has a unique set of specifications for any one project and has a unique A-File Number, a 3-digit number selected from the sequence 001 to 999.

An A-File is so structured that it has nine 6-column fields for handling the assays, or other A-values, of up to nine metals, minerals or materials, together with another 6-column field for the sample serial number. There are two more 6-column fields to accommodate the From ; To interval of each assay entry, preceded by the 3-column Flag field for a zone flag as, for instance, SUP=supergene zone, HYP=hypergene zone, MSX=massive sulphide zone, DSX=disseminated sulphide zone, etc. And finally, the 1-column Key field in column 1, in which normally the A Key is entered.

NOTES Relevant To Fracture Density

(a) Fracture is a general term that herein is deemed to include joints and faults
(b) A fracture set is a group of fractures the planes of which are parallel or sub-parallel to one another

DEFINITION OF FRACTURE DENSITY

(1) A rock mass cut by a fracture set, in which the fractures are on the average one metre apart, is said to have an average fracture density 1 fracture per metre.

(2) A rock mass cut by n fracture sets, in which the fractures of the first set are on the average D_1 metres apart; in which the fractures of the second set are on the average D_2 metres apart; in which, etc.; and in which the fractures of the nth set are on the average D_n metres apart, has an average fracture density = $D_1 + D_2 + \ldots + D_n$, regardless of the relative orientation of the n fracture sets. The average distances in metres between fracures, D_1, D_2, . . . D_n, are also a measure of the partial fracture densities attributal to each fracture set, respectively.

(3) A rock mass cut by any number of single fractures, having random orientations, has a fracture density that varies from point to point, which can be determined by imagining a spherical shell one metre in diameter, centred at the point at which the fracture density is to be measured. For each fracture that passes right through the sphere, count 2; for each fracture that touches the sphere tangentially or enters the sphere but terminates before leaving the sphere on the other side, count 1; and for each two fractures entirely within the sphere, count 1 (provided the two are approximately equal to one radius). The fracture density at that point is equal to the total fracture count divided by 2 or, if the sampling sphere is one-half metre in diameter, the fracture density is equal to the fracture count.

MULTIPLE ACCESS COMPUTER GROUP / INTERNATIONAL GEOSYSTEMS CORPORATION 20/12/80.

G E O L O G

F O R M A T -- I

E D I T L I S T I N G

ARCHER CATHRO AND ASSOCIATES LTD.

WERNECKE JOINT VENTURE IGOR PROP

FORMAT VERSION : 6B02

DRILLHOLE/TRAVERSE 80CH006 COLLAR ELEVATION 1200.00 AZIMUTH(LEG 1) 35.00 GEOLOGGED BY : WDE +
TOTAL DEPTH/LENGTH 76.20 NORTHING(- IF S) 3600.00 VERTICAL ANGLE -50.00 DATE DY/MON/YR 09/JUN/80
CORE/HOLE DIAMETER B EASTING (- IF W) 10.00 CO-ORD SYSTEM GRD PROJECT NUMBER WJV

KEY	FLAG	INTERVAL (MT.2) FROM	TO	INT	CORE RECOV -MISS +PC.1	MF I OI M ROCK IR X TYPE	TYPI-MINS TM 1	TM 2	QAL MIN	TEX-TURES MAJOR	TX	TX	GRAIN -+ M FC	CA	X	FRACS DEN	M	I	STRUCTURES S ID	T	AZM	T O P	D I P.	B D 1	ALT/N HA	ASSEM. HA	+ MINERALIZATION. HA	HA	HA	HA	HA	HA	HA	AI LN TT	OI RN ET
-	---	----.--	----.--	----.--	--.--	-- - ----	--	--	---	--	--	--	--	--	--	---	-	--	/	---	/	//	-	--	--	--	--	--	--	--	--	--	--	--	--
						ROC DE P			QAL	TX	TX	SR	SO			SML	X		P		B	.P	B	FL	BA	C1	C3	MU	HA	H:	CP		HA	HW	HOW
					R.Q.D.	U- EN R	COLOR		MIN	MINOR		ON	H/			TOO	M	ID	L	AZM	O	L	D										I	I
						NIT PV OV			2			RD	PC			PDW	2		G		T	G	2											2	2
/		0.00	4.57	4.57		OVER																												
/		4.57	5.21	.64		BROS	HE PY		8T4	BR	RP	06	16	13										P1		83	P3		P5	D=		MC	25	
L					HB4		INCB						24	CO	22										P*	V-		P=		HE	D(		WD		
R		4.57	5.21			WD=WAD MAY BE MANGANESE OR COPPER. OCCURS ON OPEN FRACTURES WITH																														
R		4.57	5.21			MALACHITE. CARBONATE OCCURS IN LATE VEINS AND REPLACING																														
R		4.57	5.21			PELITE FRAGMENTS.																														
/		5.21	8.56	3.35		BRCB	CB CP		8T7	BR	RP	06	47	35										F*	88	P6			D*	D(		MC	84	
L					HB4		3GCL						24	CO	21									B-	6=	V=	P2		HE	D=	LI	WD		
R		5.21	10.85			HE PSEUDOMORPHOUS AFTER MG. CP USUALLY WITH HE POSSIBLY REPLACES																														
R		5.21	10.85			HE. EXTENSIVE CARBONATIZATION AND CHLORITIZATION. CHLORITE ONLY																														
R		5.21	10.85			IN MATRIX.																														
/		8.56	9.63	1.07	X	BRCB	CB CP		7T5	BR	RP	06	46	35										F2	87	P5			D*	D(		MC	74	
L							2GCL						63	CO	21									B-	6=	V(	P2		HE	D=	LI	WD		
R		8.56	9.63			MOST RADIOACTIVE SECTION CONTAINS ABUNDANT(>10%) CP AND HE. PLUS																														
R		8.56	9.63			A SILVERY MINERAL POSSIBLY ARSENOPYRITE. BR FRAGMENTS ALSO FINER																														
/		9.63	10.85	1.22		BRCB	CB CP		8T7	BR	RP	06	47	35										F*	88	P6			D*	D(		MC	84	
L					HB4		3GCL						24	CO	21									B-	6=	V=	P2		HE	D=	LI	WD		
/	VEN	10.85	15.79	4.94		BRBA	BA CB		7T2	BR	RP	36	17	13										P(	F*	P1	P1		X*	<-		MC	84	
L					HB4		8R						54	FO	21										P8			P(		HE	8)		WD		

090756

MULTIPLE ACCESS COMPUTER GROUP / INTERNATIONAL GEOSYSTEMS CORPORATION 20/12/80.

G E O L O G

F O R M A T -- I

E D I T L I S T I N G

ARCHER CATHRO AND ASSOCIATES LTD.

WERNECKE JOINT VENTURE IGOR PROP

FORMAT VERSION : 6802

DRILLHOLE/TRAVERSE 80CH006 COLLAR ELEVATION 1200.00 AZIMUTH(LEG 1) 35.00 GEOLOGGED BY : WDE +
TOTAL DEPTH/LENGTH 76.20 NORTHING(+ IF S) 3600.00 VERTICAL ANGLE -50.00 DATE DY/MON/YR 09/JUN/80
CORE/HOLE DIAMETER B EASTING (- IF W) 10.00 CO-ORD SYSTEM GRD PROJECT NUMBER WJV

K E Y	F L A G	INTERVAL (MT.2) F.ROM : T..O	I.N.T	CORE RECOV -MISS +PC.I	MF X OI M ROCK IR X TYPE	TYPI-MINS TM TM 1 2	TEX-QAL TURES MIN MAJOR TX TX	GRAIN -+ M FC CA X	FRACS DEN M I	STRUCTURES S ID T K AZM	T D B O I D P P. 1 / // -	ALT/N ASSEM.+ MINERALIZATION. A I O I LN RN TT ET ZONE
					ROC DE P		QAL TX TX SR SO		SML X	P	B .P B	FL BA C1 C3 MU HA H: CP HA HW HOW
				R.Q.D.	U- EN R NIT PV OV	COLOR	MIN MINOR ON H/ RD PC		TOO M ID L AZM PDW 2 G		O L D T G 2	1 2
/	0.00	4.57	4.57		OVER							
/	4.57	5.21	.64		BROS HE PY 8T4 BR RP		06 16	13			P1 83 P3	P5 D= MC 25
L				HB4	INCB		24 CO	22			P* V- P=	HE D(WD
R	4.57	5.21			WD=WAD MAY BE MANGANESE OR COPPER, OCCURS ON OPEN FRACTURES WITH							
R	4.57	5.21			MALACHITE. CARBONATE OCCURS IN LATE VEINS AND REPLACING							
R	4.57	5.21			PELITE FRAGMENTS.							
/	5.21	8.56	3.35		BRCB CB CP 8T7 BR RP		06 47	35			F* 88 P6	D* D(MC 84
L				HB4	3GCL		24 CO	21			B- 6= V= P2	HE D= LI WD
R	5.21	10.85			HE PSEUDOMORPHOUS AFTER MG. CP USUALLY WITH HE POSSIBLY REPLACES							
R	5.21	10.85			HE. EXTENSIVE CARBONATIZATION AND CHLORITIZATION. CHLORITE ONLY							
R	5.21	10.85			IN MATRIX.							
/	8.56	9.63	1.07	X	BRCB CB CP 7T5 BR RP		06 46	35			F2 87 P5	D* D(MC 74
L					2GCL		63 CO	21			B- 6= V(P2	HE D= LI WD
R	8.56	9.63			MOST RADIOACTIVE SECTION CONTAINS ABUNDANT(>10%) CP AND HE, PLUS							
R	8.56	9.63			A SILVERY MINERAL POSSIBLY ARSENOPYRITE. BR FRAGMENTS ALSO FINER							
/	9.63	10.85	1.22		BRCB CB CP 8T7 BR RP		06 47	35			F* 88 P6	D* D(MC 84
L				HB4	3GCL		24 CO	21			B- 6= V= P2	HE D= LI WD
/ VEN	10.85	15.79	4.94		BRBA BA CB 7T2 BR RP		36 17	13			P(F* P1 P1	X* <- MC 84
L				HB4	8R		54 FO	21			P8 P(	HE 8) WD

090756

DRILLHOLE/TRAVERSE --- 80CH006 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		10.85	15.79						MAY BE BARITICVEIN. FRAGMENTS VERY FAINT. CP CONTENT ERRATIC.																												
R		10.85	15.79						PINK HUE CAUSED BY PERVASIVE HEMATITE STAIN. BOTTOM CONTACT																												
R		10.85	15.79						GRADATIONAL. TRANSITION ZONE FROM 15M TO 16M CONTAINS A NUMBER																												
R		10.85	15.79						OF SMALL FAULTS INCLINED AT 80 . BARITIC ROCKS GENERALLY																												
R		10.85	15.79						RADIOACTIVE. BEST RADIOACTIVITY WITH CP.																												
/		15.79	21.34	5.55				BROS	HE	PY	8T3	BR	FL	05	16	23		FL			70			P1	P4	P3		P5	8=				25		
L						HB4			1GCL					76	FO	21		VN			30			V)	V=			HE	V(						
R		15.79	21.34						SHARP DROP IN RADIOACTIVITY. GRADATIONAL LOWER CONTACT. PYRITE																												
R		15.79	21.34						APPARENTLY PSEUDOMORPHOUS AFTER MG. CHLORITE CONTENT INCREASES																												
R		15.79	21.34						WITH DEPTH AND IS INVERSELY PROPORTIONAL TO HE.																												
/		21.34	24.35	3.01				BRCL	CL	HE	8T3	BR		06	26	23								P(	P5	P3	P3		P1	P1				24		
L						HB3			1GPY					55	CO	21									V-	V+	P(		HE							
R		21.34	25.76						CHLORITIZATION MOST INTENSE ADJACENT TO STEEP DIPPING CB VEINS.																												
/		24.35	24.75	.40			X	BRPC			8A6	BR		16	67	13								P3	81	P3	P3		D=	D+				86		
L						HB2			3G		7T3			33	LC	21										V+		P2	HE						
R		24.35	24.75						BEDDING STILL VISIBLE IN PELITE FRAGMENTS.																												
/		24.75	25.76	1.01				BRCL	CL	HE	8T3	BR		06	26	23								P(	P5	P3	P3		P1	P1				24		
/		25.76	27.86	2.10				BRPQ	SD		5A8	BR	GN	16	67	13		GN			70			P5	F+	61	P+		SD	5+				46		
L						HB2			5A		6G1			43	FC	21									V-	V1		P3	HE						
R		25.76	40.29						RELATIVE ABUNDANCE OF SIDERITE DISTINGUISHES THIS INTERVAL FROM																												
R		25.76	40.29						THE FOLLOW INTERVAL WHERE DOLOMITE DOMINANT CB.																												
/	VEN	27.86	28.10	.24			X	BRBA	BA		7A3	BR		16	26	1		CN		B	60			P1		P1	P=		SD				84		
L						HB4			BR					33	LO	1									P6		P1	P1								
R		27.86	28.10						NARROW BARITE VEIN?																												
/		28.10	40.29	12.19				BRPQ	SD		5A8	BR	GN	16	67	13		GN			70			P5	F+	61	P+		SD	5+				46		
L						HB2			5A		6G1			43	FC	21									V-	V1		P3	HE						
/		40.29	65.99	25.70				BRPQ			5A7	BR	FL	06	68	24		FL			45			P6	P+	51			P+			LI	35		
L						HB2			6A		5G2			23	FC	31										<=	P=	P3	HE						
R		40.29	65.99						BEDDING IS VISIBLE IN MANY FRAGMENTS. DOLOMITE IS THE DOMINENT																												

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DRILLHOLE/TRAVERSE --- 80CH006 --- (CONTINUED)

K	FLG	F.R.O.M	: T..O	I.N.T	RECOV	MF	% ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX 1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR	QM2	TX	TX	SR	SO	SML 2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		40.29	65.99						CARBONATE HOWEVER MINOR CA AND SD ARE ALSO PRESENT. THE GREEN																									
R		40.29	65.99						FRAGMENTS APPARENTLY CONTAIN CL AFTER? HE. A FEW FRAGMENTS ARE																									
R		40.29	65.99						STILL RED. SPECULAR HEMATITE IS VERY FINE GRAINED AND OCCURS IN																									
R		40.29	65.99						THE MATRIX, RIMMING FRAGMENTS AND REPLACING MAFICS IN FRAGMENTS.																									
/		65.99	69.31	3.32			BRQP	CB		5G4	BR		05	57	3							P5	P(	P2	P1		P=			35			
L						HB2		4A		7A4			22	FO	22								V-	<)	P=	P2		HE						
R		65.99	66.00						A KMM FAULT CONTAINING CB AND CL IS INCLINED AT 75																									
R		65.99	69.31						DIFFERS FROM THE PREVIOUS INTERVAL IN THAT PELITE FRAGMENTS ARE																									
R		65.99	69.31						LESS ABUNDANT AND QUARTZITE FRAGMENTS HAVE A HIGHER CB CONTENT.																									
R		65.99	69.31						IN PLACES 2 GENERATIONS OF BRECCIATION ARE EVIDENT CB AND CL ARE																									
R		65.99	69.31						MOST ABUNDANT HERE. GRADATIONAL LOWER CONTACT.																									
/		69.31	76.20	6.89			BRQP				BR	FL	06	37	12		FL		60		P5	P(	P1	P=		P1	X-		55			
L						HB2		3A					24	FC	11		VN		30				V+	P=	P2		HE	V.					
R		69.31	76.20						MANY FRAGMENTS EXHIBIT BANDS OF FINE GRAINED HEMATITE. MOTTLED.																									
R		69.31	76.20						WEAKLY BLEACHED PATCHES ARE COMMON. THE MASSIVE HEMATITE BLEBS																									
R		69.31	76.20						ARE OFTEN SURROUNDED BY BLEACHED REACTION RIMS AND PYRITE																									
R		69.31	76.20						CRYSTALS BY REDDISH HALOS. BLEACHING SOMETIMES MAKES FRAGMENTS																									
R		69.31	76.20						HARD TO SEE. FOLIATION SOMEWHAT VARIABLE. MATRIX PROBABLY VERY																									
R		69.31	76.20						FINE GRAINED PELITE FRAGMENTS.																									

						PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO	CPS
A MIN	0.00	0.00	0.00			CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	SCNTRX
A LAB	0.00	0.00	0.00			1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	IN BAG
A TYP	0.00	0.00	0.00									
A GGG	4.57	5.21	.64	100.0	J17201	14.0	3000	350	.8	21	33	90
R H	4.57	5.21					53536					
A GAG	5.21	6.74	1.53	100.0	J17202	58.0	7200	54	.8	21	33	110
R H	5.21	6.74					53536	68441				
A GAG	6.74	8.56	1.82	100.0	J17203	122.0	22400	52	.8	21	33	110
R H	6.74	8.56					53536	68441				

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DRILLHOLE/TRAVERSE --- 80CH006 --- (CONTINUED)

A MIN	0.00	0.00	0.00			PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO		CPS
A LAB	0.00	0.00	0.00			CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX		SCNTRX
A TYP	0.00	0.00	0.00			1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR		IN BAG
A GAG	8.56	9.17	.61	100.0	J17204	224.0	19600	100	.8	21	33		120
R H	8.56	9.17					53536	68441					
A GAG	9.17	10.85	1.68	100.0	J17205	49.0	3100	62	.8	21	33		90
R H	9.17	10.85					53536	68441					
A GGG	10.85	12.37	1.52	100.0	J17206	15.0	530	16	.2	3	39		90
R H	10.85	12.37					53536						
A GAG	12.37	13.81	1.44	100.0	J17207	56.0	900	12	.2	3	39		90
R H	12.37	13.81					53536	68441					
A GGG	13.81	15.79	1.98	100.0	J17208	170.0	2550	16	.2	3	39		150
R H	13.81	15.79					53536						
A GGG	15.79	17.31	1.52	100.0	J17209	145.0	4600	220	.2	3	39		130
R H	15.79	17.31					53536						
R H	15.79	17.31					53536						
A GGG	17.31	18.84	1.53	100.0	J17210	71.0	710	360	.2	3	39		110
R H	17.31	18.84					53536						

/ END

090756

MULTIPLE ACCESS COMPUTER GROUP / INTERNATIONAL GEOSYSTEMS CORPORATION 20/12/80.

G E O L O G

F O R M A T -- I

E D I T L I S T I N G

ARCHER CATHRO AND ASSOCIATES LTD.

WERNECKE JOINT VENTURE IGOR PROP

FORMAT VERSION : 6B02

DRILLHOLE/TRAVERSE 80CH007 — COLLAR ELEVATION 1144.00 — AZIMUTH(LEG 1) 95.00 — GEOLOGGED BY : WDE
TOTAL DEPTH/LENGTH 84.43 — NORTHING(- IF S) 3660.50 — VERTICAL ANGLE -50.00 — DATE DY/MON/YR 15/JUN/80
CORE/HOLE DIAMETER B — EASTING (- IF W) -46.50 — CO-ORD SYSTEM GRD — PROJECT NUMBER WJV

KEY	FLAG	FROM (MT.2)	TO	INT	CORE RECOV -MISS PC.1	MF OI DE IR	M	ROCK TYPE	TYPI-MINS TM 1	TM 2	QAL MIN 1	TEX-TURES MAJOR TX	TX	GRAIN -+ FC	M CA X	FRACS DEN	M I	ID	STRUCTURES T K	AZM	TO PO BO	DI PI DO	B 1	ALT/N ASSEM. MINERALIZATION. HA HA HA HA HA HA HA HA HA HA	AI LN TT BM	OI RN ET ZONE
						ROC	DE	P			QAL	TX	TX	SR	SO	SML	X		P		B	.P	B	FL BA C1 C3 MU HA H: CP	HA HW	HOW
					R.Q.D.	U- NIT	EN PV	R OV	COLOR	MIN 2	MINOR	ON RD	HZ PC	TOO PDW	M 2	ID	L G	AZM	O T	L G	D 2			I 2	1 2
/		0.00	5.49	5.49				OVER																		
/		5.49	9.63	4.14				BRCP	MG		8T5	BR	RP	07	78	34		FL			65		P1 <) P6 P5 V(<+ P1 P2	D= D- H<	83
L						HB2			7G		8A4	FL		23	FC	3									
R		5.49	27.19						MINOR PY REPLACING EUHEDRAL MG. MOST MG XTALS RIMMED WITH HE.																	
R		5.49	27.19						DO MOST COMMON CARBONATE.																	
/		9.63	10.67	1.04			X	BRCP	MG		8T5	BR	RP	07	78	34		FL			65		P1 D= P6 P5	D) D-	83
R		9.63	10.67						CL REPLACING MG.																	
/		10.67	12.74	2.07				BRCP	MG		8T5	BR	RP	07	78	34		FL			65		P1 <) P6 P5 V(<+ P1 P2	D= D- H<	83
L						HB2			7G		8A4	FL		23	FC	3									
/	FLT	12.74	16.46	3.72			X	BRCP	MG		8T5	BR	RP	07	78	5X		FZ			75		P1 <2 P5 P4 V(<+ P= P2	D+ 00 H=	83
L						HB2			7G		8A4	FL		23	FC	82									
R		12.74	16.46						APPEARS TO BE A SERIES OF 10 TO 60CM FAULTS. SLICKENSIDES COMMON																	
R		12.74	16.46						ROCKS IN FAULT ZONES PERVASIVELY CHLORITIZED.																	
/		16.46	21.98	5.52			X	BRCP	MG		7T5	BR	RP	06	77	33		FL			70		P2 <) P5 P4 V(<+ P= P2	D= V- H<	84
L						HB2			7G		7A2	FL		33	FC	1									
R		16.46	27.19						IN ADDITION TO CARBONATE AND PELITE FRAGMENTS THIS INTERVAL ALSO																	
R		16.46	27.19						CONTAINS APPROXIMATELY 10% QUARTZITE FRAGMENTS. CARBONATE																	
R		16.46	27.19						REPLACEMENT RANGING FROM CARBONATIZATION OF FRAGMENTS TO LOCAL																	

DRILLHOLE/TRAVERSE --- 80CH007 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	X	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		16.46	27.19																																
L						HB2			7G		7A2	FL		33	FC	1								V(	<+	P=	P2		H<						
/	FLT	21.98	22.04	.06			X	BRCL									X	F/		40														
/		22.04	26.61	4.57			X	BRCP	MG		7T5	BR	RP	06	77	33		FL		70				P2	<)	P5	P4		D=	V-			84	
L						HB2			7G		7A2	FL		33	FC	1								V(	<+	P=	P2		H<						
R		26.52	26.52																																
/		26.61	27.19	.58			X	BRCP	MG		8A4	BR	RP	06	77	33		FL		35				P2	<)	P5	P4		D=	<-			94	
L						HB2			7G		7R2	FL		33	FC	1								V(	<+	P=	P2		H<						
R		26.61	27.19																																
/		27.19	28.04	.85				BRCB	MG	CB	8T4	BR	RP	07	58	23		CN		T 00				P2	8=	P5	P1		D=				84	
L						HB2			8T		8A4			23	FC	2								6+	<=	P4	P2		H<						
R		27.19	28.04																																
R		27.19	28.04																																
R		27.19	28.04																																
/		28.04	30.02	1.98				BRPQ			8T2	BR	RP	18	58	23								P4	P=	63			D+				85	
L						HB2					8A4			22	FC	2								V+	V1	P2	P2		H<						
R		28.04	34.93																																
/	FLT	30.02	30.33	.31			X	BRCL									XX	F/		20														
L						HB3										55																			
/		30.33	34.14	3.81				BRPQ			8T2	BR	RP	18	58	23								P4	P=	63			D+				85	
L						HB2					8A4			22	FC	2								V+	V1	P2	P2		H<						
/		34.14	34.44	.30			X	BRPQ			8T2	BR	RP	18	58	23		FL		10				P4	P=	63			D+				85	
L						HB2					8A4			22	FC	2								V+	V1	P2	P2		H<						
/		34.44	34.93	.49				BRPQ			8T2	BR	RP	18	58	23								P4	P=	63			D+				85	
L						HB2					8A4			22	FC	2								V+	V1	P2	P2		H<						
/		34.93	34.99	.06				BROX	MG	BA	8T2	BR	RP	06	47	34		FL		00				P3	6=	P3	P1		D2	D)			54	
L						HB4			6G		8A3			25	FO	3		CN		B 10				61	<+	P2	P1		H<	D(					
R		34.93	44.87																																
/		34.99	37.03	2.04			X	BROX	MG	BA	8T2	BR	RP	06	47	34		FL		00				P3	6=	P3	P1		D2	D)			54	
L						HB4			6G		8A3			25	FO	3		CN		B 10				61	<+	P2	P1		H<	7+					
R		34.99	37.03																																

R 16.46 27.19 RECRYSTALIZATION IS WIDESPREAD. DOLONITE MOST COMMON.

R 26.52 26.52 A 4MM CARBONATE VEIN CONTAINS 40% PY.

R 26.61 27.19 MG DEPLETED, FOLIATION ANGLE CHANGES.

R 27.19 28.04 8MM OF MASSIVE MG AT CONTACT, SHARP BUT NO GOUGE. MG EUHEDRAL

R 27.19 28.04 GRAINS TO 4MM AND IRREGULAR BLEBS TO 10MM. CL REPLACING MG?

R 27.19 28.04 CB ALTERATION PERVASIVE.

R 28.04 34.93 MG OCCURS AS VERY FINE GRAINS IN META-PELITE FRAGMENTS

R 34.93 44.87 BA IN LATE VEINS. CB-CL ALTERATION MAKES MANY FRAGS HARD TO SEE.

R 34.99 37.03 CP DISSEMINATED IN MATRIX, REPLACING MG XTALS, AND IN BA VEINS.

DRILLHOLE/TRAVERSE --- 80CH007 --- (CONTINUED)

K	FLG	F.R.O.M	:	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
*	---	----.--		----.--	----.--	--.--	--	-	----	--	--	---	--	--	--	--	---	-	--	/	---	/	//	-	--	--	--	--	--	--	--	--	--	--	--
						R.Q.D	R.U	DE	PV	COLOR	QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		34.99		37.03						HIGHEST GRADE SECTION 35.8M TO 36.4M ONLY 0.1M RECOVERED. EST 5%																											
R		34.99		37.03						CU. MOST RADIOACTIVE SECTION CONTAINS 10% PY.																											
/		37.03		41.33	4.30				BROX	MG	BA	8T2	BR	RP	06	47	34		FL				00		P3	6=	P3	P1			D2	D)		54	
L							HB4			6G		8A3			25	FO	3		CN		B	10			61	<+	P2	P1			H<	D(			
/		41.33		44.50	3.17			X	BROX	MG	BA	8T2	BR	RP	06	47	34		FL				00		P3	6=	P3	P1			D=	D)		54	
L							HB4			6G		8A3			25	FO	3		CN		B	10			V+	<+	P2	P1			H<	D(			
/		44.50		44.87	.37				BROX	MG	BA	8T2	BR	RP	06	47	34		FL				00		P3	6=	P3	P1			D2	D)		54	
L							HB4			6G		8A3			25	FO	3		CN		B	10			61	<+	P2	P1			H<	D(			
/		44.87		53.34	8.47				BRPC	CB	CL	7A7	BR	RP	18	48	13								P3	71	3	P1			D+			65	
L							HB2			7A		8T1			22	FC	21								V-	<+	P2	P2			H<				
R		44.87		53.34						EUHEDRAL MG ALMOST COMPLETELY REPLACED BY CB AND CL. CB USUALLY																											
R		44.87		53.34						FORMS CORE. CB ALSO ALTERING FRAGMENTS.																											
/		53.34		53.95	.61				BRSO	CP	PY	8T4	BR		06	46	24		FL				30		P+	P2	P3	P1			D1	D2		24	
L							HB4			5GHE					44	CO	3								6=	<=	P2	P=			H>	D1			
R		53.34		53.95						FRAGMENTS REPLACED BY PY, CP, CL, AND CB.																											
/		53.95		55.63	1.68				BRCL	CL	CB	6G4	BR	RP	07	38	13								P1	P4	P3	P1			D)	D)		24	
L							HB3			4G		8T2			33	CC	3								V+	V+	P1	P2			H=				
R		53.95		55.63						CL ALTERATION OBSCURES BRECCIA FRAGMENTS.																											
/		55.63		57.06	1.43				BRCB	CB		7T9	BR	RP	18	88	12								P3	<>	P6	P5			D(	D(		84	
L							HB2			5G					22	CC	2										P=	P+	P1			H>				
R		55.63		57.06						HOMOLITHIC MAY BE VERY LARGE FRAGMENT CRACKLED.																											
R		57.06		62.67						EUHEDRAL CB CRYSTALS COMMON. CB ALTERATION ALSO SIGNIFICANT.																											
/		57.06		59.53	2.47			X	BRCL	CL	CB	7T4	BR		05	26	23								P2	P2	P2	P1			D2	D)		34	
L							HB3			5G					45	CO	2								V+	V+	P1	P1			H<				
R		57.06		59.53						EUHEDRAL MG CRYSTALS.																											
/		59.53		62.67	3.14				BRCL	CL	CB	7T4	BR		05	26	23								P2	P+	P2	P1			D=	D)		24	
L							HB3			5G					45	CO	2								V+	V+	P1	P1			H>				
/		62.67		65.23	2.56				BRCP	CB		7T3	BR	RP	07	27	12								P2	P=	P6	P2			D1	D+		54	
L							HB1			3A		8A2			26	CO	11										<+	P3	P1			HE				
R		62.67		71.32						CL AND CB ALTERATION VERY INTENSE.																											
/		65.23		67.48	2.25			X	BRCP	CL	CB	7T3	BR	RP	08	38	12		FL				40		P2	P2	P4	P2			D1	D+		34	
L							HB1			4G		7A2			13	FC	11										<+	P1	P1			HE				

DRILLHOLE/TRAVERSE --- 80CH007 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		67.48	68.58	1.10			X	BROX	CL	HE	7T3	BR	FL	05	26	23		FL				40		P2	P2	P2	P=			D3	D)			14	
L						HB4			2G		8A1			65	FO	11		CN			B	40				<+	P1			HE					
R		67.48	68.58						POSSIBLY A VERY WELL HEALED FAULT ZONE.																												
/		68.58	70.44	1.86			X	BRCP	CB		7T3	BR	RP	07	27	12								P2	P2	P5	P2			D+	D)			44	
L						HB1			4G		8A2			26	CO	11										<+	P2	P1		HE					
/		70.44	71.32	.88			X	BROX	CL	HE	7T3	BR	FL	05	26	13		FL				25		P1	P=	P4	P2			D4	D)			14	
L						HB4			2G		8A1			54	FO	12		CN			Y	25				<+	P2	P=		HE					
/		71.32	75.90	4.58				BRCP	CL	CB	7T7	BR		18	39	13								P3	P+	P5	P4			D1	D)			34	
L						HB2			7G		7A1			13	FC	21										V)	<+	P1	P1	HE					
R		71.32	75.90						SOME VERY LARGE FRAGMENTS ARE ONLY FRACTURED.																												
/		75.90	84.43	8.53				BRPE	AB	CB	6G4	BR		18	39	13								P2	P+	P2	P1	P4		D+	D)			35	
L						HB2			6G		7R4			13	FC	22										V-	<)	P=	P=	HE					
R		75.90	84.43						ALBITIZATION OF FRAGMENTS INCREASES WITH DEPTH. AB VS. CB MAY BE																												
R		75.90	84.43						RELATED TO ORIGINAL COMPOSITION OF FRAGMENTS. GHOSTS OF ORIGINAL																												
R		75.90	84.43						BEDDING STILL VISIBLE.																												

						PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO	CPS	
A	MIN	0.00	0.00	0.00									
A	LAB	0.00	0.00	0.00		CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	SCNTRX	
A	TYP	0.00	0.00	0.00		IH-COR	IH-COR	IH-COR	IH-COR	IH-COR	IH-COR	IN BAG	
A	001	34.90	37.03	2.13	57.0 J17211	250.0	4800	355	0.2	12	13	160	
R	TAG	34.90	37.03				53847	68686					5565
A	001	53.34	54.86	1.52	80.0 J17212	126.0	16600	350	0.8	150	69	170	
R	TAG	53.34	54.86				53847	68686					17246
A	001	73.88	75.29	1.41	100.0 J17213	85.0	142	128	0.1	6	8	150	
R	TGG	73.88	75.29				53847	68686					505

/ END

MULTIPLE ACCESS COMPUTER GROUP / INTERNATIONAL GEOSYSTEMS CORPORATION 20/12/80.

G E O L O G

F O R M A T -- I

E D I T L I S T I N G

ARCHER CATHRO AND ASSOCIATES LTD.

WERNECKE JOINT VENTURE IGOR PROP

FORMAT VERSION : 6802

DRILLHOLE/TRAVERSE 80CH008 | COLLAR ELEVATION 1108.00 | AZIMUTH(LEG 1) 90.00 | GEOLOGGED BY : WDE +
TOTAL DEPTH/LENGTH 151.61 | NORTHING(- IF S) 3763.50 | VERTICAL ANGLE -45.00 | DATE DY/MON/YR 09/JUL/80
CORE/HOLE DIAMETER 8 | EASTING (- IF W) -46.50 | CO-ORD SYSTEM GRD | PROJECT NUMBER WJV

KEY	FLAG	INTERVAL (MT.2) FROM	TO	INT	CORE RECOV -MISS +PC.I	MF % OI M ROCK DE I IR X TYPE	TYPI-MINS TM 1	TM 2	QAL MIN 1	TEX-TURES MAJOR TX	TX	GRAIN -+ M FC	CA	X	FRACS DEN M I	ID	STRUCTURES S T K	AZM	T D B O I D P P. 1	ALT/N HA	ASSEM. HA	MINERALIZATION. HA	AI LN TT	OI RN ET ZONE
						ROC DE P			QAL	TX	TX	SR	SO		SML	x		P		B .P B					
					R.Q.D.	U- EN R NIT PV OV	COLOR		MIN 2	MINOR		ON RD	H/ PC		TOO PDW	M 2	ID	L G	AZM	O T	L G D 2				1 2	1 2
/		0.00	7.01	7.01		OVER																			
/		7.01	8.53	1.52		BRPE AB MG 6A1 BR RP 07 68 2											FL			45	P1 P+ P2 P1 P3 V+ <+ P1 P1		D1 D= MG D+		26	
L					HB1	IN 7T4 12 CC 2																			
R		7.01	8.53			FOLIATION WEAKLY DEVELOPED. AB OCCURS AS ROUND BLEB NUCLEATING																			
R		7.01	8.53			FROM POINTS. MG IS MOST PREVALENT IN MATRIX ALONG WITH PY AND CP																			
R		7.01	8.53			A LARGE PELITE FRAGMENT IS JUST STARTING TO ALTER TO AB. WHILE																			
R		7.01	8.53			A LARGE QUARTZITE FRAGMENT IS ONLY WEAKLY ALTERED TO CB (MAY BE																			
R		7.01	8.53			ORIGINAL CB).																			
/		8.53	10.67	2.14		BRPE CL AB 8T4 BR 06 57 25											FL			55	P2 P2 P2 P1 P2 V) P1 P1		D= D+ 7)	MA 25 .	
L					HB2	8G 7R3 22 FC 32																			
R		8.53	10.67			APPEARS TO BE A TRANSITION ZONE ALTHOUGH THE POOR RECOVERY AND																			
R		8.53	10.67			THE PRESENCE OF CL MAY INDICATE A FAULT ZONE. ONLY WEAK AB.																			
R		8.53	10.67			CP IN BA VEIN AND DISSEMINATED WITH PY.																			
R		8.56	9.17																						
R		9.17	10.85																						
/		10.67	20.12	9.45		BRPE CB MG RP CB 0X 8X 2															P3 6+ P2 P1 P1 P1 P3		D+		44	
L					HB2	7RCL 11 CC 2																			
R		10.67	29.87			APPEARS TO BE CB-MG ALTERATION OF PELITE ALONG PREFERED PLANES.																			

DRILLHOLE/TRAVERSE --- 80CH008 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	X	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
-	---	----.--	----.--	----.--	--.--	--	-	----	--	--	---	--	--	--	--	---	-	--	/	---	/	//	-	--	--	--	--	--	--	--	--	--	--	--	--
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		10.67	29.87						CL APPEARS TO BE AFTER MG. LOCALLY AB IS PREVALENT BUT IN MOST																												
R		10.67	29.87						OTHER AREAS MU IS MORE COMMON. ALTERED AREAS ARE OFTEN IRREGULAR																										
R		10.67	29.87						BUT ARE SOMETIMES PARALLEL GIVING A PSEUDO-FOLIATED APPEARANCE.																										
R		10.67	29.87						THESE ALTERED BANDS ARE ORIENTED AT 45 SUGGESTING STRESS MAY																										
R		10.67	29.87						HAVE BEEN A CONTROL.																										
/		20.12	22.56	2.44			X	BRPQ	CB		7A1	BR		07	18	12								P3	D)	P3	P=		D+	D)			64		
L						HB2			7T		7R1			11	CO	1										P2	P4		MG						
R		20.12	22.56						THE MU RICH PELITES APPEAR TO HAVE BEHAVED ALMOST PLASTICALLY																										
R		20.12	22.56						SO AS TO CONSTITUTE PART OF THE MATRIX. SOME QUARTZITE FRAGMENTS																										
R		20.12	22.56						ARE RIMMED WITH CL.																										
/		22.56	25.60	3.04				BRPE	CB	MG		RP	CB	0X	8X	2								P3	6+	P2	P1	P1		D+			44		
L						HB2			7RCL					11	CC	2											P1	P3							
/		25.60	29.87	4.27			X	BRPE	AB	CB		RP	CB	0X	8X	3								P3	<)	P2	P1	P1		D+	<+		24		
L						HB2			5GP4					11	CC	22										V+	P1	PY							
R		25.60	29.87						SIMILAR TO OTHER ALTERATION AREAS EXCEPT THAT AB ACCOMPANIES THE																										
R		25.60	29.87						CB ALTERATION AND LOCALLY DOMINATES. PY-CL USUALLY OCCUR IN THE																										
R		25.60	29.87						SAME MICROFRACTURES. ALTERATION PRODUCES A MOTTLED COLOURED ROCK																										
/		29.87	32.61	2.74				BRCL	CL		7R1	BR	FL	07	37	34		FL		50		P2	P3	P1		P1		D=	D+		14		
L						HB3			4G		6A4	FZ		32	FC	3										<+	P1	P2		HE					
/		32.61	33.16	.55				BROX	HE		3R3	BR	RP	06	67	1								P3	P=	V1			D5	D)			06		
L						HB4			IN					44	CO	1										V1			HE						
/		33.16	41.30	8.14				BRPQ	CL		7A4	BR	FL	07	28	2		FL		25		P3	P=	P3	P=		D=	D)			24		
L						HB2			5G		6T4			22	FC	2										V+	P2	P4		HE					
R		33.16	58.52						LOCALLY GRADES INTO BROX AND BRCL. FOLIATION RANGES 10 TO 30 .																										
/		41.30	42.21	.91			X	BROX	CL	HE	6A3	BR	FL	16	37			FL		20		P1	P2	P2				D3	D)		05		
L						HB4			2G		7R+	RP		32	FO											P2	P2		HE					
/		42.21	58.52	16.31			X	BRPQ	CB	CL	6A5	BR	FL	07	58	1		FL		15		P3	P1	P3	P=		D+	D)			24		
L						HB2			6THE		7A1			22	FC	1										V+	V+	P2	P4		HE					
R		42.21	58.52						STILL VERY COMMON FOR QUARTZITE FRAGMENTS TO BE RELATIVELY ROUND																										
R		42.21	58.52						AND RIMMED WITH CL. WHILE THE PELITE FRAGMENTS ARE MORE DEFORMED																										

DRILLHOLE/TRAVERSE --- 80CH008 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		57.49	57.52						MINOR CP IN A 8MM BA-CB VEIN.																											
/		58.52	64.31	5.79				BRPQ	CB	HE	6A5				07	58	1		FL			20		P3	<+	P2	P=		D1	D+			24	
L						HB2			7T		7T2				22	FC	1										P2	P4		HE					
/		64.31	67.97	3.66			X	BRPQ	CB	HE	6A5				07	58	1		FL			20		P3	P1	P2	P=		P(	D+			24	
L						HB2			7T		7T2				22	FC	1										P2	P4		HE					
R		64.31	74.62						CHEMICAL ENVIRONMENT APPEARS TO BE FLUXUATING BACK AND FORTH																											
R		64.31	74.62						BETWEEN THE CL AND HE STABILITY FIELDS. UNLIKE THE MG AT THE																											
R		64.31	74.62						TOP OF THE HOLE WHICH WAS EUHEDRAL THE HE AND CL ARE PLATY AND																											
R		64.31	74.62						ARE CLOSELY ASSOCIATED WITH CB IN THE MATRIX.																											
/		67.97	68.31	.34			X	BRPQ	CB	HE	6A5				07	58	1		FL			20		P3	P1	P2	P=		P(	D+			24	
L						HB2			7T		7T2				22	FC	1								D)		P2	P4		HE					
R		67.97	68.31						PURPLE FLUORITE OCCURS AS 1-2MM EUHEDRAL GRAINS.																											
/		68.31	74.62	6.31				BRPQ	CB	HE	6A5				07	58	1		FL			20		P3	<+	P2	P=		D1	D+			24	
L						HB2			7T		7T2				22	FC	1										P2	P4		HE					
/		74.62	77.66	3.04				BRPQ	CL	PY	8A3	BR	FL		06	57	2		FL			10		P2	P=	P3	P1		D1	D+			14	
L									7G		6G3				42	FC	2									<+	P2	P3		H2	D+				
/		77.66	78.64	.98			X	BRPQ	CL	PY	8A3	BR	FL		06	57	2		FL			10		P2	P=	P3	P1		D1	D=			14	
L									7GCP		6G3				42	FC	2									<+	P2	P3		H2	D+				
/		78.64	79.40	.76				BRPQ	CL	PY	8A3	BR	FL		06	57	2		FL			10		P2	P=	P3	P1		D1	D+			14	
L									7G		6G3				42	FC	2									<+	P2	P3		H2	D+				
/		79.40	79.86	.46			X	BRPQ	CL	HE	8A3	BR	FL		06	57	2		FL			10		P2	P=	P3	P1		D2	D+			14	
L									7G		6G3				42	FC	2									<+	P2	P3		H2	D+				
/		79.86	80.25	.39				BRPQ	CL	PY	8A3	BR	FL		06	57	2		FL			10		P2	P=	P3	P1		D1	D+			14	
L									7G		6G3				42	FC	2									<+	P2	P3		H2	D+				
/		80.25	81.78	1.53			X	BRPQ	CL	PY	8A3	BR	FL		06	57	2		FL			10		P2	P=	P3	P1		D2	D+			14	
L									7G		6G3				42	FC	2									<+	P2	P3		MG	D+				
/		81.78	85.19	3.41				BRQP	CB		7T4	BR			07	47	3							P4	<+	P3	P1			D+			64	
L						HB1			6G		7A4				24	CC	3										P2	P3		H<					
R		81.78	99.73						LEAST FOLIATED ROCK IN HOLE.																											
/		85.19	91.44	6.25			X	BRQP	AB	CB	7R6	BR	RP		07	37	3							P1	P=	P2	P1	P6		D=	D+			46	
L						HB1			5G		7T2				24	CC	3									V)	P1	P3		MG	D(				
R		85.19	91.44						MINOR PY AND CP IN CORE OF MG CRYSTALS. GRADATIONAL CONTACTS.																											

DRILLHOLE/TRAVERSE --- 80CH008 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
-	---	----.--	----.--	----.--	--.--	--	-	----	--	--	---	--	--	--	--	---	-	--	/	---	/	//	-	--	--	--	--	--	--	--	--	--	--	--	--
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		91.44	99.15	7.71			X	BRQP	CB		6T4	BR		17	67	2								P5	<+	P1	P=			D=	D+			35	
L						HB1			7T		6A4			24	CC	2										<)	P=	P4		H<	D.				
/		99.15	99.73	.58				BRQP	CB		7T4	BR		07	47	3								P4	<+	P3	P1			D+				64	
L						HB1			6G		7A4			24	CC	3											P2	P3		H<					
/		99.73	101.29	1.56				BRPQ	MG	CL	9A3	BR		07	37	23								83	8=	P2	P1	P=		D=	D+			55	
L						HB1			4GAB		7T3			24	CC	2									V+	V=	P1	P3		MG	D+				
R		99.73	102.41					MOST CP IN BA-CP-QZ VEINS																												
/		101.29	102.41	1.12			X	BRPQ	AB	CB	9A3	BR		07	37	34								P1	6+	P2	P1	P6		D+	D)			55	
L						HB1			4GCP		7T3			24	CC	2									V+	V=	P1	P3		MG	D)				
R		101.29	102.41					AB ALTERATION DESTOYS MOST OF THE PRIMARY FRAGMENT TEXTURE.																													
R		101.29	102.41					CL-BA ON MORE RECENT FRACTURES.																													
/		102.41	104.12	1.71				BRSO	MG	CP		RD	FL		11	FL		20						P1	D=	P4				D2	P1			64	
L						HB4			8TCB			BR													V+	V+	P4				MG	P1				
R		102.41	104.12					HIGH GRADE CP OCCURS WITH PY IN BANDS PARALLELING FOLIATION AND																													
R		102.41	104.12					IN CORE OF MG CRYSTALS. CB-AB ALTERATION HAS COMPLETELY OBSCURED																													
R		102.41	104.12					BRECCIA FRAGMENTS.																													
/		104.12	106.98	2.86				BROS	AB	MG	7A+	RP		07	=7	1								P2	P=	P2		P4		D2	D+			46	
L						HB4			8RCB					36	CO	1									<+	<=	P2			MG	D)				
R		104.12	106.98					ALMOST ALL FRAGMENTS DESTROYED BY ALTERATION. HOWEVER A FEW																													
R		104.12	106.98					QUARTZITE FRAGMENTS HAVE SURVIVED. CP WITH PY AND CB IN MG RICH																													
R		104.12	106.98					SECTIONS																													
/		106.98	115.00	8.02				BRPQ	CB	HE	7A4	FL	BR	06	67	2		FL		15			P3	P+	P2	P+	P+		D1	D)			24	
L						HB2			7G		7T1			42	FC	12											P2	P3							
R		106.98	128.02					VERY INTENSE FOLIATION. SEVERAL FRAGMENTS HAVE AUGEN SHAPES AS																													
R		106.98	128.02					DOES MOST OF THE MATRIX CB. ALSO SOME QZ-CB REMOBILIZATION INTO																													
R		106.98	128.02					PRESSURE SHADOWS.																													
/		115.00	120.24	5.24			X	BRPQ	CB	HE	7A4	FL	BR	06	67	2		FL		15			P3	P+	P2	P+	P+		P2	D)			24	
L						HB2			7G		7T1			42	FC	12											P2	P3		H>	V.				
R		115.00	120.24					PLATY HE IN MATRIX, EUHEDRAL 1-3MM MG DISSEMINATED LOCALLY.																													
R		115.00	120.24					GRADES LOCALLY TO BRQX.																													

DRILLHOLE/TRAVERSE --- 80CH008 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	X	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/	VEN	120.24	128.02	7.78			1	BROX	HX	CB		EQ		45	55	2		CN			T	15		P1	P)	P5				D3				35	
L						HB4			8TQZ							2		CN			B	15			<)		P5	P1		H>					
R		120.24	128.02						HX-CB VEINS RANGING FROM 5-50CM WIDE HAVE INTRUDED THE BRECCIA																												
R		120.24	128.02						PARALLEL TO THE FOLIATION. GENERALLY EQUIGRANULAR BUT SLIGHTLY																												
R		120.24	128.02						FOLIATED ALONG CONTACTS. CONTACTS ARE GENERALY SHARP. A FEW																												
R		120.24	128.02						CONTAIN MINOR FRAGMENTS. BEST EXAMPLE AT 125.8M.																												
/		128.02	142.19	14.17				BRPQ	CB		7A4	BR	FL	06	57	2		FL				15		P4	P+	P2	P+			D=				35	
L									7G		8T3			32	FC	12											P2	P3		HE					
/		142.19	147.52	5.33			X	BRPQ	CB		7A4	BR	FL	06	57	2		FL				15		P3	P+	P2	P+	P1		D+				44	
L									7G		8T3			32	FC	12											P2	P4		HE					
R		142.19	147.52						SOME FRAGMENTS APPEAR TO BE ALBITIZED ALTHOUGH TOO FINE GRAINED																												
R		142.19	147.52						TO PROVE.																												
/		147.52	149.90	2.38				BRPE	CB		5A6	BR		17	68	3		FL				20		P4		P2	P)				P+			24	
L						HB2			7T		7T1			21	FC	3									V)		P2	P4							
R		147.52	149.90						PELITE FRAGMENTS IN A PREDOMINENTLY CB MATRIX. FOLIATION WEAK.																												
/		149.90	151.03	1.13				BRPQ			7A5	BR		17	37	3		FL				15		P4		P2	P+	P=			P+			45	
L						HB2					7T3			22	FC	3											P+	P1	P4							
/		151.03	151.27	.24			X	BROX	HE							3		FL				15			P1	P2				P7			05	
L						HB4			1G							3											P=	P2		HE					
/		151.27	151.61	.34				BRPQ			7A5	BR		17	37	3		FL				15		P4		P2	P+	P=			P+			45	
L						HB2					7T3			22	FC	3											P+	P1	P4							

						PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO		
A	MIN	0.00	0.00	0.00								CPS	
A	LAB	0.00	0.00	0.00		CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	SCNTRX	
A	TYP	0.00	0.00	0.00		1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	IN BAG	
A	001	7.01	8.53	1.52	100.0	J17250	17.5	1200	118	0.1	3	36	120
A	001	71.63	73.15	1.52	100.0	J17800	6.0	8	44	0.1	28	19	120
A	001	73.15	74.92	1.77	100.0	J17801	7.5	400	22	0.1	28	19	130
A	001	74.92	75.59	.67	100.0	J17251	3.0	16900	575	0.1	28	19	120
A	001	75.59	76.81	1.22	100.0	J17252	6.5	1350	160	0.1	28	19	120
A	001	76.81	78.33	1.52	100.0	J17253	5.5	825	365	0.1	28	19	120

DRILLHOLE/TRAVERSE --- 80CH008 --- (CONTINUED)

						PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO	CPS
A MIN	0.00	0.00	0.00									
A LAB	0.00	0.00	0.00			CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	SCNTRX
A TYP	0.00	0.00	0.00			1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	IN BAG
A 001	99.76	101.28	1.52	100.0	J17254	4.5	126	44	0.1	12	22	120
A 001	101.28	102.41	1.13	100.0	J17255	16.0	2100	38	0.1	12	22	120
A 001	102.41	104.12	1.71	100.0	J17256	73.0	18600	320	0.1	12	22	200
A 001	104.12	105.64	1.52	100.0	J17257	2.5	500	28	0.1	12	22	120
A 001	105.64	106.98	1.34	100.0	J17258	10.5	845	270	0.1	12	22	120
A 001	106.98	108.51	1.53	100.0	J17802	1.5	126	32	0.1	12	22	120
A TGG	0.00	0.00	0.00		10164							
A 001	108.51	110.03	1.52	100.0	J17803	3.5	38	144	0.1	12	22	120
A TGG	0.00	0.00	0.00		10164							
/ END												

MULTIPLE ACCESS COMPUTER GROUP / INTERNATIONAL GEOSYSTEMS CORPORATION 20/12/80.

G E O L O G

F O R M A T -- I

E D I T L I S T I N G

ARCHER CATHRO AND ASSOCIATES LTD.

NECKE JOINT VENTURE IGOR PROP.

FORMAT VERSION : 6802

DRILLHOLE/TRAVERSE 80CH009 COLLAR ELEVATION 1169.00 AZIMUTH(LEG 1) 15.00 GEOLOGGED BY : WDE +
TOTAL DEPTH/LENGTH 159.60 NORTHING(- IF S) 3527.50 VERTICAL ANGLE -50.00 DATE DY/MON/YR 06/JUL/80
CORE/HOLE DIAMETER B EASTING (- IF W) -97.50 CO-ORD SYSTEM GRD PROJECT NUMBER WJV

KEY	FLAG	INTERVAL (MT. 2) F.R.O.M	: T..O	I.N.T	CORE RECOV -MISS +PC.1	MF OI DE IR	X M ROCK X TYPE	TYPI-MINS TM 1	TM 2	GAL MIN 1	TEX- TURES MAJOR TX	TX	GRAIN -+ M FC CA X	FRACS DEN M I	STRUCTURES S ID	T AZM K	D O P	I P.	B O 1	ALT/N ASSEM.+ MINERALIZATION. AI LN TT OI RN ET
						ROC	DE P			GAL	TX	TX	SR SO	SML %		P		B	.P	B	
					R.Q.D.	U- NIT	EN R PV OV	COLOR		MIN 2	MINOR		ON H/ RD PC	TOO M PDW 2	ID	L G	AZM	D T	L G	D 2	
/		0.00	7.01	7.01			OVER														
/		7.01	7.86	.85			BROS	MG	PY	8R2	BR		06 26	24	FL		55	P2		P2	P1 P= D3 D= GO 26
L						HB4		3G		7T2			46 CC	22							P1 P2 MG D(
R		7.01	7.86					BOTH PY AND MG OCCUR AS 1MM TO 8MM XTALS. PY IS OFTEN IN THE													
R		7.01	7.86					CORE OF THE MG. FOLIATION WEAK.													
/		7.86	9.45	1.59			BRPE	MG	PY	7R6	BR	RP	08 38	14				P1	<*	P1	P= P4 D1 D= JA 65
L						HB1		3GAB		8R2			12 CC	31				81	P*	P*	P2 MG D(GO
R		7.86	21.09					FRAGMENTS MAY BE SMALLER THAN INDICATED AS AB ALTERATION IS VERY													
R		7.86	21.09					INTENSE AND MAY HAVE LOCALLY ALTERED MATRIX AS WELL AS FRAGMENTS													
R		7.86	21.09					MG FORMS EUHEDRAL CRYSTALS UPTO 1.5 CM. QZ SLIGHTLY SMOKY.													
/	FLT	9.45	10.36	.91			X BRPE	MG	PY	7R6	BR	FZ	08 38	14				P1	<*	P1	P= P4 CY D1 D= JA 65
R		9.45	10.36					SLIGHTLY GOUGY IN PLACES HOWEVER MAY BE DUE TO WEATHERING.													
/		10.36	14.94	4.58			BRPE	MG	PY	7R6	BR	RP	08 38	14				P1	<*	P1	P= P4 D1 D= JA 65
L						HB1		3GAB		8R2			12 CC	31				81	P*	P*	P2 MG D(GO
/		14.94	20.42	5.48			X BRPE	MG	PY	7R6	BR	RP	08 38	14				P1	<*	P1	P= P4 AH D= D= JA 65
L						HB1		3GAB		8R2			12 CC	31				81	P*	P*	P2 MG D* MA
R		14.94	21.09					CP USUALLY ASSOCIATED WITH OR REPLACING MG.													
/		20.42	21.09	.67			X BRPE	MG	PY	7R6	BR	RP	08 38	14				P1	<*	P1	P= P4 AH D= D= JA 65
L						HB1		3GAB		8R2			12 CC	31	FL		55	81	P*	P*	P2 MG D) MA

DRILLHOLE/TRAVERSE --- 80CH009 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	X	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		20.42	21.09																																
									CP APPEARS TO BE IN FRAGMENTS OF AN EARLIER BRECCIA; MAY BE ALSO																										
R		20.42	21.09						PREFERENTIAL REPLACEMENT.																										
R		20.42	21.09						54744																										
/		21.09	22.86	1.77				BROX	MG		CP	7A2	BR		06	27	1							P1	<*	P3	P1		D3	D*			45		
L						HB4			7A		8T1				35	FO	1							61		P2	P1		MG	D*					
R		21.09	27.74						BOTH CP AND PY ARE RESTRICTED TO THE CORE OF MG CRYSTALS.																										
R		21.09	22.86						54744																										
/		22.86	23.47	.61			X	BRPE					BR		06	27	2							P3		P3	P1		P1				45		
L						HB1			7A						35	FO	21									P2	P2		H>	D)					
R		22.86	23.47						CP HAS ALMOST COMPLETE REPLACED THE EUHEDRAL MG IN THIS INTERVAL																										
R		22.86	23.47						HE OCCURS DISSEMINATED IN THE MATRIX.																										
R		22.86	23.47						54745 69207																										
/		23.47	26.82	3.35				BROX	MG		CP	7A2	BR		06	27	1							P1	<*	P3	P1		D3	D*			45		
L						HB4			7A		8T1				35	FO	1							61		P2	P1		MG	D*					
/		23.47	26.82	3.35				BROX	MG		CP	7A2	BR		06	27	1							P1	<*	P3	P1		D3	D*			45		
L						HB4			7A		8T1				35	FO	1							61		P2	P1		MG	D*					
R		23.47	24.99						54744																										
R		24.99	26.82						54744																										
/		26.82	27.74	.92			X	BROX	MG		CP	7A2	BR		06	27	1							P1	<*	P3	P1		D3	D*			45		
L						HB4			7A		8T1				35	FO	1							61		P2	P1		MG	D)					
R		26.82	27.74						54745 69207																										
/		27.74	32.31	4.57				BROX	MG		CL	5A1	BR	RP	06	16	2							P1	D3	P2			D3	D*			14		
L						HB4			2G						22	CO	2							81		P2	P+		H<	D)					
R		27.74	35.42						FRAGMENTS ALMOST COMPLETELY REPLACED. MATRIX HIGHLY VARIABLE:																										
R		27.74	35.42						LOCALLY CA. MORE COMMONLY DO AND QZ. BA VEINS ARE GENERALLY																										
R		27.74	35.42						NARROW. HE PLATY TO PRISMATIC CRYSTALS USUALLY WITH BA.																										
R		27.74	29.26						54745 69207																										
R		29.26	30.78						54745 69207																										
R		30.78	32.31						54745 69207																										
/		32.31	33.07	.76			X	BRBA	BA													FL		50		P2			D1	D=			83		
L						HB4			8R																	P8			H<	D*					

DRILLHOLE/TRAVERSE --- 80CH009 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		32.31	33.07								54744																								
/		33.07	35.42	2.35				BROX	MG	CL	5A1	BR	RP	06	16		2							P1	D3	P2			D3	D+			14		
L						HB4			2G					22	C0		2								81		P2	P+		H<	D)					
R		33.07	35.42								54745 69207																								
/		35.42	38.40	2.98				BROS	HE	PY		BR	RP				2							P1	P+	P1			D5	72			16		
L						HB4			8TCB								2								D+		P1			H>	D)					
R		35.42	60.05								FRAGMENTS COMPLETE REPLACED OR MILLED BEYOND RECOGNITION. HE IS																								
R		35.42	60.05								AFTER MG AND OCCURS AS MASSES OF SUBHEDRAL TO EUHEDRAL CRYSTALS.																								
R		35.42	60.05								PY OCCURS AS IRREGULAR BLEBS. NARROW VEINS AND DISSEMINATED IN																								
R		35.42	60.05								THE HE CRYSTALS. HE OCCASIONALLY FORMS SKELETAL XTALS WITH CB.																								
R		35.42	36.73								54745 69207																								
R		36.73	38.25								54745 69207																								
R		38.25	39.78								69061 54515																								
/		38.40	38.71	.31			X	BROS	HE	PY		BR	RP				2							P1	P+	P1			D4	72	D)		24		
L						HB4			8TBA								2								P3		P1			H<	D)					
R		38.40	38.71								THE RADIOACTIVITY IS ASSOCIATED WITH AN IRREGULAR BLEB OF BARITE																								
R		38.40	38.71								AND A SOOTY PITCHBLENDE DISSEMINATED IN THE ADJACENT HE.																								
/		38.71	43.59	4.88				BROS	HE	PY		BR	RP				2							P1	P+	P1			D5	72			16		
L						HB4			8TCB								2								D+		P1			H>	D)					
R		39.78	41.15								54745 69207																								
R		41.15	42.67								54745 69207																								
R		42.67	44.20								54745 69207																								
/		43.59	45.42	1.83			X	BROS	HE	PY		BR	RP				2							P1	P1	P2			D4	D1			25		
L						HB4			8TCB								2								D+		P2			H>	D)					
R		44.20	45.72								54744																								
/		45.42	49.38	3.96				BROS	HE	PY		BR	RP				2							P1	P+	P1			D5	72			16		
L						HB4			8TCB								2								D+		P1			H>	D)					
R		45.72	47.24								54745 69207																								
R		47.24	48.77								54745 69207																								

DRILLHOLE/TRAVERSE --- 80CH009 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	X	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		48.77	50.29								54745	69207																							
/		49.38	55.02	5.64			X	BROS	HE	PY		BR	RP				FL			55				P1	P2	P2				D3	D1			25	
L						HB4			5GCB								2								82		P2				H>	D)				
R		50.29	51.82								54745	69207																							
R		51.82	53.34								54745	69207																							
R		53.34	54.86								54745	69207																							
R		54.86	56.39								54745	69207																							
/		55.02	55.53	.51			X	BROS	HE	PY		BR	RP				FL			55				P1	D+	D1				P7	71			16	
L						HB4			5GCB								2								D+		D1				H>	D)				
/		55.53	57.61	2.08			X	BROS	HE	PY		BR	RP				FL			55				P1	P2	P2				D3	D1			25	
L						HB4			5GCB								2								82		P2				H>	D)				
/		57.61	60.05	2.44			X	BROS	HE	PY		BR	RP				2							P1	P+	P1				D5	72			16	
L						HB4			8TCB								2								D+		P1				H>	D.				
/		60.05	60.66	.61				BRPE	QZ		7T1	BR			06	17	13							P4	P1	P2	P+			D1				35	
L						HB1			5G						34	CO	21									<=	P1	P3			H>	D.				
R		60.05	69.80								FRAGMENTS RARE, EITHER PERVASIVELY ALTERED OR FINELY MILLED.																								
/		60.66	61.42	.76			X	BRPE	QZ		7T1	BR			06	17	13							P4	P1	P2	P+			D1				35	
L						HB1			5G						34	CO	21									<=	P1	P3			H>	D+				
R		60.66	61.42								54745	69207																							
/		61.42	63.09	1.67				BRPE	QZ		7T1	BR			06	17	13							P4	P1	P2	P+			D1				35	
L						HB1			5G						34	CO	21									<=	P1	P3			H>	D.				
/		63.09	63.70	.61			X	BRCL	CL	BA	7A1	BR	RP		06	16	15							P4	P5	P1	P+			D2				03	
L						HB3			2G						47	CO	42								61	<+	P=	P3			H>	D.				
/		63.70	64.92	1.22			X	BRPE	QZ	HE	9A2	BR			06	17	13							P4	P1	P2	P+			D2	D+			25	
L						HB1			5G		8T1				34	CO	21									<=	P1	P3			H>	D.				
/		64.92	65.53	.61				BRPE	QZ		7T1	BR			06	17	13							P4	P1	P2	P+			D1				35	
L						HB1			5G						34	CO	21									<=	P1	P3			H>	D.				
/		65.53	68.58	3.05			X	BRPE	QZ	HE	9A2	BR			06	17	13							P4	P1	P2	P+			D1	D=			35	
L						HB1			5GPY		8T1				34	CO	21									<=	P1	P3			H>	D.				
/		68.58	69.80	1.22				BRPE	QZ		7T1	BR			06	17	13							P4	P1	P2	P+			D1				35	
L						HB1			5G						34	CO	21									<=	P1	P3			H>	D.				
/		69.80	71.63	1.83				BRPE	AB	CB		RP	BR				2							82	D+	P2		P4		D=	D=			64	
L						HB1			7RQZ								2										P2	P1			H<					

DRILLHOLE/TRAVERSE --- 80CH009 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	X	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR	QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		69.80	71.63						THE RADIOACTIVITY IS ASSOCIATED WITH VERY DARK BRICK RED ROCK																											
R		69.80	71.63						WHICH IS UNDISTINGUISHED EXCEPT FOR COLOR. FRAGMENTS OBSCURED.																											
R		69.80	71.63						RADIOACTIVITY IS ADJACENT TO A 15MM WHITE QZ VEIN. ALTERATION																											
R		69.80	71.63						HAS GRADATIONAL CONTACTS WITH AB MOST INTENSE IN CENTER AND																											
R		69.80	71.63						GRADING OUTWARD TO INCREASING CB.																											
R		70.10	71.02						N01740 54516																											
/		71.63	72.09	.46				BRCL	CL			RP				25								P8	P1		D+							12	
L						HB3			2G							41									<=	D+									
/		72.09	72.54	.45				BROX	HE	CL	7A2	BR	RP	06	26	13								P2	P1	P2	P+	D*		D3	7=			15	
L						HB4			7T						34	CO	3								D=	<=	P1	P=		H>						
/	FLT	72.54	74.68	2.14			X	BROX	HE	CL	7A2	BR	RP	06	26	1X		FZ			60			P2	P1	P2	P+	D*		D3	7=			15	
/		74.68	76.50	1.82				BROX	HE	CL	7A2	BR	RP	06	26	13								P2	P1	P2	P+	D*		D3	7=			15	
L						HB4			7T						34	CO	3								D=	<=	P1	P=		H>						
/		76.50	80.68	4.18				BRPE	QZ	AB		RP	BR			3								P4	P=	P1		P3		D1	D+			46	
L						HB1			GR							31									<+	P=	P=		HE						
R		76.50	88.54						ALTERATION OBSCURES FRAGMENTS.																											
/	FLT	80.68	81.29	.61			X	BRPE	QZ	AB		RP	BR			X		FZ			60			P4	P2	P1		P3	CY	D1	D+			71	
R		80.68	81.29						CL AND CLAY RICH GOUGE.																											
/		81.29	81.38	.09				BRPE	QZ	AB		RP	BR			3								P4	P=	P1		P3		D1	D+			46	
L						HB1			GR							31									<+	P=	P=		HE						
/		81.38	81.84	.46			X	BRPE	QZ	AB		RP	BR	17	68	3		FL			60			P2	P=	P2	P1	P4		D+	D+			66	
L						HB1			6G						12	FC	31								<+	P=	P=		HE						
/		81.84	82.30	.46			X	BRCL	CL	AB		RP	BR			24								P1	P8	P1		P3		D=	D+			03	
L						HB1			2G							31									<+	P=	P=		HE						
/		82.30	84.73	2.43			X	BRPE	QZ	AB		RP	BR	17	68	3		FL			60			P2	P=	P2	P1	P4		D+	D+			66	
L						HB1			6G						12	FC	31								<+	P=	P=		HE						
/		84.73	84.89	.16			X	BRPE	QZ	AB		RP	BR	17	68	3		FL			60			00	<+	00		P9		00	61			66	
L						HB1			GR						12	FC	31								<*	00	00	P=		00					
R		84.73	84.89						SIMILAR TO PREVIOUS STRONGLY RADIOACTIVE INTERVAL.																											
/		84.89	88.54	3.65			X	BRPE	QZ	AB		RP	BR	17	68	3		FL			60			P2	P=	P2	P1	P4		D+	D+			66	
L						HB1			6G						12	FC	31								<+	P=	P=		HE						

DRILLHOLE/TRAVERSE --- 80CH009 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	X	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	GZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		88.54	96.93	8.39				BROX	HE	CL		BR	RP			23								P2	P2	P2				D3	D*			14	
L						HB1			5G							2									6=	<+	P2	P1			H>					
R		88.54	96.93						INADDITION TO THE COARSE BLEBS AND EUHEDRAL CRYSTALS THE MATRIX																												
R		88.54	96.93						HAS A DARK COLOR DUE TO FINELY DISSEMINATED HE. FRAGMENTS																												
R		88.54	96.93						OBSCURED BY ALTERATION. BA-CB VEINS APPEAR TO BE LATEST FEATURE																												
R		88.54	96.93						THEY VARY FROM <1 TO 10MM IN WIDTH.																												
/		96.93	99.36	2.43				BRCL	CL	HE		RP				13								P2	P3	P2				D2	D*			14	
L						HB3			3G							3									6=	V=	P1				H>	V*				
R		96.93	102.87						UPPER CONTACT GRADATIONAL INTO BROX LOWER INTO BRPE.																												
/	FLT	99.36	99.67	.31			X	BRCL	CL	HE		RP				38		FZ		60				P2	P3	P2			CY	D2	D*			14	
L						HB3			3G							7									6=	V=	P1				H>	V*				
R		99.36	99.67						SOME GOUGE																												
/		99.67	102.20	2.53			X	BRCL	CL	CB		RP				13								72	P3	P3				D1	D*			34	
L						HB3			3GQZ							3									6*	V2	P1				H>	V)				
R		99.67	102.87						CP IN CB-QZ VEINS.																												
R		99.67	101.19						54745 69207																												
R		101.19	102.87						69061 54515																												
/	FLT	102.20	102.29	.09			X	BRCL	CL	HE		RP				17		FZ		60				P2	P3	P2				D2	D*			14	
L						HB3			3G							7									6=	V=	P1				H>	V*				
/		102.29	102.36	.07			X	BRCL	CL	CB		RP				13								72	P3	P3				D1	D*			34	
L						HB3			3GQZ							3									6*	V2	P1				H>	V)				
/		102.36	102.87	.51			X	BRCL	CL	HE		RP				13								P2	P1	P2				D2	D3	D*		24	
L						HB3			6TPY							3									6=	V1	P1				H>	V*				
R		102.36	102.87						RADIOACTIVITY DUE TO A SOOTY BLACK MINERAL.																												
/		102.87	110.19	7.32				BRPE	CL		8T3	BR		07	38	2								P2	P3	P4	P1	D)		D1	D*			24	
L						HB1			3G		3G3			11	CC	21									7*	<+	P3	P1			HE	D*				
R		102.87	130.55						EUHEDRAL CB CRYSTALS COMMON IN MATRIX. BRECCIA CONTAINS NUMEROUS																												
R		102.87	130.55						FRAGMENTS OF BROX AND SEVERAL CONTAINING CP. CL IS THE MOST																												
R		102.87	130.55						COMMON MINERAL IN MATRIX. THIS BRECCIA APPEARS TO BE LATE.																												
/		110.19	118.26	8.07			X	BRPE	CL		7A6	BR		08	49	2								P2	P1	P3	P1	D)		D2	8*			24	
L						HB1			3G		7T2			11	CC	21									00	<+	P2	P2			HE	8)				

DRILLHOLE/TRAVERSE --- 80CH009 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		110.19	118.26						CP IN MG XTALS, MATRIX (USUALLY WITH CL), AND CB-BA VEINS.																												
/		118.26	120.55	2.29			X	BRPE	CL		7A6	BR		07	28	2							P2	P1	P2	P1	D)		D2	8+			24	
L						HB1			3G		7T2			22	CC	21								00	<+	P1	P3		HE	8+					
/		120.55	121.31	.76			X	BRPE	CL		7A6	BR		07	28	2							P2	P1	P2	P1	D)		D2	8+			24	
L						HB1			3G		7T2			22	CC	21								00	<+	P1	P3		HE	8)					
/		121.31	128.17	6.86			X	BRPE	CL		7A6	BR		07	28	2							P2	P1	P2	P1	D)		D2	8+			24	
L						HB1			3G		7T2			22	CC	21								00	<+	P1	P3		HE	8+					
/		128.17	130.24	2.07				BRPE	CL		8T3	BR		07	38	2							P2	P3	P4	P1	D)		D1	D+			24	
L						HB1			3G		3G3			11	CC	21								7+	<+	P3	P1		HE	D+					
/		130.24	130.55	.31			X	BROS	HE	PY						14									P1				P5	P3			16	
L						HB4			8T							4								V1		P1			HE	6(					
/		130.55	134.27	3.72				BRCL	CL	AB	6G6	BR		07	18	14							P=	P3	P3	P1	P2		D1	D+			24	
L						HB3			3GCB		6R1			12	CC	31									<+	P2	P=			D.					
R		130.55	134.87						AN ALBIZED FRAGMENT CONTAINS 10% CP. ZONED, EUHEDRAL CB CRYSTALS																												
R		130.55	134.87						WITH CL CORES VERY COMMON IN MATRIX.																												
/		134.27	134.54	.27			X	BROX	HE							13													P9				06	
L						HB4			1N							21								V=											
/		134.54	134.87	.33				BRCL	CL	AB	6G6	BR		07	18	14							P=	P3	P3	P1	P2		D1	D+			24	
L						HB3			3GCB		6R1			12	CC	31									<+	P2	P=			D.					
/		134.87	138.99	4.12				BRPE			8T5	BR				24							P2	P2	P3	P2			D=	D+			34	
L						HB1			5A		6G3					32								V(	<+	P1	P2		HE	V(					
R		134.87	139.60						LOCALLY MATRIX IS QZ, USUALLY CL-CB-HE.																												
/		138.99	139.60	.61			X	BRPE			8T5	BR				46							P2	P3	P2	P1			D=	D+			14	
L						HB1			5A		6G3					41								V(	<=	P1	P2		HE	V)					
R		138.99	139.60						CP OCCURS IN 2MM FRACTURES WHICH ALSO CONTAIN MINOR GOUGE.																												

A							PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO		CPS
A	MIN	0.00	0.00	0.00			CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX		SCNTRX
A	LAB	0.00	0.00	0.00			1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR		IN BAG
A	TYP	0.00	0.00	0.00										
A	GGG	20.42	21.09	.67	100.0	J17259	3.5	1200	58	0.1	2	29		120
A	GGG	21.09	22.86	1.77	100.0	J17260	3.5	390	20	0.1	2	29		120
A	GAG	22.86	23.47	.61	100.0	J17261	2.0	1400	16	0.1	2	29		120
A	GGG	23.47	24.99	1.52	100.0	J17262	4.0	295	6	0.1	2	29		120

DRILLHOLE/TRAVERSE --- 80CH009 --- (CONTINUED)

						PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO	CPS
A MIN	0.00	0.00	0.00									
A LAB	0.00	0.00	0.00			CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	SCNTRX
A TYP	0.00	0.00	0.00			1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	IN BAG
A GGG	24.99	26.82	1.83	100.0	J17263	5.0	180	8	0.1	2	29	120
A GAG	26.82	27.74	.92	100.0	J17264	5.5	600	32	0.1	2	29	120
A GAG	27.74	29.26	1.52	100.0	J17265	7.5	300	26	0.1	2	29	120
A GAG	29.26	30.78	1.52	100.0	J17266	5.5	1400	28	0.1	2	29	120
A GAG	30.78	32.31	1.53	100.0	J17267	6.0	500	76	0.1	2	29	120
A GGG	32.31	33.07	.76	100.0	J17268	18.0	1000	174	0.1	8	19	120
A GAG	33.07	35.42	2.35	100.0	J17269	13.0	600	240	0.1	15	50	120
A GAG	35.42	36.73	1.31	100.0	J17270	7.0	300	330	0.1	15	50	120
A GAG	36.73	38.25	1.52	100.0	J17271	12.0	500	420	0.1	15	50	120
A AAG	38.25	39.78	1.53	100.0	J17272	601.5	700	655	0.1	15	50	600
A GAG	39.78	41.15	1.37	100.0	J17273	14.0	200	460	0.1	15	50	120
A GAG	41.15	42.67	1.52	100.0	J17274	17.0	600	445	0.1	12	45	120
A GAG	42.67	44.20	1.53	100.0	J17275	8.0	600	275	0.1	12	45	120
A GGG	44.20	45.72	1.52	100.0	J17276	6.0	515	114	0.1	12	45	120
A GAG	45.72	47.24	1.52	100.0	J17277	25.0	900	310	0.1	12	45	120
A GAG	47.24	48.77	1.53	100.0	J17278	18.0	1200	535	0.1	12	45	120
A GAG	48.77	50.29	1.52	100.0	J17279	11.0	500	290	0.1	12	45	120
A GAG	50.29	51.82	1.53	100.0	J17280	13.0	500	120	0.1	12	45	120
A GAG	51.82	53.34	1.52	100.0	J17281	4.5	500	156	0.1	5	39	120
A GAG	53.34	54.86	1.52	100.0	J17282	16.0	200	370	0.1	5	39	120
A GAG	54.86	56.39	1.53	100.0	J17283	12.0	300	182	0.1	5	39	120
A GAG	60.66	61.42	.76	100.0	J17284	3.0	300	24	0.1	5	39	120
A AGG	70.10	71.02	.92	100.0	J17285	559.3	140	122	0.2	2	27	400
A GAG	99.67	101.19	1.52	100.0	J17286	42.0	800	48	0.4	6	22	120
A AAG	101.19	102.87	1.68	100.0	J17287	381.0	500	575	0.4	6	22	360
A 001	68.58	70.10	1.52	100.0	J17804	3.5	20	6	0.2	2	27	130

DRILLHOLE/TRAVERSE --- 80CH009 --- (CONTINUED)

								PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO	CPS
A MIN	0.00	0.00	0.00											
A LAB	0.00	0.00	0.00					CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	SCNTRX
A TYP	0.00	0.00	0.00					1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	IN BAG
R TGG	68.58	70.10							10164					
A 001	71.02	71.63	.61	100.0	J17805	12.5		16	82	0.2	2	27		125
R TGG	71.02	71.63							10164					
A 001	71.63	73.15	1.52	100.0	J17806	7.5		30	270	0.2	2	27		130
R TGG	71.63	73.15							10164					
A 001	102.87	105.16	2.29	100.0	J17807	9.5		76	62	0.4	6	22		140
R TGG	102.87	105.16							10164					
A 001	105.16	106.68	1.52	100.0	J17808	8.5		138	44	0.4	6	22		125
R TGG	105.16	106.68							10164					
/ END														

MULTIPLE ACCESS COMPUTER GROUP / INTERNATIONAL GEOSYSTEMS CORPORATION 20/12/80.

G E O L O G

F O R M A T -- I

E D I T L I S T I N G

ARCHER CATHRO AND ASSOCIATES LTD.

WERNECKE JOINT VENTURE IGOR PROP

FORMAT VERSION : 6802

DRILLHOLE/TRAVERSE 80CH010 | COLLAR ELEVATION 1169.00 | AZIMUTH(LEG 1) 63.00 | GEOLOGGED BY : WDE
TOTAL DEPTH/LENGTH 107.29 | NORTHING(- IF S) 3595.50 | VERTICAL ANGLE -50.00 | DATE DY/MON/YR 23/JUN/80
CORE/HOLE DIAMETER B | EASTING (- IF W) -43.00 | CO-ORD SYSTEM GRD | PROJECT NUMBER WJV

KEY	FLAG	FROM (MT.2)	TO	INT	CORE RECOV -MISS +PC.1	MF OI DE IR	% M ROCK X TYPE	TYPI-MINS TM 1	TYPI-MINS TM 2	GAL MIN 1	TEX-TURES MAJOR TX	TEX-TURES TX	GRAIN -+ M FC	GRAIN CA X	FRACS DEN I	FRACS M	STRUCTURES ID	STRUCTURES S	STRUCTURES T K	STRUCTURES D O P	STRUCTURES I P.	STRUCTURES B 1	ALT/N HA QZ	ASSEM.+ HA CL	HA CB	HA C2	MINERALIZATION. HA AB	HA XX	HA HX	HA PY	HA UR	HA YY	AI LN TT BM	OI RN ET ZONE
						ROC DE P				QAL	TX	TX	SR	SO	SML	%		P	B	.P	B	FL	BA	C1	C3	MU	HA	H:	CP		HA	HW	HOW
					R.Q.D.	U- NIT	EN PV	R OV	COLOR	MIN 2	MINOR		ON RD	H/ PC	TOO PDW	M 2	ID	L G	AZM	O T	L G	D 2											I 2	1 2
/		0.00	6.71	6.71				OVER																									
/	FLT	6.71	7.62	.91				BRPE	CB		9A4	BR	FZ	07 58	XX		FZ			70		P2 <> P5 P3		<+							84	
L						HB2			8G		8T2			23 FC	41							<> P3 P2		HE									
R		6.71	15.54						POOR RECOVERY DUE TO HIGHLY FRACTURED ROCK. APPEARS TO BE WIDE																									
R		6.71	15.54						FAULT ZONE. SLICKENSIDED FRACTU0.1 19 2460 TO 80 .																									
R		6.71	15.54						INTENSE CB ALTERATION																									
/	FLT	7.62	7.65	.03			X	BRPE	CB		9A4	BR	FZ	07 58	XX		FZ			70		P1 P2 P4 00		P3							34	
L						HB2			8G		8T2			23 FC	41							V1 P3 00		MG V=									
R		7.62	7.65						MAY BE FLOAT IN OVERBURDEN.																									
/	FLT	7.65	15.54	7.89				BRPE	CB		9A4	BR	FZ	07 58	XX		FZ			70		P2 <> P5 P3		<+							84	
L						HB2			8G		8T2			23 FC	41							<> P3 P2		HE									
R		15.54	17.28						HE ALTERED TO CL																									
/		15.54	16.15	.61			X	BRPE	CB		9A6	BR	FZ	07 58	XX							P2 P= P6 P3										84	
L						HB2			6G					23 FC	4							<> P3 P1											
/		16.15	17.28	1.13				BRPE	CB		9A6	BR		07 58	24							P2 P= P6 P3										84	
L						HB2			6G					23 FC	3							<> P3 P1											
/		17.28	27.37	10.09				BRPE			7A9	BR		07 58	23		FL			75		P3 <> P3 P1		P+							54	
L						HB2			6G					22 FC	2							<+ P2 P3		HE									
R		17.28	27.37						FRAGMENT BOUNDARIES VERY OBSCURE.																									

DRILLHOLE/TRAVERSE --- 80CH010 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	X	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		27.37	32.40	5.03				BRPE	CB		1A9	BR		07	48	2								P2	P+	P4	P3			P)			94		
L						HB2			3G					22	FC	2										<(	P2	P4		HE					
R		27.37	34.35						GRADATIONAL CONTACT WITH OVERLYING ROCKS.																												
/		32.40	33.77	1.37			X	BRPE	CB	CL	1A9	BR		07	48	2								P1	P1	P4	P3			00			74		
L						HB2			3G					22	FC	2										<(	P2	P4		00					
R		32.40	33.77						CL CLUSTERS MARBLED THROUGH BLEACHED ARGILLITE.																												
/		33.77	34.35	.58			X	BRPE	CB		1A9	BR		07	48	3								P2	P+	P4	P3			P)			54		
L						HB2			3G					22	FC	3									V=	<(	P2	P4		HE	<-				
R		33.77	34.35						CL PROBABLY AFTER MG																												
/		34.35	39.01	4.66				BROS	CP	MG	7T4	BR		06	27	16		FL			45			P2	<+	P4	P3			D1	D+		MA	35	
L						HB4			7GPY					44	CO	6									V=	V+	P1	P1		MG	D=				
R		34.35	39.78						FLOW BANDING(?) RANGES FROM 20-60 WEAKLY DEVELOPED. CP OCCURS																												
R		34.35	39.78						IN MATRIX AND REPLACING EUHEDRAL MG. BA VEINS ARE POST CP																												
R		34.35	39.78						EMPLACEMENT. PRESENCE OF SOME SLIGHTLY SMOKY QZ VERY IMPORTANT.																												
R		34.35	39.78						HEMATITE STAINED BARITE VEINS EXHIBIT GREATEST RADIOACTIVITY.																												
/		39.01	39.78	.77			X	BROS	CP	MG	7T4	BR		06	27	16		FL			45			P2	<+	P4	P3			D=	D1		MA	54	
L						HB4			7GPY					44	CO	6									V=	V+	P1	P1		MG	D+				
R		39.01	39.78						GRADES BACK INTO UNMINERALIZED ROCK.																												
/		39.78	41.70	1.92				BRPQ	CB	CL	8T7	BR	RP	07	27	2		CN		B	50			P3	P1	P4	P2			D-			64		
L						HB2			6G	6G1				23	CO	21									D)	V)	P2	P2			D-					
R		39.78	41.70						BEYOND SHARP CONTACT CP CONTENT GRADUALLY INCREASES OVER 1M.																												
R		39.78	41.70						CL OFTEN RIMS SOMETIMES REPLACES FRAGMENTS.																												
R		41.70	52.03						FRAGS COMPLETELY REPLACED. CP AND PY USUALLY OCCUR IN THE MATRIX																												
R		41.70	52.03						OR REPLACING THE 4-6 MM EUHEDRAL MG. BA AND CB VEINS POST CU.																												
R		41.70	52.03						APPROXIMATE PARAGENESIS: BRECCIATION; MG XTAL GROWTH; HE-CB																												
R		41.70	52.03						ALTERATION; FRACTURING WITH CL; CP-PY ALTERATION; CB-BA VEINS.																												
/		41.70	42.31	.61			X	BRSO	CL	CP	9A2	BR		07	18	13		F1			40			P1	P2	P4	P			D=	D)			13	
L						HB4			5GCB		8T1			56	CO	3		1							V+	V+	P4	P=			H>	D=				
/		42.31	46.27	3.96				BRSO	CP	HX	9A2	BR		06	16	13		FL			40			P1	<=	P4	P			D1	D=			44	
L						HB4			7GCB		8T1			56	CO	3									V+	V+	P4	P=			H>	D2				

DRILLHOLE/TRAVERSE --- 80CH010 --- (CONTINUED)

K	FLG	F.R.O.M	: T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U		DE	PV		COLOR	QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		46.27	47.40	1.13			X	BRSO	CP	HX	9A2	BR		06	28	13		FL			40			P1	D2	P4	P			D1	D=			44	
L						HB4			7GCB		8T1			36	FO	3											V+	V+	P4	P=		H>	81		23	
R		46.27	47.40						ALTERATION IS LESS INTENSE. FRAGMENTS ARE MORE VISIBLE. BA-CB																													
R		46.27	47.40						VEINS CONTAIN SOME COARSE GRAINED CP AND CUT FL AT 90 .																													
/		47.40	50.93	3.53				BRSO	CP	HX	9A2	BR		06	16	13		FL			40			P1	<=	P4	P			D1	D=			44	
L						HB4			7GCB		8T1			56	CO	3											V+	V+	P4	P=		H>	D2				
/		50.93	52.03	1.10			X	BRSO	CP	HX	9A2	BR		06	16	35		FL			40			P1	<=	P4	P			D1	D1	<*		34	
L						HB4			7GCB		8T1			56	CO	41											V=	V+	P4	P=		H<	D=				
R		50.93	52.03						BA VEINLETS ARE VERY RED PROBABLY DUE TO HEMATITE STAINS. BA																													
R		50.93	52.03						AFTER CP-PY MINERALIZATION WHICH APPEARS TO BE RELATED TO CL																													
R		50.93	52.03						MICROFRACTURES. MOST FRACTURES WELL HEALED. LOWER PORTION OF																													
R		50.93	52.03						INTERVAL RED AND WELL FRACTURED.																													
/		52.03	52.49	.46				BROX	UR	CP		BR				2		CN			T	40				D1	P4				D2	D)	<+		35	
L						HB4			6RBA							2		CN			B	40				62	<+	P4			H<	6+				
R		52.03	52.49						VERY STRONGLY FOLIATED, SHARP CONTACTS. UR OCCURS IN MICROVEINS																													
R		52.03	52.49						RIMMING CP. BA VERY RED. USUALLY SURROUNDS THE SOOTY PITCHBLENDE																													
R		52.03	52.49						THIS INTERVAL CORRESPONDS TO HIGHEST RADIOACTIVITY. NO FRAGMENTS																													
/		52.49	54.25	1.76				BRCL	CL		7T1	BR		06	18	2		FL			50			P3	P2	P1	P=			D1	D)			25	
L						HB3			5G		9A1			24	CO	21											<*	<)	P=	P3		H>	D+				
R		52.49	62.79						CP OCCURS IN CORE OF HX CRYSTALS. HX LOCALLY UPTO 30% OF ROCK																													
R		52.49	62.79						USUALLY WITH INCREASED CB IN MATRIX. SOME HX IS ALTERED TO CL.																													
/		54.25	55.93	1.68			X	BRCL	CL		7T1	BR		06	18	2		VN			60			83	P2	P1	P=			D1	D)			25	
L						HB3			5G		9A1			24	CO	21											V+	V=	P=	P3		H>	D+				
R		54.25	55.93						SMALL VEINS (<1CM) CB, LARGE VEINS (UPTO 10CM) RED BA WITH WHITE																													
R		54.25	55.93						CB SELVAGE. CP SOMETIMES WITH CB.																													
/		55.93	57.00	1.07				BRCL	CL		7T1	BR		06	18	2		FL			50			P3	P2	P1	P=			D1	D)			25	
L						HB3			5G		9A1			24	CO	21											<*	<)	P=	P3		H>	D+				
/		57.00	60.44	3.44			X	BRCL	CL		8T2	BR		06	18	24		FL			40			P3	P2	P1	P=			D=	D(			25	
L						HB3			4G		9A1			24	CO	31											<*	<)	P=	P3		H>	D(				
R		57.00	60.44						CL ALTERATION OF MG AND SOME FRAGMENTS COMMON.																													

DRILLHOLE/TRAVERSE --- 80CH010 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR	QM2	TX	TX	SR	SO		SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		60.44	62.79	2.35			X	BRCL	CL		7T1	BR		06	18	36		FL				50		P3	P2	P3	P=			D1	D)			03	
L						HB3			3G		9A1			24	CO	52									<*	<)	P=	P2			HE	D+				
/		62.79	68.88	6.09				BROX	HE	CB	7T1	BR	RP	06	17	23		FL				40		P1	P1	P4				P4	D+			05	
L						HB4			2G					45	CO	21											V1	P3			HE	6)				
R		62.79	73.67						INTENSE HE-CB ALTERATION HAS DESTROYED MOST FRAGMENTS. MUCH OF																														
R		62.79	73.67						THE HE APPEARS TO BE ON LATE MICROFRACTURES. CB IS DOLOMITE, CB																														
R		62.79	73.67						CRYSTALS ARE COMMON IN MATRIX. SOME EUHEDRAL HE AFTER MG IN TOP																														
R		62.79	73.67						OF INTERVAL.																													
/		68.88	73.67	4.79			X	BROX	HE	CB	7T1	BR	RP	06	17	23		FL				40		P1	P1	P4				P4	D+			05	
R		68.88	73.67																								D*									
/		73.67	77.02	3.35				BROS	HE	PY	7T1	BR	RP	06	17	23		FL				60		P2	P1	P2	P+			P4	P=			05	
L						HB4			1G		6A1			45	FO	21											P2	P+			HE					
R		73.67	78.12						PY USUALLY IN CRYSTALS																													
/		77.02	78.12	1.10			X	BROS	HE	PY	7T1	BR	RP	06	17	25		FL				50		P2	P1	P2	P+			P4	P=			05	
L						HB4			1G		6A1			45	FO	41											P2	P+			HE					
/		78.12	82.84	4.72				BROX	HE		7T3	BR		17	49	2		FL				50		P3	P1	P3	P3		GR	P2	D+			15	
L						HB1			1B		6R2			12	FC	21											V+		P1		HE	D+				
R		78.12	82.84						HX MATRIX CONTAINS LARGE FRAGMENTS (UPTO 50CM) OF PRE-EXISTING																														
R		78.12	82.84						BRECCIA. THE ROCK HAS AN ODD MOTTLED APPEARANCE DUE TO THE BLUES																														
R		78.12	82.84						AND REDS OF THE HE MATRIX AND THE TAN COLOR OF THE HB2 FRAGMENTS																														
R		78.12	82.84						SIGNIFICANT BECAUSE IT IMPLIES 2 PHASES OF BRECCIATION. MINOR																														
R		78.12	82.84						CP OCCURS IN BOTH BRECCIA PHASES. HE OCCURS IN SHEETS ALONG WITH																														
R		78.12	82.84						A BLUISH NOT METALLIC MINERAL (GRAPHITE?).																														
/		82.84	87.78	4.94				BRPE			7T9	BR		19	99	12								P4	<+	P4	P4				<)	D)			35	
L						HB1			6A					13	CC	2									V(	<+		P1		HE	D-				
R		82.84	107.29						MOST FRAGS EITHER CB ALTERED OR LIMY PELITE. LARGELY CRACKLE.																														
/		87.78	89.31	1.53			X	BRPE			7R9	BR		19	99	12		FL				50		P5	<+	P2	P2				P=	D)			45	
L						HB1			6A					13	CC	2									V(	<+		P2		HE	D-				
/		89.31	98.91	9.60				BRPE			7T9	BR		19	99	12								P4	<+	P4	P4				<)	D)			35	
L						HB1			6A					13	CC	2									V(	<+		P1		HE	D-				

DRILLHOLE/TRAVERSE --- 80CH010 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/	FLT	98.91	99.03	.12			X	BRPE			7T9	BR		19	99	1X		F/				45		PX	<+	P4	P4			<)	D)			02	
L						HB1		6A						13	CC	X									V(	<+		P1		HE	D-				
/		99.03	102.72	3.69				BRPE			7T9	BR		19	99	12								P4	<+	P4	P4			<)	D)			35	
L						HB1		6A						13	CC	2									V(	<+		P1		HE	D-				
/		102.72	104.88	2.16			X	BRPE			7T9	BR		17	68	12								P4	<+	P4	P4	P1		<)	D)			25	
L						HB1		6A						23	CC	2									V(	<+		P1		HE	D-				
R		102.72	104.88																																
/		104.88	106.22	1.34				BRPE			7T9	BR		19	99	12								P4	<+	P4	P4			<)	D)			35	
L						HB1		6A						13	CC	2									V(	<+		P1		HE	D-				
/		106.22	107.29	1.07			X	BRPE			7G9	BR		99	X9	12								P4	P=	P4	P4			<)	D)			35	
L						HB1		6A						13	CC	2									V(	<1		P1		HE	D-				
R		106.22	107.29																																

APPEARS TO BE A SINGLE LARGE CRACKLED FRAGMENT.

A		MIN	0.00	0.00	0.00		PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO		CPS
A		LAB	0.00	0.00	0.00		CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX		SCNTRX
A		TYP	0.00	0.00	0.00		IH-COR	IH-COR	IH-COR	IH-COR	IH-COR	IH-COR		IN BAG
A		001	33.77	34.35	.58	100.0	J17214	14.5	146	64	2.4	7	29	140
R		TGG	33.77	34.35					54513					
A		001	34.35	35.87	1.52	100.0	J17215	118.0	39600	192	2.4	7	29	200
R		TAG	34.35	35.87					54514	69060				
A		001	35.87	37.40	1.53	100.0	J17216	288.1	24400	184	2.4	7	29	260
R		NAG	35.87	37.40					69061	54515				
A		001	37.40	39.01	1.61	100.0	J17217	45.0	25500	450	2.4	7	29	180
R		TAG	37.40	39.01					54514	69060				
A		001	39.01	39.78	.77	100.0	J17218	29.0	17400	550	2.4	7	29	120
R		TAG	39.01	39.78					54514	69060				
A		001	39.78	41.76	1.98	100.0	J17219	21.5	600	98	2.4	7	29	120
R		TAG	39.78	41.76					54514	69060				
A		001	41.76	42.37	.61	100.0	J17220	161.0	19200	188	6.4	23	16	160
R		TAG	41.76	42.37					54514	69060				

DRILLHOLE/TRAVERSE --- 80CH010 --- (CONTINUED)

							PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO	CPS
A MIN	0.00	0.00	0.00										
A LAB	0.00	0.00	0.00				CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	SCNTRX
A TYP	0.00	0.00	0.00				1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	IN BAG
A 001	42.37	43.89	1.52	100.0	J17221	771.2	87000	350	6.4	23	16		520
R NAG	42.37	43.89					69061	54515					
A 001	43.89	45.42	1.53	100.0	J17222	423.7	49100	270	6.4	23	16		400
R NAG	43.89	45.42					69061	54515					
A 001	45.42	46.27	.85	100.0	J17223	330.5	90000	310	6.4	23	16		230
R NAG	45.42	46.27					69061	54515					
A 001	46.27	47.40	1.13	100.0	J17224	508.5	39600	380	6.4	23	16		660
R NAG	46.27	47.40					69061	54515					
A 001	47.40	49.23	1.83	100.0	J17225	550.8	96200	450	6.4	23	16		440
R NAG	47.40	49.23					69061	54515					
A 001	49.23	50.90	1.67	100.0	J17226	737.3	66500	390	6.4	23	16		760
R NAG	49.23	50.90					69061	54515					
A 001	50.90	52.43	1.53	100.0	J17227	1754.2	24000	310	6.4	23	16		1300
R NAG	50.90	52.43					69061	54515					
A 001	52.43	53.95	1.52	100.0	J17228	17.0	2500	166	6.4	23	16		120
R TAG	52.43	53.95					54514	69060					
A 001	53.95	55.47	1.52	100.0	J17229	21.0	1700	220	0.1	5	6		120
R TAG	53.95	55.47					54514	69060					
A 001	55.47	57.00	1.53	100.0	J17230	21.0	1200	88	0.1	5	6		120
R TAG	55.47	57.00					54514	69060					
A 001	57.00	58.52	1.52	100.0	J17231	11.0	210	114	0.1	5	6		130
R TGG	57.00	58.52					54513						
A 001	58.52	60.05	1.53	100.0	J17232	6.5	138	150	0.1	5	6		130
R TGG	58.52	60.05					54513						
A 001	60.05	61.57	1.52	100.0	J17233	7.5	196	136	0.1	5	6		130
R TGG	60.05	61.57					54513						

DRILLHOLE/TRAVERSE --- 80CH010 --- (CONTINUED)

A MIN	0.00	0.00	0.00			PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO		CPS
A LAB	0.00	0.00	0.00			CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX		SCNTRX
A TYP	0.00	0.00	0.00			1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR		IN BAG
A 001	61.57	62.79	1.22	100.0	J17234	5.0	66	118	0.1	5	6		120
R TGG	61.57	62.79					54513						
A 001	62.79	64.31	1.52	100.0	J17235	5.0	300	176	0.1	5	6		130
R TAG	62.79	64.31					54514	69060					
A 001	64.31	66.14	1.83	100.0	J17236	4.5	1700	134	0.1	19	24		130
R TAG	64.31	66.14					54514	69060					
A 001	66.14	67.67	1.53	100.0	J17237	3.0	3200	116	0.1	19	24		120
R TAG	66.14	67.67					54514	69060					
A 001	67.67	68.88	1.21	100.0	J17238	5.0	2750	114	0.1	19	24		120
R TGG	67.67	68.88					54513						
A 001	68.88	70.41	1.53	100.0	J17239	7.5	200	174	0.1	19	24		120
R TGG	68.88	70.41					54513						
A 001	70.41	71.93	1.52	100.0	J17240	5.5	148	100	0.1	19	24		120
R TGG	70.41	71.93					54513						
A 001	71.93	73.46	1.53	100.0	J17241	6.0	86	86	0.1	19	24		120
R TGG	71.93	73.46					54513						
A 001	73.46	74.98	1.52	100.0	J17242	5.5	500	154					120
R TGG	73.46	74.98					54513						

/ END

MULTIPLE ACCESS COMPUTER GROUP / INTERNATIONAL GEOSYSTEMS CORPORATION 20/12/80.

G E O L O G

F O R M A T -- I

E D I T L I S T I N G

ARCHER CATHRO AND ASSOCIATES LTD.

WERNECKE JOINT VENTURE IGOR PROP

FORMAT VERSION : 6802

DRILLHOLE/TRAVERSE 80CH011 | COLLAR ELEVATION 1169.00 | AZIMUTH(LEG 1) 63.00 | GEOLOGGED BY : WDE +
TOTAL DEPTH/LENGTH 82.91 | NORTHING(- IF S) 3595.50 | VERTICAL ANGLE -75.00 | DATE DY/MON/YR 05/JUL/80
CORE/HOLE DIAMETER B | EASTING (- IF W) -43.00 | CO-ORD SYSTEM GRD | PROJECT NUMBER WJV

KEY	FLAG	INTERVAL (MT.2) FROM	TO	INT	CORE RECOV -MISS +PC.1 / R.Q.D.	MF OI IR ROC U- NIT	X M DE EN PV	ROCK TYPE COLOR	TYPI-MINS TM 1 TM 2 QAL MIN 1 QAL MIN 2	TEX-TURES MAJOR TX TX MINOR	GRAIN -+ FC SR RD	M CA X SO PC	FRACS DEN I SML PDW	M	STRUCTURES ID T AZM K P L G	T O P B	D I P. P	B D 1 B 2	ALT/N HA	ASSEM.+ HA	MINERALIZATION. HA	AI LN TT BM 1 2	OI RN ET ZONE 1 2
																				QZ CL CB C2 AB XX HX PY UR			YY	
																				FL BA C1 C3 MU HA H: CP			HA	HW HOW
/		0.00	9.45	9.45			OVER																	
R		0.00	9.45				MIXED BRECCIA TALUS WITH SOME EXOTIC DOLOMITE FLOAT BOULDERS																	
/		9.45	11.28	1.83			BRCP	AB	5R3	BR FZ	07 47	XX							P2 <1 P4 P3 P3	D+		16	
L					HB1		3G		6T3		24 CC	X							<1 P1	HE			
/		11.28	14.33	3.05			BROX		3R6	BR	17 68	58	FL		50				P3 P1 P1 P=	P3		05	
L					HB1		2G		6A3		23 FC	52							<= P1	HE			
/	FLT	14.33	22.56	8.23			BRCL	CL	5G6	BR FZ	17 28	XX	FZ		75				P2 P5 P3 P2	D+		22	
L					HB3		8T		7T2		21 CC	X							<= P1 P1	HE			
R		14.33	22.56				FAULT MUCH YOUNGER THAN BRECCIA. CL RELATED TO FAULT. ROCK OFTEN																	
R		14.33	22.56				REDUCED TO GOUGE.																	
/		22.56	30.33	7.77			BRCP	CB AB	7G6	BR	19 89	35							81 <= P4 P3 P2	D1		45	
L					HB1		3G		7R3		21 CC	41							<1 P1	HE			
R		22.56	51.21				BOTH DO AND CA ARE PRESENT.																	
/	FLT	30.33	31.46	1.13		X	BRCP	CB AB	7G6	BR	07 58	35	FZ		75				P2 P3 P3 P2 P1	D+		23	
L					HB1		3G		7R3		21 CC	41							<= P1	HE V.			
R		30.33	31.46				TECTONIC BRECCIA RELATED TO FAULT CONTAINS FRAGMENTS OF ORIGINAL																	
R		30.33	31.46				BRECCIA. CL MATRIX ALTERATION ALSO RELATED TO FAULT. SIMILAIR																	
R		30.33	31.46				NARROW ZONES ARE SCATTERED THROUGHOUT THE MAJOR INTERVAL.																	
/		31.46	35.36	3.90			BRCP	CB AB	7G6	BR	19 89	35							81 <= P4 P3 P2	D1		45	
L					HB1		3G		7R3		21 CC	41							<1 P1	HE			

DRILLHOLE/TRAVERSE --- 80CH011 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	OM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR	QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2		FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		35.36	40.54	5.18			X	BRCP	CB	AB	7G6	BR		19	89	24									8=	<=	P3	P2	P4		DI	V.			35	
L						HB1			4A		7R3			21	CC	31											<1		D+		HE	V.				
R		35.36	43.89						AB IS GENERALLY FINE GRAINED AND OCCASIONALLY PREFERENTIALLY																													
R		35.36	43.89						REPLACES PARTICULAR LAYERS IN THE ROCKS. ASIDE FROM MINOR																													
R		35.36	43.89						SLICKENSIDED SURFACES ROCK APPEARS TO BE LITTLE AFFECTED BY THE																													
R		35.36	43.89						FAULY. DEFINITELY HB1.																													
/		40.54	40.84	.30			X	BRCP	CB	AB	7G6	BR		19	89	24		FL		65				8=	<=	P3	P2	P4		DI	V.			35	
L						HB1			4A		7R3			21	CC	31											<1		P+		HE	D+				
/		40.84	43.89	3.05			X	BRCP	CB	AB	7G6	BR		19	89	24								8=	<=	P3	P2	P4		DI	V.			35	
L						HB1			4A		7R3			21	CC	31											<1		D+		HE	V.				
/		43.89	46.39	2.50				BRCP	CB	AB	7G6	BR		19	89	35								81	<=	P4	P3	P2		D1				45	
L						HB1			3G		7R3			21	CC	41											<1		P1		HE					
/		46.39	48.40	2.01			X	BRCP	CB	AB	7G6	BR		19	89	35								81	<=	P4	P3	P2		D1				45	
L						HB1			3G		7R3			21	CC	41										V+	<1		P1		HE	D+				
R		48.37	48.92						UNIDENTIFIED SUBMETALLIC, NONMAGNETIC, BLACK MINERAL, HARDNESS 7																													
R		48.37	48.92						MUCH HARDER THAN HEMATITE, 10% OF ROCK; DETRITAL TOURMALINE?																													
/		48.40	51.21	2.81				BRCP	CB	AB	7G6	BR		19	89	35								81	<=	P4	P3	P2		D1				45	
L						HB1			3G		7R3			21	CC	41											<1		P1		HE					
R	SPC	48.46	48.65																																	
/		51.21	52.12	.91				BRPC	SE		8T5	BR		07	37	13		FL		40				P2	P+	P3	P2	P+		P1	D.			34	
L						HB1			3G		7A2			24	FC	22										V)	<=	P1	P4		HE	V(				
R		51.21	69.52						FOLIATION OF FRAGMENTS AND BANDING IN MATRIX MOST PREVALENT AT																													
R		51.21	69.52						THE UPPER CONTACT. MU COARSER THAN USUAL. HE MOST ABUNDANT IN																													
R		51.21	69.52						MATRIX AS BANDS IN STRONGLY FOLIATED SECTIONS.																													
/		52.12	61.26	9.14			X	BRPC	CB		BT4	BR		07	37	13		FL		55				P2	P+	P4	P3	P+		P1	D(			24	
L						HB1			3G		7A5			24	FC	22										V)	<=	P1	P3		HE	V(				
R		52.12	61.26						FRAGMENTS OFTEN BLEND INTO MATRIX. EUHEDRAL CB CRYSTALS COMMON																													
R		52.12	61.26						IN MATRIX. DO MOST COMMON CB ALTHOUGH CA OCCURS IN SOME FRAGS.																													
/		61.26	67.97	6.71			X	BRPC	CB		8T5	BR		07	39	14		FL		55				P2	P+	P4	P3	P+		P1	P+			44	
L						HB1			3G		7A3			13	FC	32										V)	<=	P1	P3		HE	V(				

DRILLHOLE/TRAVERSE --- 80CH011 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	HF	X	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		61.26	67.97						FOLIATION RANGES FROM 45 TO 60 . BA FILLED FRACTURES ARE																										
R		61.26	67.97						PERPENDICULAR TO FOLIATION AND TEND TO CLUSTER.																										
/		67.97	68.12	.15			X	BRCL	CL		8T3	BR		06	26	2		FL		40		P=	P5	P3	P2		P1	D+		13		
L						HB3			2G		7A1			32	F0	2											P1	P=	H2					
/		68.12	69.52	1.40				BRPC	SE		8T5	BR		07	37	13		FL		40		P2	P+	P3	P2	P+	P1	D.		34		
L						HB1			3G		7A2			24	FC	22										V)	<=	P1	P4	HE	V(			
/		69.52	73.15	3.63				BRPC	QZ	BA	7R2	BR	RP	06	27	2		FL		45		P4		P3	P1	P1	D=	D)		76		
L						HB1			3A		7A1			32	F0	21										V=	V+	P2	P1	H>	V*			
R		69.52	73.15						FRAGMENTS LARGELY OBLITERATED. VEINS? OF SLIGHTLY SMOKY QZ, MG																										
R		69.52	73.15						GOING TO HE, AND PINK BARITE. CA IN A FEW FRAGMENTS, DO																										
R		69.52	73.15						MORE COMMON?																										
/		73.15	73.46	.31				BRPC	Q2	AB	8T3	BR		07	28	2		FL		50		P4	<)	P3	P2	P=	D=	D)		24		
L						HB1			5A		7A3			22	F0	21										V*	<+	P1	P2	H>	V*			
R		73.15	82.91						CL MOST ABUNDANT AROUND BA VEINS. AB PATCHY SEEMS TO ALTER FRAGS																										
R		73.15	82.91						PREFERENTIALLY. QZ IN BOTH FRAGMENTS AND MATRIX, IN MATRIX																										
R		73.15	82.91						SLIGHTLY SMOKY.																										
/		73.46	74.37	.91			X	BRPC	Q2	AB	8T3	BR		07	28	2		FL		50		P4	P2	P3	P2	P=	D=	D)		24		
L						HB1			5A		7A3			22	F0	21										V=	<+	P1	P2	H>	V*			
/		74.37	81.84	7.47				BRPC	Q2	AB	8T3	BR		07	28	2		FL		50		P4	<)	P3	P2	P=	D=	D)		24		
L						HB1			5A		7A3			22	F0	21										V*	<+	P1	P2	H>	V*			
/		81.84	82.91	1.07			X	BRPC	Q2	AB	8T3	BR		07	28	2		FL		50		P4	<)	P3	P2	P=	D1	D)		34		
R		81.84	82.91						SMALL, EUHEDRAL GRAINS OF HE AFTER MG DISSEMINATED IN MATRIX.																										

A MIN	0.00	0.00	0.00	PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO	CPS
A LAB	0.00	0.00	0.00	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	SCNTRX
A TYP	0.00	0.00	0.00	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	IN BAG
A 001	46.46	48.65	.19	947.0	J17243					130
/ END										

G E O L O G

F O R M A T -- I

E D I T L I S T I N G

ARCHER CATHRO AND ASSOCIATES LTD.

WERNECKE JOINT VENTURE IGOR PROP

FORMAT VERSION : 6B02

DRILLHOLE/TRAVERSE 80CH012 | COLLAR ELEVATION 1230.00 | AZIMUTH(LEG 1) 190.00 | GEOLOGGED BY : WDE +
TOTAL DEPTH/LENGTH 21.95 | NORTHING(- IF S) 3336.50 | VERTICAL ANGLE -50.00 | DATE DY/MON/YR 05/JUL/80
CORE/HOLE DIAMETER B | EASTING (- IF W) -97.50 | CO-ORD SYSTEM GRD | PROJECT NUMBER WJV

KEY	FLAG	FROM (MT.2)	TO	INT	CORE RECOV -MISS +PC.1	MF OI IR	X	ROCK TYPE	TYPI-MINS TM 1	TM 2	QAL MIN 1	TEX-TURES MAJOR TX	TX	GRAIN -+ FC	M CA X	FRACS DEN I	M	..STRUCTURES... S ID	T K	AZM	D O P	I P.	B D 1	ALT/N ASSEM.+ MINERALIZATION. HA HA HA HA HA HA HA HA HA HA	AI LN TT	OI RN ET ZONE
						ROC	DE	P			QAL	TX	TX	SR	SO	SML	%		P		B	.P	B	FL BA C1 C3 MU HA H: CP	HA	HW	HOW
					R.Q.D.	U- NIT	EN PV	R OV	COLOR		MIN 2	MINOR		ON RO	M/ PC	YOO PDW	M 2	ID	L G	AZM	O T	L G	D 2			1 2	1 2
/		0.00	6.71	6.71				OVER								2		FL			50		P4 <) P3 P2 P= D= D)		24	
/	FLT	6.71	10.97	4.26				BRCQ	CL		8T6	BR		07	68	X							P4 <= P4 P3 D+ D*	MA	46	
L						HB1			4G		7G3			22	CC	X							<= P= P1 HE D*	C$		
R		6.71	11.28																				APPEARS TO BE AN EXTENSIVE FRACTURE ZONE BESIDE A FAULT.			
R		6.71	11.28																				MA AND CP ABUNDANT CONSIDERING POOR RECOVERY.			
/		10.97	11.00	.03			X	BROX	HE			BR											P2 P1 P6 D=		05	
L						HB4			2R														<= P= P1			
/	FLT	11.00	11.28	.28				BRCQ	CL		8T6	BR		07	68	X							P4 <= P4 P3 D+ D*	MA	46	
L						HB1			4G		7G3			22	CC	X							<= P= P1 HE D*	C$		
/	FLT	11.28	21.95	10.67				BROX	HE			BR	FZ		XX								P2 P2 P4	MA	13	
L						HB4			3R						XX								P2 P2			
R		11.28	21.95																				SOME VARIATION IN ROCK TYPE HOWEVER IMPOSSIBLE TO IDENTIFY			
R		11.28	21.95																				AS REDUCED TO GOUGE. SOME CU MAY HAVE BEEN REMOBILIZED INTO			
R		11.28	21.95																				THE FAULT ZONE.			

					PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO	CPS
A MIN	0.00	0.00	0.00		CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	SCNTRX
A LAB	0.00	0.00	0.00		1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	IN BAG
A TYP	0.00	0.00	0.00								
A 001	6.71	11.28	4.57	27.0 J17244	2.5	500	22	2.3	36	12	
R TGG	6.71	11.28				54513					

DRILLHOLE/TRAVERSE --- 80CH012 --- (CONTINUED)

						PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO	CPS
A MIN	0.00	0.00	0.00			CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	SCNTRX
A LAB	0.00	0.00	0.00			1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	IN BAG
A TYP	0.00	0.00	0.00									
A 001	11.28	21.95	10.67	5.0	J17245	24.5	845	20	2.8	35	12	
R TGG	11.28	21.95					54513					
/ END												

MULTIPLE ACCESS COMPUTER GROUP / INTERNATIONAL GEOSYSTEMS CORPORATION 20/12/80.

G E O L O G

F O R M A T -- I

E D I T L I S T I N G

ARCHER CATHRO AND ASSOCIATES LTD.

WERNECKE JOINT VENTURE IGOR PROP

FORMAT VERSION : 6R02

DRILLHOLE/TRAVERSE 80CH013 COLLAR ELEVATION 1302.00 AZIMUTH(LEG 1) 215.00 GEOLOGGED BY : WDE +
TOTAL DEPTH/LENGTH 159.72 NORTHING(- IF S) 3382.00 VERTICAL ANGLE -50.00 DATE DY/MON/YR 09/JUL/80
CORE/HOLE DIAMETER B EASTING (- IF W) 44.50 CO-ORD SYSTEM GRD PROJECT NUMBER WJV

K	FLAG	FROM (MT.2)	TO (MT.2)	INTERVAL (MT.2)	CORE RECOV -MISS +PC.1	MF % OI M ROCK DE I IR X TYPE	TYPI-MINS TM TM MIN 1 2 1	TEX-TURES MAJOR TX TX	GRAIN -+ M FC CA X	FRACS DEN M I	ID T AZM K	STRUCTURES S O P / P	T D P. B 1	ALT/N ASSEM.+ MINERALIZATION.	AI LN TT	OI RN ET ZONE
						ROC DE P	QAL TX TX	SR SO		SML %	P	B	.P B	FL BA C1 C3 MU HA H: CP	HA	HW HOW
					R.Q.D.	U- EN R NIT PV OV	COLOR MIN MINOR 2	ON H/ RD PC		TOO M PDW 2	ID L G	AZM	D L T G D 2		1 2	1 2
/		0.00	7.47	7.47		OVER								P2 D+ P4 P4 P3 D= D+ MG D+	MA A2	54
R		0.00	7.47											WEATHERED BEDROCK PITTED AND STAINED WITH FE AND CU SECONDARY		
R		0.00	7.47											MINERALS. SMALL FRAG CONTAINS 5% CU WITH MG. MA AND AZ ABUNDANT		
R		0.00	7.47											POSSIBLY SUPERGENE OR AFTER CP ON FRACTURES. FRAGMENTS DESTROYED		
R		0.00	7.47											BY ALTERATION.		
/		7.47	7.86	.39		BRPE	AB CB 7R4 BR RP 06 26 3							P2 P= P3 P1 P3 D+ D=	JA	45
L					HB1		3G 8T4 35 CC 3							P2 P1 MG D)	GO	
R		7.47	7.86											CB AND AB ALTERATION OBSCURES FRAGMENTS.		
/		7.86	14.02	6.16		BROS	MG PY RP 13					81	83 D+	D3 D2	MA	65
L					HB4		9TCP 31						P1 P2	H< 7+	A2	
R		7.86	14.02											CP OCCURS IN A VARIETY OF WAYS INCLUDING CB VEINS. IN MG AND		
R		7.86	14.02											WITH PY. ACCOMPANING THE OXIDES AND SULPHIDES IS A PERVASIVE CB-		
R		7.86	14.02											Q2 ALTERATION. MINOR AB OCCURS NEAR THE BOTTOM OF THE INTERVAL.		
R		7.86	14.02											MA, A2, AND L1 ARE RESTRICTED TO FRACTURES. MG OCCURS AS 2-10MM		
R		7.86	14.02											EUHEDRAL CRYSTALS WHILE PY AND CP ARE FINER GRAINED.		
R	TAG	12.50	14.02				54514 69060									
/		14.02	18.29	4.27		BRPE	AB MG RP 2	FL	15	P2	P2 P=	P3 D1 D1			MA	66
L					HB2		7RPY 2				<) P2	H< D+			A2	

DRILLHOLE/TRAVERSE --- 80CH013 --- (CONTINUED)

K	FLG	F.R.O.M	T.O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		14.02	18.29						AB ALTERATION HAS DESTROYED THE BR TEXTURE. POORLY DEVELOPED																												
R		14.02	18.29						FOLIATION. GOOD ZONED MG. DISTRIBUTION OF ALL MINERALS SOMEWHAT																												
R		14.02	18.29						ERRATIC, LOCALLY GRADES INTO BROS.																												
/		18.29	21.34	3.05				BRPE	CB	AB		RP		06	17	2		FL			10		P3	D)	P3	P2			D=	D=			55		
L						HB2			7T					45	C	2										P1			MG						
R		18.29	25.05						BR TEXTURE AGAIN LARGELY DESTROYED BY ALTERATION. FOLIATION WEAK																												
R		18.29	25.05						FRAG SIZE-SHAPE DEFINED BY A FEW QUARTZITE FRAGMENTS WHICH ARE																												
R		18.29	25.05						USUALLY RIMMED BY PY.																												
/		21.34	25.05	3.71			X	BRPE	CB	AB		RP		06	17	13		FL			10		P3	D=	P3	P2			D=	D=			44		
L						HB2			7T					45	C	22								V*		P1			MG						
R		21.34	25.05						FRAGMENT SHAPE AND SIZE DESCRIPTION SUPPORTED BY A FEW RESIDUAL																												
R		21.34	25.05						PELITE FRAGMENTS. LOCALLY GRADES TOWARD BROS. IN OTHERS PY IS																												
R		21.34	25.05						ALTERED TO CL																												
/		25.05	30.48	5.43				BROS	HX	PY						3							83	D1	83				D2	D1			44		
L						HB4			8TCB							3								V*	P3	P1			M<	D>					
R		25.05	30.48						CP IS USUALLY WITH PY AND MG. SOME CL IS AFTER PY HOWEVER SOME																												
R		25.05	30.48						SOME OCCURS IN PRISMATIC MASSES SUGGEST THAT IT MAY BE PSEUDO-																												
R		25.05	30.48						MORPHOUS AFTER AN AMPHIBOLE? QZ IS USUALLY WITH MG. IN SOME																												
R		25.05	30.48						PLACES THE CP APPEARS TO BE LEACHING EARLIER THAN PY WHICH MAY																												
R		25.05	30.48						EXPLAIN IT*S RELATIVE SCARCITY ON SURFACE.																												
/		30.48	35.05	4.57				BRPE	CB	MU	7A1	BR	RP	07	27	13		FL			20		P3	D)	P2				D=				L1	74		
L						HB2			8T		9A2			22	FC	12								<)	P2	P4			MG						
R		30.48	43.28						MOST FRAGMENTS OBSCURED BY ALTERATION. FOLIATION VERY WEAK. MG																												
R		30.48	43.28						IRREGULARILY DISTRIBUTED.																												
/	FLT	35.05	43.28	8.23			X	BRPE	CB	MU	7A1	BR	RP	07	27	25		FZ			00		P3	<=	P2				D=				L1	44		
L						HB2			8T		9A2		FZ	22	FC	24								<)	P2	P4			MG						
R		35.05	43.28						APPEARS TO BE A NUMBER OF NARROW FAULTS SEPARATED BY LESS BROKEN																												
R		35.05	43.28						ROCK SLICKENSIDED SURFACES SUGGEST DIP 00 BUT MAY BE 45 OR 60																												

DRILLHOLE/TRAVERSE --- 80CH013 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		43.28	48.04	4.76				BRPQ			6A7	BR		18	38	13								85	<=	61	P+	P=		D+	D)		MA	45	
L						HB2			8T		7T2			12	CC	13										<+	P+	P4		H<	V.				
R		43.28	48.04								BRECCIA HAS BEEN LOCALLY HIGHLY FRACTURED AND REBRECCIATED BY																								
R		43.28	48.04								THE FAULT. CL IS THE MATRIX TO THE TECTONIC BRECCIA, CB FOR THE																								
R		43.28	48.04								FOR THE ORIGINAL BRECCIA. ORIGINAL BRECCIA VERY TIGHT. AB MOST																								
R		43.28	48.04								ABUNDANT AT BOTTOM OF INTERVAL AS IS MG.																								
/		48.04	50.96	2.92				BRPE	CB	MG		RP				13		FL			25			P2	7+	P2		P=		D2	D1			45	
L						HB2			7TPY							21										P+	P2	P2		H<	D(				
R		48.04	50.96								MG OCCURS IN 1MM TO 8MM CRYSTALS WHICH ARE GENERALLY																								
R		48.04	50.96								DISSEMINATED BUT OFTEN CLUSTER. CP OCCURS WITH PY. BRECCIA																								
R		48.04	50.96								TEXTURE DESTROYED BY ALTERATION. WEAK FOLIATION. ALTERATION																								
R		48.04	50.96								GIVES ROCK MOTTLED APPEARANCE.																								
/		50.96	54.86	3.90				BRPQ	CB		8A3	BR	RP	07	37	2		FL			40			P3	P=	P2		D+		D=	D+			54	
L						HB2			7T		7R1			22	FC	2										D+		P2	P3		MG	D.			
R		50.96	60.66								FRAGMENTS LARGLY DESTROYED BY ALTERATION. MATRIX PREDOMINENTLY																								
R		50.96	60.66								CB; CL AND BA. CL MAY BE AFTER PY. WEAK FOLIATION.																								
/		54.86	57.00	2.14			X	BRPQ	CB		8A3	BR	RP	08	38	14		FL			20			P3	P=	P2	P1	D+		D)	D+			64	
L						HB2			7T		6G2			22	FC	23										D+		P1	P3		MG	D.			
R		54.86	60.66								CL REPLACING MG AND PY.																								
/	FLT	57.00	57.61	.61			X	BRPQ	CB		8A3	BR	RP	08	38	1X		FZ			30			P3	P=	P2	P1	D+		D)	D+			64	
L						HB2			7T		6G2			22	FC	23										D+		P1	P3		MG	D.			
R		57.00	57.61								SOME GOUGE																								
/		57.61	58.52	.91			X	BRPQ	CB		8A3	BR	RP	08	38	14		FL			20			P3	P=	P2	P1	D+		D)	D+			64	
L						HB2			7T		6G2			22	FC	23										D+		P1	P3		MG	D.			
/		58.52	59.19	.67			X	BRPQ	CB		8A3	BR	RP	07	37	2		FL			40			P3	P=	P2		D+		D2	D1			35	
L						HB2			7T		7R1			22	FC	2										D+		P2	P3		MG	D+			
R		58.52	59.19								GRADES LOCALLY INTO BRQS.																								
/		59.19	60.66	1.47			X	BRPQ	CB		8A3	BR	RP	08	38	14		FL			20			P3	P=	P2	P1	D+		D)	D+			64	
L						HB2			7T		6G2			22	FC	23										D+		P1	P3		MG	D.			
/		60.66	61.57	.91				BRPQ	AB		8R3	BR	RP	07	37	14								P2	<+	P2	P1	P4		D)	D)			56	
L						HB2			8T		7T1			22	FC	23										<)	P1	P1		H<					

DRILLHOLE/TRAVERSE --- 80CH013 --- (CONTINUED)

K	FLG	F.R.O.M	: T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		60.66	73.15							PART OF AN EXTENSIVE FRACTURE ZONE ON THE EDGE OF A MAJOR FAULT.																										
R		60.66	73.15							PERVASIVE AB AND CB ALTERATION HAS DESTROYED MOST ORIGINAL BR																										
R		60.66	73.15							TEXTURE. ROCK IS LOCALLY REBRECCIATED TECTONICALLY WITH CL																										
R		60.66	73.15							MATRIX. SKELETAL MG CRYSTALS OFTEN CORED WITH CB.																										
/	FLT	61.57	63.09	1.52			X	BRPQ	AB		8R3	BR	RP	07	37	1X		FZ			35		P2	<+	P2	P1	P4		D)	D)			56		
L						HB2			8T		7T1	FZ		22	FC	23									<)	P1	P1		H<						
/		63.09	68.58	5.49				BRPQ	AB		8R3	BR	RP	07	37	14							P2	<+	P2	P1	P4		D)	D)			56		
L						HB2			8T		7T1			22	FC	23									<)	P1	P1		H<						
/	FLT	68.58	70.10	1.52			X	BRPQ	AB		8R3	FZ	RP	07	37	1X		FZ			35		P2	<+	P2	P1	P4		D)	D)			56		
L						HB2			8T		7T1			22	FC	23									<)	P1	P1		H<						
R		68.58	70.10							SOME GOUGE																										
/		70.10	73.15	3.05				BRPQ	AB		8R3	BR	RP	07	37	14							P2	<+	P2	P1	P4		D)	D)			56		
L						HB2			8T		7T1			22	FC	23									<)	P1	P1		H<						
/		73.15	74.07	.92				BROX	MG	QZ	8R+	BR	RP	06	16	4							P3	>)	P3				D3	D+			57		
L						HB4			8ACB					34	CO	23									V=	P2			H<						
R		73.15	74.07							PREDOMINENTLY QZ-CB MATRIX.																												
/		74.07	80.31	6.24				BRPE	CB	CL	8A4	BR	GN	06	66	24		FL			40		P2	8=	P3				D)				64		
L						HB2			8T					42	FC	3									V+	P3	P4								
R		74.07	102.72							FOLIATION QUITE VARIABLE: 80 TO 20																												
/	FLT	80.31	80.77	.46			X	BRPE	CB	CL	8A4	BR	GN	06	66	24		F/			45		P2	8=	P3				D)				64		
/		80.77	82.60	1.83			X	BRPE	CB	CL	8A4	BR	GN	06	66	24		FL			40		P2	8=	P3		D1		D1	D)			64		
L						HB2			6TMG					42	FC	3									V+	P3	P3		MG						
R		80.77	82.60							MG IN 2-3MM EUHEDRAL CRYSTALS																												
/		82.60	84.43	1.83				BRPE	CB	CL	8A4	BR	GN	06	66	24		FL			40		P2	8=	P3				D)				64		
L						HB2			8T					42	FC	3									V+	P3	P4								
/	FLT	84.43	85.34	.91			X	BRPE	CB	CL	8A4	BR	GN	06	66	24		F/			40		P2	8=	P3				D)				64		
L						HB2			8T					42	FC	3									V+	P3	P4								
/		85.34	87.48	2.14			X	BRPE	CB	CL	8A4	BR	GN	06	66	24		FL			40		P2	8=	P3				D)				64		
L						HB2			8T					42	FC	3									V+	P3	P4		6+						
/		87.48	89.31	1.83			X	BRPE	CB	CL	8A4	BR	GN	06	66	24		FL			40		P2	8=	P3				D1	D=			64		
L						HB2			8T					42	FC	3									V+	P3	P4		MG						

DRILLHOLE/TRAVERSE --- 80CH013 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	X	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	Z1
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		89.31	90.74	1.43				BRPE	CB	CL	BA4	BR	GN	06	66	24		FL				40		P2	8=	P3					D)		64		
L						HB2			8T						42	FC	3										V*	P3	P4							
/		90.74	90.89	.15			X	BRPE	CB	CL	BA4	BR	GN	06	66	24		FL				40		P2	8=	P3					D)		64		
L						HB2			8T						42	FC	3										V*	P3	P4			V*				
/		90.89	93.57	2.68				BRPE	CB	CL	BA4	BR	GN	06	66	24		FL				40		P2	6=	P3					D)		64		
L						HB2			8T						42	FC	3										V*	P3	P4							
/	FLT	93.57	101.80	8.23			X	BRPE	CB	CL	BA4	BR	GN	06	66	45		F2				70		P2	8=	P3					7*		64		
L						HB2			8T						42	FC	3										P=	P2	P3			V*				
R		93.57	102.72						SEVERAL NARROW SHEER ZONES. CU FINELY DISSEMINATED IN PY ALONG																													
R		93.57	102.72						FRACTURES.																												
/	FLT	101.80	102.72	.92			X	BRPE	CB	CL	BA4	BR	GN	06	66	8X		FL				45		P2	8=	P3					7*		64		
L						HB2			8T						42	FC	8										P=	P2	P3			V*				
R		102.72	108.81						VERY STRONGLY FRACTURE ROCK WITH SOME SECONDARY TECTONIC BRECCIA																													
R		102.72	108.81						WITH CL MATRIX. MOST PRIMARY TEXTURE DESTROYED. PY BASICALLY ON																													
R		102.72	108.81						FRACTURES. VERY SHARP LOWER CONTACT.																													
/	FLT	102.72	104.55	1.83			X	BRPQ	QZ	CB	8T9	BR		07	37	24		FZ				70		P4	<=	P2	P1				D=		65		
L						HB2			8TPY						22	FC	3										V(		P1	P3		D)				
R		102.72	104.55						CP WITH PY ON FRACTURES.																													
/	FLT	104.55	108.81	4.26				BRPQ	QZ	CB	8T9	BR		07	37	3X		FZ				70		P4	<=	P2	P1				D=		65		
L						HB2			8TPY						22	FC	X										V(		P1	P3		D.				
/	FLT	108.81	130.15	21.34				BRPQ	HE	MU	8R6	F2	BR	07	27	1X		F2				40		P5						CY	D1			LI	33
L						HB2			6RQ2						22	FC	X2													P4	TA	HE	D.			
R		108.81	134.11						PERVASIVE RED HEMATITE STAINS. STRONG TECTONIC BRECCIA. SOME																													
R		108.81	134.11						GOUGE ZONES BUT RECOVERY SURPRIZINGLY GOOD.																													
/	FLT	130.15	134.11	3.96			X	BRPQ	HE	MU	8R6	F2	BR	13	27	1X		F2				40		P5						CY	D1			LI	33
L						HB2			6RQ2						31	FC	X2		FL			40								P4	TA	HE	D.			
R		130.15	134.11						SHARP LOWER CONTACT.																													
/		134.11	139.29	5.18				PLIT	QZ	PY						2		FL				30		P6							6*		95		
L						HS0			CP						21														P4			6)				
		134.11	139.29						ROCK IS SO INTENSELY BLEACHED THAT IT IS DIFFICULT TO DETERMINE																													
		134.11	139.29						EXTENT OF BRECCIATION. ROCK IS EITHER HIGHLY BLEACHED ARGILLITE																													

DRILLHOLE/TRAVERSE --- 80CH013 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR	QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2		FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		134.11	139.29																																
R		134.11	139.29																																
R		134.11	139.29																																
R		134.11	139.29																																
R		134.11	139.29																																
R		134.11	139.29																																
R		134.11	139.29																																
/		139.29	153.62	14.33				BRPQ	CB	PY	7R1	BR			07	37	1		FL			10		P2		P3	P3			7=			84	
L						HB2			9A		8T4				22	FC	1										V)		P4		D*				
R		139.29	159.72																																
R		139.29	159.72																																
R		139.29	159.72																																
R		139.29	159.72																																
/		153.62	154.23	.61			X	BRPQ	CB	PY	7R1	BR			07	37	3		FL			10		73	<+	P2	P2			D=	D=		65	
L						HB2			9A		8T4				22	FC	31										V)		P3		H<	7)			
R		153.62	159.72																																
/	FLT	154.23	154.53	.30			X	BRPQ	CB	PY	7R1	BR	F/		07	37	X		F/			30		73	<+	P2	P2			D=	D=		34	
L						HB2			9A		8T4				22	FC	X1										V)		P3		H<	7)			
/		154.53	156.09	1.56			X	BRPQ	CB	PY	7R1	BR			07	37	3		FL			10		73	<+	P2	P2			D=	D=		65	
L						HB2			9A		8T4				22	FC	31										V)		P3		H<	7)			
/	FLT	156.09	158.44	2.35			X	BRPQ	CB	PY	7R1	BR	FZ		07	37	X		FZ			40		73	<+	P2	P2			D=	D=		11	
L						HB2			9A		8T4				22	FC	X1										V)		P3		H<	7)			
R		156.09	158.44																																
/		158.44	159.41	.97			X	BRPQ	CB	PY	7R1	BR			07	37	3		FL			10		73	<+	P2	P2			D=	D=		65	
L						HB2			9A		8T4				22	FC	31										V)		P3		H<	7)			
/	FLT	159.41	159.65	.24			X	BRPQ	CB	PY	7R1	BR	F/		07	37	3		F/			40		73	<+	P2	P2			D=	D=		11	
L						HB2			9A		8T4				22	FC	31										V)		P3		H<	7)			
/	FLT	159.65	159.72	.07			X	BRPQ	CB	PY	7R1	BR	F/		07	37	3		F/			40		P1	<+	P2	P2	P2		D=	D=		55	
L						HB2			9A		8T4				22	FC	31										V)		P2		H<	7)			
A	001	0.00	0.00	0.00																															

DRILLHOLE/TRAVERSE --- 80CH013 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	% ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
-	---	----.--	----.--	----.--	--.--	--	- ----	--	--	---	--	--	--	--	---	-	--	/	---	/	//	-	--	--	--	--	--	--	--	--	--	--	--	--
					R.Q.D	R.U	DE	PV	COLOR	QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
A	MIN	0.00	0.00	0.00				PPM	U	PPM	CU	PPM	CO	PPM	AG	PPB	AU	PPM	MO							CPS								
A	LAB	0.00	0.00	0.00				CHEMEX		CHEMEX		CHEMEX		CHEMEX		CHEMEX		CHEMEX								SCNTRX								
A	TYP	0.00	0.00	0.00				1H-COR		1H-COR		1H-COR		1H-COR		1H-COR		1H-COR								IN BAG								
A	001	7.47	7.86	.39	100.0	J17288	89.0			5200		184		0.6		110		38								120								
R	TAG	7.47	7.86							54514		69060																						
A	001	7.86	9.45	1.59	100.0	J17289	82.0			14400		560		0.6		110		38								140								
R	TAG	7.86	9.45							54514		69060																						
A	001	9.45	10.97	1.52	100.0	J17290	13.0			10000		245		0.6		110		38								120								
R	TAG	9.45	10.97							54514		69060																						
A	001	10.97	12.50	1.53	100.0	J17291	19.5			8700		340		0.6		110		38								120								
R	TAG	10.97	12.50							54514		69060																						
A	001	12.50	14.02	1.52	100.0	J17292	18.0			10400		190		0.6		110		38								120								
R	TAG	12.50	14.02							54514		69060																						
R	TAG	12.50	14.02							54514		69060																						
A	001	14.02	15.54	1.52	100.0	J17293	10.0			1100		198		0.6		110		38								120								
R	TGG	14.02	15.54							54669																								
A	001	15.54	17.07	1.53	100.0	J17294	9.5			755		280		0.6		110		38								120								
R	TGG	15.54	17.07							54669																								
A	001	17.07	18.29	1.22	100.0	J17295	4.5			330		92		0.6		110		38								120								
R	TGG	17.07	18.29							54669																								
A	001	85.34	87.48	2.14	71.0	J17296	12.0			4800		130		0.1		50		31								120								
R	TAG	85.34	87.48							54670		69151																						
A	001	93.57	95.10	1.53	80.0	J17297	7.5			130		72		0.1		7		5								130								
R	TGG	93.57	95.10							54669																								
A	001	102.72	104.55	1.83	67.0	J17298	6.0			3500		58		0.1		18		36								120								
R	TGG	102.72	104.55							54669																								
A	001	116.13	117.96	1.83	67.0	J17299	7.0			34		2		0.1		4		12								120								
R	TGG	116.13	117.96							54669																								

DRILLHOLE/TRAVERSE --- 80CH013 --- (CONTINUED)

							PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO	CPS
A MIN	0.00	0.00	0.00										
A LAB	0.00	0.00	0.00				CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	SCNTRX
A TYP	0.00	0.00	0.00				1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	IN BAG
A 001	134.11	135.64	1.53	100.0	J17300	21.0	900	26	0.1	24	7		120
R TAG	134.11	135.64					54670	69151					
A 001	135.64	137.16	1.52	80.0	J17400	15.0	1200	28	0.1	24	7		120
R TAG	135.64	137.16					54670	69151					
A 001	137.16	138.68	1.52	100.0	J17401	11.5	1400	48	0.1	24	7		120
R TAG	137.16	138.68					54670	69151					
A 001	138.68	139.29	.61	100.0	J17402	9.5	600	22	0.1	24	7		120
R TAG	138.68	139.29					54670	69151					
A 001	139.29	140.82	1.53	100.0	J17403	11.0	670	96	0.1	24	7		120
R TGG	139.29	140.82					54669						
A 001	140.82	143.87	3.05	100.0	J17404	11.0	690	70	0.1	24	7		120
R TGG	140.82	143.87					54669						
A 001	143.87	146.91	3.04	100.0	J17405	5.5	230	44	0.1	24	12		120
R TGG	143.87	146.91					54669						
A 001	146.91	149.96	3.05	100.0	J17406	8.5	265	58	0.1	24	12		120
R TGG	146.91	149.96					54669						
A 001	149.96	153.62	3.66	100.0	J17407	8.0	960	38	0.1	24	12		120
R TGG	149.96	153.62					54669						
A 001	153.62	156.12	2.50	85.0	J17408	7.5	1800	72	0.1	24	12		120
R TAG	153.62	156.12					54670	69151					
A 001	158.44	159.72	1.28	71.0	J17409	135.0	1100	78	0.1	24	12		180
R TGG	158.44	159.72					54669						
/ END													

MULTIPLE ACCESS COMPUTER GROUP / INTERNATIONAL GEOSYSTEMS CORPORATION 20/12/80.

G E O L O G

F O R M A T -- I

E D I T L I S T I N G

ARCHER CATHRO AND ASSOCIATES LTD.

WERNECKE JOINT VENTURE IGOR PROP

FORMAT VERSION : 6802

DRILLHOLE/TRAVERSE 80CH014 | COLLAR ELEVATION 1073.00 | AZIMUTH(LEG 1) 30.00 | GEOLOGGED BY : WDE +
TOTAL DEPTH/LENGTH 170.69 | NORTHING(- IF S) 3890.00 | VERTICAL ANGLE -50.00 | DATE DY/MON/YR 08/JUL/80
CORE/HOLE DIAMETER B | EASTING (- IF W) 35.00 | CO-ORD SYSTEM GRD | PROJECT NUMBER WJV

K	FLAG	• • INTERVAL • • (MT • 2) F.R.O.M	: T..O	I.N.T	CORE RECOV -MISS +PC.1	MF % OI M ROCK DE I IR X TYPE	TYPI-MINS TM 1 TM 2	QAL MIN 1	TEX-TURES MAJOR TX	TX	GRAIN -+ M FC	CA X	FRACS DEN	M I	ID	..STRUCTURES... S T K	AZM	D O P	I P.	B D 1	ALT/N HA	ASSEM.+ HA	HA	HA	HA	HA	HA	HA	MINERALIZATION. HA	AI LN TT BM	OI RN ET ZONE
-	---	-----.--	-----.--	-----.--	--.--	-- - ----	-- --	---	--	--	--	--	---	-	--	/ ---	/	//	-	--	--	--	--	--	--	--	--	--	YY	--	--
					ROC DE P			QAL	TX	TX	SR	SO	SML	X		P	B	.P	B	FL	BA	C1	C3	MU	HA	H:	CP		HA	HW 1 2	HOW 1 2
					R.Q.D.	U- EN R NIT PV OV	COLOR	MIN 2	MINOR		ON RD	H/ PC	TOO PDW	M 2	ID	L G	AZM	O T	L G	D 2											
/		0.00	6.40	6.40		OVER																									
/		6.40	22.86	16.46		BRPQ	MU	CB	9A4	BR	FL	17	68	12		FL			55		P2 << P4						D*	D*		GO	74
L					HB2		7T		7R2			31	FC	2								P4	P4		MG					JA	
R		6.40	36.58			ROCKS ARE REMARKABLY UNIFORM OVER THE LENGTH OF THE INTERVAL.																											
R		6.40	36.58			MG OCCURS AS EUHEDRAL CRYSTALS 0.1-1M IN DIAMETER. CB OCCURS IN																											
R		6.40	36.58			IRREGULAR MASSES BUT APPEARS TO BE THE MATRIX. THE LIGHT GREY																											
R		6.40	36.58			PELITE FRAGMENTS ARE STRONGLY FOLIATED AND WHISPY. QUARTZITE																											
R		6.40	36.58			FRAGMENTS ARE COMPACT AND OFTEN SLIGHTLY LARGER. FOLIATION IS																											
R		6.40	36.58			PERVASIVE AND RELATIVELY UNIFORM. PY GRAINS ARE ALSO EUHEDRAL																											
R		6.40	36.58			AND AVERAGE 2MM IN DIAMETER (PYRITOHEDRONS).																											
/		22.86	23.80	.94		X BRPQ	MG	MU	9A4	BR	FL	17	68	12		FL			55		P2 << P3						D2	D*		GO	74
L					HB2		7TCB		7R2			31	FC	2								P3	P4		MG					JA	
R		22.86	23.80			MG IS PREDOMINENTLY IN THE MATRIX AS EUHEDRAL, 1-3MM CRYSTALS.																											
R		22.86	23.80			A FEW FRAGMENTS CONTAIN UPTO 50% MG XTALS.																											
/		23.80	36.58	12.78		BRPQ	MU	CB	9A4	BR	FL	17	68	12		FL			55		P2 << P4						D*	D*		GO	74
L					HB2		7T		7R2			31	FC	2								P4	P4		MG					JA	
/		36.58	43.59	7.01		BRPQ	MU	CB	9A4	BR	FL	17	68	2		FL			55		P2 << P4						D*	D*			74
L					HB2		7T		7R2			31	FC	2								P4	P4		MG						

DRILLHOLE/TRAVERSE --- 80CH014 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	X	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		43.59	50.14	6.55			X	BRPQ	MU	CB	9A4	BR	FL	17	68	2		FL			45		P2	<(	P4		P1		D=	D)			74	
L						HB2			7T		8T3			31	FC	2										P4	P3		MG					
R		43.59	50.14						PREDOMINENTLY QUARTZ FRAGMENTS CONTAINING 10% MG AND 10% CB ARE																												
R		43.59	50.14						COMMON.																											
/		50.14	52.00	1.86			X	BRPQ	MU	CB	9A4	BR	FL	17	68	13		FL			55		P2	<*	P4				00	D*			83	
L						HB2			7T		8T3			31	FC	31										P4	P4		00					
/		52.00	57.42	5.42			X	BRPQ	MU	CB	9A4	BR	FL	17	68	1		FL			55		P2	<(	P4				D.	D)			84	
L						HB2			7T		8T2			31	FC	1										P4	P4		MG					
L						HB2			7T		8T2			31	FC	1										P4	P4		MG					
/		57.42	58.83	1.41			X	BRPQ	MU	CB	9A4	BR	FL	17	68	1		FL			55		P2	<(	P4				D.	D1			84	
/		58.83	59.44	.61			X	BRPQ	MU	CB	9A4	BR	FL	17	68	1		FL			55		P2	<(	P4				D.	D)			84	
L						HB2			7T		8T2			31	FC	1										P4	P4		MG					
/		59.44	69.86	10.42				BRPE	MU	CB	9T5	BR	FL	07	68	24		FL			55		P=	>*	P4	P2				D)			92	
L						HB2					9A4			31	FC	32										<)	P2	P6							
R		59.44	84.58						CB IN MATRIX OCCASIONALLY OCCURS AS AUGENS.																												
/		69.86	72.09	2.23			X	BRPE	MU	CB	6T6	BR	FL	09	69	22		FL			55		P2	>*	P4	P2				D1			74	
L						HB2			PY		9A4			11	FC	22										P*	P2	P3			D=				
R		69.86	72.09						PY AND CP OCCUR BOTH IN THE QZ-CB MATRIX AND IN FRAGMENTS																												
R		69.86	72.09						CONTAINING UPTO 50% SULPHIDES WHICH ARE UPTO 10CM ACROSS.																												
R		69.86	72.09						MAY INDICATE MORE THAN ONE EPISODE OF BRECCIATION, CU IN																												
R		69.86	72.09						ORIGINAL META-SEDS, OR PREFERENTIAL REPLACEMENT.																												
/		72.09	73.37	1.28				BRPE	MU	CB	9T5	BR	FL	07	68	24		FL			55		P=	>*	P4	P2				D)			92	
L						HB2					9A4			31	FC	32										<)	P2	P6							
/		73.37	73.70	.33			X	BRPE	MU	CB	9T5	BR	FL	07	68	24		FL			55		P=	>*	P4	P2				D1			92	
L						HB2					9A4			31	FC	32										<)	P2	P6			D1				
R		73.37	73.70						CP AND PY OCCUR IN BANDS IN THE MATRIX PARALLELING FOLIATION																												
R		73.37	73.70						SUGGESTING MINERALIZATION PREDATED FOLIATION																												
/		73.70	78.55	4.85				BRPE	MU	CB	9T5	BR	FL	07	68	24		FL			55		P=	>*	P4	P2				D)			92	
L						HB2					9A4			31	FC	32										<)	P2	P6							
/		78.55	78.64	.09			X	BRPE	MU	CB	9T5	BR	FL	07	68	24		FL			55		P4	>*	P3	P1				D2			92	
L						HB2					9A4			31	FC	32										<)	P2	P2							

DRILLHOLE/TRAVERSE --- 80CH014 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		78.55	78.64																																
									QUARTZITE FRAGMENTS COMMON, ALMOST ABSENT IN SURROUNDING																										
R		78.55	78.64						UNMINERALIZED ROCKS.																										
/		78.64	80.77	2.13				BRPE	MU	CB	9T5	BR	FL	07	68	24		FL			55		P=	>*	P4	P2			D)			92	
L						HB2					9A4			31	FC	32									<)	P2	P6							
/		80.77	84.58	3.81			X	BRPE	MU	CB	9T5	BR	FL	07	68	14		FL			55		P=	>+	P4	P2			D)			92	
L						HB2					9A4			31	FC	42									<)	P2	P6							
/		84.58	98.45	13.87				BRPQ	MU	CB	9A4	BR	FL	07	77	2		FL			55		P2	<(	P3	P2		D=	D>			84	
L						HB2			8TMG		8T4			21	FC	2									P1	P4		MG						
R		84.58	98.45						VERY SIMILAR TO MG BEARING ROCKS AT TOP OF HOLE. CB APPEARS TO																										
R		84.58	98.45						BE REPLACING QUARTZITE FRAGMENTS AS THEY OFTEN HAVE ALTERATION																										
R		84.58	98.45						HALOS. THIS WOULD SUGGEST THAT CP-PY BEARING ROCKS MORE INTENSLY																										
R		84.58	98.45						ALTERED, TAN COLOURED CB-MU FRAGMENTS CONTAIN THE MOST MG; THE																										
R		84.58	98.45						QUARTZITE FRAGMENTS THE LEAST.																										
/		98.45	101.19	2.74				BRPQ	MU	CB	9A4	BR	FL	07	77	1		FL			50		P3		P3	P1		D+	D*			74	
L						HB2			8TQ2		6A2			21	FC	1									P2	P4		MG						
R		98.45	102.72						QUARTZITE FRAGMENTS MORE ABUNDANT																										
/		101.19	102.72	1.53			X	BRPQ	MU	CB	9A4	BR	FL	07	77	1		FL			50		P2		P3	P2		D+	D*			93	
L						HB2			8TQ2		6A2			21	FC	1									P1	P5		MG						
R		101.19	102.72						AS EXPECTED THE LEAST COMPETANT FRAGMENTS ARE MOST PRONE TO BE																										
R		101.19	102.72						FOLIATED.																										
/		102.72	112.17	9.45				BRPE	MU	CB	9A4	BR	FL	07	77	1		FL			45		P2		P4	P2		D=	D)			84	
L						HB2			8TMG		8T4			21	FC	1									P2	P4		MG						
R		102.72	112.17						COMPOSITIONAL BANDING QZ VS. CB-MG IS EVIDENT IN SOME FRAGMENTS.																										
R		102.72	112.17						FOLIATION NOT AS STRONG AS PREVIOUSLY BUT STILL PERVASIVE.																										
/		112.17	129.84	17.67				BRPQ	MU	CB	9A4	BR	FL	07	77	1		FL			45		P4		P2	P1		D.	D)			84	
L						HB2			8T		6A2			21	FC	1									P1	P4		MG						
R		112.17	136.25						A FRAGMENT CLEARLY SHOWS FINE INTER-BEDDING OF QUARTZITE WITH																										
R		112.17	136.25						ARGILLITE SUGGESTING MINIMAL STRATIGRAPHIC DISPLACEMENT TO																										
R		112.17	136.25						JUXTOPOSE FRAGMENTS FROM THE TWO UNITS AND MAY EXPLAIN DIFFERENT																										

DRILLHOLE/TRAVERSE --- 80CH014 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		112.17	136.25						ALTERATIONS OBSERVED IN SOME FRAGMENTS.																											
/	FLT	129.84	130.76	.92			X	BRPQ	MU	CB	9A4	BR	FL	07	77	5		FZ			50		P4		P2	P1			D.	D)			84	
L						HB2			8T		6A2			21	FC	5											P1	P4		MG					
R		129.84	130.76						SOME GOUGE.																											
/		130.76	136.25	5.49				BRPQ	MU	CB	9A4	BR	FL	07	77	1		FL			45		P4		P2	P1			D.	D)			84	
L						HB2			8T		6A2			21	FC	1											P1	P4		MG					
/		136.25	138.68	2.43				BRPQ	CL	MG	9T6	BR	FL	07	57	2		FL			40		P5	7+	P=	P=			D=	D+			65	
L						HB2			8GMV		R3			22	FC	12												P4		MG					
R		136.25	141.43						CB MATRIX APPEARS TO HAVE GONE TO CL.																											
/		138.68	141.43	2.75			X	BRPQ	CB	MG	9T6	BR	FL	07	57	2		FL			40		P4	<<	P2	P=			D=	D+			74	
L						HB2			8TMV		R3			22	FC	12											P1	P4		MG					
/		141.43	143.10	1.67				BRPQ	MU	PY	9A4	BR	FL	08	28	22		FL			25		P3	<<	P2	P=			D=				74	
L						HB2			8T		.R4			12	FC	1											V)	P1	P5						
R		141.43	154.53						MG. PY. CL CONTENTS VARY CONSIDERABLY OVER SHORT INTERVALS.																											
/		143.10	149.35	6.25			X	BRPQ	MU	PY	9A4	BR	FL	07	37	23		FL			25		P3	P=	P2	P=			D+	D=			64	
L						HB2			8T		.R4			12	FC	12											V)	P1	P5		MG				
/		149.35	154.53	5.18			X	BRPQ	MU	PY	9A4	BR	FL	08	28	22		FL			25		P3	<<	P2	P=			D=	D=			74	
L						HB2			8T		.R4			12	FC	1											<=	P1	P5		MG				
/		154.53	164.35	9.82				BRPE			9T8	BR	FL	29	59	3		FL			30		P4	<<	P2	P1				7)			85	
L						HB2			9T		8A1			12	FC	31											P=		P4						
R		154.53	165.87						A LARGE BLOCK ONLY SLIGHTLY BRECCIATED.																											
/		164.35	164.41	.06			X	BRPE			9T8	BR	FL	29	59	3		CN		T	65		P4	<<	P2	P1				7)			85	
L						HB2			9T		8A1			12	FC	31		CN		B	65			V9	P=		P4							
R		164.35	164.41						8CM VEIN OF PINK BA WITH 3MM PY SELVAGE.																											
/		164.41	165.87	1.46			X	BRPE			9T8	BR	FL	07	67	23		FL			30		P4	<<	P2	P1				7)			85	
L						HB2			9T		8A1			12	FC	21											P=		P4						
/		165.87	167.52	1.65				BRPQ	PY	CL	8T6	BR	FL	07	47	24		FL			25		P4	D=	P2	P1				72			55	
L						HB2			7T		7A2			22	FC	3											<<	P1	P2		D.				
R		165.87	170.69						BULK OF THE PY OCCURS IN BANDS PARALLELING FOLIATION. PY FORMS																											
R		165.87	170.69						MATRIX. FOLIATION NOT AS STRONG AS AT TOP OF HOLE.																											
/		167.52	167.55	.03			X	BRPQ	PY	CL	8T6	BR	FL	07	47	24		FL			25		P4	D=	P2	P1				73			55	
L						HB2			7T		7A2			22	FC	3											<<	P1	P2		D+				

DRILLHOLE/TRAVERSE --- 80CH014 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U		DE	PV	COLOR	QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		167.55	168.86	1.31				BRPQ	PY	CL	8T6	BR	FL	07	47	24		FL				25		P4	D=	P2	P1				72		55		
L						HB2			7T		7A2			22	FC	3										<(	P1	P2			D.				
/		168.86	170.69	1.83			X	BRPQ	PY	CL	8T6	BR	FL	07	47	24		FL				25		P4	D=	P2	P1				71		55		
L						HB2			7T		7A2			22	FC	3										<(	P1	P2			D.				
A	001	0.00	0.00	0.00																															
A	MIN	0.00	0.00	0.00					PPM U		PPM CU		PPM CO		PPM AG		PPB AU		PPM MO											CPS				
A	LAB	0.00	0.00	0.00					CHEMEX		CHEMEX		CHEMEX		CHEMEX		CHEMEX		CHEMEX											SCNTRX				
A	TYP	0.00	0.00	0.00					1H-COR		1H-COR		1H-COR		1H-COR		1H-COR		1H-COR											IN BAG				
A	001	69.86	72.09	2.23	100.0	J17246		45.0	15800		106		1.4		121		45													160				
R	TAG	69.86	72.09						54514		69060																								
A	001	72.09	73.37	1.28	100.0	J17247		2.0	92		16		1.4		121		45													120				
R	TGG	72.09	73.37						54513																										
A	001	73.37	73.70	.33	100.0	J17248		51.0	19200		192		1.4		121		45													120				
R	TAG	73.37	73.70						54514		69060																								
A	001	165.87	168.92	3.05	100.0	J17249		4.5	144		72		0.1		24		14													120				
R	TGG	165.87	168.92						54513																										
/	END																																		

G E O L O G

F O R M A T -- I

E D I T L I S T I N G

ARCHER CATHRO AND ASSOCIATES LTD.

WERNECKE JOINT VENTURE IGOR PROP

FORMAT VERSION : 6802

DRILLHOLE/TRAVERSE 80CH015 COLLAR ELEVATION 1124.00 AZIMUTH(LEG 1) 90.00 GEOLOGGED BY : WDE
TOTAL DEPTH/LENGTH 150.57 NORTHING(- IF S) 3713.00 VERTICAL ANGLE -50.00 DATE DY/MON/YR 12/JUL/80
CORE/HOLE DIAMETER B EASTING (- IF W) -52.00 CO-ORD SYSTEM GRD PROJECT NUMBER WJV

K	FLAG	INTERVAL (MT.2) FROM	INTERVAL (MT.2) TO	INTERVAL (MT.2) INT	CORE RECOV -MISS +PC.1	MF % OI M ROCK IR X TYPE	TYPI-MINS TM 1	TYPI-MINS TM 2	TEX- QAL MIN 1	TEX- TURES MAJOR TX	TEX- TURES TX	GRAIN -+ M FC	GRAIN CA X	FRICS DEN	FRICS M I	STRUCTURES ID	STRUCTURES T	STRUCTURES AZM	STRUCTURES D O P	STRUCTURES I P.	STRUCTURES B 1	ALT/N ASSEM.+ MINERALIZATION. AI LN TT BM	OI RN ET ZONE
						ROC DE P			QAL	TX	TX	SR	SO	SML	X		P		B	.P	B	FL BA C1 C3 MU HA H: CP	HA HW	HOW
				R.Q.D.		U- EN R NIT PV OV	COLOR		MIN 2	MINOR		ON RD	H/ PC	TOO PDW	M 2	ID	L G	AZM	O T	L G	D 2		1 2	1 2
/		0.00	4.88	4.88		OVER																	
R		0.00	4.88				SIMILAR TO BEDROCK. SINGLE LARGE BOULDER CORED.																
R		4.88	22.71				CB MATRIX DO OR AK																
/		4.88	5.49	.61		X BRPQ	CB	PY	9A5	BR		17	58	12					P4	<.	P2 P1		7+	74
L					HB2		8T		8T4			12	CC	2						V+	P1 P4		7.	
/		5.49	13.11	7.62		BRPQ	CB	PY	9A5	BR		17	58	12					P4	<.	P2 P1		7+	74
L					HB2		8T		8T4			12	CC	2						V+	P1 P4			
/		13.11	22.71	9.60		X BRPQ	CB	PY	9A5	BR		17	58	12	FL		60		B4	8=	P2 P1		8=	64
L					HB2		8TCL		8T4			12	CC	2						V.	V(V+ D= P4			
R		13.11	22.71				CL USUALLY OCCURS WITH MATRIX CB AND MAY BE REPLACING IT. FL																
R		13.11	22.71				OCCURS WITH PY IN FRACTURES. BA OCCURS IN A SINGLE 4CM WIDE VEIN																
/		22.71	29.02	6.31		BRPQ	CL	MG	8A3	BR	RP	07	27	23	FL		40		82	P2	P3 P1		D1 D+	33
L					HB1		3G		8T3			21	FO	2						D	(P2 P2		MG	
R		22.71	29.02				MG IN EUHEDRAL GRAINS UP TO 10MM ACROSS. MG OFTEN PARTIALLY																
R		22.71	29.02				ALTERED TO CL. LOCALLY GRADES INTO BROS AND BRCL. EUHEDRAL CB																
R		22.71	29.02				CRYSTALS ARE COMMON OFTEN RIMMED WITH CL.																
/		29.02	30.36	1.34		BRPQ	CB	CL	8A3	BR		07	17	2					P2	P2	P2 P+		D= D=	44
L					HB2		5GCP					22	FO	2					D.		V+ P1 P3		D+	
R		29.02	48.01				FRAGMENTS ARE NOT ABUNDANT USUALLY REPLACED BY CL. PY AND CP																

DRILLHOLE/TRAVERSE --- 80CH015 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	GZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		29.02	48.01						HAVE SIMILAR OCCURRENCES AND ARE WIDELY DISPERSED THROUGH OUT																											
R		29.02	48.01						ROCK ALTHOUGH MOST COMMON WITH CL IN FRACTURES. IN MG CRYSTALS																											
R		29.02	48.01						AND WITH CB IN MATRIX. THE CP IS IN A SERIES OF 50CM TO 100CM																											
R		29.02	48.01						WIDE CB-QZ-MG DYKES AND THE ADJACENT BRPE. THE DYKES ARE																											
R		29.02	48.01						DESCRIBED BELOW.																											
/		30.36	31.39	1.03			X	BROS	MG	CB					2		CN			T	60		P1	P=	P5				D1	D2		74		
L						HB4			8TPY						21		CN			B	60			V(	V(	P5			MG	D+				
/		31.39	32.22	.83				BRPQ	CB	CL	8A3	BR		07	17	2								P2	P2	P2	P+			D=	D=		44		
L						HB2			5GCP					22	F0	2								D.		V+	P1	P3			D+				
/		33.22	39.23	6.01			X	BRPQ	CB	CL	7A2	BR		07	17	2								P3	P2	D2	P+	D)		D=	D)		44		
L						HB2			5GCP		9A2			22	F0	2								D.		V+	D2	P2			D+				
R		33.22	39.23						ROCK HAS A MOTTLED APPEARANCE WITH ALTERNATING BLEACHED BRPQ AND																											
R		33.22	39.23						IRREGULAR PODS? OF CL. MG. CB. AND CP WHICH COULD BE TERMED BRCL																											
R		33.22	39.23						CP IS MOST ABUNDANT IN MG CRYSTALS AND DISSEMINATED IN THE PODS																											
R		33.22	39.23						ONLY MINOR CP BLEBS OCCUR IN THE BLEACHED BRPQ. 20CM BRCL PODS																											
R		33.22	39.23						OCCUR APPROXIMATELY EVERY 30CM DOWN THE INTERVAL. MG AND CB																											
R		33.22	39.23						EUHEDRAL AND OFTEN RIMMED BY CL.																											
/		39.23	39.87	.64			X	BROS	CB	MG					2								71	P=	P+				D3	D=		64		
L						HB4			8TCP						2									6=					MG	D=				
R		39.23	39.87						CP MOST ABUNDANT NEAR MARGINS AND IN ADJACENT CL RICH BRPQ.																											
/		39.87	42.37	2.50			X	BRPQ	CB	CL	8A3	BR		07	17	2		FL				45		P3	D=	P2	P+			D=	D)		64		
L						HB2			5GCP					22	F0	2								D.	V)	V+	P1	P3			D)				
R		39.87	48.01						BROX DYKES GENERALLY PARALLEL FOLIATION.																											
R	TGG	41.15	42.37						54669																											
/	DYK	42.37	44.04	1.67			X	BROX	MG	CB					1		CN			T	45		P1	P1	P5				D3			54		
L						HB4			8T						1		CN			B	45			V)		P5			MG					
R		42.37	44.04						CONTAINS A FEW CB ALTERED FRAGMENTS. CL DISSEMINATED PLUS SOME																											
R		42.37	44.04						MG ALTERING TO CL. BA CONCENTRATES NEAR CONTACTS.																											
/		44.04	46.76	2.72			X	BRPQ	CB	CL	8A3	BR		07	17	2		FL				45		P3	D=	P2	P+			D=	D)		64		
L						HB2			5GCP					22	F0	2								D.	V)	V+	P1	P3			00				

DRILLHOLE/TRAVERSE --- 80CH015 --- (CONTINUED)

K	FLG	F.R.O.M	:	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
						R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/	DYK	46.76		47.40	.64			X	BROX	MG	CB							I		CN		T	45		D)	P6				D3				64		
L							HB4			8T															D1		P6			MG						
/		47.40		48.01	.61			X	BRPQ	CB	CL	8A3	BR		07	17	2			FL			45		P3	D=	P2	P+			D=	D)		64		
L							HB2			5GCP					22	F0									D.	V)	V+	P1	P3			00				
R		48.01		57.30						BLEACHED ARGILLITE FRAGMENTS IN A CL-CB-MG MATRIX. CP AND																										
R		48.01		57.30						RADIOACTIVITY ARE CLOSELY RELATE TO EACH OTHER AND THE MATRIX.																										
R		48.01		57.30						CP IS USUALLY FINELY DISPERSED BUT OVER SHORT INTERVALS EXCEEDS																										
R		48.01		57.30						10% OF ROCK. FOLIATION SOMEWHAT ERRATIC. CL RIMMED CB COMMON.																										
/		48.01		48.55	.54			X	BRSO	CB	PY									CN		T	45		P1	<+	P3	P+					61	<2		44	
L							HB4			8TMG										CN		B	45					P3	P2		MG	<=				
R		48.01		48.55						CONSISTS OF 2 NARROW VNS PLUS ADJACENT MINERALIZED BRPE.																										
R		48.01		48.55						ROCKS HAVE SLIGHT RED HUE LOCALLY. NO OBVIOUS MINERALS																										
R		48.01		48.55						CORRESPOND TO RADIOACTIVITY.																										
/		48.55		50.75	2.20				BRPE	CB	CL	8A6	BR	FL	07	38				FL			45		P2	61	P3	P1			D=	<+		34		
L							HB1			5GMG		8T1			11	FC										6)	<)	P2	P3			MG	<)				
/		50.75		51.21	.46			X	BRPE	CB	CL	8A6	BR	F/	07	38				FL			45		P2	61	P3	P1			D=	<+		24		
L							HB1			5GMG		8T1			11	FC										6)	<)	P2	P3			MG	<1				
R		50.75		51.21						RECOVERY IS POOR IN A SOFT SHEAR ZONE WHICH APPEARS TO CUT																										
R		50.75		51.21						PRE-EXISTING MINERALIZATION. VERY HIGH CPS ON PROBE SUGGEST THAT																										
R		50.75		51.21						THE BEST MINERALIZATIONS NOT CORED.																										
/		51.21		51.27	.06				BRPE	CB	CL	8A6	BR	FL	07	38				FL			45		P2	61	P3	P1			D=	<+		34		
L							HB1			5GMG		8T1			11	FC										6)	<)	P2	P3			MG	<)				
/		51.27		52.27	1.00			X	BRPE	CB	QZ	8A6	BR	FL	07	38				FL			45		P4	00	P3	P1			00	00		76		
L							HB1			5GBA		8T1			11	FC										<1	<)	P2	P3			00	00				
R		51.27		52.27						BA RED. CB-QZ-BA FORMS MATRIX.																										
/		52.27		54.19	1.92				BRPE	CB	CL	8A6	BR	FL	07	38				FL			45		P2	61	P3	P1			D=	<+		34		
L							HB1			5GMG		8T1			11	FC										6)	<)	P2	P3			MG	<)				
/		54.19		55.78	1.59			X	BRCL	CL	CP	7R2	BR	FL	07	17				FL			00		P3	P3	P1	P1			D=			13		
L							HB3			2G		8T1			23	F0												V+	P2			H>	<1				
R		54.19		55.78						MOST MG IS ALTERED TO HE ROCK HAS A SLIGHT RED STAIN DUE TO																										

DRILLHOLE/TRAVERSE --- 80CH015 --- (CONTINUED)

K	FLG	F.R.O.M	: T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		54.19	55.78						HE. ALTHOUGH 10% CP NO PY. CP PARALLELS FOLIATION. QZ USUALLY HE																												
R		54.19	55.78						STAINED. CL MATRIX VERY DARK.																												
/		55.78	57.30	1.52				BRPE	CB	CL	8A6	BR	FL	07	38	2		FL			45			P2	61	P3	P1			D=	<+			34	
L						HB1			5GMG		8T1			11	FC	21									6)	<)	P2	P3			MG	<)				
/		57.30	60.87	3.57				BRPE	CL		5A3	BR		07	27	45								P3	71	P2	P=				D.			24	
L						HB3			3G		8A2			03	FC	2									V(	V+	D1	P4				D.				
R		60.05	60.35						INCREASED HE STAINING CORRESPONDS TO INCREASED RADIOACTIVITY.																												
/		60.87	62.64	1.77			X	BRPE	CL		5A3	BR		07	27	45								P3	7+	P2	P=			D1	D.			24	
L						HB3			3G		8A2			03	FC	2									V(	V+	D1	P4			H>	D)				
R		60.87	62.64						CP IN CORE OF HE CRYSTALS. ALTHOUGH HX FAIRLY UNIFORMLY																												
R		60.87	62.64						DISTRIBUTED CP CLUSTERS.																												
/		62.64	64.01	1.37				BRPE	CL		5A3	BR		07	27	45								P3	71	P2	P=				D.			24	
L						HB3			3G		8A2			03	FC	2									V(	V+	D1	P4				D.				
/		64.01	65.01	1.00				BRCL	CL	HE	6A2	BR	FL	06	17	12		FL			45			P2	P4	P2				D2	D)			03	
L						HB3			1G		RP		2	4F	01											<)	P2	P=			AE	D*				
R		64.01	72.15						APPEARS TO BE A CL ALTERATION ZONE ADJACENT TO THE BROX DYKE.																												
/		65.01	66.23	1.22			X	BROX	HE	CL						1		FL			45			D1	D1	P5				D3	D.			23	
L						HB4			2GCB							1		CN		B	80					V=	P5				HE	6)				
R		65.01	66.23						CP FINELY DISSEMINATED WITH HE AND CL. PROBABLY A BROX DYKE.																												
/		66.23	67.85	1.62				BRCL	CL	HE	6A2	BR	FL	06	17	12		FL			45			P2	P4	P2				D2	D)			03	
L						HB3			1G		RP		2	4F	01											<)	P2	P=			AE	D*				
/		67.85	69.19	1.34			X	BROX	HE	CL						2		FL			45			D2	D3					D5	D(			04	
L						HB4			1GCB							2											D3				HE	D(				
/		69.19	70.41	1.22				BRCL	CL	HE	6A2	BR	FL	06	17	12		FL			45			P2	P4	P2				D2	D)			03	
L						HB3			1G		RP		2	4F	01											<)	P2	P=			AE	D*				
/		70.41	71.78	1.37			X	BROX	HE	CB		FL				2		FL			50					D5				D5	D)			45	
L						HB4			9T							2											<+	D5				D.				
R		70.41	71.78						HE DISSEMINATED AND CLUSTERED PARALLEL TO FOLIATION.																												
/		71.78	72.15	.37				BRCL	CL	HE	6A2	BR	FL	06	17	12		FL			45			P2	P4	P2				D2	D)			03	
L						HB3			1G		RP		2	4F	01											<)	P2	P=			AE	D*				
/		72.15	85.34	13.19				BRPE	AB	CL	7R4	BR	GN	07	27	12		FL			45			P2	P1	P3	P2	P4		P=	D(			24	
L						HB1			3GCB		9A2			23	CC	2											<+	P1	P+							

DRILLHOLE/TRAVERSE --- 80CH015 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		72.15	89.00						FOLIATION WEAK. GRADES LOCALLY TOWARD BRCL.																												
/		85.34	88.39	3.05			X	BRCL	CL	CB		FL				1		FL			45			P8	D1				D1				03	
L						HB3			IGHE							1										D1									
/		88.39	89.00	.61				BRPE	AB	CL	7R4	BR	GN	07	27	12		FL			45			P2	P1	P3	P2	P4		P=	D(			24	
L						HB1			3GCB		9A2			23	CC	2										<+	P1	P+							
/		89.00	99.97	10.97				PLIT	CB							15								P2	D=	P3	P2			D)			14	
L						HS0			5A							42										<=		P4							
R		89.00	108.81						APPEARS TO BE AN ENORMOUS BLOCK OF ONLY SLIGHTLY CRACKLED AND																												
R		89.00	108.81						ALTERED PELITE SURROUNDED BY BRECCIA. MOST FRACTURES FILLED WITH																												
R		89.00	108.81						CALCITE. SOME RESIDUAL COMPOSITIONAL BANDING.																												
/		99.97	102.29	2.32			X	PLIT	CB			BR				15								P2	D=	P3	P2	P2		D)			14	
L						HS0			5A							42										<=		P4							
R		99.97	102.29						AN IRREGULAR FRACTURE CONTAINS ALBITIZED PELITE FRAGMENTS IN A																												
R		99.97	102.29						CB MATRIX SURROUNDED BY ONLY CB ALTERED PELITE WALLROCKS.																												
/		102.29	108.81	6.52				PLIT	CB							15								P2	D=	P3	P2			D)			14	
L						HS0			5A							42										<=		P4							
/		108.81	139.14	30.33				PLIT	CB							24								P2	D=	P3	P2			D)			14	
L						HS0			5A							31										<=		P4							
R		108.81	139.14						SIMILAR TO PREVIOUS SECTION BUT LARGELY ALBITIZED AS DESCRIBED																												
R		108.81	139.14						BELOW. ALBITIZATION HAS PRODUCED A MOTTLED PINKISH-PURPLE ROCK																												
R		108.81	139.14						AND IS APPARENTLY FRACTURE CONTROLLED ALTHOUGH MOST OF THE CA																												
R		108.81	139.14						FILLED FRACTURES POST-DATE THE ALTERATION.																												
R		108.81	139.14						THE ALBITIZATION IS USUALLY ADJACENT TO NARROW BRECCIA ZONES IN																												
R		108.81	139.14						WHICH STRONGLY ALBITIZED FRAGMENTS ARE MIXED WITH OTHER PELITE																												
R		108.81	139.14						FRAGMENTS AS DESCRIBED BELOW																												
R		108.81	139.14						FOLIATION WEAK AND RELATIVELY VARIABLE RANGING FROM 20-60 .																												
/		139.14	150.57	11.43				BRPE			8A3	BR	FL	07	17	2		CN		T	00		P3		P2	P+	P+		D1				24	
L						HB2					7A2			23	FO	12		FL			45			V+	<)	P2	P4		HE					
R		139.14	150.57						FOLIATION GRADUALLY SHIFTS FROM 00 TO 60 OVER THE INTERVAL.																												

DRILLHOLE/TRAVERSE --- 80CH015 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	% ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR	QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		139.14	150.57							45 MOST COMMON ATTITUDE. BRPE CUT BY A SERIES OF 1CM TO 2M BROX																									
R		139.14	150.57							DYKES WHOSE CONTACTS PARALLEL FOLIATION. THE DYKES ARE DESCRIBED																									
R		139.14	150.57							BELOW.																									
R		139.14	150.57							FRAGMENTS RARE. CA AND DO ARE THE CB MINERALS. HE FORM <1MM																									
R		139.14	150.57							EUHEDRAL CRYSTALS.																									
A	MIN	0.00	0.00	0.00				PPM U		PPM CU		PPM CO		PPM AG		PPB AU		PPM MO												CPS				
A	LAB	0.00	0.00	0.00				CHEMEX		CHEMEX		CHEMEX		CHEMEX		CHEMEX		CHEMEX												SCNTRX				
A	TYP	0.00	0.00	0.00				1H-COR		1H-COR		1H-COR		1H-COR		1H-COR		1H-COR												IN BAG				
A	001	22.71	24.38	1.67	100.0	J17809		3.5		64		114		0.1		7		8												120				
R	TGG	22.71	24.38							10164																								
A	001	24.38	25.91	1.53	100.0	J17810		3.0		28		64		0.1		7		8												120				
R	TGG	24.38	25.91							10164																								
A	001	25.91	27.43	1.52	100.0	J17811		5.0		20		48		0.1		7		8												120				
R	TGG	25.91	27.43							10164																								
A		27.43	29.02	1.59	994.0	J17410		2.0		2050		76																		120				
R	TGG	27.43	29.02							54669																								
A		29.02	30.36	1.34	0.0	J17411		2.5		12000		375																		120				
R	TAG	29.02	30.36							54670		69151																						
A		30.36	31.39	1.03	10.0	J17412		8.0		10400		1100																		120				
R	TAG	30.36	31.39							54670		69151																						
A		31.39	32.22	.83	988.0	J17413		2.5		1800		455																		120				
R	TAG	31.39	32.22							54670		69151																						
A		32.22	33.22	1.00	10.0	J17414		2.5		8400		162																		120				
R	TAG	32.22	33.22							54670		69151																						
A		33.22	35.36	2.14	995.0	J17415		2.0		500		126																		120				
R	TAG	33.22	35.36							54670		69151																						
A		35.36	36.42	1.06	9.0	J17416		5.5		9800		600																		120				

DRILLHOLE/TRAVERSE --- 80CH015 --- (CONTINUED)

A MIN	0.00	0.00	0.00			PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO		CPS
A LAB	0.00	0.00	0.00			CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX		SCNTRX
A TYP	0.00	0.00	0.00			1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR		IN BAG
R TAG	35.36	36.42					54670	69151					
A	36.42	37.95	1.53	993.0	J17417	2.0	2300	270					120
R TAG	36.42	37.95					54670	69151					
A 001	37.95	39.62	1.67	6.0	J17418	6.0	20400	420					120
R TAG	37.95	39.62					54670	69151					
A 001	39.62	41.15	1.53	90.0	J17419	3.5	1400	118					120
R TAG	39.62	41.15					54670	69151					
A 001	41.15	42.37	1.22	0.0	J17420	1.5	205	72					120
A 001	42.37	44.04	1.67	6.0	J17812	1.5	36	130					120
R TGG	42.37	44.04					10164						
R TGG	42.37	44.04					10164						
A 001	44.04	45.72	1.68	100.0	J17813	3.5	32	98	0.1	48	18		120
R TGG	44.04	45.72					10164						
A 001	45.72	48.01	2.29	100.0	J17814	2.0	146	120	0.1	26	17		130
R TGG	45.72	48.01					10164						
A 001	48.01	48.55	.54	100.0	J17421	348.0	11200	900	0.1	26	17		240
R TAG	48.01	48.55					54670	69151					
A 001	48.55	49.47	.92	100.0	J17422	5.0	870	118	0.1	26	17		120
R TGG	48.55	49.47					54669						
A 001	49.47	50.75	1.28	95.0	J17423	8.5	7800	360	0.1	26	17		120
R TAG	49.47	50.75					54670	69151					
A 001	50.75	51.21	.46	33.0	J17424	161.0	16400	190	0.1	26	17		170
R NAG	50.75	51.21					54671	69152					
A 001	51.21	52.27	1.06	97.0	J17815	5.5	350	100	0.1	26	17		120
R TGG	51.21	52.27					10164						
A 001	52.27	54.19	1.92	100.0	J17816	3.5	20	66	0.1	26	17		120
R TGG	52.27	54.19					10164						

DRILLHOLE/TRAVERSE --- 80CH015 --- (CONTINUED)

						PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO	CPS
A MIN	0.00	0.00	0.00									
A LAB	0.00	0.00	0.00			CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	SCNTRX
A TYP	0.00	0.00	0.00			1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	IN BAG
A 001	54.19	55.78	1.59	87.0	J17425	1203.4	23600	132	0.1	34	31	760
R NAG	54.19	55.78					54671 69152					
A 001	55.78	57.30	1.52	100.0	J17817	7.0	118	52	0.1	34	31	125
R TGG	55.78	57.30					10164					
A 001	57.30	58.83	1.53	100.0	J17818	8.5	60	44	0.1	34	31	125
R TGG	57.30	58.83					10164					
A 001	58.83	60.87	2.04	79.0	J17819	46.0	94	72	0.1	11	34	160
R TGG	58.83	60.87					10164					
A 001	60.87	62.64	1.77	86.0	J17426	4.0	2200	116	0.1	34	31	120
R TAG	60.87	62.64					54670 69151					
A 001	62.64	65.01	2.37	100.0	J17820	3.5	186	82	0.1	11	34	125
R TGG	62.64	65.01					10164					
A 001	65.01	66.23	1.22	100.0	J17427	5.0	885	122	0.1	11	34	120
R TGG	65.01	66.23					54669					
A 001	66.23	69.19	2.96	100.0	J17428	2.5	925	104	0.1	11	34	120
R TGG	66.23	69.19					54669					
/ END												

G E O L O G

F O R M A T -- I

E D I T L I S T I N G

ARCHER CATHRO AND ASSOCIATES LTD.

WERNECKE JOINT VENTURE IGOR PROP

FORMAT VERSION : 6802

DRILLHOLE/TRAVERSE 80CH016 COLLAR ELEVATION 1124.00 AZIMUTH(LEG 1) 180.00 GEOLOGGED BY : WDE +
TOTAL DEPTH/LENGTH 91.14 NORTHING(- IF S) 3713.00 VERTICAL ANGLE -50.00 DATE DY/MON/YR 14/JUL/80
CORE/HOLE DIAMETER B EASTING (- IF W) -52.00 CO-ORD SYSTEM GRD PROJECT NUMBER WJV

K E Y	F L A G	• • I N T E R V A L • • (M T • 2) F.R.O.M : T..O I.N.T	CORE RECOV -MISS *PC.1 / R.Q.D.	MF % OI M ROCK DE I IR X TYPE / ROC DE P U- EN R NIT PV OV	TYPI- MINS QAL MIN TH TM MIN 1 2 1 / QAL MIN 2	TEX- TURES MAJOR TX TX / MINOR TX TX	GRAIN -+ M FC CA X SR SO / ON H/ RD PC	FRACS ••STRUCTURES••• S T D B DEN M ID T AZM O I D I K P P. 1 / --- / // - SML X P B .P B / TOO M ID L AZM O L D PDW 2 G T G 2	ALT/N ASSEM.+ MINERALIZATION. AI OI HA HA HA HA HA HA HA HA HA LN RN QZ CL CB C2 AB XX Hx PY UR YY TT ET / FL BA C1 C3 MU HA H: CP HA HW HOW 1 1 2 2
/		0.00 5.18 5.18		OVER				XX	P2 P2 P4 MA 13
/		5.18 10.82 5.64		BRPQ CB HB2	8A6 BR FL 08 38 24 FL 75 8T 8T2 13 FC 31				P2 <• P3 P1 D) 8) 74 V. V• P2 P4 MG
R		5.18 20.97		MG CRYSTALS DISSEMINATED IN CB MATRIX 1MM IN DIAMETER					
/		10.82 11.13 .31		X BRPQ CB HB2	8A6 BR FL 06 76 22 CN T 70 8T 8T2 43 CC 11 CN B 70				P2 P1 P2 P2 D) 8) 54 V. V• P2 P4 MG
R		10.82 11.13		PROBABLY A WELL-HEALED FAULT.					
/		11.13 14.63 3.50		BRPQ CB HB2	8A6 BR FL 08 38 24 FL 75 8T 8T2 13 FC 31				P2 <• P3 P1 D) 8) 74 V. V• P2 P4 MG
/		14.63 20.97 6.34		X BRPQ CB HB2	8A6 BR FL 07 37 12 FL 65 8T 8T2 13 FC 21				P3 <• P3 P1 D• 8) 74 V. V• P2 P3 MG
/		20.97 21.09 .12		HB BRPQ CB CL 4G	8T4 BR 06 67 23 7A2 23 CC 2				P2 <1 P4 P2 D• D) 44 7(V• P2 P3 H<
R		20.97 26.03		CL AND CB ALTERATION ADJACENT TO A NARROW BROX DYKE.					
/		21.09 22.37 1.28		HB BRPQ CB CL 4G	8T4 BR 06 67 23 7A2 23 CC 2				P2 <1 P4 P2 D• D) 44 7(V• P2 P3 H<
/		21.09 22.37 1.28		HB 1 BRPQ CB CL 4G	8T4 BR 06 67 25 7A2 23 CC 4				P2 <1 P4 P2 P2 00 61 44 7(V• P2 P1 H< 6•
R		21.09 22.37		LOCALLY MASSIVE PY IN MATRIX OR LATE FRACTURES.					
R	TGG	21.09 22.37		54669					

DRILLHOLE/TRAVERSE --- 80CH016 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		22.37	23.96	1.59		HB		BRPQ	CB	CL	8T4	BR		06	67	23								P2	<1	P4	P2			D+	D)			44	
L									4G		7A2			23	CC	2									7(	V+	P2	P3			H<					
/		23.96	24.51	.55		HB	X	BROX	CB	HX	8T4	BR		06	67	21		CN			30			V+	<+	P6	P2			D3	D+			54	
L						HB4			8T		7A2			23	CC	1		CN			30				7(	V=	P5	P3			H<					
R		23.96	24.51						2 PHASES: A NARROW, FINE-GRAINED ZONE ON TOP WITH A THICKER,																													
R		23.96	24.51						COARSER PHASE BELOW. MINERALOGICALLY SIMILAR. HX IN 1-2MM MG																													
R		23.96	24.51						CRYSTALS.																												
/		24.51	26.03	1.52		HB		BRPQ	CB	CL	8T4	BR		06	67	23								P2	<1	P4	P2			D+	D)			44	
L									4G		7A2			23	CC	2									7(	V+	P2	P3			H<					
/		26.03	32.31	6.28				BRPQ	CB		8A4	BR	FL	07	27	23								P3	<+	P2	P=			D=				44	
L						HB1			8T		7A3			22	FC	2									V)	P+	P1	P4			MG	V.				
R		26.03	33.22						MG OCCURS AS EUHEDRAL CRYSTALS IN 0.5 TO 10CM WIDE PODS, SHEETS																													
R		26.03	33.22						AND VEINS WHICH BOTH PARALLEL AND CUT FOLIATION. SOME MG ALTERED																													
R		26.03	33.22						TO CL. FOLIATION WEAK AND ERRATIC. CB CRYSTALS RIMMED WITH CL																													
R		26.03	33.22						COMMON.																												
/	FLT	32.31	33.22	.91			X	BRPQ	CL		8A4	BR	F/	07	27	2X		F/			20			P3	<+	P2	P=			D=				13	
L						HB1			2G		7A3			22	FC	37									V)	P+	P1	P4			MG	V.				
R		32.31	33.22						SOME GOUGE																												
/		33.22	39.32	6.10				BRPQ	HX	CB			FL			12		FL			30				<1	P5				D3				24	
L									9TBA							2		CN		B	40				61	V=	P4			H>					
R		33.22	39.62						PROBABLY A DYKE. FRAGMENTS VERY RARE GRADES LOCALLY TO BRCL,																													
R		33.22	39.62						BRCB, AND BRBA.																												
/		39.32	39.62	.30			X	BRSU	PY	CP			RP			1									71	P5					72		CC	64	
L						HB4			8TCB							1									7=		P5				71				
R		39.32	39.62						MINOR VERY SOFT BLACK MINERAL CC?																													
/		39.62	46.09	6.47				BRPQ	CB	BA	8A5	BR		07	27	12		FL			30			P2	<=	P3	P+			D=	D.			34	
L						HB1			8T		7G2			23	FC	1									<.	V1	P2	P4			HE	V(				
R		39.62	46.09						FOLIATION WEAK. MG DISSEMINATED BUT PATCHY. LOCALLY BROX																													
/		46.09	55.78	9.69				BRPQ	CB		9A6	BR		07	47	2								P3	7)	P3	P1			D+				84	
L						HB1			9T		8A3			22	FC	21										V+	P2	P4			HE	V(				

DRILLHOLE/TRAVERSE --- 80CH016 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	X	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		46.09	55.78						HE VERY FINE GRAINED																											
/		55.78	57.91	2.13				BRPQ	CB		8A6	BR	FL	06	66	2		FL			45		P1	<+	P4				D+	D1			54	
L						HB1			8T					43	FC	21									V=	P3	P4			HE	V.				
/	VEN	57.91	58.22	.31			X	BROS	CB	MG						3									P5					D3	61			64	
L						HB4			9TPY							3								V)	V2	P3				MG	6+				
R		57.91	58.22						VEIN. TWO CARBONATE PHASES IN VEINS: CA FIRST, THEN DO.																												
R	TGG	57.91	59.53						54669																												
/		58.22	59.34	1.12				BRPQ	CB		8A6	BR	FL	06	66	2		FL			45		P1	<+	P4				D+	D1			54	
L						HB1			8T					43	FC	21									V=	P3	P4			HE	V.				
/	VEN	59.34	62.18	2.84			X	BROS								1								<+	B7				D1	61			64	
L						HB4										1								<)	V1	P6	V+		MG	7+				
R		59.34	62.18						VEIN. CP IN CORES OF MG CRYSTALS AND IN CB VEINS.																												
R	TAG	59.53	62.18						54670 69151																												
/		62.18	64.01	1.83				BRPQ	CB		8A6	BR	FL	06	66	2		FL			45		P1	<+	P4				D+	D1			54	
L						HB1			8T					43	FC	21									V=	P3	P4			HE	V.				
/		64.01	67.67	3.66				BRPQ			8A4	BR		07	37	2		FL			35		P2	<)	P2	P1			D+				84	
L						HB1			9T		6A2			22	FC	2									<)	P1	P5			H>					
R		64.01	91.14						HE VERY FINE GRAINED. A FEW QUARTZITE FRAGS CONTAIN UPTO 10% HE.																												
/		67.67	70.71	3.04			X	BRPQ			8A4	BR		07	37	3		00			00		P2	<)	P2	P1			D+				64	
L						HB1			9T		6A2			22	FC	3									<)	P1	P5			H>					
/	VEN	70.71	71.23	.52			X	BROX	MG	CB						1		CN		T	10				P2					P8	V)			16	
L						HB4			8T							1		CN		B	20		V+	V+	P2					MG					
R		70.71	71.23						VEIN																												
/		71.23	74.83	3.60			X	BRPQ			8A4	BR		07	37	3		00			00		P2	<)	P2	P1			D+				64	
L						HB1			9T		6A2			22	FC	3									<)	P1	P5			H>					
/	VEN	74.83	75.50	.67			X	BRSO	PY	MG						2		CN		T	45			<=	P6				D=	<3			44	
L						HB4			8TCB							2		CN		B	50					P6			MG	<)				
R		74.83	75.50						ROCKS ADJACENT TO BRSO DYKE ARE MORE FRACTURED AND CONTAIN MORE																												
R		74.83	75.50						CL THAN SURROUNDING BRPQ.																												
/		75.50	77.11	1.61			X	BRPQ			8A4	BR		07	37	3		00			00		P2	<)	P2	P1			D+				64	
L						HB1			9T		6A2			22	FC	3									<)	P1	P5			H>					

DRILLHOLE/TRAVERSE --- 80CH016 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		77.11	77.18	.07			X	BROX	MG	CP															D1	P6				D3			34	
L						HB4																				P6					V=				
/		77.18	80.25	3.07			X	BRPQ			8A4	BR		07	37	3		00				00		P2	<)	P2	P1			D+			64	
L						HB1			9T		6A2			22	FC	3										<)	P1	P5		H>				
/	FLT	80.25	80.56	.31			X	BRPQ			8A4	BR	F/	07	37	3		F/				20		P2	<)	P2	P1			D+			13	
L						HB1			9T		6A2			22	FC	3										<)	P1	P5		H>				
/		80.56	82.30	1.74			X	BRPQ			8A4	BR		07	37	3		00				00		P2	<)	P2	P1			D+			64	
L						HB1			9T		6A2			22	FC	3										<)	P1	P5		H>				
/	VEN	82.30	85.40	3.10			X	BRSU	PY	CB						2		CN			T	10			<=	85				D)	V4		43	
L						HB4			8T							21										V=	P4				V*				
R		82.30	85.40								VEIN. THE VEIN IS ITSELF A BRECCIA IN PLACES WITH PY MATRIX AND																							
R		82.30	85.40								CB FRAGMENTS. THIS OCCURS ONLY WHERE FRACTURING IS VERY STRONG.																							
R	TAG	82.30	85.40								54670 69151																								
/		85.40	86.26	.86			X	BRPQ			8A4	BR		07	37	3		00				00		P2	<)	P2	P1			D+			64	
L						HB1			9T		6A2			22	FC	3										<)	P1	P5		H>				
/		86.26	86.87	.61			X	BRPQ			8A4	BR		28	98	3		00				00		P2	<)	P2	P1			D+			84	
L						HB1			9T		6A2			22	FC	3										<)	P1	P5		H>				
R		86.26	91.14								BRECCIA FRAGMENTS BECOMING MUCH MORE MASSIVE CLOSELY RESEMBLES																							
R		86.26	91.14								CRACKLE-BRECCIA ZONE IN HOLE 80I015.																							
/	FLT	86.87	90.53	3.66			X	BRPQ			8A4	BR	FZ	28	98	XX		FZ				25		P2	<)	P2	P1			D+			01	
L						HB1			2R		6A2			22	FC	XX										<)	P1	P5		H>				
R		86.87	90.53								GOUGE IS PURPLE-GREEN COLOR.																							
/		90.53	91.14	.61			X	BRPQ			8A4	BR		28	98	3		00				00		P2	<)	P2	P1			D+			84	
L						HB1			9T		6A2			22	FC	3										<)	P1	P5		H>				
A	MIN	86.87	90.53	3.66							PM U		PM CU		PM CO																CPS				
A	LAB	86.87	90.53	3.66							CHEMEX		CHEMEX		CHEMEX																SCNTRX				
A	TYP	86.87	90.53	3.66							1H-COR		1H-COR		1H-COR																IN BAG				
A	MIN	86.87	90.53	3.66							TOT	AA		AA		AA																BGSISL				
A	001	21.09	22.37	1.28	500.0	J17429					7.5		2600		400																	120				
A	001	57.91	59.53	1.62	0.0	J17430					23.0		710		330																	120				
A	001	59.53	62.18	2.65	0.0	J17431					3.5		4900		310																	120				

DRILLHOLE/TRAVERSE --- 80CH016 --- (CONTINUED)

A MIN	86.87	90.53	3.66			TOT AA	AA	AA		BGSISL
A LAB	86.87	90.53	3.66			CHEMEX	CHEMEX	CHEMEX		SCNTRX
A TYP	86.87	90.53	3.66			1H-COR	1H-COR	1H-COR		IN BAG
A 001	82.30	85.40	3.10	884.0	J17432	5.5	5800	320		120
/ END										

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G E O L O G

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WERNECKE JOINT VENTURE IGOR PROP

FORMAT VERSION : 6802

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DRILLHOLE/TRAVERSE --- 80CH017 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		11.28	14.17	2.89			X	BRPQ	AB	CB	7A3	BR		07	17	3								P2	P1	P3	P1	P1		D=				15	
L						HB1			4G		4G3			25	CC	3											P2	P2		HE					
R		11.28	14.17						PELITE FRAGMENTS ARE OFTEN ONLY PARTIALLY ALTERED TO AB.																												
/		14.17	16.82	2.65			X	BRPQ	QZ	CB	7A2	BR		06	16	4		FL			35			P4	P1	P3	P1	D+		D=				15	
L						HB1			4G		4G1			36	CO	4											P2	P1		HE					
R		14.17	16.82						MATRIX DOMINATES OVER FRAGMENTS. MOST FRAGMENTS VERY FINE.																												
R		14.17	16.82						FOLIATION WEAK. A FEW MINOR SHEAR ZONES.																												
/		16.82	17.37	.55				BRPQ	AB	CB	7A3	BR		07	17	1								P2	P1	P3	P1	P1		D=				15	
L						HB1			4G		4G3			25	CC	1											P2	P2		HE					
/	FLT	17.37	21.34	3.97			X	BRPQ	AB	CB	7A3	BR		07	17	4X		F2			30			P2	P1	P3	P1	P1		D=				15	
L						HB1			4G		4G3			25	CC	X											P2	P2		HE					
R		17.37	21.34						SOME GOUGE																										
R		21.34	40.54						HE IS THE PREDOMINENT MATRIX MINERAL. SOME GOUGE RECOVERED.																												
/		21.34	26.52	5.18			X	BROX	HE	CP						X													P9	D=				15	
L						HB4				PY						X													HE	D+					
R		21.34	26.52						A FEW SMALL FRAGMENTS CONTAIN PY AND CP DISSEMINATED IN MASSIVE																												
R		21.34	26.52						HE. CP LOCALLY UPTO 5% OF ROCK.																												
R	HED	21.34	26.52																																
R	HED	21.34	26.52																																
/		26.52	40.54	14.02				BRPQ	HE		7A6	BR	FL	07	17	X		FL			30		P2						CY	D2				34	
L						HB2			4R		8R1			22	FC	X												P3		HE					
/	END																																		

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G E O L O G

F O R M A T -- I

E D I T L I S T I N G

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WERNECKE JOINT VENTURE IGOR PROP

FORMAT VERSION : 6802

DRILLHOLE/TRAVERSE 80CH018 | COLLAR ELEVATION 1230.00 | AZIMUTH(LEG 1) 0.00 | GEOLOGGED BY : WDE +
TOTAL DEPTH/LENGTH 152.70 | NORTHING(- IF S) 3336.50 | VERTICAL ANGLE -50.00 | DATE DY/MON/YR 19/JUL/80
CORE/HOLE DIAMETER B | EASTING (- IF W) -97.50 | CO-ORD SYSTEM GRD | PROJECT NUMBER WJV

KEY	FLAG	FROM : TO (MT. 2)	INTERVAL	CORE RECOV -MISS +PC.1	MF OI IR	% M I X	ROCK TYPE	TYPI-MINS TM 1	TM 2	QAL MIN 1	TEX-TURES MAJOR TX	TX	GRAIN -+ M FC	CA X	FRACS DEN	M I	STRUCTURES S ID	T K	AZM	T O P	D I P.	B D 1	ALT/N HA QZ	ASSEM. HA CL	HA CB	HA C2	HA AB	HA XX	HA HX	HA PY	HA UR	HA YY	MINERALIZATION. AI LN TT BM	OI RN ET ZONE
				R.Q.D.	ROC U- NIT	DE EN PV	P R OV	COLOR	QAL MIN 2		TX TX MINOR		SR SO ON H/ RD PC		SML PDW	% M 2	ID L G	P	AZM	B T	.P G	B 2	FL	BA	C1	C3	MU	HA	H:	CP		HA	HW 1 2	HOW 1 2
/		0.00 7.01	7.01		OVER																												
R		7.01 24.23			FRAGMENTS AND INTENSITY OF ALTERATION HIGHLY VARIABLE. FRAGMENTS																														
R		7.01 24.23			ARE SOMETIMES FRAGMENT SUPPORTED. LOCALLY CB-CL-HE MATRIX																														
R		7.01 24.23			CONTAINS ONLY A FEW FRAGMENTS AND IS WEAKLY FOLIATED SUGGESTING																														
R		7.01 24.23			GAS FLOW. CB IS GENERALLY IN EUHEDRAL CRYSTALS.																														
/		7.01 10.67	3.66		X	BRPQ	AB CL 7T2 BR		07 18	3										P4 P1 P2	P2	D=										15	
/		10.67 15.85	5.18		X	BRPQ	CB CL 7T3 BR		07 18	3					FL		35			P4 P1 P3	P*	D=										25	
L					HB1		4G	4G2		24 CO	3									<* P3 P2		HE											
R		10.67 16.15			FOLIATION WEAK.																												
L					HB1		4G	4G2		24 CO	3									<* P3 P2		HE											
/		15.85 16.15	.30		X	BRCL	QZ	6A4 BR RP		07 27	2									P5 P3		D1 D.										16	
L					HB3		3G	1G1		24 CO	2										P1	HE D*											
R		15.85 16.76			CL ALTERATION VERY INTENSE.																												
/		16.15 16.76	.61		X	BRCL	QZ	6A4 BR RP		07 27	2									P5 P3		D1 D.										16	
L					HB3		3G	1G1		24 CO	2										P1	HE D*											
L					HB1		4G	7R3		24 CO	3									<* P2 P1		HE											
/		16.76 24.23	7.47		X	BRPQ	AB CL 7T2 BR		07 18	3										P4 P1 P2	P2	D=										15	
R		24.23 31.64			PROBABLY A LARGE BLOCK OF HB2 SURROUNDED BY HB1. FOLIATION																														
R		24.23 31.64			STRONG BUT VARIABLE. QUARTZITE FRAGMENTS ARE AUGEN-LIKE OFTEN																														

DRILLHOLE/TRAVERSE --- 80CH018 --- (CONTINUED)

K	FLG	F.R.O.M	T.O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		24.23	31.64						WITH CB GROWING IN PRESSURE SHADOWS.																											
/		24.23	26.24	2.01			X	BRPQ	CB	AB	7A5	BR	GN	07	37	12			FL			60		82	6=	P4	P1	P2		D=	6(			34	
L						HB2			7T		7T1			22	FC	11										>*	P4	P1		HE					
R		24.23	26.24						GRADATIONAL CONTACT: ROCKS EXHIBIT MOST CHARACTERISTICS OF HB2																											
R		24.23	26.24						BUT MUCH OF ARGILLITE IS ALTERED TO AB.																											
/		26.24	30.02	3.78				BRPQ	CB		7A5	BR	GN	07	37	12			FL			50		P1	P=	P4	P1			D=	6(			34	
L						HB2			7T		7T1			22	FC	11										V+	P2	P4		HE					
/		30.02	30.48	.46			X	BRPQ	CB		7A5	BR	GN	07	37	12			FL			50		P1	P=	P3	P1			00	D2		MA	34	
L						HB2			7T		7T1			22	FC	11										V+	P2	P4		00	D+		L1		
R		30.02	30.66						PY WITH CP BANDS IN MATRIX PARALLEL FOLIATION. SOME PITTING.																											
/		30.48	30.66	.18			X	BRPQ	CB	CL	7A5	BR	GN	07	37	12			FL			30		P1	P=	P4	P1			D+	D+			34	
L						HB2			7T		7T1			22	FC	11										V+	P2	P4		HE					
L						HB2			7T		7T1			22	FC	11										V+	P2	P4		HE					
R		30.48	31.64						GRADATIONAL CONTACT BACK TO HB1.																											
/		30.66	31.64	.98			X	BRPQ	CB	CL	7A5	BR	GN	07	37	12			FL			30		P1	P=	P4	P1			D+	D+			34	
L						HB2			7T		7T1			22	FC	11										V+	P2	P4		HE					
/		31.64	32.61	.97				BRPQ	CL	CB	6T5	BR		07	28	2								P4	P2	P3	P1	D+			6=			34	
L						HB1					8A2			25	CC	2											P2	P=							
R		31.64	32.61						MATRIX HAS VERY COURSE APPEARANCE DUE TO CB CRYSTALS. PY SPREAD																											
R		31.64	32.61						THROUGH MATRIX. PELITIC ROCK ALTERED TO WIDE VARIETY OF MATERIAL																											
R		31.64	32.61						INCLUDING AB, CB, CL, AND SIMPLY BLEACHED MU RICH ARGILLITE.																											
/		32.61	37.19	4.58				BRCL	CL	QZ	8G3	BR	RP	17	48	2								P2	P5	6=					8+			13	
L						HB3			3G		4G3			22	FC	2										<=		P2							
R		32.61	37.19						INTENSE CL ALTERATION MASKS MOST FRAGMENTS.																											
/		37.19	40.84	3.65				BRPQ	CB	CL	7R2	BR		17	28				FL			30		P4	P1	P2	P+	D1		D+	D+			35	
L						HB1			4GAB		9A3			22	FC	12										V.	P+	P1	P2		HE					
R		37.19	52.43						GRADES LOCALLY TOWARD BRCL. FOLIATION VERY FAINT.																											
/	VEN	40.84	41.09	.25			X	BRSO	CB	QZ						12			CN		B	30		P3	D)	P3					V4			55	
L						HB1			8TPY							1										V+	P3								
R		40.84	41.09						A NARROW DYKE OR VEIN.																											
/		41.09	45.72	4.63				BRPQ	CB	CL	7R2	BR		17	28				FL			30		P4	P1	P2	P+	D1		D+	D+			35	
L						HB1			4GAB		9A3			22	FC	12										V.	P+	P1	P2		HE					

DRILLHOLE/TRAVERSE --- 80CH018 --- (CONTINUED)

K	FLG	F.R.O.M	T.O	I.N.T	RECOV	MF	X	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
-	---	----.--	----.--	----.--	--.--	--	-	-----	--	--	---	--	--	--	--	---	-	--	/	---	/	//	-	--	--	--	--	--	--	--	--	--	--	--	--
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		44.20	52.12						DIFFICULT TO DETERMINE WEATHER ROCKS IS BRQP WITH ABUNDANT																												
R		44.20	52.12						WEAKLY HE STAINED QUARTZITE FRAGMENTS OR ALBITIZED ARGILLITES.																												
/		45.72	46.94	1.22			X	BRPQ	CB	CL	7R2	BR	F/	17	28	26		FL		30		P4	P1	P2	P+	D1		D+	D+			35			
L						HB1			4GAB		9A3			22	FC	53								V.	P+	P1	P2		HE						
/		46.94	48.77	1.83				BRPQ	CB	CL	7R2	BR		17	28			FL		30		P4	P1	P2	P+	D1		D+	D+			35			
L						HB1			4GAB		9A3			22	FC	12								V.	P+	P1	P2		HE						
/		48.77	52.43	3.66			X	BRPQ	QZ	CL	8T1	BR		17	28	12		FL		30		P7	<+	P1	P+	P1		D+	D)			56			
L						HB1			4GAB		7R6			22	FC	22								V.	<)	P1	P1		HE						
R		48.77	52.43						MANY FRAGMENTS EXHIBIT CROSSBEDDING.																												
/		52.43	57.91	5.48				BRPQ	CL		7A5	BR		17	47								P3	P2	81	P+		D+	D-			24			
L						HB3			2G		7T2			22	FC									V-	<+	P=	P3		HE						
R		52.43	57.91						DIFFICULT TO PLACE IN SURFACE TERMINOLOGY PROBABLY HB3 MAYBE HB1																												
R		52.43	57.91						ROCK HAS MOTTLED GREY-GREEN APPEARANCE.																												
/		57.91	62.79	4.88				BRPQ			6A2	BR		07	18	13		FL		40		P3	>)	P2	P=	D=		D+				24			
L						HB1			5G		7R2			24	FC	21								P+	P1	P4		HE						
R		57.91	64.47						ROCK GRADES BACK TOWARD HB1. MOST PELITE FRAGMENTS ARE OBSCURED.																												
/		62.79	64.40	1.61			X	BRPQ			6A2	BR	F/	07	18	36		FL		40		P3	>)	P2	P=	D=		D+				24			
L						HB1			5G		7R2			24	FC	52								P+	P1	P4		HE						
/		64.40	64.47	.07			X	BRPQ			6A2	BR		07	18	13		FL		40		P3	>)	P2	P=	D=		D2	D+			24			
L						HB1			5G		7R2			24	FC	21								P+	P1	P4		HE						
/		64.47	68.58	4.11				BRPQ	AB	CB	7R4	BR		06	57	3		FL		35		P3	<)	P3	P=	P3		D)	D+			66			
L						HB1			6T		7T2			33	CC	22								V+	V+	P2	P+		HE	V.					
R		64.47	75.29						FOLIATION WEAK. PERVASIVE AB AND CB ALTERATION LARGELY OBSCURES																												
R		64.47	75.29						PELITE FRAGMENTS ALTHOUGH QUARTZITES ARE STILL VISIBLE.																												
/		68.58	69.28	.70			X	BRPQ	AB	CB	7R1	BR		06	57	3		FL		35		P4	<+	P2	P=	P+		D=	D+			15			
L						HB1			3G		5A6			33	CC	22								V+	V+	P1	P3		HE	V.					
/		69.28	71.32	2.04				BRPQ	AB	CB	7R4	BR		06	57	3		FL		35		P3	<)	P3	P=	P3		D)	D+			66			
L						HB1			6T		7T2			33	CC	22								V+	V+	P2	P+		HE	V.					
/		71.32	72.24	.92			X	BRPQ	AB	PY	8R5	BR		06	57	3		FL		35		P3	<+	P2	P+	P3		61	6=			35			
L						HB1			5GMG		7T2			33	CC	22								V+	V=	P1	P+		H<	V.					
R		71.32	75.29						UNUSUAL ROCKS: IRREGULAR, SOMEWHAT CONVOLUTE, MG-PY-CB VEINS OR																												

DRILLHOLE/TRAVERSE --- 80CH018 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	X	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR	QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2		FL	BA	C1	C3	MU	MA	H:	CP		HA	12	12
R		71.32	75.29						BANDS CUT AB AND QZ RICH BRECCIA. THERE IS SOME DISSEMINATED MG																												
R		71.32	75.29						AND PY IN THE BRECCIA. OFTEN PY IS CONCENTRATED ON ONE SIDE OF																												
R		71.32	75.29						THE STRUCTURE.																												
/		72.24	75.29	3.05			X	BRPQ	AB	PY	8R5	BR		D6	57	5		FL			35		P3	<+	P2	P+	P3		61	6=		35			
L						HB1			SGMA		7T2			33	CC	52								V*	V=	P1	P+		H<	V.						
/	FLT	75.29	80.71	5.42				BRCL	CL	PY		RP	FZ			26		FZ			45		DI	P7					D.	DI		03			
L						HB3			2G							52										D	1		HE						
R		75.29	80.71						BOTH THE LOW AND MODERATE ANGLE FRACTURES ARE SLICKENSIDED. PY																												
R		75.29	80.71						OCCURS IN EUHEDRAL CRYSTALS UPTO 2MM IN DIAMETER.																												
/		80.71	85.34	4.63				BRPQ	AB	CB		RP	BR			25								P3	>*	P2		P4		D=	D*		56			
L						HB1			7TMG			FZ				42										V+	P2			H>						
R		80.71	85.34						AS BRCL GRADES INTO BRPQ, PY GIVES WAY TO IRON OXIDES. REPLACE-																												
R		80.71	85.34						MENT HAS LARGELY DESTROYED FRAGMENTS.																												
/		85.34	89.31	3.97				BRPQ	MU	PY	5G3	BR		08	18	2								P3	D1	D=	D+			D=	D+		34			
L						HB1			6ACL					12	FC	2										V+		P5		HE						
R		85.34	103.69						BLEACHED PELITE HAS SMEARED OUT TO BECOME MATRIX. PY VERY FINE.																												
/		89.31	91.59	2.28			X	BRPQ	MU	PY	5G3	BR		08	18	2								P3	D1	D=	D+	P3		D=	D+		55			
L						HB1			6ACL					12	FC	2										V+		P2		HE						
R		89.31	91.59						FLUIDS ASSOCIATED WITH A SECOND BRECCIA PHASE APPEAR TO HAVE																												
R		89.31	91.59						ALBITIZED AN AREA OF HB2. THIS EXPLAINS SOME OF THE COMPLEXITY																												
R		89.31	91.59						OBSERVED IN SURFACE MAPS OF THIS AREA. AB HAS ONLY PARTIALLY																												
R		89.31	91.59						ALTERED MU.																												
/		91.59	92.51	.92			X	BRPQ	MU	PY	7R3	BR		08	18	2								85	<+	D=	D+			D)	6)		35			
L						HB1			6ACL		8T2			12	FC	2										V)	D+	P4		HE						
R		91.59	103.69						DOMINENTLY QUARTZITE FRAGMENTS IN MU (PELITIC) MATRIX.																												
/	FLT	92.51	92.96	.45			X	BRPQ	MU	PY	5G3	BR		08	18	13		F/			45		P3	D1	D=	D+			D=	D+		34			
L						HB1			6ACL					12	FC	3										V+		P5		HE						
/		92.96	97.54	4.58			X	BRPQ	MU	PY	7R3	BR		08	18	2								85	<+	D=	D+			D)	6)		35			
L						HB1			6ACL		8T2			12	FC	2										V)	D+	P4		HE						
L						HB1			6ACL		8T2			12	FC	2										V)	D+	P4		HE						

DRILLHOLE/TRAVERSE --- 86CH018 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	P.U	DE	PV	COLOR	QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2		FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		97.54	102.26	4.72			X	BRPQ	MU	PY	5G3	BR		08	18	2								P3	DI	D=	D+			D=	<=			25	
R		97.54	102.26						ALTHOUGH BRECCIA IS GENERALLY HOMOGENEOUS THE LACK OF PERVASIVE																													
R		97.54	102.26						FOLIATION. ABUNDANCE OF CL. AND OCCASIONAL PRESENCE OF AB																											
R		97.54	102.26						SUGGESTS THAT IT MAY BE HB1 LOCALLY MODIFY BY IT'S PROXIMITY TO																											
R		97.54	102.26						THE LARGE BLOCK OF META-SEDIMENTS DESCRIBED BELOW.																											
/		102.26	103.69	1.43			X	BRPQ	MU	PY	7R3	BR		08	18	2								85	<+	D=	D+			D)	6)			35	
L						HB1			6ACL		8T2			12	FC	2										V)	D+	P4		HE						
/		103.69	111.25	7.56				BRPE	MU	QZ		BR	FL	18	78	2		FL		40				86	<<									85	
L						HB2			8A					22	FC	2												P4							
R		103.69	136.86						STRONGLY BLEACHED ARGILLITE MIXED WITH EITHER SILICEOUS																											
R		103.69	136.86						ARGILLITE OR QUARTZITE. ROCKS ARE FOLIATED BUT BANDS HAVE WHISPY																											
R		103.69	136.86						IRREGULAR APPEARANCE SUGGESTING THAT SILICIFICATION MAY PARTLY																											
R		103.69	136.86						ACCOUNT FOR THE PATTERN. APPROX. 50-50 SPLIT QUARTZITE-ARGILLITE																											
R		103.69	136.86						THE CLOSED FRACTURES IN THE ROCK CONTAIN QZ. LOCALLY ROCK MAY BE																											
R		103.69	136.86						A BRECCIA WITH QUARTZITE FRAGMENTS AND PELITIC MATRIX.																											
/		111.25	122.83	11.58			X	BRPE	MU	QZ		BR	FL	18	78	4		FL		40				86	<<									85	
L						HB2			8A					22	FC	4												P4							
/		122.83	125.58	2.75			X	BRPE	MU	QZ		BR	FL	18	78	4		FL		40				86	<*	<*				6.				85	
L						HB2			8A					22	FC	4										<*		P4							
/	FLT	125.58	126.03	.45			X	BRPE	MU	QZ		BR	FL	18	78	4		F/		60				86	<*	<*				6.				85	
L						HB2			8A					22	FC	4										<*		P4		D.					
/		126.03	136.86	10.83			X	BRPE	MU	QZ		BR	FL	18	78	4		FL		40				86	<*	<*				6.				85	
L						HB2			8A					22	FC	4										<*		P4							
R		128.17	129.69						PATCHES. POSSIBLY MATRIX. CONTAIN VERY FINE FRAGMENTS OF CB. QZ.																											
R		128.17	129.69						AND POSSIBLY AB IN QZ MATRIX.																											
/		136.86	138.38	1.52				BRPE				BR		18	78	24								P6	<*	<*							CC	85	
L						HB2			8T					22	FC	3										<*		P4		>.					
R		136.86	147.22						MARGIN OF PELITE BLOCK. NARROW BRECCIA BANDS CUT BLOCK. SOME																											
R		136.86	147.22						BRECCIA CONTAINS HIGHLY ROUNDED FRAGMENTS IN A CHLORITIC MATRIX.																											

DRILLHOLE/TRAVERSE --- 80CH018 --- (CONTINUED)

K	FLG	F.R.O.M	: T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR	QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2		FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		136.86	147.22						A FEW CONTAIN CP AND PY. CP IS USUALLY IN MATRIX OF BRECCIA AND																												
R		136.86	147.22						IN CB VEINS IN PELITE. A FEW CP GRAINS ARE COATED WITH CC.																										
/		138.38	138.84	.46			X	BRPQ	CP	PY	9A3	BR		07	17	1		CN			T	50		P5	<+	D+		D+		<+			45		
L						HB1			3G		7A4			37	CC	1											D+	P4		<+					
/		138.84	143.35	4.51				BRPE				BR		18	78	24								P6	<+	<+							CC	85	
L						HB2			8T					22	FC	3										<+		P4		>.					
/		143.35	147.22	3.87				BRPE				BR		18	78	24								P6	<+	<+							CC	85	
L						HB2			8T					22	FC	3										<+		P4		>.					
/		147.22	147.83	.61				BRPQ	CL		7A5	BR		07	48	2								P3	P2	P2	D1	D=		D=	D+				
L						HB1			2G		6R1			13	CC	2										V)	D1	P2		HE					
R		147.22	152.70						MANY OF THE FRAGMENTS ARE THEMSELVES BRECCIA INDICATING AT LEAST																										
R		147.22	152.70						TWO PHASES OF BRECCIA. SOME BRECCIA FRAGMENTS ARE FROM THE BRPE																										
R		147.22	152.70						OTHERS APPEAR TO BE MORE EXOTIC.																										
/		147.83	149.96	2.13				BRPQ	CL		7A5	BR		07	48	2								P3	P2	P2	D1	D=		D=	D+				
L						HB1			2G		6R1			13	CC	2										V)	D1	P2		HE					
R		147.83	149.96						DYKE. SOME ZONED MG-CB-MG CRYSTALS.																										
/		149.96	152.70	2.74				BRPQ	CL		7A5	BR		07	48	2								P3	P2	P2	D1	D=		D=	D+				
L						HB1			2G		6R1			13	CC	2										V)	D1	P2		HE					

						PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO	CPS
A	MIN	0.00	0.00	0.00		CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	SCNTRX
A	LAB	0.00	0.00	0.00		1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	IN BAG
A	TYP	0.00	0.00	0.00								
A	001	75.29	80.71	5.42	45.0	J17433	51.0	32	164	0.1	18	58	160
R	TGG	75.29	80.71					55198N01951				
A	001	80.71	85.34	4.63	39.0	J17434	18.0	178	94	0.1	18	58	120
R	TGG	80.71	85.34					55198N01951				
A	001	97.54	102.26	4.72	100.0	J17435	28.0	126	118	0.1	28	49	150
A	001	97.54	102.26	4.72	88.0	J17436	5.5	3100	14	0.1	7	4	120

/ END

MULTIPLE ACCESS COMPUTER GROUP / INTERNATIONAL GEOSYSTEMS CORPORATION 20/12/80.

G E O L O G

F O R M A T -- I

E D I T L I S T I N G

ARCHER CATHRO AND ASSOCIATES LTD.

WERNECKE JOINT VENTURE IGOR PROP

FORMAT VERSION : 6802

DRILLHOLE/TRAVERSE 80CH020 COLLAR ELEVATION 1169.00 AZIMUTH(LEG 1) 90.00 GEOLOGGED BY : WDE +
TOTAL DEPTH/LENGTH 140.51 NORTHING(- IF S) 3527.50 VERTICAL ANGLE -50.00 DATE DY/MON/YR 24/JUL/80
CORE/HOLE DIAMETER B EASTING (- IF W) -97.50 CO-ORD SYSTEM GRD PROJECT NUMBER WJV

K	F L A G	INTERVAL (MT.2) F.R.O.M	T..O	I.N.T	CORE RECOV -MISS +PC.1	MF OI DE IR	X M ROCK TYPE	TYPI-MINS TM 1	TM 2	QAL MIN 1	TEX-TURES MAJOR	TX	GRAIN -+ M FC	CA X	FRACS DEN I	M	ID	STRUCTURES S T K P	AZM	D O P	I P.	B D 1	ALT/N ASSEM.+ MINERALIZATION. HA HA HA HA HA HA HA HA HA HA	AI LN TT BM	OI RN ET ZONE
						ROC	DE	P		QAL	TX	TX	SR	SO	SML	X		P		B	.P	B	FL BA C1 C3 MU HA H: CP	HA	HW	HOW
					R.Q.D.	U- NIT	EN PV	R OV	COLOR	MIN 2	MINOR		ON RD	H/ PC	TOO PDW	M 2	ID	L G	AZM	O T	L G	D 2			1 2	1 2
/		0.00	4.27	4.27				OVER																
/		4.27	5.18	.91				BROS	MG	PY	561	BR	06	17	12		CN			B	45	P2 8+ D1	D2 D1	MA 25
L						HB4			6ACP	751			22	FO	2							7+ <+ D1 P3	MG D+	L1
R		4.27	5.18						EUEHEDAL TO SUBHEDRAL MG XTALS RANGE FROM 1MM TO 30MM DIAMETER.																
R		4.27	5.18						MOST CP IN CORES OF LARGEST MG. PY DISSEMINATED 1-5MM XTALS.															
/		5.18	10.06	4.88				BRPE	AB	MG	6R6	BR	RP	07	17	2	CN			B	45	P1 D= D= P4	B1 8=	MA 46
L						HB1			6RPY	7A3			23	CC	2							V= P3	MG D1	L1
R		5.18	13.41						OFTEN GRADES TOWARD BROS. SLIGHTY LOWER MG CONTENT BUT ROUGHLY															
R		5.18	13.41						COMPERABLE TO SURROUNDING ROCKS EXCEPT FOR INTENSE ALBITIZATION.															
R		5.18	13.41						CONTACTS ARE SLIGHTLY IRREGULAR BUT RELATIVELY DISTINCT. MINOR															
R		5.18	13.41						SECONDARY BRECCIATION ON LOWER CONTACT.															
/		10.06	10.82	.76			X	BRPE	AB	MG	6R6	BR	RP	07	17	2	CN			B	45	P1 D= D= P4	B1 8=	MA 46
L						HB1			6RPY	7A3			23	CC	2							V= P3	MG 6=	L1
R		10.06	10.82						CP CONTENT APPEARS TO BE PROPORTIONAL TO INTENSITY OF ALBITIZ-															
R		10.06	10.82						ATION. CP AND MG ARE ON FRACTURES IN STRONGLY ALTERED ROCK															
R		10.06	10.82						SUGGESTING THEY ARE LATER THAN AB.															
/		10.82	12.19	1.37				BRPE	AB	MG	6R6	BR	RP	07	17	2	CN			B	45	P1 D= D= P4	B1 8=	MA 46
L						HB1			6RPY	7A3			23	CC	2							V= P3	MG D1	L1

DRILLHOLE/TRAVERSE --- 80CH020 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR	QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2		FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		12.19	13.11	.92			X	BRPE	AB	MG	6R6	BR	RP	07	17	2		FL			B	20		P1		D=	D=	P4		81	8=		MA	46	
/		13.11	13.41	.30				BRPE	AB	MG	6R6	BR	RP	07	17	2		CN			B	45		P1		D=	D=	P4		81	8=		MA	46	
L						HB1			6RPY		7A3			23	CC	2										V=		P3		MG	D1		L1		
/		13.41	15.03	1.62				BROX	HE	MG	5G3	BR	RP	07	17	1								P2	D)	D1		D)		P3				04	
L						HB1			2A		9A1			12	CO	1									V)		D1	P3		H>	D-				
R		13.41	15.03						VERY FINE GRAINED HE FORMS GROUNDMASS AND SOME FRAGS. MG IN XTAL																													
R		13.41	15.03						FRAGMENTS ARE EXTREMELY VARIED.																													
/	VEN	15.03	16.64	1.61				BROS	MG	BA						1		CN			T	20				D)				D5	D*			34	
L						HB4			7ACP							1		CN			B	45		P4		D)				MG	D=				
R		15.03	16.64						CONSISTS OF 1-9MM. EUHEDRAL MG IN A PREDOMINENTLY BA MATRIX. CP																													
R		15.03	16.64						CLUSTERS USUALLY IN AND ADJACENT TO MG.																													
/		16.64	17.37	.73				BRPE	MG		8A3	BR		07	17	12								P2		P2	P*			D2				34	
L						HB1			7A					24	CO	1									D*		P2	P3		H<	D*				
R		16.64	17.37						MAY BE A BLOCK IN THE VEIN.																													
/		17.37	20.73	3.36				BROX	MG		BA1	BR	RP	06	17	2								P2		D1		D-		D4	D-			34	
L						HB4			7A					24	CO	2									V*		D1	P3		MG	D*				
R		17.37	33.68						CP IN CORES OF ONLY LARGEST MG XTALS. MOST FRAGMENTS ARE OBSCURE																													
R		17.37	33.68						WAS PROBABLY HB1 BEFORE MG GROWTH. CA IS DOMINENT CB MINERAL.																													
/		20.73	24.08	3.35			X	BROX	MG	PY	BA1	BR	RP	06	17	0								P1	D=	P3		D-		D3	D1			44	
L						HB4			7A					24	CO	0									V*		P3	P1		MG	D*				
/		24.08	27.43	3.35			X	BROX	MG	CL	BA1	BR	RP	06	17	1								P2	D2	D1		D-		D4	D-			24	
L						HB4			6G					24	CO	1									V*		D1	P3		MG	D*				
/		27.43	33.68	6.25			X	BROX	HE	PY	BA.	BR	RP	06	17	1		CN			B	20		00	D=	D*		D-		P7	D1			05	
L						HB4			8T					24	CO	1									81		D*	00		H>	D-				
R		27.43	33.68						MG ALTERING TO HE. FRAG VERY RARE.																													
/		33.68	38.40	4.72				BROX	HE		8A3	BR		06	37	2		FL				45		D1	D=	P3	P1			D3	D)			14	
L						HB1			3G		6R1			22	CO	2									V-		P2	P2		H>	D.				
R		33.68	38.40						GRADES TOWARD BRPQ.																													
R		38.40	45.87						INTERVAL BECOMES INCREASINGLY BLEACHED TOWARD THE BOTTOM SHOWING																													
R		38.40	45.87						AN EXTENSIVE GRADATIONAL CONTACT WITH THE UNDERLYING ROCKS.																													

DRILLHOLE/TRAVERSE --- 80CH020 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	X	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		38.40	45.87																																
											UPPER PORTION OFTEN GRADES TOWARD BROX.																								
/		38.40	39.93	1.53			X	BRPE	HE	MG	6R3	BR		07	28			FL		20	P3	P=	P1	P+		D2	D+		24					
L						HB1		5	A	PY2			2	2C	0							V)		P=	P3		HE	D.							
R		38.40	39.93																																
											FINE BLADED HE IN MATRIX. EUHEDRAL MG AND PY ALL COEXIST.																								
/		39.93	41.76	1.83				BRPC	HE		6R3	BR		07	28			FL		20	P3	P=	P1	P+		D2			24					
L						HB1		5	A	7A2			2	2C	0							V)		P=	P3		HE	D.							
/		41.76	42.67	.91				BRPE	HE		6R3	BR		07	28			FL		20	P3	P=	P1	P+		D2			24					
L						HB1		5	A	7A2			2	2C	0							V)		P=	P3		HE	D.							
R		41.76	44.20																																
											SEVERAL 4-6CM WIDE DYKES CUT THE CORE PARALLEL TO FOLIATION.																								
/		42.67	44.20	1.53			X	BRPE	HE		6R3	BR		07	28			FL		20	P3	D3	P1	P+		D+			14					
L						HB1		5	A	7A2			2	2C	0							V)		P=	P2		HE	D.							
/		44.20	45.87	1.67			X	BRPE	HE		6R3	BR		07	28			FL		40	P3	71	P1	P+		D=	D)		24					
L						HB1		5	A	7A2			2	2C	0							V)		P=	P3		HE	D.							
/		45.87	49.68	3.81				BRPQ	MU	BA	8A5	RP	FL	18	28	2					82	<+	D2	P2	D+		6=	)		L1	44				
L						HB1			8A		7A2	BR		11	CC	2						V+			P5		HE	V-							
R		45.87	69.95																																
											FOLIATION IN FRAGMENTS IS COMMON BUT IS NOT RELIABLE DUE TO																								
R		45.87	69.95																																
											POSSIBLE ROTATION. COLOUR OFTEN RANGES TOWARD REDDISH. THERE IS																								
R		45.87	69.95																																
											AN ASSOCIATION BETWEEN QZ-BA-HE-CP: THEY ALL TEND TO CONCENTRATE																								
R		45.87	69.95																																
											IN LATE VEINS.																								
/		49.68	49.99	.31			X	BRPQ	MU	BA	8A5	RP	FL	18	28	2					82	<+	D2	P2	D+		6=	)		L1	44				
L						HB1			8A		7A2	BR		11	CC	2						V+			P5		HE	<=							
R		49.99	67.82																																
											HE IN MICROFRACTURES VERY RED. HAIRLINE FRACTURES ABUNDANT BUT																								
R		49.99	67.82																																
											MOST ARE CLOSED. CP USUALLY OCCURS IN MG XTALS OR ON MICRO-																								
R		49.99	67.82																																
											FRACTURES WITH AN MG SELVAGE. HE STAIN HAS COLOURED MOST FRAGS																								
R		49.99	67.82																																
											MAKING THEM RED.																								
/		49.99	50.90	.91			X	BRPQ	MU	BA	8A5	RP	FL	18	28	4					83	<+	D1	P1	D+		D=	)		L1	54				
L						HB1			8RHE		7A2	BR		11	CC	4						V+			P5		MG	<=							
R		49.99	50.90																																
											RADIOACTIVITY CORRESPONDS TO HIGH HE, MG, AND CP.																								
/		50.90	52.73	1.83			X	BRPQ	MU	BA	8A5	RP	FL	18	28	4					83	<+	D1	P1	D+		D=	)		L1	54				
L						HB1			8RHE		7A2	BR		11	CC	4						V+			P5		MG	7)							

DRILLHOLE/TRAVERSE --- 80CH020 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	X	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		52.73	57.09	4.36			X	BRPQ	MU	BA	8A5	RP	FL	18	28	2								82	<=	D2	P2	D+		00	<=		L1	44	
L						HB1			8A		7A2	BR		11	CC	2									V+			P5		00	<+				
R		52.73	57.09						PY CL, AND CP USUALLY MIXED IN SAME FRACTURE. PY-CL AFTER MG.																												
R		57.09	59.07						ALMOST BRICK RED IN COLOUR, HIGHEST RADIOACTIVITY ASSOCIATED																												
R		57.09	59.07						WITH HE STAIN, MG, AND CP. CP ALSO IN BA-QZ VEINS. MANY OF THE																												
R		57.09	59.07						STRONGEST FRACTURES CONTAIN ONLY BOXWORK LIMONITE.																												
/		59.07	62.67	3.60			X	BRPQ	MU	BA	8A5	RP	FL	18	28	4								83	<+	D1	P1	D+		D=	)		L1	54	
L						HB1			8RHE		7A2	BR		11	CC	4									V+			P5		MG	7)				
/	FLT	62.67	63.09	.42			X	BRPQ	MU	BA	8A5	RP	FL	18	28	2		F/				60		82	<+	D2	P2	D+		6=	)		L1	44	
R		62.67	63.09						SOME GOUGE.																												
/		63.09	63.15	.06			X	BRPQ	MU	BA	8A5	RP	FL	18	28	4								83	<+	D1	P1	D+		D=	)		L1	54	
L						HB1			8RHE		7A2	BR		11	CC	4									V+			P5		MG	7)				
/		63.15	63.25	.10			X	BRPQ	MU	BA	8A5	RP	FL	18	28	2		CN				60		82	V2	V3	P2	D+		V3	)		L1	44	
L						HB1			8A		7A2	BR		11	CC	2									V+	V3		P5		MG	V2				
R		63.15	63.25						3CM WIDE VEIN. CA IS CB MINERAL																												
/		63.25	67.82	4.57			X	BRPQ	MU	BA	8A5	RP	FL	18	28	4								83	<+	D1	P1	D+		D=	)		L1	54	
L						HB1			8RHE		7A2	BR		11	CC	4									V+			P5		MG	7)				
/		67.82	69.95	2.13				BRPQ	MU	BA	8A5	RP	FL	18	28	2								82	<+	D2	P2	D+		6=	)		L1	44	
L						HB1			8A		7A2	BR		11	CC	2									V+			P5		HE	V-				
/	DYK	69.95	73.76	3.81				BROX	MG	CB						12		CN			T	60		P3		P3				83	7(			36	
L						HB4			6RQZ							2									D+		P3			MG	7*				
R		69.95	73.76						MG USUALLY IN EUHEDRAL XTALS, GROUNDMASS FINE GRAINED MIXTURE OF																												
R		69.95	73.76						CA AND HE STAINED QZ.																												
/		73.76	78.03	4.27				BRPQ				BR		17	57	14								64	<.	D1	D1			D+	V+			64	
L						HB1								22	CC	4												P4		MG	V.				
R		73.76	83.82						INTRUDED BY SMALL DYKES SIMILAR TO THE LARGER ONES ABOVE AND																												
R		73.76	83.82						BELOW. QZ FRAGMENTS OFTEN HE STAINED.																												
/	DYK	78.03	82.30	4.27			X	BROX	MG	CB						12		CN			T	30		P3		P3				83	7*			56	
L						HB4			6RQ2							2		FL				30			D+	<)	P3			MG	7*				
R		78.03	82.30						FOLIATION FAINT. 1CM QZ-MG-CP-PY VEIN AT LOWER CONTACT.																												

DRILLHOLE/TRAVERSE --- 80CH020 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	GZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		82.30	83.58	1.28				BRPQ				BR		17	57	14								84	<.	D1	D1			D+	V+			64	
L						HB1								22	CC	4												P4		MG	V.				
/		83.58	83.82	.24			X	BRPQ				BR		06	26	14								84	P3	D1	D1			D+	V+			14	
L						HB1								33	CO	4												P1		MG	V.				
R		83.58	83.82					PROBABLY A NARROW ALTERATION HALO AROUND A STRUCTURE.																													
/		83.82	86.26	2.44				BRSO	PY	MG	7R3	BR	RP	16	27	23									D)	P4	P1	P2		D1	<3		35	
L						HB4				7TCB	9W3			34	CO	2									<=	P2				MG	<.				
R		83.82	86.26					VERY COMPLEX MIXTURE OF HIGHLY FRACTURED ARGILLITES AND																												
R		83.82	86.26					QUARTZITES WITH BROX DYKES. ROCK UNITS RARELY EXTEND MORE THAN																												
R		83.82	86.26					IM CHANGING RAPIDLY FROM BROX-BRSU-BRPQ SOMETIMES WITH SHARP																												
R		83.82	86.26					CONTACTS BUT OFTEN GRADATIONALLY. FROM HERE TO THE END OF THE																												
R		83.82	86.26					HOLE THE ROCKS PROBABLY REPRESENT A LARGE BLOCK OF META-SEDIMENT																												
R		83.82	86.26					CAUGHT UP IN THE HB1 BRECCIA PHASE. EXTENSIVELY CRACKLED. LOCAL																												
R		83.82	86.26					STRONG BRECCIA AND ALTERATION. IRON OXIDES ARE GENERALLY DISS OR																												
R		83.82	86.26					DYKES WHILE SULPHIDES USUALLY OCCUR INTERCHANGEABLY WITH CL AS																												
R		83.82	86.26					BRECCIA MATRIX AND IN HAIRLINE FRACTURES. PY LOCALLY MASSIVE.																												
R	TGG	83.82	86.26					55198N01981																												
/	DYK	86.26	86.87	.61				BROX	MG	CL		RP				2		CN		T	20			P4						P4	72			04	
L						HB4				1GPY						2														MG					
/		86.87	87.78	.91			X	BRSO	MG	PY	7R3	BR	RP	16	27	24									D)	P4	P1	P2		D1	<3		35	
L						HB4				7TCB	9W3			34	CO	3									<=	P2				MG					
/	DYK	87.78	89.92	2.14				BROX	MG	CL		RP				2		CN		T	20			P4						P4	72			04	
L						HB4				1GPY						2														MG					
/		89.92	93.33	3.41				BRPQ	AB	CB	7R4	BR	RP	08	28	2									P3	<+	P2	P1	P2		D1	71		26	
L						HB1				3GMG	7A3	CR		13	CC	21											V+	P1			MG	>-				
R		89.92	101.19					GRADES INTO BRSO AND BROX LOCALLY. AB-CB ALTERATION PERVASIVE.																												
/		93.33	93.57	.24			X	BROX	MG	CB						1		CN		T	30			P4						P6	D+			24	
L						HB4				8T						1		CN		B	20			<1	P3					MG					
/		93.57	95.52	1.95				BRPQ	AB	CB	7R4	BR	RP	08	28	2									P3	<+	P2	P1	P2		D1	71		26	
L						HB1				3GMG	7A3	CR		13	CC	21											V+	P1			MG	>-				

DRILLHOLE/TRAVERSE --- 80CH020 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	X	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		95.52	96.56	1.04			X	BRPQ	AB	CB	7R4	BR	RP	08	28	2								P3	<+	P2	P1	P2		D+	62			26	
L						HB1			3GMG		7A3	CR		13	CC	21										V+	P1			HE	>-				
R		95.52	96.56						PY ON EXTENSIVE STOCKWORK OF HAIRLINE FRACTURES. CL ADJACENT TO																													
R		95.52	96.56						PY IN SIMILAR FRACTURES.																												
/		96.56	97.38	.82				BRPQ	AB	CB	7R4	BR	RP	08	28	2								P3	<+	P2	P1	P2		D1	71			26	
L						HB1			3GMG		7A3	CR		13	CC	21										V+	P1			MG	>-				
/		97.38	98.76	1.38			X	BROS	MG	PY	9W1	BR	RP	06	27	1		FL		20			71	P3		D2		D3	71			25	
L						HB4			8TCL		7R2			34	CC	1									P3				MG					
R		97.38	98.76						ROCK GRADES INTO BROX. APPEARS TO BE SIMILAR EXCEPT FOR DISS MG																												
R		97.38	98.76						AND FRACTURE PY. VERY FAINT FOLIATION.																												
/		98.76	100.34	1.58				BRPQ	AB	CB	7R4	BR	RP	08	28	2								P3	<+	P2	P1	P2		D1	71			26	
L						HB1			3GMG		7A3	CR		13	CC	21										V+	P1			MG	>-				
/		100.34	101.19	.85			X	BROS	HX	PY	9W1	BR	RP	06	27	2								P4		D2		D3	71			25	
L						HB4			8TCB		7R2			34	CC	2									V=	P3			H>					
L						HB2			2G		8R2			11	CC	2									V+		P4		H<	<.				
/	FLT	101.19	101.19	0.00			X	BRPQ	AB	CB	7R4	BR	RP	08	28	2		F/		45				P3	<+	P2	P1	P2		D1	71			26	
R		101.19	101.19						SOME GOUGE.																										
R		101.19	128.93						SEVERAL FRAGMENTS WERE WELL FOLIATED PRIOR TO EMPLACEMENT IN																										
R		101.19	128.93						THIS BRECCIA; MOST HB2 FRAGMENTS. PY-MG-CP OCCURRENCE HIGHLY																										
R		101.19	128.93						VARIABLE DEPENDING UPON ORIGINAL DISTRIBUTION IN HB2 FRAGMENT.																										
R		101.19	128.93						WOULD PROBABLY BE MAPPED HB2 BUT ACTUALLY REBRECCIATED HB2=HB1?																										
/		106.62	108.26	1.64			X	BRPQ	AB	HE	6R2	BR	RP	07	17	2		FL		20		P1	<)	P3		P3		<2				15	
L						HB1			2G		8R2			22	CO	2		CN		25						D+		HE					
R		106.62	108.26						VERY WELL DEVELOPED HB1 CUTS THE CRACKLED HB2 AND ARGILLITE.																										
R		106.62	108.26						AB-CB ALTERED FRAGS IN HE GROUNDMASS.																										
/		108.26	118.87	10.61				BRPQ	CL	PY	9T6	BR	CR	08	49	12								P2	61	P2	P2	D.		D+	7+			64	
L						HB2			2G		8R2			11	CC	2									V+		P4		H<	<.				
/		118.87	122.07	3.20			X	BRPQ	PY	PY	9T6	BR	CR	08	49	12								P2	6+	P2	P2	D.		D+	71			64	
L						HB2			2G		8R2			11	CC	2									V+		P4		H<	7+				
R		118.87	128.93						CP MOSTLY IN LATE CB VEINS																										

DRILLHOLE/TRAVERSE --- 80CH020 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		122.07	123.44	1.37			X	BRPQ	CL	PY	9T6	BR	CR	08	49	12								P2	61	P2	P2	D.		D+	D=			64	
L						HB2			2G		8R2			11	CC	2										V+		P4		H<	D+				
R		122.07	123.44						SOME CP-PY IN LATE FRACTURES BUT MUCH APPEARS TO BE IN MATRIX																											
R		122.07	123.44						OF HB2 FRAGMENTS. CP USUALLY WITH PY. OFTEN VERY FINE GRAINED SO																											
R		122.07	123.44						ONLY BARELY VISIBLE WITH NAKED EYE. TWO COLOURS PY IN PLACES ONE																											
R		122.07	123.44						MAY BE COBALTITE.																											
/		123.44	125.36	1.92			X	BRPQ	PY	PY	9T6	BR	CR	08	49	12								P2	6+	P2	P2	D.		D+	71			64	
L						HB2			2G		8R2			11	CC	2										V+		P4		H<	7+				
/		125.36	127.25	1.89			X	BRPQ	CL	PY	9T6	BR	CR	08	49	12								P2	61	P2	P2	D.		D+	7+			64	
L						HB2			2G		8R2			11	CC	2										V+		P4		H<	D)				
/		127.25	128.93	1.68			X	BRPQ	CL	PY	9T6	BR	CR	08	49	12								P2	61	P2	P2	D.		D+	7+			64	
L						HB2			2G		8R2			11	CC	2										V+		P4		H<	D+				
/		128.93	133.81	4.88				BRPQ	PY		9T6	BR	CR	08	48	24								P2	6+	P2	P2				72			64	
L						HB2			8T		8R2			11	CC	3										V+		P4			D+				
R		128.93	140.51						CONTINUATION OF PREVIOUS INTERVAL. MAY PRODUCE SURPRIZINGLY CU-																											
R		128.93	140.51						CO RESULTS AS SULPHIDES VERY FINE GRAINED.																											
/	FLT	133.81	139.90	6.09			X	BRPQ	PY		9T6	BR	CR	08	48	24		F2			80			P2	<1	P2	P2		TA		D1			64	
R		133.81	139.90						A NUMBER OF NARROW SHEAR ZONES RUN SUB-PARALLEL TO THE CORE AXIS																											
R		133.81	139.90						SOME TALC GOUGE. ROCK DOMINENTLY COMPOSED OF BLEACHED ARGILLITE.																											
/		139.90	140.51	.61				BRPQ	PY		9T6	BR	CR	08	48	24								P2	6+	P2	P2				72			64	
L						HB2			8T		8R2			11	CC	3										V+		P4			D+				

						PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO	CPS
A	MIN	0.00	0.00	0.00								
A	LAB	0.00	0.00	0.00		CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	SCNTRX
A	TYP	0.00	0.00	0.00		1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	IN BAG
A	001	4.27	5.18	.91	100.0	J17462	52.0	6400	310	0.1	41	56	170
R	TAG	4.27	5.18					69459 55199N01951				
A	001	5.18	6.71	1.53	100.0	J17463	11.5	1800	176	0.1	41	56	120
R	TAG	5.18	6.71					69459 55199N01951				
A	001	6.71	8.23	1.52	100.0	J17464	11.0	3200	265	0.1	41	5 6	120
R	TAG	6.71	8.23					69459 55199N01951				

DRILLHOLE/TRAVERSE --- 80CH020 --- (CONTINUED)

							PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO	CPS
A MIN	0.00	0.00	0.00										
A LAB	0.00	0.00	0.00				CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	SCNTRX
A TYP	0.00	0.00	0.00				1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	IN BAG
A 001	8.23	9.75	1.52	100.0	J17465	13.0	2200	174	0.1	41	56		120
R TAG	8.23	9.75					69459 55199N01951						
A 001	9.75	11.28	1.53	100.0	J17466	13.5	10700	186	0.1	41	56		120
R TAG	9.75	11.28					69459 55199N01951						
A 001	11.28	13.41	2.13	70.0	J17467	10.0	1650	138	0.1	41	56		120
R TGG	11.28	13.41					55198N01981						
A 001	13.41	15.03	1.62	100.0	J17468	5.0	295	18	0.1	13	34		120
R TGG	13.41	15.03					55198N01981						
A 001	15.03	16.64	1.61	100.0	J17469	9.0	2900	70	0.1	13	34		120
R TAG	15.03	16.64					69459 55199N01951						
A 001	16.64	20.73	4.09	100.0	J17480	5.0	595	18	0.1	13	34		120
R TGG	16.64	20.73					55198N01981						
A 001	20.73	24.38	3.65	100.0	J17481	6.0	198	172	0.1	13	34		120
R TGG	20.73	24.38					55198N01981						
A 001	24.38	27.43	3.05	100.0	J17482	5.5	116	40	0.1	13	34		120
R TGG	24.38	27.43					55198N01981						
A 001	27.43	30.48	3.05	100.0	J17483	12.5	235	535	0.1	11	50		120
R TGG	27.43	30.48					55198N01981						
A 001	30.48	33.68	3.20	100.0	J17484	14.0	550	370	0.1	11	50		120
R TGG	30.48	33.68					55198N01981						
A 001	33.68	36.73	3.05	100.0	J17485	3.0	40	14	0.1	11	50		120
R TGG	33.68	36.73					55198N01981						
A 001	36.73	38.40	1.67	100.0	J17486	6.0	38	8	0.1	11	50		120
R TGG	36.73	38.40					55198N01981						
A 001	38.40	41.76	3.36	100.0	J17487	7.0	26	16	0.1	30	37		120
R TGG	38.40	41.76					55198N01981						

DRILLHOLE/TRAVERSE --- 80CH020 --- (CONTINUED)

							PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO	CPS
A MIN	0.00	0.00	0.00										
A LAB	0.00	0.00	0.00				CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	SCNTRX
A TYP	0.00	0.00	0.00				1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	IN BAG
A 001	41.76	44.20	2.44	100.0	J17488	46.0	500	78	0.1	30	37		120
R TAG	41.76	44.20					69459 55199N01951						
A 001	44.20	45.87	1.67	100.0	J17489	29.0	184	74	0.1	30	37		120
R TGG	44.20	45.87					55198N01981						
A 001	45.87	48.16	2.29	100.0	J17470	11.5	188	46	3.0	36	48		120
R TGG	45.87	48.16					55198N01981						
A 001	48.16	49.68	1.52	100.0	J17471	18.0	1350	66	3.0	36	48		120
R TGG	48.16	49.68					55198N01981						
A 001	49.68	50.90	1.22	100.0	J17472	248.0	8700	54	3.0	36	48		210
R TAG	49.68	50.90					69459 55199N01951						
A 001	50.90	52.73	1.83	100.0	J17473	52.0	5800	96	3.0	36	48		160
R TAG	50.90	52.73					69459 55199N01951						
A 001	52.73	54.25	1.52	100.0	J17474	60.0	2700	194	3.0	36	48		160
R TAG	52.73	54.25					69459 55199N01951						
A 001	54.25	55.78	1.53	100.0	J17475	181.0	500	790	3.0	36	48		200
R TAG	54.25	55.78					69459 55199N01951						
A 001	55.78	57.09	1.31	100.0	J17476	99.0	5800	475	3.0	36	48		170
R TAG	55.78	57.09					69459 55199N01951						
A 001	57.09	59.07	1.98	100.0	J17477	966.1	14400	345	1.4	23	38		800
R NAG	57.09	59.07					69459 55199						
A 001	59.07	60.96	1.89	100.0	J17478	207.0	4800	186	1.4	23	38		230
R TAG	59.07	60.96					69459 55199N01951						
A 001	60.96	63.40	2.44	83.0	J17479	44.0	4100	310	1.4	23	38		160
R TAG	60.96	63.40					69459 55199N01951						
A 001	63.40	66.45	3.05	80.0	J17490	33.0	670	148	0.1	24	16		150
R TGG	63.40	66.45					55198N01981						

DRILLHOLE/TRAVERSE --- 80CH020 --- (CONTINUED)

						PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO	CPS
A MIN	0.00	0.00	0.00									
A LAB	0.00	0.00	0.00			CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	SCNTRX
A TYP	0.00	0.00	0.00			1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	IN BAG
A 001	66.45	69.95	3.50	96.0	J17491	29.0	1450	106	0.1	24	16	170
R TGG	66.45	69.95					55198N01981					
A 001	69.95	73.76	3.81	100.0	J17492	7.0	2650	120	0.1	24	16	120
R TGG	69.95	73.76					55198N01981					
A 001	73.76	78.03	4.27	100.0	J17493	17.0	270	62	0.1	24	16	150
R TGG	73.76	78.03					55198N01981					
A 001	78.03	82.30	4.27	100.0	J17494	7.5	990	80	0.4	33	29	120
R TGG	78.03	82.30					55198N01981					
A 001	82.30	83.82	1.52	100.0	J17495	39.0	775	84	0.4	33	29	150
R TGG	82.30	83.82					55198N01981					
A 001	83.82	86.26	2.44	100.0	J17496	15.0	420	435	0.4	33	29	120
R TGG	86.26	89.92					55198N01981					
A 001	86.26	89.92	3.66	42.0	J17497	13.0	196	390	0.4	33	29	120
A 001	89.92	93.33	3.41	100.0	J17498	12.5	88	116	0.1	34	17	120
R TGG	89.92	93.33					55198N01981					
A 001	93.33	97.38	4.05	100.0	J17499	16.0	186	184	0.1 M	3 4	1 7	140
R TGG	93.33	97.38					55198N01981					
A 001	97.38	101.19	3.81	92.0	J17500	16.5	74	164	0.1	34	17	120
R TGG	97.38	101.19					55198N01981					
A 001	101.19	105.16	3.97	100.0	J17076	7.5	40	44	0.1	5	11	120
R TGG	101.19	105.16					55198N01981					
A 001	105.16	109.73	4.57	100.0	J17077	6.0	68	72	0.1	5	11	120
R TGG	105.16	109.73					55198N01981					
A 001	109.73	114.30	4.57	100.0	J17078	14.0	16	26	0.1	5	11	120
R TGG	109.73	114.30					55198N01981					
A 001	114.30	118.87	4.57	100.0	J17079	9.0	118	54	0.1	22	6	120

DRILLHOLE/TRAVERSE --- 80CH020 --- (CONTINUED)

							PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO	CPS
A MIN	0.00	0.00	0.00										
A LAB	0.00	0.00	0.00				CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	SCNTRX
A TYP	0.00	0.00	0.00				1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	IN BAG
R TGG	114.30	118.87						55198N01981					
A 001	118.87	122.07	3.20	95.0	J17080	16.0	495	46	0.1	22	6		120
R TGG	118.87	122.07						55198N01981					
A 001	122.07	123.44	1.37	89.0	J17081	8.5	3200	74	0.1	22	6		140
R TAG	122.07	123.44						69459 55199N01951					
A 001	123.44	125.36	1.92	87.0	J17082	13.5	240	34	0.1	28	14		120
R TGG	123.44	125.36						55198N01981					
A 001	125.36	127.25	1.89	73.0	J17083	13.0	3300	54	0.1	28	14		120
R TAG	125.36	127.25						69459 55199N01951					
A 001	127.25	128.93	1.68	100.0	J17084	15.5	685	86	0.1	28	14		120
R TGG	127.25	128.93						55198N01981					
A 001	128.93	131.98	3.05	100.0	J17085	15.0	184	158	0.1	28	14		140
R TGG	128.93	131.98						55198N01981					
A 001	131.98	135.03	3.05	80.0	J17086	30.0	1500	200	0.1	18	17		140
R TGG	131.98	135.03						55198N01981					
A 001	135.03	137.77	2.74	33.0	J17087	11.0	42	4	0.1	18	17		120
R TGG	135.03	137.77						55198N01981					
A 001	137.77	140.51	2.74	67.0	J17088	11.5	166	28	0.1	18	17		120
R TGG	137.77	140.51						55198N01981					
/ END													

MULTIPLE ACCESS COMPUTER GROUP / INTERNATIONAL GEOSYSTEMS CORPORATION 20/12/80.

G E O L O G

FORMAT -- I

EDIT LISTING

ARCHER CATHRO AND ASSOCIATES LTD.

WERNECKE JOINT VENTURE IGOR PROP

FORMAT VERSION : 6B02

DRILLHOLE/TRAVERSE 80CH019 COLLAR ELEVATION 1169.00 AZIMUTH(LEG 1) 180.00 GEOLOGGED BY : WDE +
TOTAL DEPTH/LENGTH 146.61 NORTHING(- IF S) 3527.50 VERTICAL ANGLE -50.00 DATE DY/MON/YR 23/JUL/80
CORE/HOLE DIAMETER B EASTING (- IF W) -97.50 CO-ORD SYSTEM GRD PROJECT NUMBER WJV

KEY	FLAG	..INTERVAL.. (M T.2) F.R.O.M	T..O	I.N.T	CORE RECOV -MISS +PC.1	MF % OI M ROCK DE I IR X TYPE	TYPI-MINS TM 1 TM 2	QAL MIN 1	TEX-TURES MAJOR TX	TX	GRAIN -+ M FC CA X	FRACS DEN M I	..STRUCTURES... S ID	T AZM K	D T O P	D I P.	B D 1	ALT/N ASSEM.+ MINERALIZATION. HA HA HA HA HA HA HA HA HA QZ CL CB C2 AB XX HX PY UR	AI LN TT YY BM	OI RN ET ZONE HOW
						ROC DE P		QAL	TX	TX	SR SO	SML %	P		B	.P	B	FL BA C1 C3 MU HA H: CP	HA	HW
					R.Q.D.	U- EN R NIT PV OV	COLOR	MIN 2	MINOR		ON H/ RD PC	TOO M PDW 2	ID L G	AZM	O T	L G	D 2			I 2
/		0.00	4.27	4.27			OVER													
/		4.27	10.91	6.64			BROS	HX CL	BA1	BR	RP	17 =7	2					D+ P2 D=	D2 D=	L1 25
L						HB4		3GBA	4G1			22 FO	2					72 D+ P2	H> D+	MA
R		4.27	10.91				FRAGMENTS RARE; MAYBE A LARGE DYKE WITH ONLY A FEW WALL ROCK													
R		4.27	10.91				FRAGMENTS. CP IS USUALLY ASSOCIATED WITH BA AND EUHERAL HX XTALS													
R		4.27	10.91				CL OFTEN REPLACING HE AFTER EUHEDRAL MG. CP TENDS TO CLUSTER													
/		10.91	11.58	.67			BRCL	CL BA			RP	2						P4	D= D=	13
L						HB3		4GPY				21						74	H> D+	
R		10.91	11.58				CP FINELY DISSEMINATED THROUGH ROCK.													
/		11.58	16.40	4.82			BROX	HX BA	7A6	BR								P1 P1 P1	D3 D)	44
L						HB4		8A										72 P3	H> 7*	
R		11.58	17.77				BA AND HX COMPRISE THE MATRIX . MG ALSO DISSEMATED IN FRAGMENTS													
/		16.40	17.47	1.07		X	BROX	HX BA	7A6	BR								P1 P2 P1	D3 D=	44
L						HB4		8A										72 P1 P3	H> 7*	
R		16.40	17.47				CP CORES MOST HX CRYSTALS.													
/		17.47	17.77	.30			BROX	HX BA	7A6	BR								P1 P1 P1	D3 D)	44
L						HB4		8A										72 P3	H> 7*	
/		17.77	21.18	3.41			BROS	CL HX	3G3	BR		08 28	2					P1 P2 D= D+	D2 D1	24
L						HB4		8ABA	7A3			12 CC	21					61 D+ P1	H< 7*	

DRILLHOLE/TRAVERSE --- 80CH019 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	X	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R			17.77	21.18					CP GENERAL WITH MG OR IN BA VEINS.																											
/			21.18	25.60	4.42			BRSO	CL	PY	7A6	BR		07	27	3		FL			40		P2	P1	P1	D+	D)		D1	72		45		
L						HB4			7T		7R2			22	FC	22										D-	<)	D=	P2		MG	7*				
/			25.60	33.53	7.93			BROS	HX	PY						2		CN		T	20					D=	D+			P7	D1		06		
L						HB4			INBA							11		CN		B	45					61	<)	D+			H>	7.				
R			25.60	33.53					ROCK IS DOMINENTLY COMPOSED OF AGGREGATES OF MG XTALS MOSTLY																											
R			25.60	33.53					ALTERED TO HE. MG XTALS OCCASIONALLY ZONED. BA VEINS UPTO 10CM																											
R			25.60	33.53					LAST METER LI STAINED AND FOLIATED PARALLEL TO STRONG FAULT.																											
/	FLT		33.53	36.58	3.05		X	BRCL	CL			BR	RP	05	26	X		FZ			45		D+	P7	D1	P+		TA	D1			03		
L						HB3			2G					22	CO	X2											<)	P=	D+							
R			33.53	36.58					SOME GOUGE. POOR RECOVERY. FAULT MAY HAVE MOVED THROUGH BRCL																											
R			33.53	36.58					WHICH WOULD HAVE BEEN LESS COMPETANT THAN SURROUNDING ROCKS.																											
/			36.58	39.62	3.04			BRCL	CL			BR	RP	05	26	3							D+	P7	D1	P+			D1			03		
L						HB3			2G					22	CO	22											<)	P=	D+							
L						HB3			2G					22	CO	22											<)	P=	D+							
/			39.62	46.94	7.32			BRPQ	CL	CB	5G6	BR		07	17	2		FL			45		P2	P4	P4	P1			D=	D-			24		
L						HB1			6G		7A2			22	FC	21										<-	<)	P3			HE					
R			39.62	46.94					FRAGMENTS ARE PERVASIVELY ALTERED TO CL AND CB. MATRIX IS A																											
R			39.62	46.94					MIXTURE OF FINE CL AND COARSE GRAINED CB.																											
/			46.94	50.90	3.96			BRSU	PY	CB	8A5	BR		06	37	2		FL			60		P2		P2	P1				63		CC	74		
L						HB1			8T					22	FC	11											P1	P3			D.					
R			46.94	50.90					FOLIATION ERRATIC. PY FORMS MOST OF MATRIX. CC? COATS SOME PY.																											
/			50.90	67.06	16.16			BRPQ	PY	CB	8A5	BR		06	37	2		FL			60		P3	>-	P3					81			74		
L						HB2			8T		8R2			33	FC	11											P2	P3			D.					
R			50.90	77.42					GRADES TOWARD PY RICH BRSU (HB1). MOST PY FINELY DISSEMINATED																											
R			50.90	77.42					ALTHOUGH OVER SHORT SECTIONS IT RESEMBLES THE PREVIOUS SECTION.																											
R			50.90	77.42					QUARTZITE FRAGMENTS VERY ROUND. PELITE SURROUNDS THEM.																											
R			50.90	77.42					FOLIATION ERRATIC AND WEAK.																											
/			67.06	69.19	2.13		X	BRPQ	PY	CB	8A5	BR		06	37	1		FL			85		P3	>-	P3					D=			84		
L						HB2			8T		8R2			33	FC	11											P2	P3			D.					
R			67.06	69.19					ROCK IS STRONGLY FOLIATED SO THAT IT HAS A BANDED APPEARANCE OF																											

DRILLHOLE/TRAVERSE --- 80CH019 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	OM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		67.06	69.19																																
									ALTERNATING TAN AND LIGHT GREY STRIPES. THIS COLOUR IS DUE TO																										
R		67.06	69.19																																
									FINELY DISSEMINATED PY IN THE LIGHT GREY STRIPES. ONLY QUARTZITE																										
R		67.06	69.19																																
									FRAGMENTS ARE STILL RECOGNIZABLE.																										
/		69.19	77.42	8.23			X	BRPQ	PY	CB	6A5	BR		07	37	2		FL		70		P2 >- P3						D1		44			
L						HB2			8T		7T2			33	FC	11												P2 P4		D.					
R		69.19	77.42																																
									ROCK HAS MOTTLED APPEARANCE. FOLIATION NOT AS STRONG, INDIVIDUAL																										
R		69.19	77.42																																
									FRAGMENTS AGAIN RECOGNIZABLE.																										
/		77.42	81.08	3.66				BRSU	PY		7T3	BR		08	28	2		FL		60		P2 <- P2 P1						73		34			
L						HB4			8T		7A3			22	FC	2												V) P1 P3							
R		77.42	81.08																																
									GENERALLY SIMILAR TO PRECEEDING INTERVAL.																										
R		81.08	101.19																																
									FOLIATED STRONGLY BLEACHED PELITE: ARGILLITE INTERGEDDED WITH																										
R		81.08	101.19																																
									A COARSER META-SEDIMENT, GRADING TOWARD A QUARTZITE. APPROXIMATE																										
R		81.08	101.19																																
									RATIO ARG:QT2 IS 4:1. FOLIATION RANGES 10 TO 60 .																										
/		81.08	82.30	1.22			X	PLIT								25		FL		45		P4 <- V)						D)		75			
L						HS0			9R							41						V)	P5											
/		82.30	84.25	1.95				PLIT								3		FL		45		P4 <- V)						D)		75			
L						HS0			9R							3						V)	P5											
/		84.25	84.55	.30			X	PLIT								3		FL		45		P4 <- V)					7=	D)		75			
L						HS0			9R							3						V)	P5	<=										
/		84.55	91.29	6.74				PLIT								3		FL		45		P4 <- V)						D)		75			
L						HS0			9R							3						V)	P5											
/		91.29	101.19	9.90			X	PLIT								13		FL		45		P4 >) 7= P+						7+		75			
L						HS0			9R							22						V+	P5											
/		101.19	102.87	1.68				BRPQ	CL	CB	5G4	BR		06	37	2						P2 P2 P4 P1						71		24			
L						HB1			5GPY		8A2			35	CO	2						P3 D=												
R		101.19	130.00																																
									ROCKS SIMILAR TO THOSE BETWEEN 39.4M AND 46.7M. CA IS CB MINERAL																										
R		101.19	130.00																																
									SOME CA CRYSTALS GROWING IN MATRIX ARE CORED BY SD?																										
/		102.87	104.85	1.98			X	BRPQ	CL	CB	5G4	BR		06	37	2						P2 P4 P2 P1						81		14			
L						HB1			5GPY		8A2			35	CO	2						P1 D=						7*						
/		104.85	110.95	6.10			X	BRPQ	CL	CB	8A3	BR		08	28	1						P2 P2 D2 D=						D1	D)	24			
L						HB1			5GHE		5R3			13	CC	1						V1 D2 P3		HE										

DRILLHOLE/TRAVERSE --- 80CH019 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	X	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		104.85	110.95						FRAGMENTS ARE HIGHLY VARIABLE IN APPEARANCE AND COMPOSITION.																											
R		104.85	110.95						SEVERAL FRAGMENTS OF STRONGLY FOLIATED HB2 CONTAINING PY SIT IN																											
R		104.85	110.95						AN OTHERWISE UNFOLIATED BRECCIA DOMINATED BY HE.																											
/		110.95	120.70	9.75			X	BRPQ	CL	CB	7G3	BR				07	18	2						P2	P3	P3	P1			D+	D)			34	
L						HB1			5GPY		4G4					13	CC	2								V=	P2	P1			HE					
/		120.70	124.08	3.38			X	BRPQ	CL	CB	7G3	BR				18	59	1						P2	P2	P2	P1			D+	6)			34	
L						HB1			5GPY		4G4					02	CC	1								<*	P1	P4			HE					
R		120.70	124.08						DOMINENT FRAGMENTS IN THE CL-CB MATRIX BRECCIA ARE LARGE BLOCKS																											
R		120.70	124.08						OF FOLIATED HB2 WHICH ARE THEMSELVES BRECCIAS.																											
/		124.08	126.95	2.87			X	BRPQ	CL	CB	7G3	BR				07	18	2						P2	P3	P3	P1			D+	D)			34	
L						HB1			5GPY		4G4					13	CC	2								V=	P2	P1			HE					
/		126.95	130.00	3.05			X	BRPQ	CL	CB	7G3	BR				07	18	2						P2	P3	P3	P1			D+	7=			34	
L						HB1			5GPY		4G4					13	CC	2								V=	P2	P1			HE					
/		130.00	146.30	16.30				PLIT										14		FL			45	P5	6*	<)								65	
L						HS0			8G									4								<)	P5								
R		130.00	146.61						BLEACHED ARGILLITE AND QUARTZITE. PROBABLY A LARGE BLOCK.																											
/		146.30	146.61	.31			X	PLIT										14		FL			45	P5	6*	<)						01		65	

A							PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO			CPS
A	LAB	0.00	0.00	0.00			CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX			SCNTRX
A	TYP	0.00	0.00	0.00			1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR			IN BAG
A	001	4.27	7.32	3.05	100.0	J17437	8.5	1400	168	0.1	10	21			120
R	TAG	4.27	7.32					69459	55199N01951						
A	001	7.32	10.36	3.04	100.0	J17438	6.0	1400	62	0.1	10	21			120
R	TAG	7.32	10.36					69459	55199N01951						
A	001	10.36	13.41	3.05	100.0	J17439	9.0	1000	78	0.1	10	21			120
R	TAG	10.36	13.41					69459	55199N01951						
A	001	13.41	16.40	2.99	100.0	J17440	11.5	500	50	0.1	10	21			120
R	TAG	13.41	16.40					69459	55199N01951						
A	001	16.40	18.29	1.89	100.0	J17441	8.0	2000	52	0.1	10	21			120

DRILLHOLE/TRAVERSE --- 80CH019 --- (CONTINUED)

A MIN	0.00	0.00	0.00			PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO		CPS
A LAB	0.00	0.00	0.00			CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX		SCNTRX
A TYP	0.00	0.00	0.00			1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR		IN BAG
R TAG	16.40	18.29					69459 55199N01951						
A 001	18.29	21.18	2.89	100.0	J17442	12.0	3500	118	0.1	22	49		120
R TAG	18.29	21.18					69459 55199N01951						
A 001	21.18	24.38	3.20	100.0	J17443	26.0	126	280	0.1	22	49		120
R TGG	21.18	24.38					55392N02047						
A 001	24.38	27.43	3.05	100.0	J17444	29.0	590	270	0.1	22	49		120
R TGG	24.38	27.43					55392N02047						
A 001	27.43	30.48	3.05	100.0	J17445	41.0	360	460	0.1	22	49		130
R TGG	27.43	30.48					55392N02047						
A 001	30.48	33.53	3.05	100.0	J17446	13.0	320	570	0.1	22	49		120
R TGG	30.48	33.53					55392N02047						
A 001	33.53	36.58	3.05	30.0	J17447	14.0	80	138	0.1	7	11		120
R TGG	33.53	36.58					55392N02047						
A 001	36.58	39.62	3.04	100.0	J17448	32.0	8	12	0.1	7	11		120
R TGG	36.58	39.62					55392N02047						
A 001	39.62	42.67	3.05	100.0	J17449	9.5	148	20	0.1	30	17		130
R TGG	39.62	42.67					55392N02047						
A 001	42.67	46.94	4.27	100.0	J17450	9.5	400	14	0.1	30	17		120
R TGG	42.67	46.94					55392N02047						
A 001	46.94	50.90	3.96	100.0	J17451	7.0	2900	132	0.1	17	25		120
R TGG	46.94	50.90					55392N02047						
A 001	50.90	53.95	3.05	100.0	J17452	11.5	94	78	0.1	30	17		120
R TGG	50.90	53.95					55392N02047						
A 001	53.95	57.00	3.05	100.0	J17453	9.5	78	30	0.1	9	11		120
R TGG	53.95	57.00					55392N02047						
A 001	57.00	60.05	3.05	100.0	J17454	11.5	152	46	0.1	9	11		120

DRILLHOLE/TRAVERSE --- 80CH019 --- (CONTINUED)

A MIN	0.00	0.00	0.00			PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO		CPS
A LAB	0.00	0.00	0.00			CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX		SCNTRX
A TYP	0.00	0.00	0.00			1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR		IN BAG
R TGG	57.00	60.05					55392N02047						
A 001	60.05	63.09	3.04	100.0	J17455	11.0	72	44	0.1	9	11		120
R TGG	60.05	63.09					55392N02047						
A 001	63.09	66.14	3.05	100.0	J17456	12.0	42	12	0.1	9	11		120
R TGG	63.09	66.14					55392N02047						
A 001	66.14	69.19	3.05	100.0	J17457	11.5	42	20	0.1	9	11		120
R TGG	66.14	69.19					55392N02047						
A 001	69.19	72.24	3.05	100.0	J17458	11.5	22	22	0.1	17	11		120
R TGG	69.19	72.24					55392N02047						
A 001	72.24	75.29	3.05	100.0	J17459	11.0	26	24	0.1	17	25		120
R TGG	72.24	75.29					55392N02047						
A 001	75.29	78.33	3.04	100.0	J17460	6.0	26	22	0.1	17	25		120
R TGG	75.29	78.33					55392N02047						
A 001	78.33	81.08	2.75	996.0	J17461	14.0	28	24					120
R TGG	78.33	81.08					55392N02047						
/ END													

G E O L O G

F O R M A T -- I

E D I T L I S T I N G

ARCHER CATHRO AND ASSOCIATES LTD.

WERNECKE JOINT VENTURE IGOR PROP

FORMAT VERSION : 6B02

DRILLHOLE/TRAVERSE 80CH021 COLLAR ELEVATION 1124.00 AZIMUTH(LEG 1) 90.00 GEOLOGGED BY : WDE +
TOTAL DEPTH/LENGTH 137.77 NORTHING(- IF S) 3590.50 VERTICAL ANGLE -50.00 DATE DY/MON/YR 26/JUL/80
CORE/HOLE DIAMETER B EASTING (- IF W) -158.00 CO-ORD SYSTEM GRD PROJECT NUMBER WJV

K E Y	F L A G	INTERVAL (MT.2) FROM	TO	INT	CORE RECOV -MISS +PC.1	MF OI IR	M DE X	ROCK TYPE	TYPI-MINS TM 1	TM 2	QAL MIN 1	TEX-TURES MAJOR TX	TX	GRAIN -+ M FC	CA X	FRACS DEN I	M	STRUCTURES S ID	T K	AZM	D O P	I P.	B 1	ALT/N HA	ASSEM. HA	+ MINERALIZATION. HA	AI LN TT	OI RN ET
						ROC	DE	P			QAL	TX	TX	SR	SO	SML	%		P		B	.P	B	FL	BA	C1	C3	MU	HA	H:	CP	HA	HW	HOW
					R.Q.D.	U- NIT	EN PV	R OV	COLOR		MIN 2	MINOR		ON RD	H/ PC	TOO PDW	M 2	ID	L G	AZM	O T	L G	D 2										I 2	I 2
/		0.00	19.81	19.81				OVER																										
R		0.00	19.81						A LARGE SLUMP CONTAINING A WIDE VARIETY OF BOULDERS. BOTH LOCAL																										
R		0.00	19.81						AND GLACIAL.																										
/		19.81	24.38	4.57				BRPQ	AB	CB	4P7	BR	CR	18	68	1					P3	V=		P3	SE	6+				15			
L						HB1			9W		6R1			12	CC	1						V=	P3		HS									
R		19.81	24.38						PREDOMINENTLY VERY COARSE FRAGMENTS OF PARTIALLY ALBITIZED ARG.																										
R		19.81	24.38						ALBITIZATION MOST INTENSE ALONG FRACTURES. SIMILAR TO PIKE ROCKS																										
R		19.81	24.38						THE PRESENCE OF SERPENTINE IN THE ROCK IS HIGHLY UNUSUAL. THE																										
R		19.81	24.38						DARK PURPLE ARGILLITES ARE ALSO UNCOMMONLY HARD.																										
/		24.38	28.96	4.58				BRPQ	AB	CB	6R4	BR		17	28	1					P2	P3	D+	P2	SE	8=				35			
L						HB1			9W		5P2			36	CO	1						V)	P2	P2		HS									
R		24.38	54.56						EXCELLENT HB1: HIGHLY VARIED. ROUNDED FRAGMENTS SURROUNDED BY A																										
R		24.38	54.56						MATRIX OF FINER FRAGMENTS AND COARSE CB. SERPENTINE APPEARS TO																										
R		24.38	54.56						BE HIGHLY ALTERED FRAG RATHER THAN MATRIX MATERIAL.																										
/	FLT	28.96	30.78	1.82			X	BRPQ	AB	CB	6R4	BR		17	28	2X	F2		30	P2	P3	D+	P2	SE	8=			L1	35			
L						HB1			9W		5P2			36	CO	X						V)	P2	P2		HS									
/		30.78	32.00	1.22			X	BRPQ	AB	CB	6R4	BR		18	28	1				P2	P3	D+	P2	SE	8=				35			
/		32.00	35.05	3.05				BRPQ	AB	CB	6R4	BR		17	28	1				P2	P3	D+	P2	SE	8=				35			
L						HB1			9W		5P2			36	CO	1						V)	P2	P2		HS									

DRILLHOLE/TRAVERSE --- 80CH021 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		35.05	42.67	7.62			X	BRPQ	AB	CB	6R4	BR		17	28	1		FL				30		P2		P3	D+	P2	SE	8=				35	
R		35.05	42.67						FAINT FOLIATION MOSTLY IN GROUNDMASS.																											
/		42.67	47.85	5.18			X	BRPQ	AB	CB	6R4	BR		17	28	1		FL				45		P2	D1	P2	D+	P2	SE	8=				35	
L						HB1			9W		5P2			36	CO	1										V)	P1	P2		HS					
/		47.85	49.83	1.98			X	BRPQ	AB	CB	4P5	BR		17	28	1								P2		P3	D+	P2	SE	8=				25	
L						HB1			9W		6R1			36	CO	1										V)	P2	P2		HS					
/		49.83	52.55	2.72				BRPQ	AB	CB	6R4	BR		17	28	1								P2		P3	D+	P2	SE	8=				35	
L						HB1			9W		5P2			36	CO	1										V)	P2	P2		HS					
/	FLT	52.55	52.91	.36			X	BRPQ	AB	CB	6R4	BR		17	28	1		F/				70		P2		P3	D+	P2	SE	8=				35	
R		52.55	52.91						SOME GOUGE. ROCKS AROUND THIS INTERVAL STILL CONTAIN HIGHLY																											
R		52.55	52.91						VARIED FRAGMENTS IN A PREDOMINENTLY CB MATRIX. CARBONITIZATION																											
R		52.55	52.91						AND ALBITIZATION ARE THE MOST COMMON ALTERATIONS OF FRAGMENTS.																											
/		52.91	54.56	1.65				BRPQ	AB	CB	6R4	BR		17	28	1								P2		P3	D+	P2	SE	8=				35	
L						HB1			9W		5P2			36	CO	1										V)	P2	P2		HS					
R		53.34	53.64						ANOMALOUS RADIOACTIVITY APPEARS TO BE CENTERED ON A 5CM WIDE																											
R		53.34	53.64						STRONGY ALBITIZED FRAGMENT CONTAINING 10% HE.																											
/		54.56	62.18	7.62				BRPQ	AB	CB	7R4	BR		17	28	2								P2	D=	P3	D1	P2		7=				35	
L						HB1			9WCL		5A2			36	CO	2											P2	P2							
/		62.18	71.02	8.84				PLIT	AB			CR				13		FL				45		P3	>(	V+		34		D=				05	
L									3P							3										V+		P2		HE					
R		62.18	78.64						APPEARS TO BE A LARGE BLOCK OF ALTERED ARGILLITE: WEAK-MODERATE																											
R		62.18	78.64						ALBITIZATION ALONG FRACTURES. SEEMS SLIGHTLY HARDER THAN USUAL																											
R		62.18	78.64						POSSIBLY DUE TO FINELY DISSEMINATED ALBITE. DARK COLOUR APPEARS																											
R		62.18	78.64						TO BE DUE TO FINELY DISSEMINATED HE BUT MAY ALSO BE BI																											
/		71.02	72.09	1.07			X	BRPE	AB	CB	3P3	BR		17	27	3		FL				45		P3	D)	P2	P=	P3		7=				25	
L						HB4			9W		6R3			22	CC	3										<+	P1	P1		HE					
R		71.02	72.09						FOLIATION WEAK.																											
/		72.09	73.46	1.37				PLIT	AB			CR				13		FL				45		P3	>(	V+		34		D=				05	
L									3P							3										V+		P2		HE					
/	FLT	73.46	73.76	.30			X	PLIT	AB			CR				13		F2				30		P3	>(	V+		34		D=				05	

DRILLHOLE/TRAVERSE --- 80CH021 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		73.76	78.64	4.88				PLIT	AB			CR				13		FL		45				P3	>(	V+		34		D=				05	
L									3P							3										V+		P2		HE					
/		78.64	80.01	1.37				BRPQ	AB	CB		BR		17	37	12								P2	8=	P2	D+	P4		7=				25	
L						HB1			9W					23	CO	11										V)	P2	P1		HE					
/	FLT	80.01	80.62	.61			X	BRCL	CL			RP			X	X		F/		30				P8	<=		D=							02	
L						HB3			2G					2	C	X										<=									
/		80.62	83.82	3.20				BRPQ	AB	CB		BR		17	37	12								P2	8=	P2	D+	P4		7=				25	
L						HB1			9W					23	CO	11										V)	P2	P1		HE					
/		83.82	87.05	3.23			X	PLIT	AB			CR				13		FL		45				P3	71	P2	P1	D=		7+				44	
L									3P							3										V+	P1	P3		HE					
/		87.05	89.31	2.26			X	PLIT	HE	PY	4A1	CR		17	17	12		FL		45				P3	>(	D1	D+	D=		D2	D+			15	
L									2A		7A1			5	2	3										<*	D1	P3		HE					
R		87.05	90.98						GRADES LOCALLY INTO BROS.																												
/		89.31	89.73	.42			X	BROS	HX	BA						2		FL		30										P7	D=			05	
L						HB4			2NPY							2		CN		30		D2								H>	D.				
/		89.73	90.98	1.25			X	PLIT	HE	PY	4A1	CR		17	17	12		FL		45				P3	>(	D1	D+	D=		D2	D+			15	
L									2A		7A1			5	2	3										<*	D1	P3		HE					
/		90.98	92.35	1.37			X	PLIT	CL	PY	7A1	CR		17	27	22		FL		45				P2	P2	P2	D1	D)		71	D1			05	
L									5GCP		7G1					1										V+	P1	P2		HE					
R		90.98	92.35						GRADES LOCALLY INTO BRSO																												
/		92.35	97.69	5.34				BRPQ	CB		8T5	BR	FL	17	77	1		FL		45				P2	D+	P4	P3				D-			64	
L						HB2			8T		6R2			22	FC	1											P1	P4							
/		97.69	100.71	3.02			X	BRPQ	HE	AB	7T3	BR		06	26	1								P2		P3	D2	D.		D2	D-			34	
L						HB1			6AMG		6R-			55	CO	1										V)	D1	P3		H>					
R		97.69	100.71						WEAK ERRATIC FOLIATION. MOST FRAGMENTS ARE FROM SURROUNDING ROCK																												
/		100.71	103.48	2.77			X	BRPQ	CB		8T5	BR	FL	17	77	1		FL		45				P2	D+	P4	P3				D+	D+		64	
/		103.48	106.25	2.77				BRPQ	AB	MG	6T2	BR	RP	07	47	2		FL		30		P+		D3	D1	P3		D1	D=					25	
L						HB1			6RPY		6R3			22	FC	11											D1	P1							
R		103.48	107.96						DIRECTLY EQUIVALENT TO SURROUNDING HB2 EXCEPT FOR PERVASIVE AB,																												
R		103.48	107.96						PY,HE AND MG. WOULD PROBABLY BE CALLED HB1 ON SURFACE. PELITIC																												
R		103.48	107.96						MATRIX LARGELY GONE TO AB. ALTERATION CORED BY BRCL.																												
/		106.25	106.68	.43			X	BRCL	CL			RP	BR	06	16	23		CN		60				P8	D1						D1			03	
L						HB3			2G						33	CO	2											D1								

DRILLHOLE/TRAVERSE --- 80CH021 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
-	---	----.--	----.--	----.--	--.--	--	-	----	--	--	---	--	--	--	--	---	-	--	/	---	/	//	-	--	--	--	--	--	--	--	--	--	--	--	--
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		106.68	107.96	1.28				BRPQ	AB	MG	8T2	BR	RP	07	47	2		FL				30		P+		D3	D1	P3		D1	D=		25		
L						HB1			6RPY		6R3			22	FC	11											D1	P1							
/		107.96	117.23	9.27				BRPQ	CB		8T5	BR	FL	17	77	1								P2	7)	P4	P3			D)	D)		54		
L								HB 2	8T		6R2			22	FC	1											P1	P4		MG					
/		117.23	121.62	4.39			X	BRPQ	CB		8T5	BR	FL	17	77	1								P2	7)	P4	P3			D)	D*		54		
L								HB 2	8T		6R2			22	FC	1											P1	P4		MG	7)				
R		117.23	128.63					OVER 50CM INTERVALS UPTO 2% VISIBLE CU. PY HIGHER ON EITHER SIDE																													
/		121.62	128.63	7.01			X	BRPQ	CB		8T5	BR	FL	17	77	12								P2	7)	P4	P3			D)	D)		54		
L								HB 2	8T		6R2			22	FC	1											P1	P4		MG					
/		128.63	137.77	9.14			X	BRPQ	CB		8T5	BR	FL	17	77	12								P2	7)	P4	P3			D)	D)		54		
L								HB 2	8T		6R2			22	FC	1											P1	P4		MG					

A	MIN	0.00	0.00	0.00				PPM U		PPM CU		PPM CO		PPM AG		PPB AU		PPM MO														CPS			
A	LAB	0.00	0.00	0.00				CHEMEX		CHEMEX		CHEMEX		CHEMEX		CHEMEX		CHEMEX														SCNTRX			
A	TYP	0.00	0.00	0.00				1H-COR		1H-COR		1H-COR		1H-COR		1H-COR		1H-COR														IN BAG			
A	001	53.34	53.64	.30	100.0	J17089		203.4		46		10		2.8		42		5														190			
R	TGG	53.34	53.64									69459		55199																					
A	001	112.78	117.23	4.45	100.0	J17090		3.5		114		56		0.1		12		4														125			
R	TGG	112.78	117.23									10164																							
A	001	117.23	121.31	4.08	100.0	J17091		3.0		400		16		0.1		12		4														125			
R	TAG	117.23	121.31									69897		10163																					
A	001	121.31	123.75	2.44	100.0	J17092		4.5		1200		44		0.1		12		4														130			
R	TAG	121.31	123.75									69897		10163																					
A	001	123.75	126.19	2.44	100.0	J17093		1.5		700		36		0.1		6		1														125			
R	TAG	123.75	126.19									69897		10163																					
A	001	126.19	128.63	2.44	100.0	J17094		1.0		500		30		0.1		6		1														130			
R	TAG	126.19	128.63									69897		10163																					
A	001	128.63	132.59	3.96	100.0	J17095		2.0		28		48		0.1		6		1														130			
R	TGG	128.63	132.59									10164																							

/ END

MULTIPLE ACCESS COMPUTER GROUP / INTERNATIONAL GEOSYSTEMS CORPORATION 20/12/80.

G E O L O G

F O R M A T -- I

E D I T L I S T I N G

ARCHER CATHRO AND ASSOCIATES LTD.

WERNECKE JOINT VENTURE IGOR PROP

FORMAT VERSION : 6802

DRILLHOLE/TRAVERSE 80CH022 COLLAR ELEVATION 1279.00 AZIMUTH(LEG 1) 90.00 GEOLOGGED BY : WDE +
TOTAL DEPTH/LENGTH 126.19 NORTHING(- IF S) 3600.00 VERTICAL ANGLE -50.00 DATE DY/MON/YR 24/AUG/80
CORE/HOLE DIAMETER B EASTING (- IF W) -10.00 CO-ORD SYSTEM GRD PROJECT NUMBER WJV

K	FLAG	FROM	TO	INT	CORE RECOV -MISS +PC.I	MF OI DE IR	M ROCK TYPE	TYPI-MINS TM 1	TM 2	GAL MIN 1	TEX-TURES MAJOR TX	MINOR TX	GRAIN -+ FC	M CA X	FRACS DEN I	M	..STRUCTURES... ID	T K	AZM	T D O P	I P.	B D 1	ALT/N HA	ASSEM.+ HA	HA	HA	MINERALIZATION. HA	HA	HA	HA	HA	AI LN TT BM	OI RN ET ZONE
						ROC DE P				GAL	TX	TX	SR	SO	SML	%		P		B	.P	B	FL	BA	C1	C3	MU	HA	H:	CP		HA	HW	HOW
					R.Q.D.	U- EN R	COLOR			MIN	MINOR		ON	H/	TOO	M	ID	L	AZM	O	L	D											1	1
						NIT PV OV				2			RD	PC	PDW	2		G		T	G	2											2	2
/		0.00	5.79	5.79		OVER									I								P2	7)	P4	P3			D)	D)		54	
/		5.79	7.32	1.53			BRCL	CL	HE		RP				3								P5	82					P1	P1		LI	13
L						HB3		2GPY							22									<=	P1					HE				
R		5.79	7.32					WEAKLY RADIOACTIVE BUT NO OBVIOUS SOURSE, MAY BE SUPERGENE U IN																												
R		5.79	7.32					FRACTURES																										
/		7.32	9.30	1.98			BROS	HX	PY		RP				4								P2	82					P3	P2		LI	24
L						HB4		2GCL							32								8=	<=	P1				H>				
R		7.32	12.19					CL APPEARS TO BE AFTER HE WHICH IS AFTER MG. PY ALTERS TO LI.																												
R		7.32	12.19					HE USUALLY SUBHEDRAL TO EUHEDRAL.																												
/		9.30	12.19	2.89		X	BROS	HX	PY		RP				4								D=	82					P5	D=		LI	44
L						HB4		8TCB							32								82	<=	P1				H>				
R	TGG	10.67	12.19					10281																										
/		12.19	15.24	3.05			BRPE	AB	HE	7R2	RP	8R	06	17	3		CN		20				D=	P3	P2	P4			D1	D=			74
L						HB1		8TCB					44	CO	31										P1				H>				
R		12.19	20.42					FRAGMENTS INTENSELY ALBITIZED AND CARBONITIZED. ALMOST OBSCURED																												
R		12.19	20.42					GRADES TOWARD HB2 LOCALLY DEPENDING UPON DEGREE OF ALBITIZATION.																												
R		12.19	20.42					HE FINE GRAINED SUBEUHEDRAL.																												
/		15.24	18.29	3.05		X	BRPE	BA	HE	7R2	RP	8R	06	17	24		CN		20		D=	0=	P3	P2	P1			D1	D)			84
L						HB1		8TCB					44	CO	31										81	<=	D=	P3	H>				

DRILLHOLE/TRAVERSE --- 80CH022 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	X	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		18.29	20.12	1.83			X	BRPE	BA	HE	7R2	RP	BR	06	17	23		CN			20		00	D=	P3	P2	00		D1	7=			64	
L						HB1			8TCB					44	CO	21								83		P1	P2			H>					
R		18.29	20.42						HE MUCH COARSER GRAINED.																											
/		20.12	20.27	.15			X	BRPE	AB	HE	7R2	RP	BR	06	17	12		CN			20		00	00	P3	00	00		P3	D>			44	
L						HB1			8TCP					44	CO	11								83	00	P3	00			HE	D=				
/		20.27	20.42	.15			X	BRPE	BA	HE	7R2	RP	BR	06	17	23		CN			20		00	D=	P3	P2	00		D1	7=			64	
L						HB1			8TCB					44	CO	21								83		P1	P2			H>					
/		20.42	24.99	4.57				8RPE	AB	CB	9A3	RP	BR	06	37	12								D=		P4	P1	P2		D+	D+			85	
L						HB1			8TMU					22	FC	21										P3	P3			HE					
R		20.42	24.99						THIS INTERVAL FAILS BETWEEN HB1 AND HB2 APPEARS TO BE HB2 WHICH																											
R		20.42	24.99						IS NOW UNDERGOING ALBITIZATION.																											
/		24.99	28.35	3.36				BROS	AB	HX	7R3	RP				2									D2	D)	P4		D2	D=			45	
L						HB4			7RCB							21										D2	D1			H>					
R		24.99	32.77						HX TENDS TO AGGREGATE INTO BANDS CONTAINING UPTO 50% HX.																											
/		28.35	30.63	2.28			X	BROS	AB	HX	7R3	RP				2									D2	D)	P4		D1	D2			55	
L						HB4			7RCB							21										D2	D1			H>					
/		30.63	31.30	.67			X	BROS	AB	HX	7R3	RP				2								D2	P3	D)	D1		D2	D=			34	
L						HB4			7RCB							21										P3	D1			H>					
/		31.30	32.77	1.47				BROS	AB	HX	7R3	RP				2									D2	D)	P4		D2	D=			45	
L						HB4			7RCB							21										D2	D1			H>					
R		32.77	44.20						HETEROLITHIC BRECCIA WITH BANDS OF BROS. HX CONTENT ERRATIC.																											
/		32.77	34.14	1.37			X	BRPC	CB	HX	7A4	BR	RP	06	47	36							P1	P=	P3	P2	P1		P1	D+		LI	54	
L						HB1			3GPY	7T2				42	CC	42									<)	P1	P3			H>	D.				
/		34.14	35.81	1.67				BRPC	CB	HX	7A4	BR	RP	06	47	24							P1	P=	P3	P2	P1		P1	D+		LI	54	
L						HB1			3GPY	7T2				42	CC	32									<)	P1	P3			H>	D.				
/		35.81	37.34	1.53			X	BRPC	CB	HX	7A4	BR	RP	06	47	24							P1	P=	P3	P2	P1		P1	D+		LI	54	
L						HB1			3GPY	7T2				42	CC	32									<)	P1	P3			H=	D)				
R		35.81	37.34						CP OCCURS IN CORES OF HX AND AS LARGE BLEB SURROUNDED BY CL.																											
/		37.34	41.91	4.57				BRPC	CB	HX	7A4	BR	RP	06	47	24							P1	P=	P3	P2	P1		P1	D+		LI	54	
L						HB1			3GPY	7T2				42	CC	32									<)	P1	P3			H>	D.				
R		37.34	44.20						PY QUITE SILVERY OVER THIS INTERVAL AND SURROUNDING RX																											
/		41.91	42.21	.30			X	BRPC	CB	HX	7A4	BR	RP	06	47	24							P1	P=	P3	P2	P1		D2	D+		LI	54	
L						HB1			3GPY	7T2				42	CC	32									<)	P1	P3			H<	D+				

DRILLHOLE/TRAVERSE --- 80CH022 --- (CONTINUED)

K	FLG	F.R.O.M	: T..O	I.N.T	RECOV	MF	X	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U		DE	PV	COLOR	QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
/		42.21	44.20	1.99				BRPC	CB	HX	7A4	BR	RP	06	47	24								P1	P=	P3	P2	P1		P1	D+		LI	54	
L						HB1			3GPY		7T2			42	CC	32										<)	P1	P3		H>	D.				
/		44.20	56.85	12.65				BRPC	CB	MG	9A4	BR	FL	07	17	2		FL			45			P1	D=	P3	P2			D=	D)			74	
L						HB2			8T		7T1			21	FC	2										V)	P1	P4		MG	D.				
R		44.20	70.41																																
									UPPER CONTACT SOMEWHAT GRADATIONAL AS HB1 PHASE BRECCIATION IS																										
R		44.20	70.41																																
									REBRECCIATES EARLIER HB2 PHASE. THE BRECCIA HAS UNDERGONE																										
R		44.20	70.41																																
									PERVASIVE CARBONATIZATION. MG HAS GROWN IN BOTH THE FRAGMENTS																										
R		44.20	70.41																																
									AND THE MATRIX. MG DISTRIBUTION ERRATIC.																										
R		44.20	56.85																																
									BROS BANDS AVERAGE 15CM ACROSS. SOME APPEAR TO BE DYKES WHILE																										
R		44.20	56.85																																
									OTHERS LOOK TO BE LITTLE MORE THAN IRON RICH PARTS OF THE ROCK.																										
R		44.20	56.85																																
									HX CRYSTALS USUALLY EUHEDRAL CHANGES FROM HE TO MG FREQUENTLY.																										
R		44.20	56.85																																
									THOSE WHICH APPEAR TO BE DYKES ARE NOT FOLIATED BUT DO PARALLEL																										
R		44.20	56.85																																
									FOLIATION.																										
/		56.85	70.41	13.56				BRPC	CB	MG	9A4	BR	FL	07	17	2		FL			45			P1	D=	P3	P2			D=	D)			74	
L						HB2			8T		7T1			21	FC	2										V)	P1	P4		MG	D.				
/		70.41	72.54	2.13				BRCP	CB	PY		BR	RP			2								P1		P6				D)	6+			74	
L						HB2			8T			FL				2												P4		HE	6-				
R		70.41	72.54																																
									INTENSE, PERVASIVE CARBONITIZATION HAS DESTROYED MOST OF THE																										
R		70.41	72.54																																
									BRECCVA AND FOLIATION TEXTURES.																										
/		72.54	73.15	.61				BRPC	CB	PY		BR	FL	07	27	2		FL			60			P2		P4	P1			D-	6+			84	
L						HB2			8T			RP		22	FC	2											P3	P4		HE	6.				
R		72.54	126.19																																
									SOME QUARTZITE FRAGMENTS WHICH TEND TO BE COMPACT ARGILLITE																										
R		72.54	126.19																																
									FLATTENS OUT. SULPHIDES AND OXIDES OCCUR AS MINUTE CRYSTALS																										
R		72.54	126.19																																
									IN MICRO FRACTURES AND RIMMING FRAGMENTS.																										
/		73.15	76.20	3.05			X	BRPC	CB	PY		BR	FL	07	27	35		FL			60			P2		P4	P1			D-	6+			84	
L						HB2			8T			RP		22	FC	41											P3	P4		HE	6.				
/		76.20	79.25	3.05				BRPC	CB	PY		BR	FL	07	27	2		FL			60			P2		P4	P1			D-	6+			84	
L						HB2			8T			RP		22	FC	2											P3	P4		HE	6.				
/		79.25	81.08	1.83			X	BRPC	CB	PY		BR	FL	07	27	24		FL			60			P2		P4	P1			D-	6+			84	
L						HB2			8T			RP		22	FC	3											P3	P4		HE	6.				

DRILLHOLE/TRAVERSE --- 80CH022 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	X	ROCK	TM	TM	QM1	TX	TX	-+	XM	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
L						HB2			8T			RP		22	FC	3											P3	P4		HE	6.				
/	FLT	81.08	81.38	.30			X	BRPC	CB	PY		BR	FL	07	27	X		F/		45		P2		P4	P1				D-	6+		84		
/		81.38	82.30	.92			X	BRPC	CB	PY		BR	FL	07	27	24		FL		60		P2		P4	P1				D-	6+		84		
L						HB2			8T			RP		22	FC	3											P3	P4		HE	6.				
L						HB2			8T			RP		22	FC	3											P3	P4		HE	6.				
/	FLT	82.30	82.60	.30			X	BRPC	CB	PY		BR	FL	07	27	X		F/		45		P2		P4	P1				D-	6+		84		
/		82.60	86.26	3.66			X	BRPC	CB	PY		BR	FL	07	27	24		FL		60		P2		P4	P1				D-	6+		84		
L						HB2			8T			RP		22	FC	3											P3	P4		HE	6.				
/		86.26	87.48	1.22			X	BRPC	CB	PY		BR	FL	07	27	12		FL		60		P2		P4	P1				D-	6=		84		
L						HB2			8T			RP		22	FC	2											P3	P4		HE	6-				
R		86.26	126.19																																
/		87.48	87.78	.30			X	BRPC	CB	PY		BR	FL	07	27	2		FL		60		P2		P4	P1				D-	6=		84		
L						HB2			8T			RP		22	FC	2								V1			P3	P4		HE	6+				
/		87.78	97.54	9.76			X	BRPC	CB	PY		BR	FL	07	27	12		FL		60		P2		P4	P1				D-	6=		84		
L						HB2			8T			RP		22	FC	2											P3	P4		HE	6-				
/		97.54	97.93	.39			X	BRPC	CB	PY		BR	FL	07	27	2		FL		60		P2		P4	P1				D-	61		84		
L						HB2			8T			RP		22	FC	2											P3	P4		HE	6+				
/		97.93	110.03	12.10			X	BRPC	CB	PY		BR	FL	07	27	12		FL		60		P2		P4	P1				D-	6=		84		
L						HB2			8T			RP		22	FC	2											P3	P4		HE	6-				
/		110.03	112.78	2.75			X	BRPC	CB	PY		BR	FL	07	27	2		FL		60		P2		P4	P1				D-	62		84		
L						HB2			8T			RP		22	FC	2											P3	P4		HE	D+				
R		110.03	112.78																																
R		110.03	112.78																																
/		112.78	117.65	4.87			X	BRPC	CB	PY		BR	FL	07	27	12		FL		60		P2		P4	P1				D-	6=		84		
L						HB2			8T			RP		22	FC	2											P3	P4		HE	6-				
/		117.65	118.26	.61			X	BRPC	CB	PY		BR	FL	07	27	24		FL		60		P2		V3	P1				D-	6+		23		
L						HB2			2G			RP		22	FC	3											P3	P4		HE	6.				
R		117.65	118.26																																
R		117.65	118.26																																
/		118.26	120.70	2.44			X	BRPC	CB	PY		BR	FL	07	27	12		FL		60		P2		P4	P1				D-	6=		84		
L						HB2			8T			RP		22	FC	2											P3	P4		HE	6-				
/		120.70	121.01	.31			X	BRPC	CB	PY		BR	FL	07	27	1		FL		60		P2		P4	P1				D-	D2		84		
L						HB2			8T			RP		22	FC	1											P3	P4		HE	D+				

CHALCOPYRITE OCCURS AS COARSE BLEBS. FINE PYRITE IN MATRIX AND ON FRACTURE

CHLORITE CONTAINS FRAGMENT OF CARBONATE ALTERED AGRILLITE. PROBABLY REPRESENTS A WELL HEALED FAULT.

DRILLHOLE/TRAVERSE --- 80CH022 --- (CONTINUED)

K	FLG	F.R.O.M	T..O	I.N.T	RECOV	MF	%	ROCK	TM	TM	QM1	TX	TX	-+	%M	FRX	1	ID	S	AZM	T	DP	B	QZ	CL	CB	C2	AB	XX	HX	PY	UR	YY	BM	ZI
					R.Q.D	R.U	DE	PV	COLOR		QM2	TX	TX	SR	SO	SML	2	ID	P	AZM	B	PL	2	FL	BA	C1	C3	MU	HA	H:	CP		HA	12	12
R		120.70	121.01						CP MIXED WITH PY IN SULPHIDE RICH BANDS PARALLELING FOLIATION.																												
/		121.01	121.62	.61			X	BRPC	CB	PY		BR	FL	07	27	23		FL			60		P2		V2	P1			D-	6+			23		
L						HB2			2G			RP		22	FC	2										P3	P4			HE	6.					
R		121.01	121.62						SAME AS ABOVE.																											
/		121.62	123.14	1.52			X	BRPC	CB	PY		BR	FL	07	27	12		FL			60		P2		P4	P1			D-	6=			84		
L						HB2			8T			RP		22	FC	2										P3	P4			HE	6-					
/		123.14	126.19	3.05			X	BRPC	CB	PY		BR	FL	07	27	3		FL			60		P2		P4	P1			D-	6+			84		
L						HB2			8T			RP		22	FC	13										P3	P4			HE	6.					
A	MIN	0.00	0.00	0.00				PPM U	PPM CU		PPM CO		PPM AG		PPB AU		PPM MO													CPS						
A	LAB	0.00	0.00	0.00				CHEMEX	CHEMEX		CHEMEX		CHEMEX		CHEMEX		CHEMEX													SCNTRX						
A	TYP	0.00	0.00	0.00				IH-COR	IH-COR		IH-COR		IH-COR		IH-COR		IH-COR													IN BAG						
A	001	5.79	7.32	1.53	70.0	J17821		82.0	1750		720		1.0		64		78													170						
R	TGG	5.79	7.32						10281																											
A	001	7.32	9.30	1.98	46.0	J17822		29.0	1250		515		1.0		64		78													140						
R	TGG	7.32	9.30						10281																											
A	001	9.30	10.67	1.37	100.0	J17823		6.0	245		300		1.0		64		78													120						
R	TGG	9.30	10.67						10281																											
A	001	10.67	12.19	1.52	100.0	J17824		8.5	154		375		1.0		64		78													130						
A	001	24.99	28.35	3.36	100.0	J17825		32.0	162		108		0.1		28		17													120						
R	TGG	24.99	28.35						10281																											
A	001	28.35	30.33	1.98	100.0	J17826		8.5	48		300		0.1		28		17													120						
R	TGG	28.35	30.33						10281																											
A	001	30.33	32.77	2.44	100.0	J17827		5.5	26		84		0.1		28		17													120						
R	TGG	30.33	32.77						10281																											
A	001	32.77	35.81	3.04	75.0	J17828		8.5	500		84		0.1		28		17													120						
R	TAG	32.77	35.81						69959	10282																										
A	001	35.81	37.34	1.53	10.0	017829		8.5	1500		66		0.1		34		44													120						
R	TGG	35.81	37.34						10281																											

DRILLHOLE/TRAVERSE --- 80CH022 --- (CONTINUED)

							PPM U	PPM CU	PPM CO	PPM AG	PPB AU	PPM MO	CPS
A MIN	0.00	0.00	0.00										
A LAB	0.00	0.00	0.00				CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	CHEMEX	SCNTRX
A TYP	0.00	0.00	0.00				1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	1H-COR	IN BAG
A 001	37.34	39.62	2.28	100.0	J17830		9.0	455	76	0.1	34	44	120
R TGG	37.34	39.62						10281					
A 001	39.62	41.15	1.53	100.0	J17831		7.5	340	72	0.1	34	44	120
R TGG	39.62	41.15						10281					
A 001	41.15	42.67	1.52	100.0	J17832		8.5	3450	114	0.1	34	44	120
R TGG	41.15	42.67						10281					
A 001	42.67	45.72	3.05	50.0	J17833		1.5	198	94	0.1	3	3	120
R TGG	42.67	45.72						10281					
A 001	45.72	48.77	3.05	100.0	J17834		6.5	295	68	0.1	3	3	120
R TGG	45.72	48.77						10281					
A 001	54.56	56.39	1.83	100.0	J17835		11.5	710	160	0.1	3	3	120
R TGG	54.56	56.39						10281					
A 001	83.82	86.87	3.05	100.0	J17836		1.5	495	76	0.4	30	20	120
R TGG	83.82	86.87						10281					
A 001	86.87	88.39	1.52	100.0	J17837		1.5	400	76	0.4	30	20	120
R TAG	86.87	88.39						69959	10282				
A 001	88.39	91.44	3.05	100.0	J17838		1.5	102	52	0.4	30	20	120
R TGG	88.39	91.44						10281					
A 001	95.40	98.45	3.05	100.0	J17839		1.0	215	86	0.4	30	20	120
R TGG	95.40	98.45						10281					
A 001	110.03	112.78	2.75	100.0	J17840		4.0	525	188	0.1	9	7	120
R TGG	110.03	112.78						10281					
A 001	117.65	121.01	3.36	100.0	J17841		4.5	325	84	0.1	46	26	120
R TGG	117.65	121.01						10281					
/ END													

IGC GRAFLOG LEGEND A

GEOFORM COLUMN	ENTRY / VALUE	DESCRIPTION	SYMBOL CODE	GRAFLOG
/: 44-44	0	FRACTURING LOW	48	0
	1		49	1
	2		50	2
	3	FRACTURING MODERATE	51	3
	4		52	4
	5	FRACTURING HIGH	53	5
	6		54	6
	7		55	7
	8	FRACTURING EXTREME	56	8
	9		57	9
	X		88	X
/: 78-78	1	MOHR'S HARDNESS	49	1
	2		50	2
	3		51	3
	4		52	4
	5		53	5
	6		54	6
	7		55	7
L: 23-23	0	SURFACE UNIT NO.	48	0
	1		49	1
	2		50	2
	3		51	3
	4		52	4
/: 24-27	OVER	OVERBURDEN	111	
	BRSU	SULPHIDE BRECCIA	204	^
	BRSO	SULPHIDE > OXIDE BRECCIA	206	^
	BROS	OXIDE > SULPHIDE BRECCIA	206	^
	BROX	OXIDE BRECCIA	207	v
	BRBA	BARITE BRECCIA	203	#
	BRCB	CARBONATE BRECCIA	211	=
	BRCL	CHLORITE BRECCIA	201	x
	BRMS	METASEDIMENT BRECCIA	211	=
	BRQZ	QUARTZITE BRECCIA	211	=
	BRPE	PELITE BRECCIA	211	=
	BRQC	QUARTZITE > CARBONATE BRECCIA	211	=
	BRCQ	CARBONATE > QUARTZITE BRECCIA	211	=
	BRPQ	PELITE > QUARTZITE BRECCIA	211	=
	BRQP	QUARTZITE > PELITE BRECCIA	211	=
	BRPC	PELITE > CARBONATE BRECCIA	211	=
	BRCP	CARBONATE > PELITE BRECCIA	211	=
	PLIT	PELITE	200	-
/: 58-58	/.-(	< 8.2 QUARTZ	47	/
	*	8.2 TO < 2	42	*
	)		41	)
	+	2 TO < 7	43	+
	=		61	=
	1	7 TO < 15	49	1
	2	15 TO < 25	50	2
	3	25 TO < 35	51	3
	4	35 TO < 45	52	4
	5	45 TO < 55	53	5
	6	55 TO < 65	54	6
	7	65 TO < 75	55	7
	8	75 TO < 85	56	8
	9	85 TO < 95	57	9
	X	> 95	88	X
L: 66-66	/.-(	< 8.2 MUSCOVITE	47	/
	*	8.2 TO < 2	42	*
	)		41	)
	+	2 TO < 7	43	+
	=		61	=
	1	7 TO < 15	49	1
	2	15 TO < 25	50	2
	3	25 TO < 35	51	3
	4	35 TO < 45	52	4
	5	45 TO < 55	53	5
	6	55 TO < 65	54	6
	7	65 TO < 75	55	7
	8	75 TO < 85	56	8
	9	85 TO < 95	57	9
	X	> 95	88	X
/: 62-62	/.-(	< 8.2 CARBONATE	47	/
	*	8.2 TO < 2	42	*
	)		41	)
	+	2 TO < 7	43	+
	=		61	=
	1	7 TO < 15	49	1
	2	15 TO < 25	50	2
	3	25 TO < 35	51	3
	4	35 TO < 45	52	4
	5	45 TO < 55	53	5
	6	55 TO < 65	54	6
	7	65 TO < 75	55	7
	8	75 TO < 85	56	8
	9	85 TO < 95	57	9
	X	> 95	88	X
L: 68-68	/.-(	< 8.2 BARITE	47	/
	*	8.2 TO < 2	42	*
	)		41	)
	+	2 TO < 7	43	+
	=		61	=
	1	7 TO < 15	49	1
	2	15 TO < 25	50	2
	3	25 TO < 35	51	3
	4	35 TO < 45	52	4
	5	45 TO < 55	53	5
	6	55 TO < 65	54	6
	7	65 TO < 75	55	7
	8	75 TO < 85	56	8
	9	85 TO < 95	57	9
	X	> 95	88	X
/: 66-66	/.-(	< 8.2 ALBITE	47	/
	*	8.2 TO < 2	42	*
	)		41	)
	+	2 TO < 7	43	+
	=		61	=
	1	7 TO < 15	49	1
	2	15 TO < 25	50	2
	3	25 TO < 35	51	3
	4	35 TO < 45	52	4
	5	45 TO < 55	53	5
	6	55 TO < 65	54	6
	7	65 TO < 75	55	7
	8	75 TO < 85	56	8
	9	85 TO < 95	57	9
	X	> 95	88	X

To accompany report dated Dec., 1980

IGC GRAFLOG LEGEND B

GEOFORM COLUMN	ENTRY / VALUE	DESCRIPTION	SYMBOL CODE	GRAFLOG
/: 77-77	0	BLEACHING 0 = FRESH	48	0
	1		49	1
	2		50	2
	3		51	3
	4		52	4
	5		53	5
	6		54	6
	7		55	7
	8		56	8
	9	BLEACHING 9 = TOTAL	57	9
/: 42-42	0	MAXIMUM FRAGMENT SIZE	48	0
	1		49	1
	2		50	2
	3		51	3
	4		52	4
	5		53	5
	6		54	6
	7		55	7
	8		56	8
	9		57	9
	X		88	X
L: 23-23	0	SURFACE UNIT NO.	48	0
	1		49	1
	2		50	2
	3		51	3
	4		52	4
/: 24-27	OVER	OVERBURDEN	111	
	BRSU	SULPHIDE BRECCIA	284	^ ^
	BRSO	SULPHIDE > OXIDE BRECCIA	286	^ ^
	BROS	OXIDE > SULPHIDE BRECCIA	286	^ ^
	BROX	OXIDE BRECCIA	287	V V
	BRBA	BARITE BRECCIA	283	+ +
	BRCB	CARBONATE BRECCIA	211	= =
	BRCL	CHLORITE BRECCIA	281	* *
	BRMS	METASEDIMENT BRECCIA	211	= =
	BRQZ	QUARTZITE BRECCIA	211	= =
	BRPE	PELITE BRECCIA	211	= =
	BRQC	QUARTZITE > CARBONATE BRECCIA	211	= =
	BRCQ	CARBONATE > QUARTZITE BRECCIA	211	= =
	BRPQ	PELITE > QUARTZITE BRECCIA	211	= =
	BRQP	QUARTZITE > PELITE BRECCIA	211	= =
	BRPC	PELITE > CARBONATE BRECCIA	211	= =
	BRCP	CARBONATE > PELITE BRECCIA	211	= =
	PLIT	PELITE	289	- -
/: 68-69	/.-(	< 0.2 CHLORITE	47	/
	*	0.2 TO < 2	42	*
	)		41	)
	+	2 TO < 7	43	+
	=		61	=
	-	7 TO < 15	49	-
	2	15 TO < 25	50	2
	3	25 TO < 35	51	3
	4	35 TO < 45	52	4
	5	45 TO < 55	53	5
	6	55 TO < 65	54	6
	7	65 TO < 75	55	7
	8	75 TO < 85	56	8
	9	85 TO < 95	57	9
	X	> 95	88	X
/: 72-72	/.-(	< 0.2 PYRITE	47	/
	*	0.2 TO < 2	42	*
	)		41	)
	+	2 TO < 7	43	+
	=		61	=
	-	7 TO < 15	49	-
	2	15 TO < 25	50	2
	3	25 TO < 35	51	3
	4	35 TO < 45	52	4
	5	45 TO < 55	53	5
	6	55 TO < 65	54	6
	7	65 TO < 75	55	7
	8	75 TO < 85	56	8
	9	85 TO < 95	57	9
	X	> 95	88	X
/: 78-78	/.-(	< 0.2 HEMATITE + MAGNETITE	47	/
	*	0.2 TO < 2	42	*
	)		41	)
	+	2 TO < 7	43	+
	=		61	=
	-	7 TO < 15	49	-
	2	15 TO < 25	50	2
	3	25 TO < 35	51	3
	4	35 TO < 45	52	4
	5	45 TO < 55	53	5
	6	55 TO < 65	54	6
	7	65 TO < 75	55	7
	8	75 TO < 85	56	8
	9	85 TO < 95	57	9
	X	> 95	88	X
L: 69-78	HE	HEMATITE ALONE	72	H
	H>	HEMATITE > MAGNETITE	62	H
	H=	HEMATITE = MAGNETITE	61	H
	H<	HEMATITE < MAGNETITE	68	H
	MG	MAGNETITE ALONE	77	M
/: 82-82	/.-(	< 0.2 CARBONATE	47	/
	*	0.2 TO < 2	42	*
	)		41	)
	+	2 TO < 7	43	+
	=		61	=
	-	7 TO < 15	49	-
	2	15 TO < 25	50	2
	3	25 TO < 35	51	3
	4	35 TO < 45	52	4
	5	45 TO < 55	53	5
	6	55 TO < 65	54	6
	7	65 TO < 75	55	7
	8	75 TO < 85	56	8
	9	85 TO < 95	57	9
	X	> 95	88	X

To accompany report dated Dec., 1980

Hs
Hb
Hs
Hb
Hs
Hs
Hs

4000 N 3900 N 3800 N 3700 N 3600 N 3500 N 3400 N 3300 N 3200 N 3100 N 3000 N 2900 N 2800 N

400 E 300 E 200 E 100 E 00 100 W 200 W 300 W

Boris Creek

Igor Creek

Down? Up?

Down Up

Up Down

Up Down

Zone A Zone B Zone C Zone D Zone E

Baseline

Glacial Till

Fine grained dyke

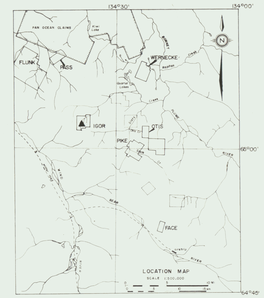
Fine grained dyke

1Cd

1Cd

80-1004 80-1005 80-1006 80-1007 80-1008 79-1003 79-1004 79-1005 80-1 08 80-1 09 80-1 10 80-1 11 80-1 080 80-2 009 80-2 078 80-2 079 80-2 098 80-2 099 80-2 100 80-2 107 80-2 108 80-2 109 80-2 110 80-2 111 80-2 112 79-1 001 79-1 002 80-1 093

1050 1100 1150 1200 1250 1300 1350 1400 1450



LEGEND

GEOLOGY

PALEOZOIC

1Cd — Lower Cambrian Dolomite: red-brown weathering siliceous dolomite

HELIKIAN

Iron-Rich Breccia (HB4): high but variable concentrations of euhedral to massive magnetite, hematite with associated barite, pyrite, chalcopyrite & carbonates, both in matrix & replacing breccia fragments

Chloritic Breccia (HB3): dark green chloritic matrix & fragments often hematitic; associated with HB4 & fault zones

Red-Brown Breccia (HB2): heterolithic breccia with carbonate, chlorite & hematite matrix containing altered, subround lithic fragments. Pink to red-brown to grey to light green fragments. Breccia varies from matrix to fragment supported. Rarely foliated

Light Green Breccia (HB1): strongly foliated, silvery-grey to red-brown weathering breccia consisting of light green lithic phyllites, white to pink quartzite & tan limy lithic fragments in a tan to pink carbonate matrix. Breccia is always fragment supported. Weathers recessively compared to HB2

HELIKIAN, APHEBIAN ?

Quinet Group (Hq): grey to black shale, slate & phyllite interbedded with quartzites & siltstones exhibiting turbidite structures

Altered Quinet Group (Hsa): bleached, hematized & carbonatized equivalents of Hq rocks, commonly pale green weathering grey siltstones and white-pink quartzites, occasionally limy

SYMBOLS

geological contacts: observed, approximate, inferred

thrust fault

high angle faults, normal & reverse

outcrop

bedding attitude

fracture attitude

1979 or 1980 diamond drill holes

FIGURE WJV 80-12

ARCHER, CATHRO & ASSOCIATES LTD

GEOLOGY

IGOR PROPERTY (EAST SIDE)

WERNECKE JOINT VENTURE

SCALE 1:1000

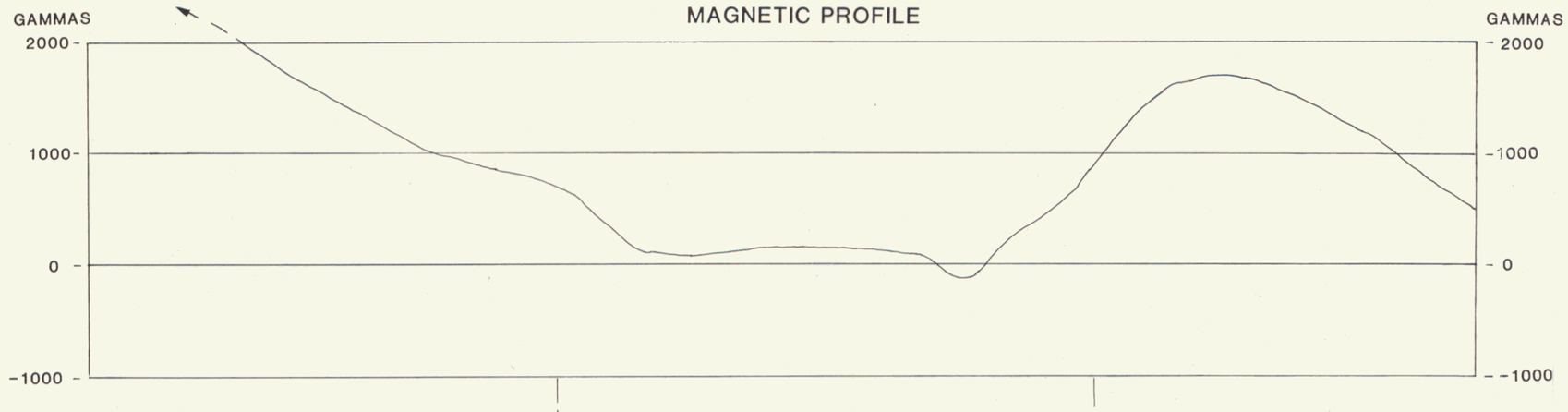
60 40 20 0 20 40 60 80 100

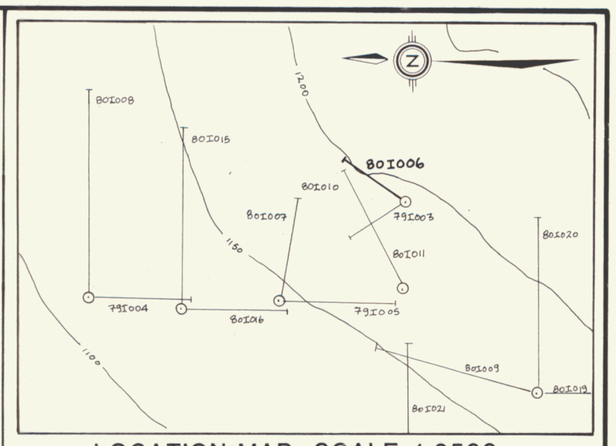
metres

JAN 2 3 1981

In accompany report dated

MAGNETIC PROFILE





LOCATION MAP SCALE 1:2500

50 25 0 50 100
METRES

LEGEND

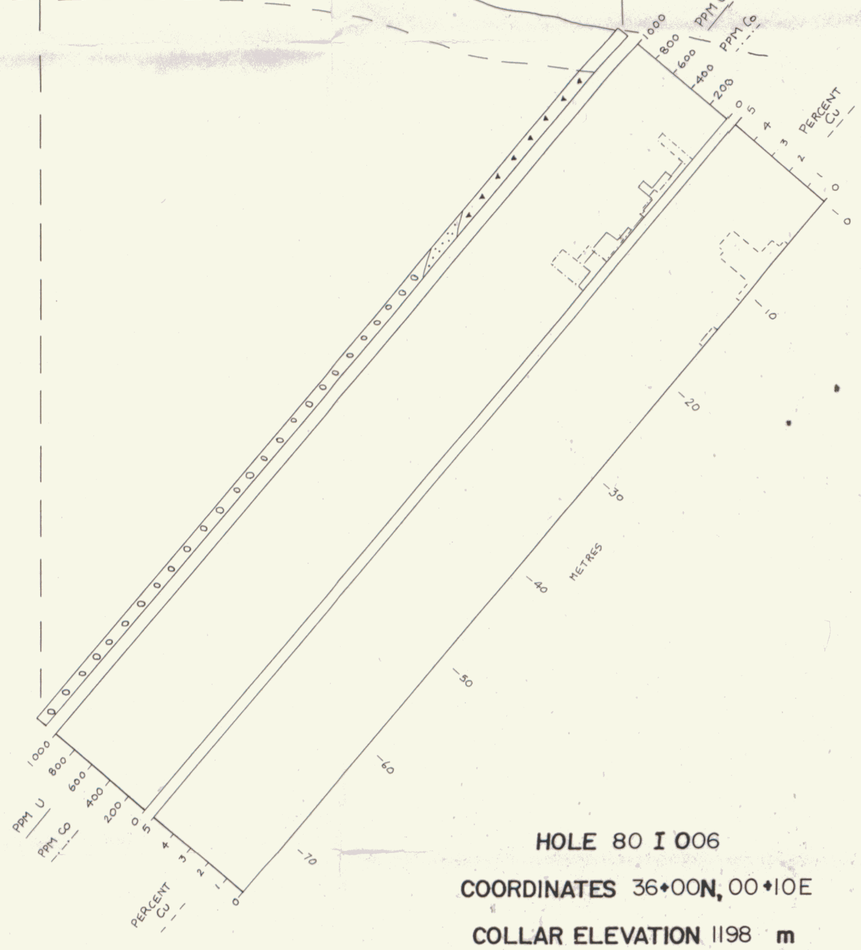
HELIKIAN

- Iron-Rich Breccia (HB4): high but variable concentrations of euhedral to massive magnetite-hematite with associated barite, pyrite, chalcopyrite & carbonates, both in matrix & replacing breccia fragments
- Chloritic Breccia (HB3): dark green chloritic matrix & fragments often hematitic, associated with HB4 & fault zones
- Red-Brown Breccia (HB1): heterolithic breccia with carbonate, chlorite & hematite matrix containing altered, subround Hs fragments. Pink to red-brown > grey to light green fragments. Breccia varies from matrix to fragment supported. Poorly foliated
- Light Green Breccia (HB2): strongly foliated, silvery-grey to red-brown weathering breccia consisting of light green Hs phyllites, white to pink quartzite & tan limy Hs phyllite fragments in a tan to pink carbonate matrix. Breccia is always fragment supported. Weathers recessively compared to HB1

HELIKIAN, APHEBIAN?

- Quartet Group (Hs): grey to black shale, slate & phyllite interbedded with quartzites & siltstones exhibiting turbidite structures
- Altered Quartet Group (Hsa): bleached, hematized & carbonatized equivalent of Hs, pale green phyllites, brown weathering grey siltstones and white-pink quartzites, occasionally limy

- fault
- ppm U
- ppm Cu
- ppm Co



SECTION FACING EAST

HOLE 80 I 006

COORDINATES 36+00N, 00+10E

COLLAR ELEVATION 1198 m

AZIMUTH 035 **DIP** -50

DEPTH 75.8 (250 ')

090756

Association of Professional Engineers of the Yukon Territory
A. R. ARCHER
GEOLOGICAL
ENGINEER

FIGURE WJV 80-127

ARCHER, CATHRO & ASSOCIATES LTD

SECTION HOLE 80I006

IGOR PROPERTY

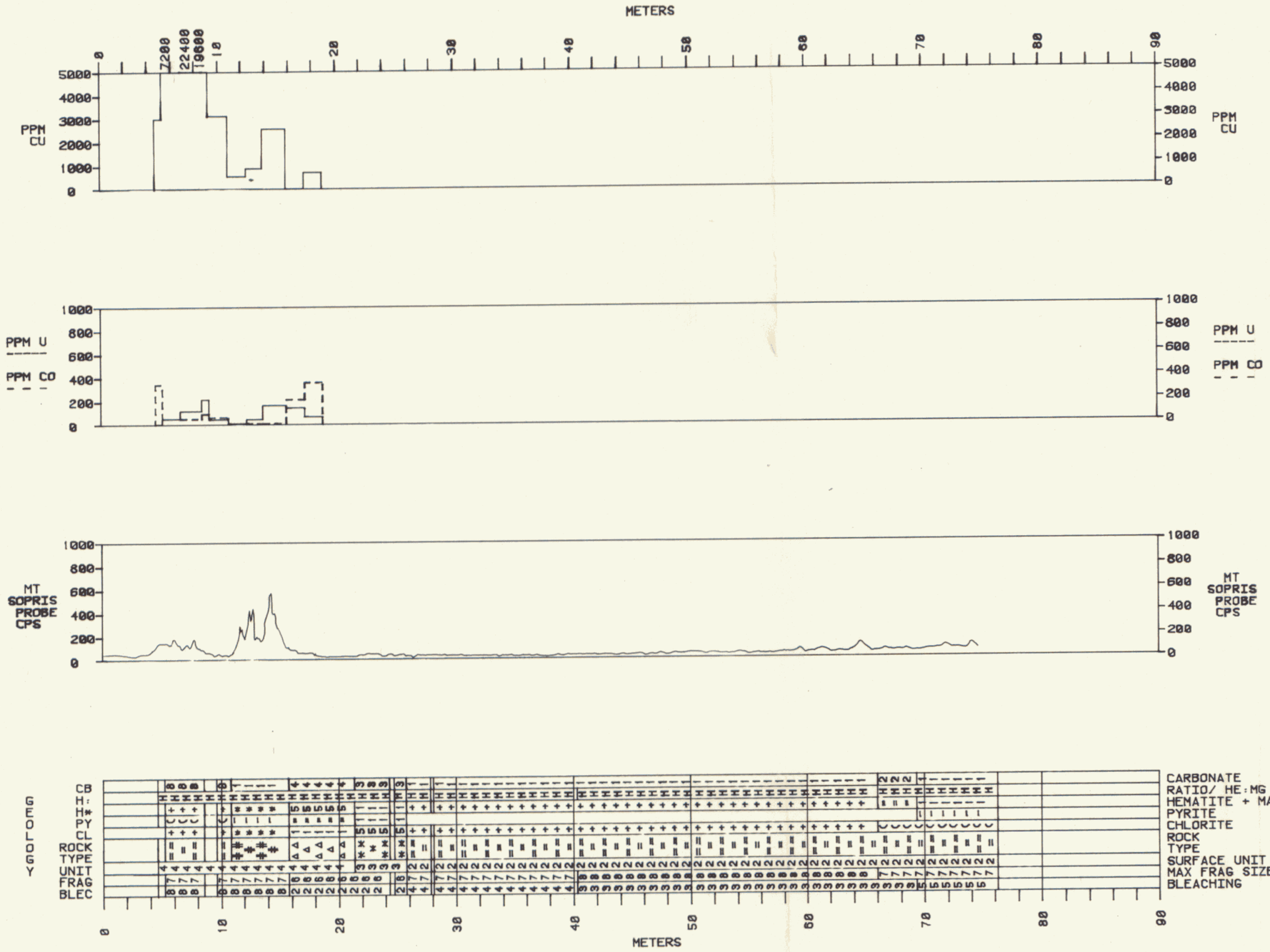
WERNECKE JOINT VENTURE

SCALE 1:400

10 8 6 4 2 0 4 8 12 16 20
metres

JAN 23 1981

To accompany report dated Dec. 1980



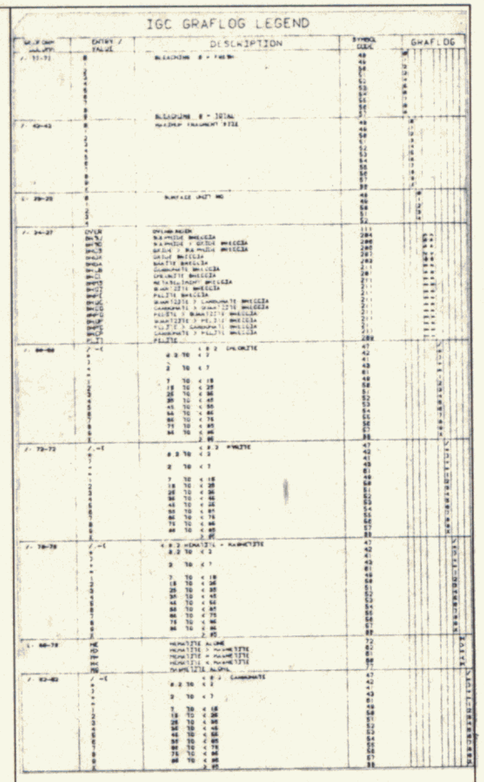


FIG. WJV 80-I28

ARCHER CATHRO AND ASSOCIATES LTD.

HOLE 80I006

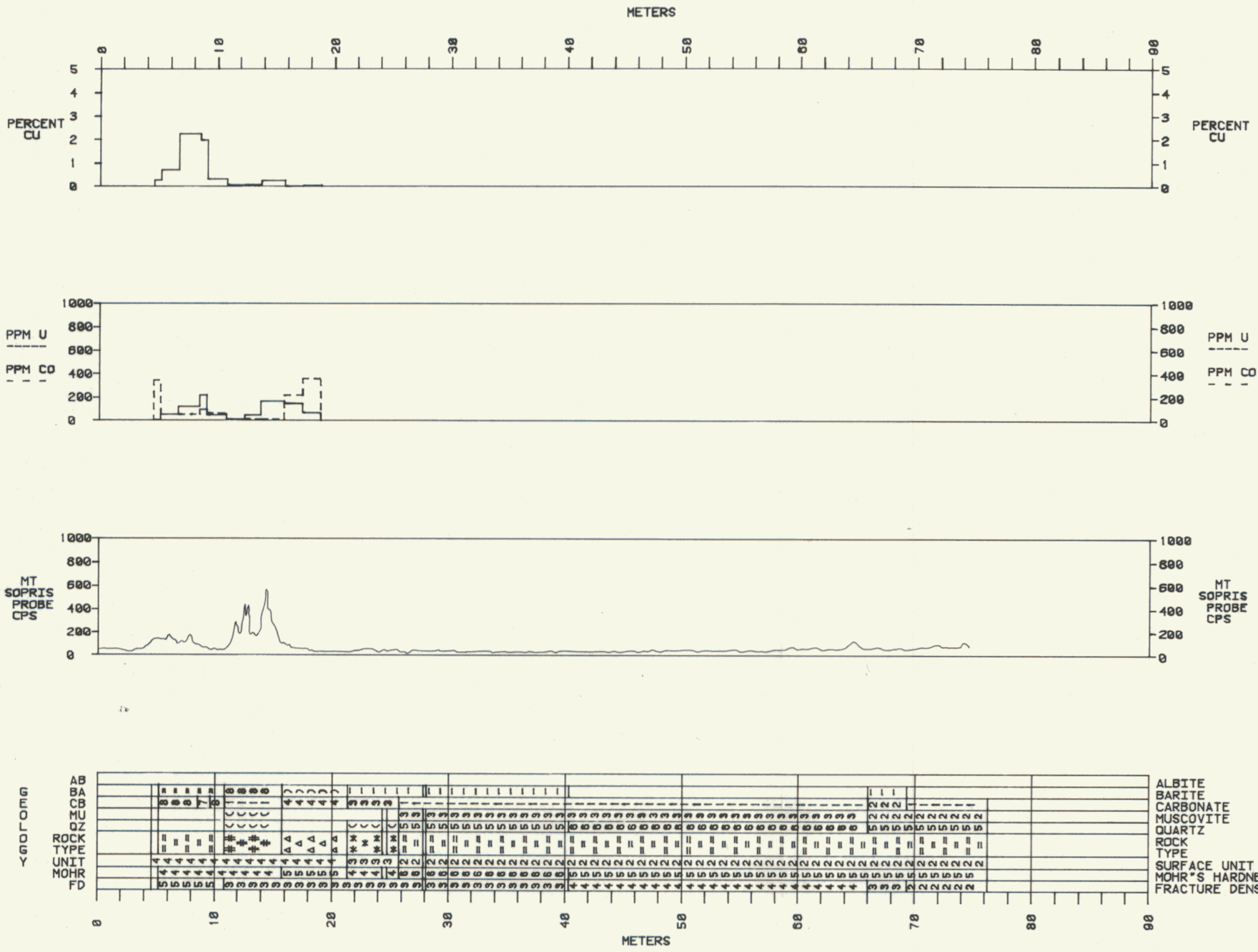
IGOR PROPERTY

WERNECKE JOINT VENTURE

IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.

090756



IGC GRAFLOG LEGEND

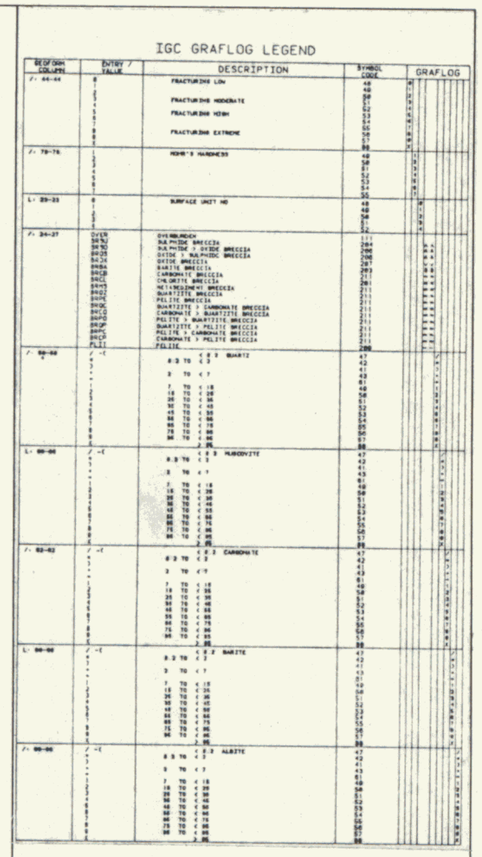


FIG. WJV 80-I29

ARCHER CATHRO AND ASSOCIATES LTD.

HOLE 80I006

IGOR PROPERTY

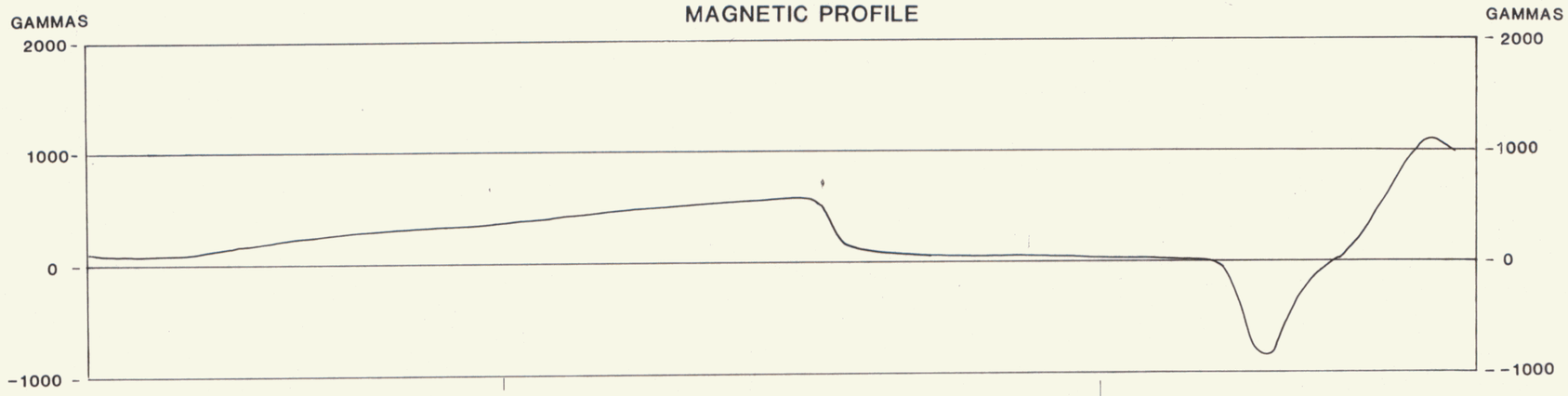
WERNECKE JOINT VENTURE

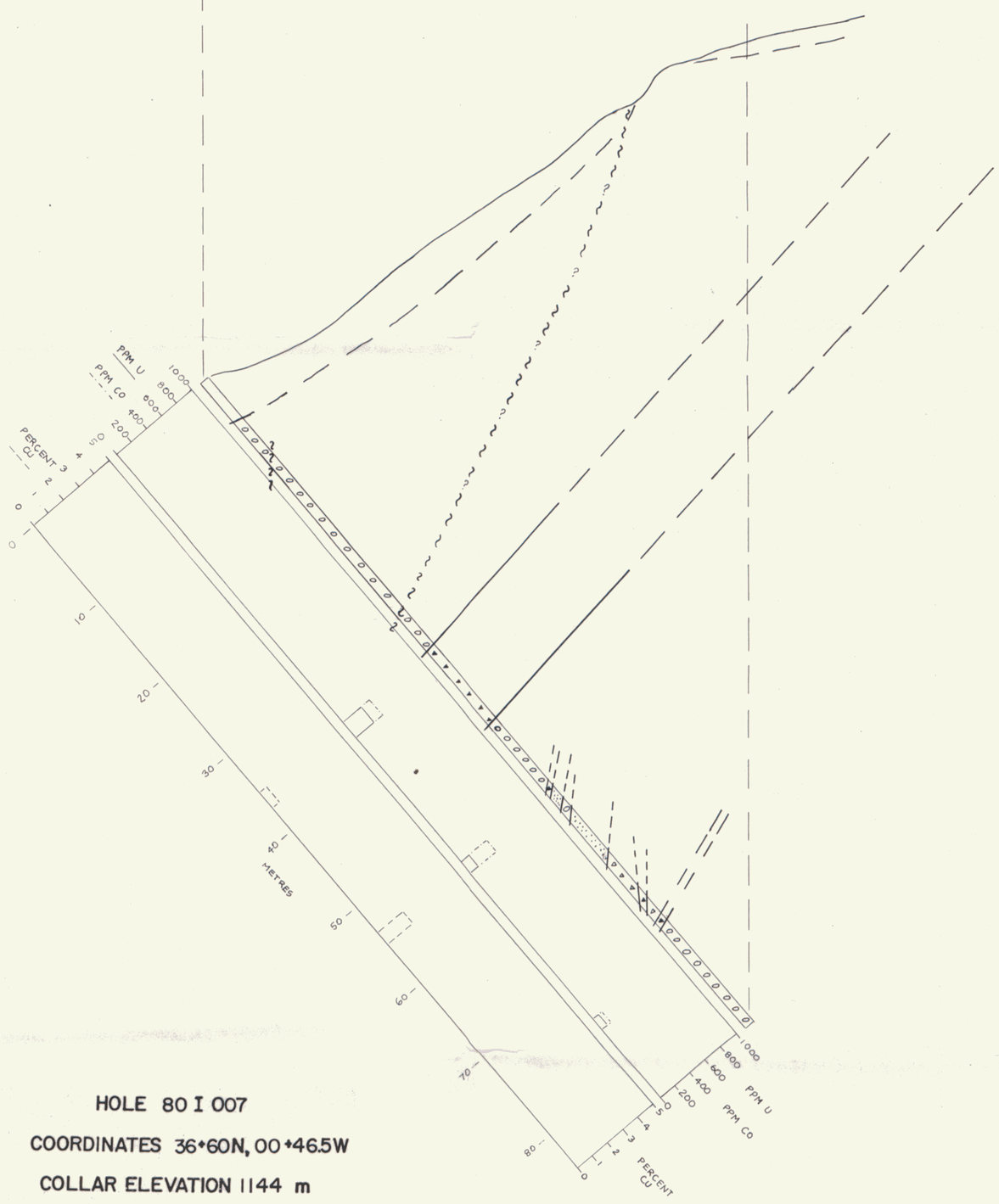
IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.

090756

MAGNETIC PROFILE





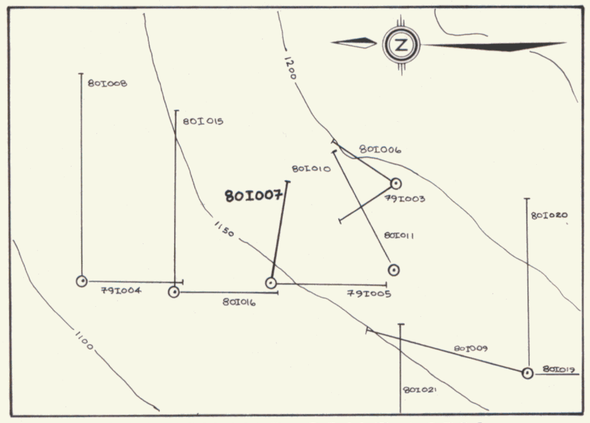
HOLE 80 I 007

COORDINATES 36+60N, 00+46.5W

COLLAR ELEVATION 1144 m

AZIMUTH 095 DIP -50

DEPTH 83.94 (277 ')



LOCATION MAP SCALE 1:2500

50 25 0 50 100

METRES

LEGEND

HELIKIAN

Iron-Rich Breccia (HB4): high but variable concentrations of euhedral to massive magnetite-hematite with associated barite, pyrite, chalcopyrite & carbonates, both in matrix & replacing breccia fragments

Chloritic Breccia (HB 3): dark green chloritic matrix & fragments often hematitic, associated with HB4 & fault zones

Red-Brown Breccia (HB1): heterolithic breccia with carbonate, chlorite & hematite matrix containing altered, subround Hs fragments. Pink to red-brown > grey to light green fragments. Breccia varies from matrix to fragment supported. Rarely foliated

Light Green Breccia (HB 2): strongly foliated, silvery-grey to red-brown weathering breccia consisting of light green Hs phyllites, white to pink quartzite & tan-limy Hs phyllite fragments in a tan to pink carbonate matrix. Breccia is always fragment supported. Weathers recessively compared to HB1

HELIKIAN, APHEBIAN?

Quartet Group (Hs): grey to black shale, slate & phyllite interbedded with quartzites & siltstones exhibiting turbidite structures

Altered Quartet Group (Hsa): bleached, hematized & carbonatized equivalent of Hs, pale green phyllites, brown weathering grey siltstones and white-pink quartzites, occasionally limy

fault

ppm U

ppm Cu

ppm Co

Association of Professional Engineers of the Yukon Territory
R. ARCHER
GEOLOGICAL
ENGINEER

FIGURE ~~NO~~ 80-I-30

ARCHER, CATHRO & ASSOCIATES LTD

SECTION HOLE 80I007

IGOR PROPERTY

090756

WERNECKE JOINT VENTURE

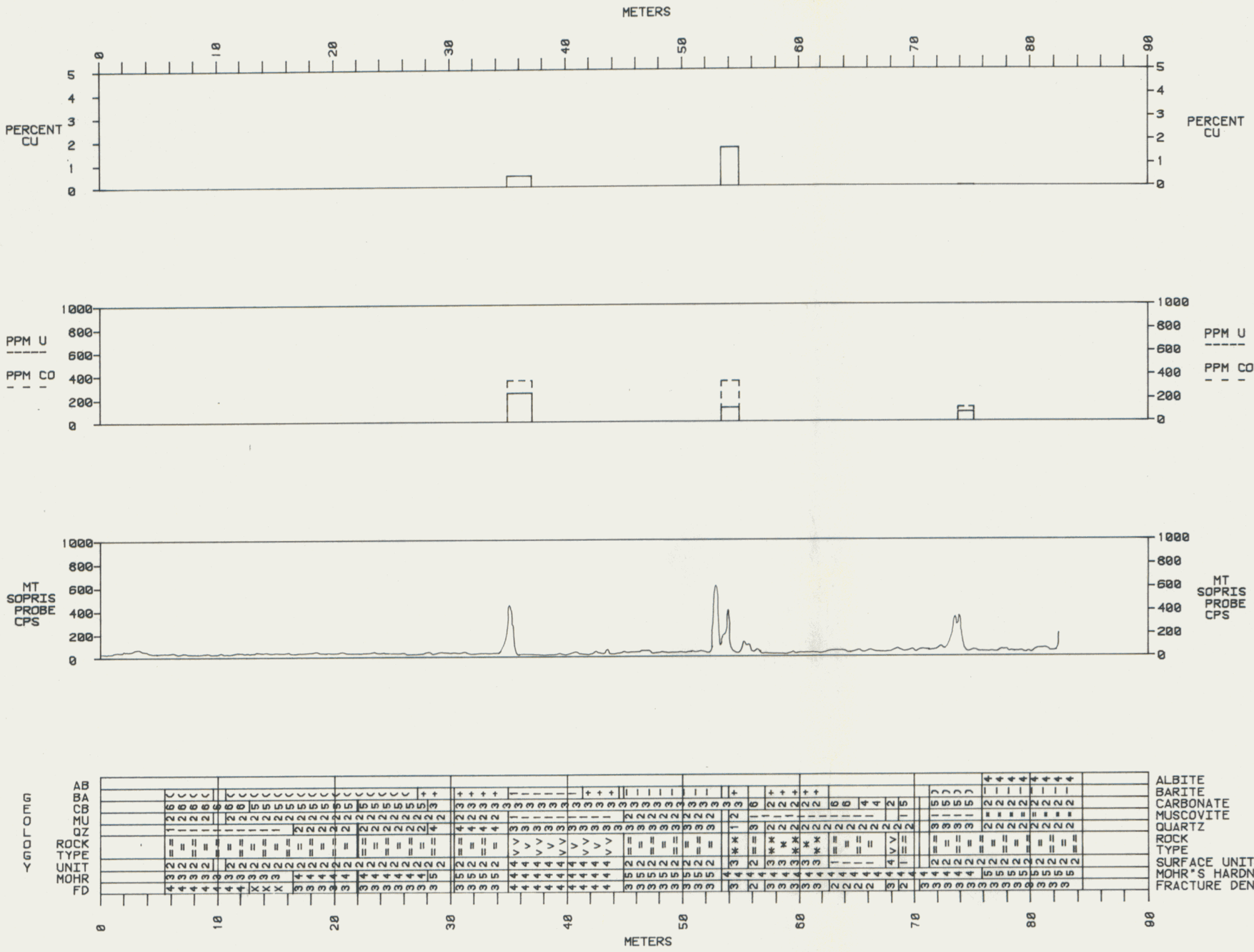
SCALE 1:400'

10 8 6 4 2 0 4 8 12 16 20

metres

JAN 23 1981

To accompany report dated ~~Dec., 1980~~



IGC GRAFLOG LEGEND

SECTION COLUMN	ENTRY / VALUE	DESCRIPTION	SYMBOL CODE	GRAFLOG
/- 44-44	0	FRACTURING LOW	48	
	1		49	
	2	FRACTURING MODERATE	50	
	3		51	
	4	FRACTURING HIGH	52	
	5		53	
	6		54	
	7	FRACTURING EXTREME	55	
	8		56	
/- 78-78	1	MOHR'S HARDNESS	49	
	2		50	
	3		51	
	4		52	
	5		53	
L- 23-23	0	SURFACE UNIT NO.	48	
	1		49	
	2		50	
/- 24-27	QVZN	QUARTZ VEIN	111	
	9KSL	KSILICIFIED ROCK	284	
	9KSU	KSILICIFIED ROCK > SULPHIDE BRECCIA	285	
	9KSX	KSILICIFIED ROCK > OXIDE BRECCIA	286	
	9KSS	OXIDE > SULPHIDE BRECCIA	287	
	9KSX	OXIDE BRECCIA	288	
	9KBA	BARITE BRECCIA	289	
	9KCB	CARBONATE BRECCIA	290	
	9KMU	MUSCOVITE BRECCIA	291	
	9KMS	SILICIFIED BRECCIA	292	
	9KQZ	QUARTZ-VEIN BRECCIA	293	
	9KPL	PELITE BRECCIA	294	
	9KQC	QUARTZITE > CARBONATE BRECCIA	295	
	9KCQ	CARBONATE > QUARTZITE BRECCIA	296	
	9KPQ	PELITE > QUARTZITE BRECCIA	297	
	9KQP	QUARTZITE > PELITE BRECCIA	298	
	9KPC	PELITE > CARBONATE BRECCIA	299	
	9KCP	CARBONATE > PELITE BRECCIA	300	
	/L11	PELITE	286	
/- 26-26	/-C	C 0 2 QUARTZ	41	
		0 3 TO < 2	42	
		2 TO < 3	43	
		3 TO < 7	44	
		7 TO < 10	45	
		10 TO < 15	46	
		15 TO < 20	47	
		20 TO < 25	48	
		25 TO < 30	49	
		30 TO < 40	50	
		40 TO < 50	51	
		50 TO < 60	52	
		60 TO < 70	53	
		70 TO < 80	54	
		80 TO < 90	55	
		90 TO 100	56	
L- 26-26	/-C	C 0 3 MUSCOVITE	41	
		0 3 TO < 2	42	
		2 TO < 3	43	
		3 TO < 7	44	
		7 TO < 10	45	
		10 TO < 15	46	
		15 TO < 20	47	
		20 TO < 25	48	
		25 TO < 30	49	
		30 TO < 40	50	
		40 TO < 50	51	
		50 TO < 60	52	
		60 TO < 70	53	
		70 TO < 80	54	
		80 TO < 90	55	
		90 TO 100	56	
/- 32-32	/-C	C 0 3 CARBONATE	41	
		0 3 TO < 2	42	
		2 TO < 3	43	
		3 TO < 7	44	
		7 TO < 10	45	
		10 TO < 15	46	
		15 TO < 20	47	
		20 TO < 25	48	
		25 TO < 30	49	
		30 TO < 40	50	
		40 TO < 50	51	
		50 TO < 60	52	
		60 TO < 70	53	
		70 TO < 80	54	
		80 TO < 90	55	
		90 TO 100	56	
L- 28-28	/-C	C 0 2 BARITE	41	
		0 3 TO < 2	42	
		2 TO < 3	43	
		3 TO < 7	44	
		7 TO < 10	45	
		10 TO < 15	46	
		15 TO < 20	47	
		20 TO < 25	48	
		25 TO < 30	49	
		30 TO < 40	50	
		40 TO < 50	51	
		50 TO < 60	52	
		60 TO < 70	53	
		70 TO < 80	54	
		80 TO < 90	55	
		90 TO 100	56	
/- 30-30	/-C	C 0 2 ALBITE	41	
		0 3 TO < 2	42	
		2 TO < 3	43	
		3 TO < 7	44	
		7 TO < 10	45	
		10 TO < 15	46	
		15 TO < 20	47	
		20 TO < 25	48	
		25 TO < 30	49	
		30 TO < 40	50	
		40 TO < 50	51	
		50 TO < 60	52	
		60 TO < 70	53	
		70 TO < 80	54	
		80 TO < 90	55	
		90 TO 100	56	

FIG. WJV 80-I31

ARCHER CATHRO AND ASSOCIATES LTD.

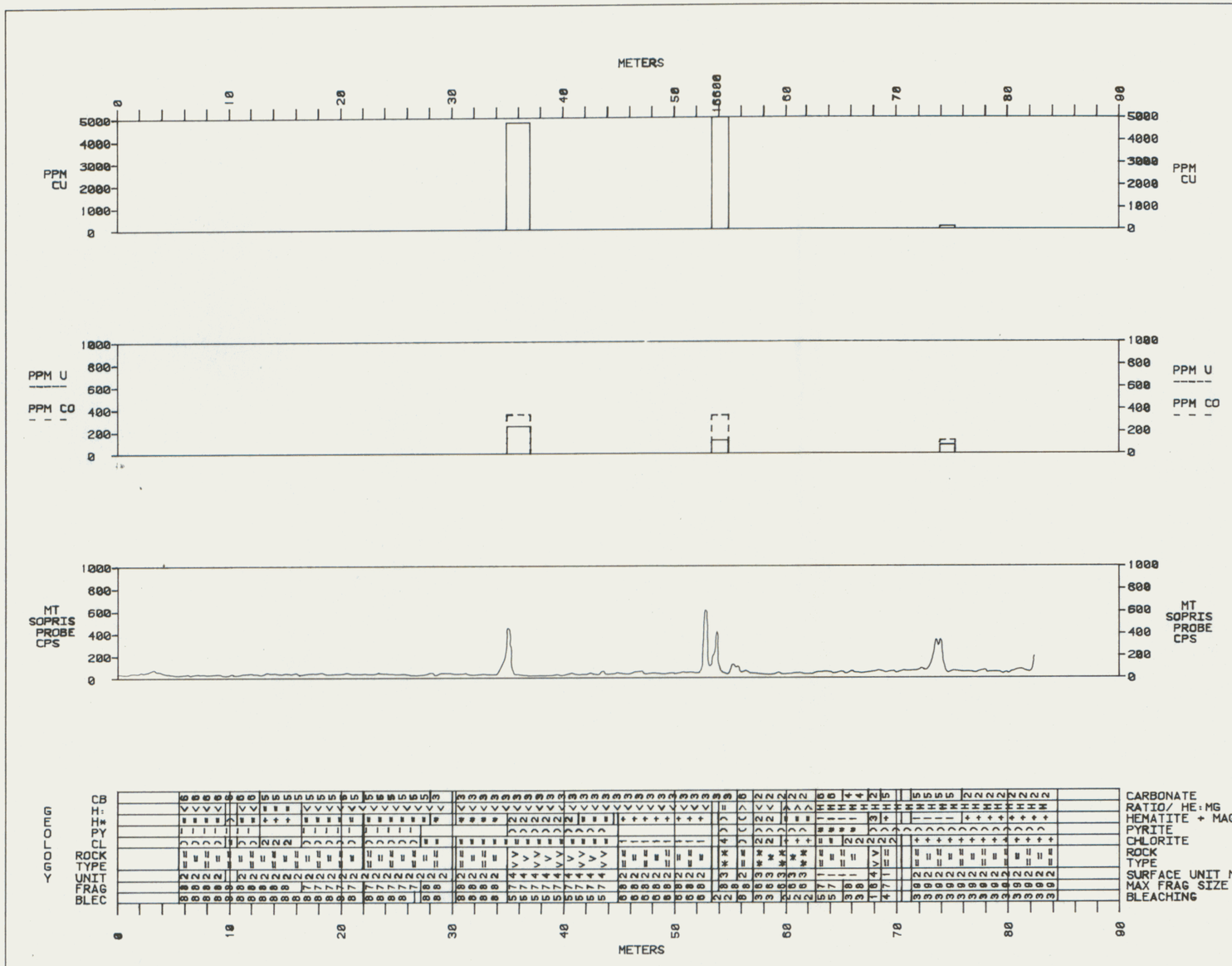
HOLE 80I007

IGOR PROPERTY

WERNECKE JOINT VENTURE

IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.



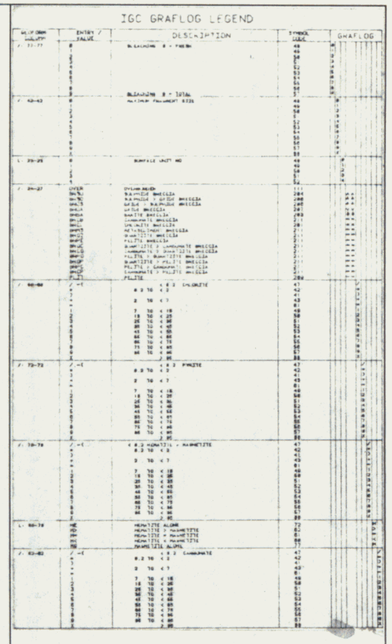


FIG. WJV 80-I32

ARCHER CATHRO AND ASSOCIATES LTD.

HOLE 80I007

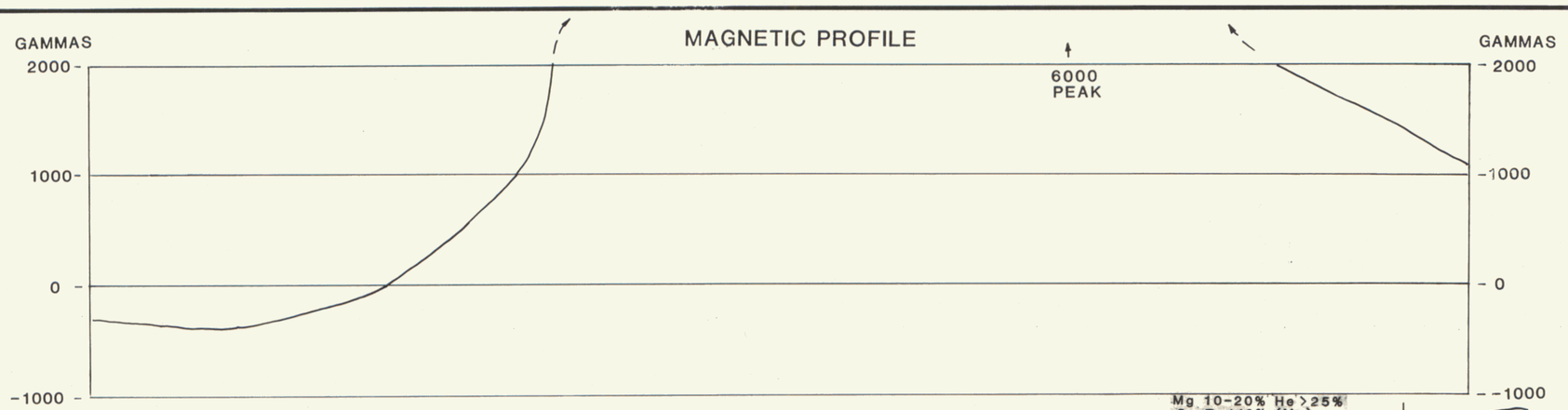
IGOR PROPERTY

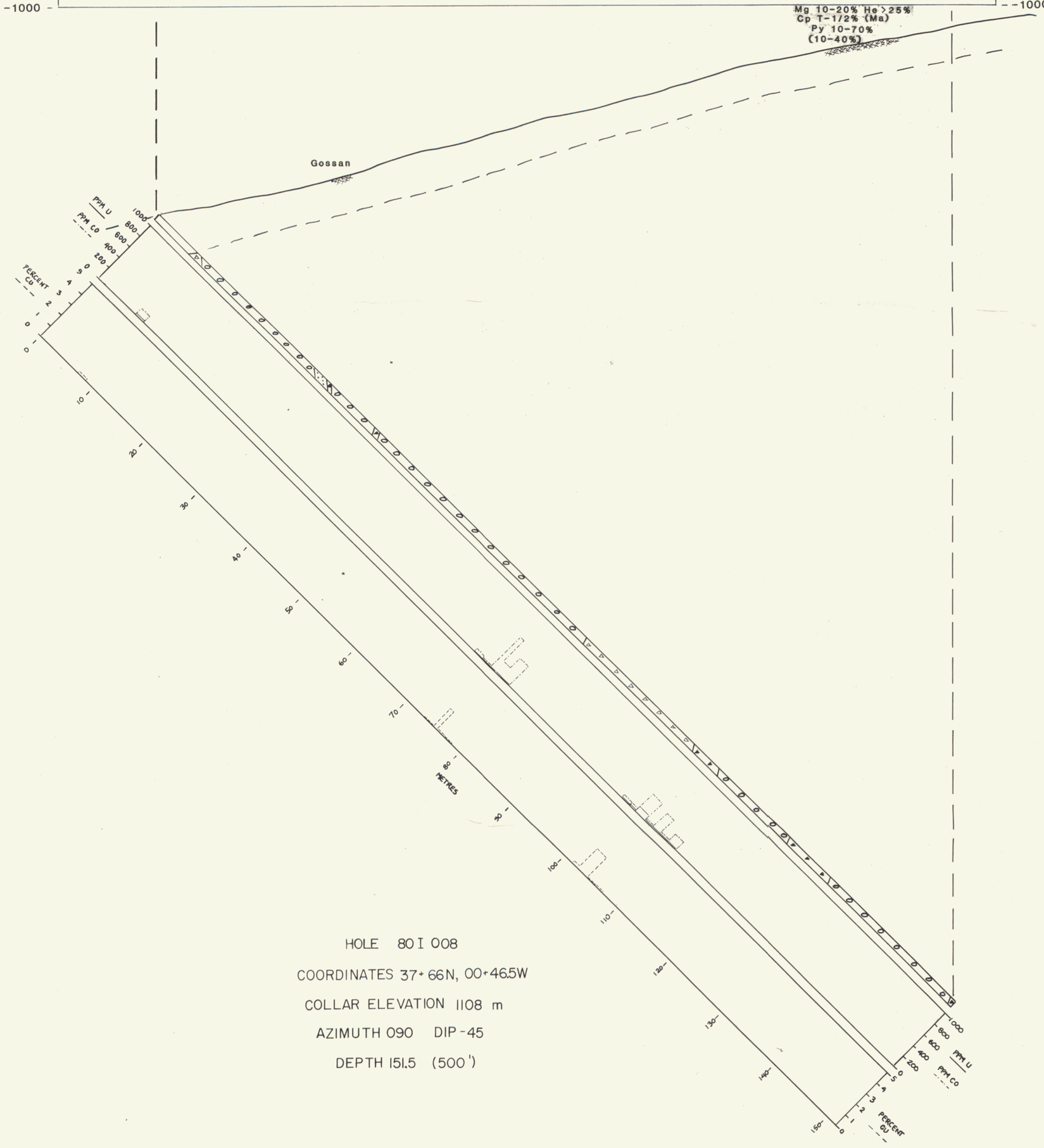
WERNECKE JOINT VENTURE

IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.

MAGNETIC PROFILE





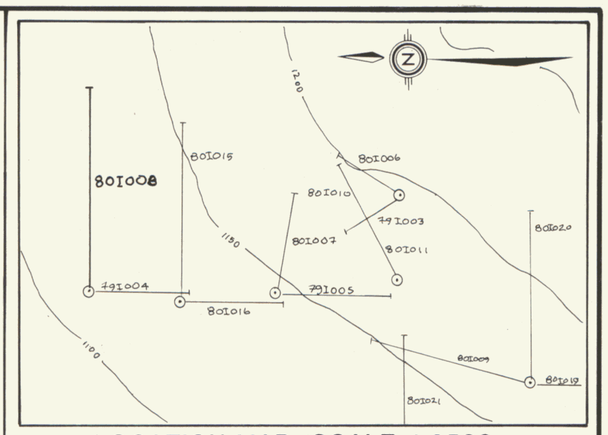
HOLE 80 I 008

COORDINATES 37+66N, 00+46.5W

COLLAR ELEVATION 1108 m

AZIMUTH 090 DIP -45

DEPTH 151.5 (500')



LOCATION MAP SCALE 1:2500

50 25 0 50 100

METRES

LEGEND

HELIKIAN

Iron-Rich Breccia (HB4): high but variable concentrations of euhedral to massive magnetite-hematite with associated barite, pyrite, chalcopyrite & carbonates, both in matrix & replacing breccia fragments

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fault

ppm U

ppm Cu

ppm Co

Association of Professional Engineers of the Yukon Territory
A. R. ARCHER
GEOLOGICAL
ENGINEER

FIGURE WJV 80-135

ARCHER, CATHRO & ASSOCIATES LTD

SECTION HOLE 80I008

IGOR PROPERTY

090756

WERNECKE JOINT VENTURE

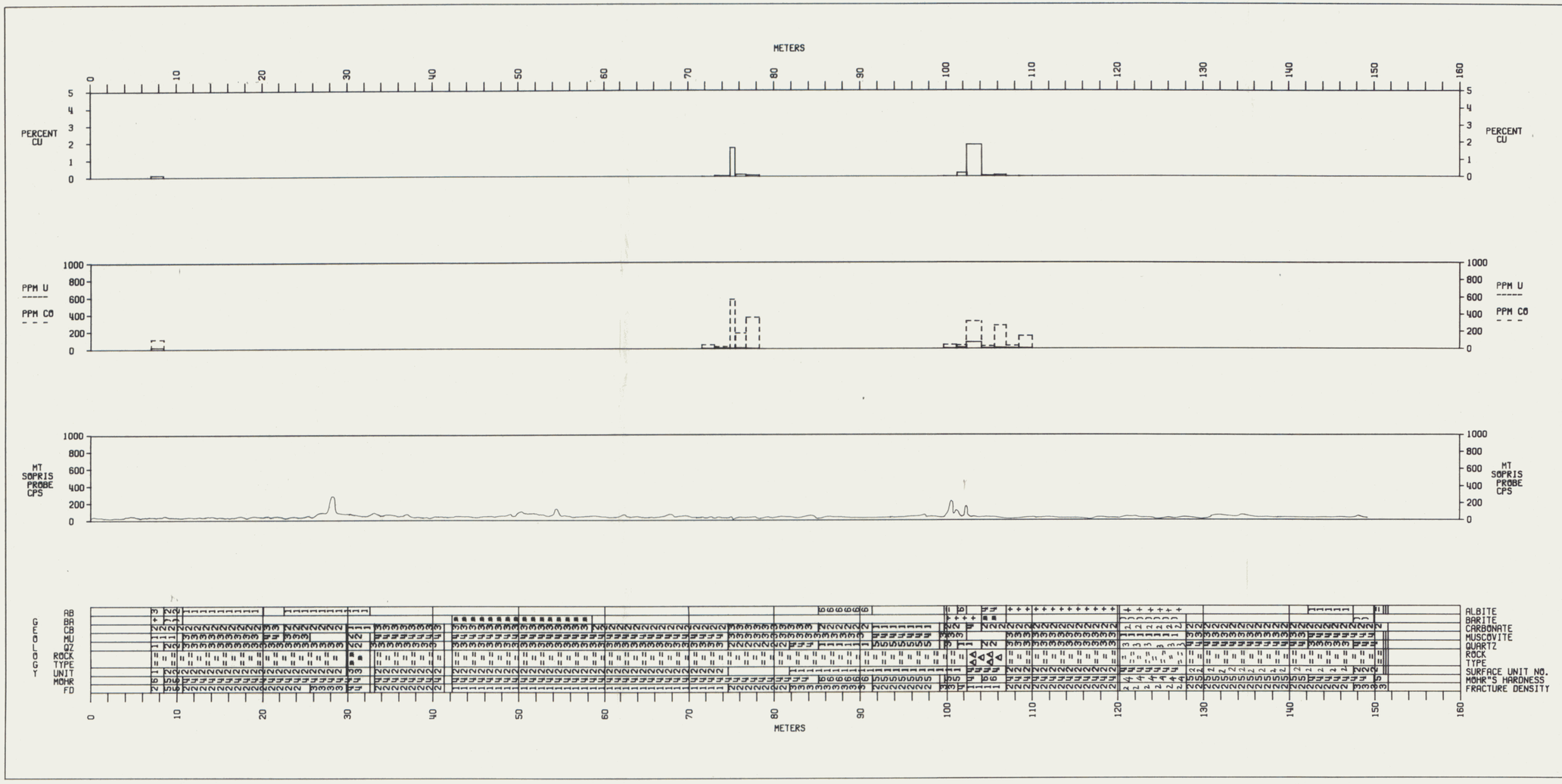
SCALE 1:400

10 8 6 4 2 0 4 8 12 16 20

metres

JAN 23 1981

To accompany report dated ~~Dec. 1980~~



IGC GRAFLOG LEGEND

ITEM No. OR LABEL	ENTRY / VALUE	DESCRIPTION	SYMBOL OR	GRAFLOG
/ 00-00		FRACTURING LOW FRACTURING MODERATE FRACTURING HIGH FRACTURING EXTREME		
/ 70-75		MOHR'S HARDNESS		
L 20-25		SURFACE UNIT NO.		
/ 24-27		DOLOMUDSTONE WACKESTONE PACKSTONE / GRAINSTONE FLOATSTONE / RUDSTONE BOUNDSTONE DOLOSTONE LIMESTONE ANHYDRITE ARGILLACEOUS SILTY PYRITE SULFATES PHOSPHATES CHERTS COAL SALT CARBONATE		
/ 28-00		BARITE		
L 00-00		MUSCOVITE		
/ 02-00		CARBONATE		
L 00-00		QUARTZ		
/ 00-00		ALBITE		

FIG. WJV 80-I34

ARCHER CATHRO AND ASSOCIATES LTD.

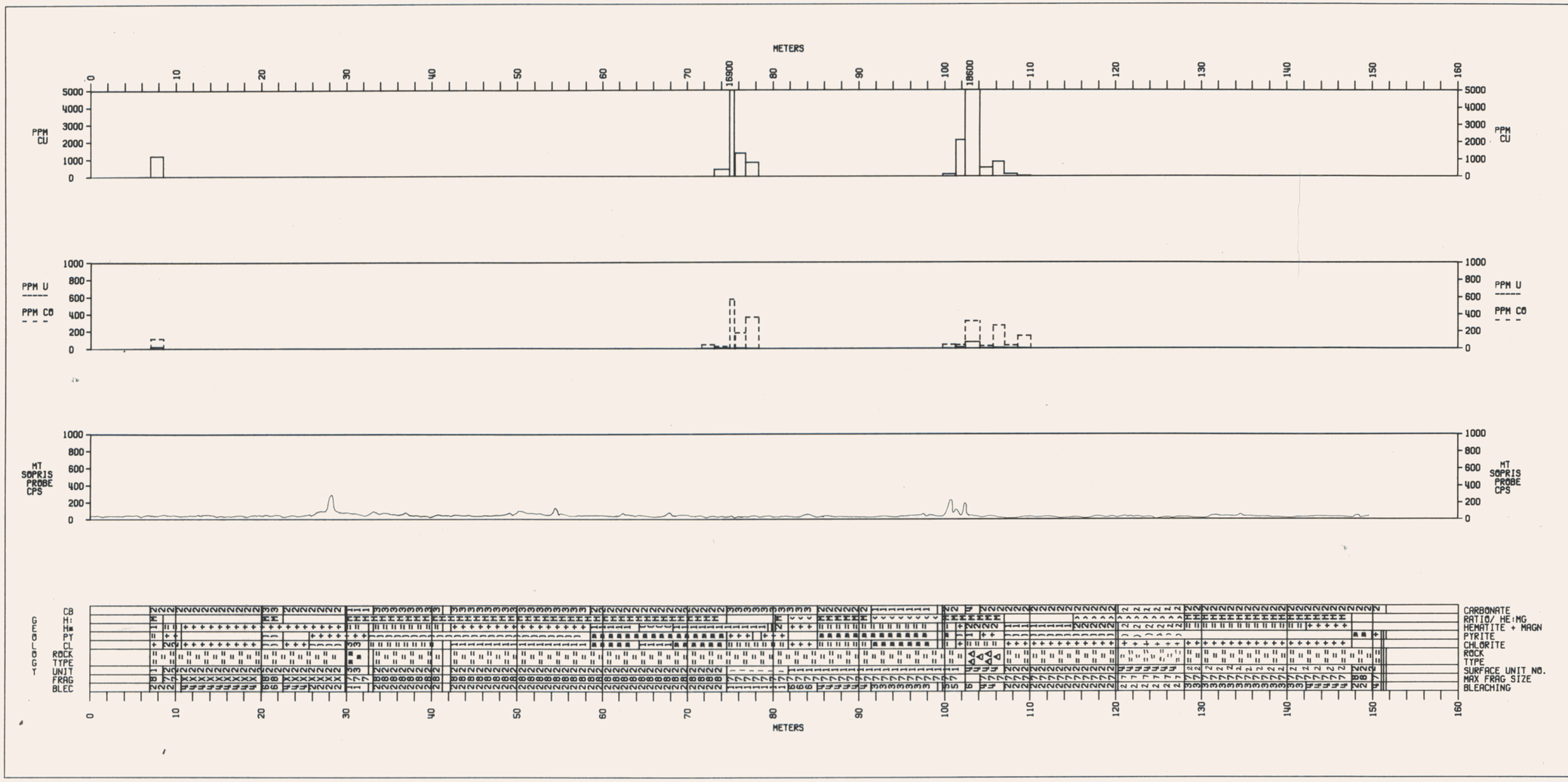
HOLE 80I008

IGOR PROPERTY

WERNECKE JOINT VENTURE

IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.



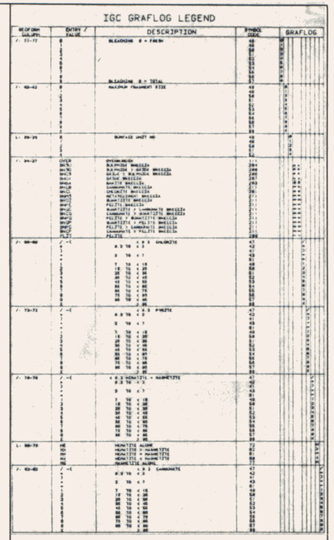


FIG. WJV 80-I35

ARCHER CATHRO AND ASSOCIATES LTD.

HOLE 80I008

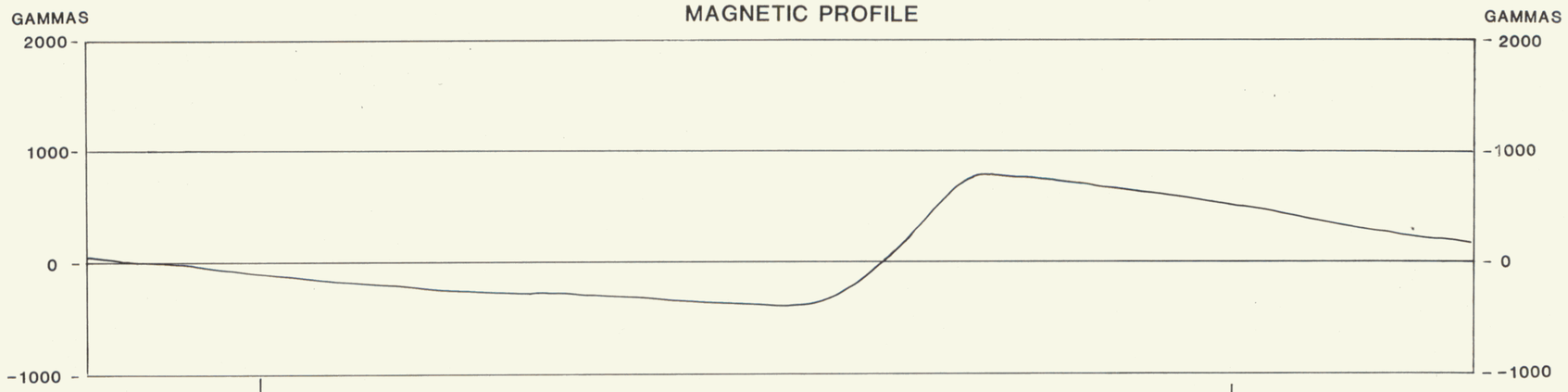
IGOR PROPERTY

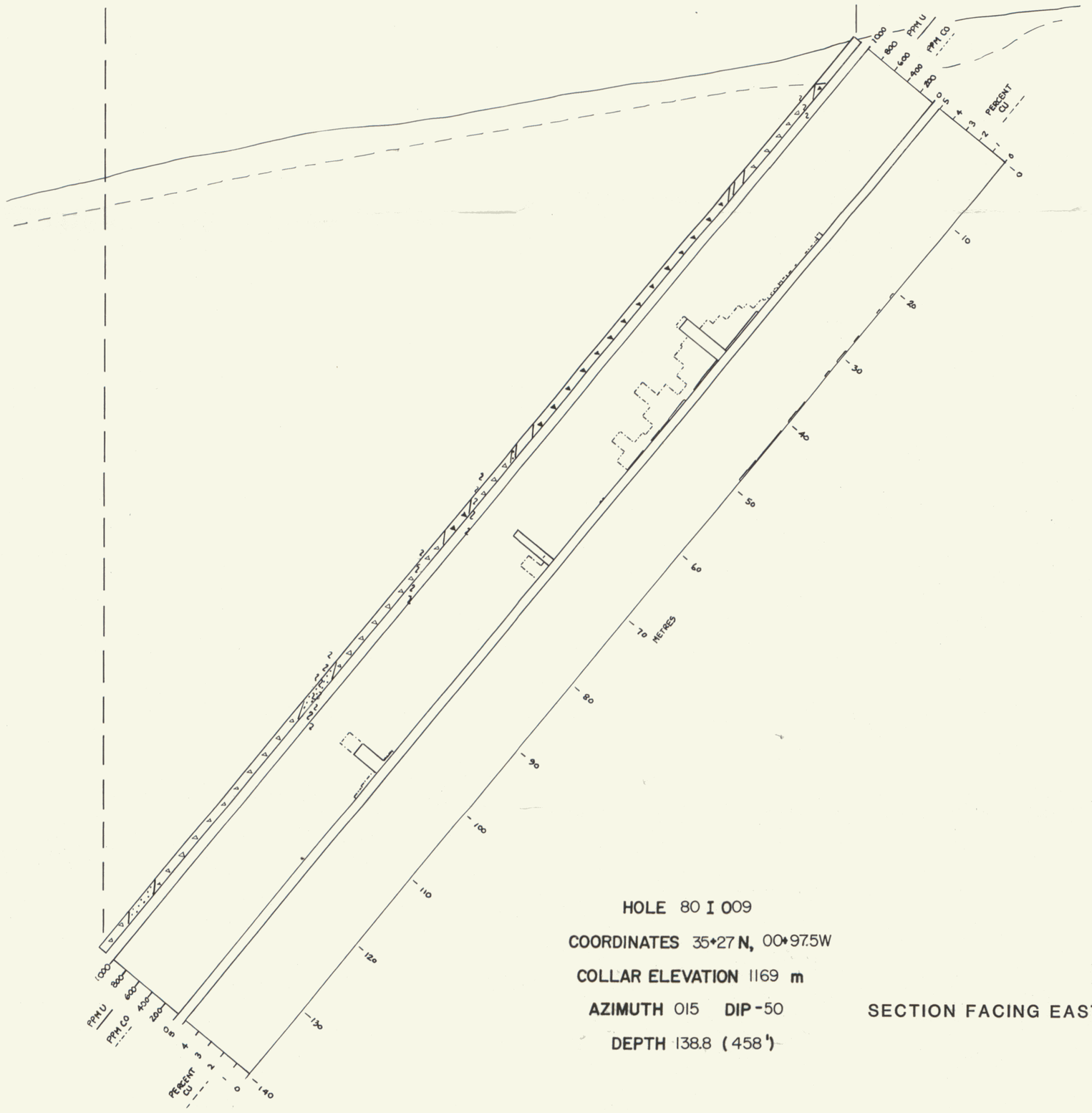
WERNECKE JOINT VENTURE

IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.

MAGNETIC PROFILE





HOLE 80 I 009

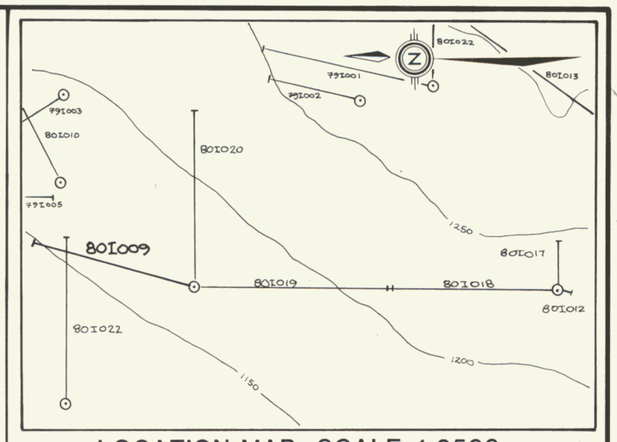
COORDINATES 35+27 N, 00+97.5W

COLLAR ELEVATION 1169 m

AZIMUTH 015 DIP -50

DEPTH 138.8 (458')

SECTION FACING EAST



LOCATION MAP SCALE 1:2500

50 25 0 50 100

METRES

LEGEND

HELIKIAN

Iron-Rich Breccia (HB4): high but variable concentrations of euhedral to massive magnetite-hematite with associated barite, pyrite, chalcopyrite & carbonates, both in matrix & replacing breccia fragments

Chloritic Breccia (HB3): dark green chloritic matrix & fragments often hematitic, associated with HB4 & fault zones

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HELIKIAN, APHEBIAN?

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fault

ppm U

ppm Cu

ppm Co

ASSOCIATION OF PROFESSIONAL ENGINEERS OF THE YUKON TERRITORY
ARCHER
GEOLOGICAL
ENGINEER

FIGURE WJV 80-I36

ARCHER, CATHRO & ASSOCIATES LTD

SECTION HOLE 80I009

IGOR PROPERTY

090756

WERNECKE JOINT VENTURE

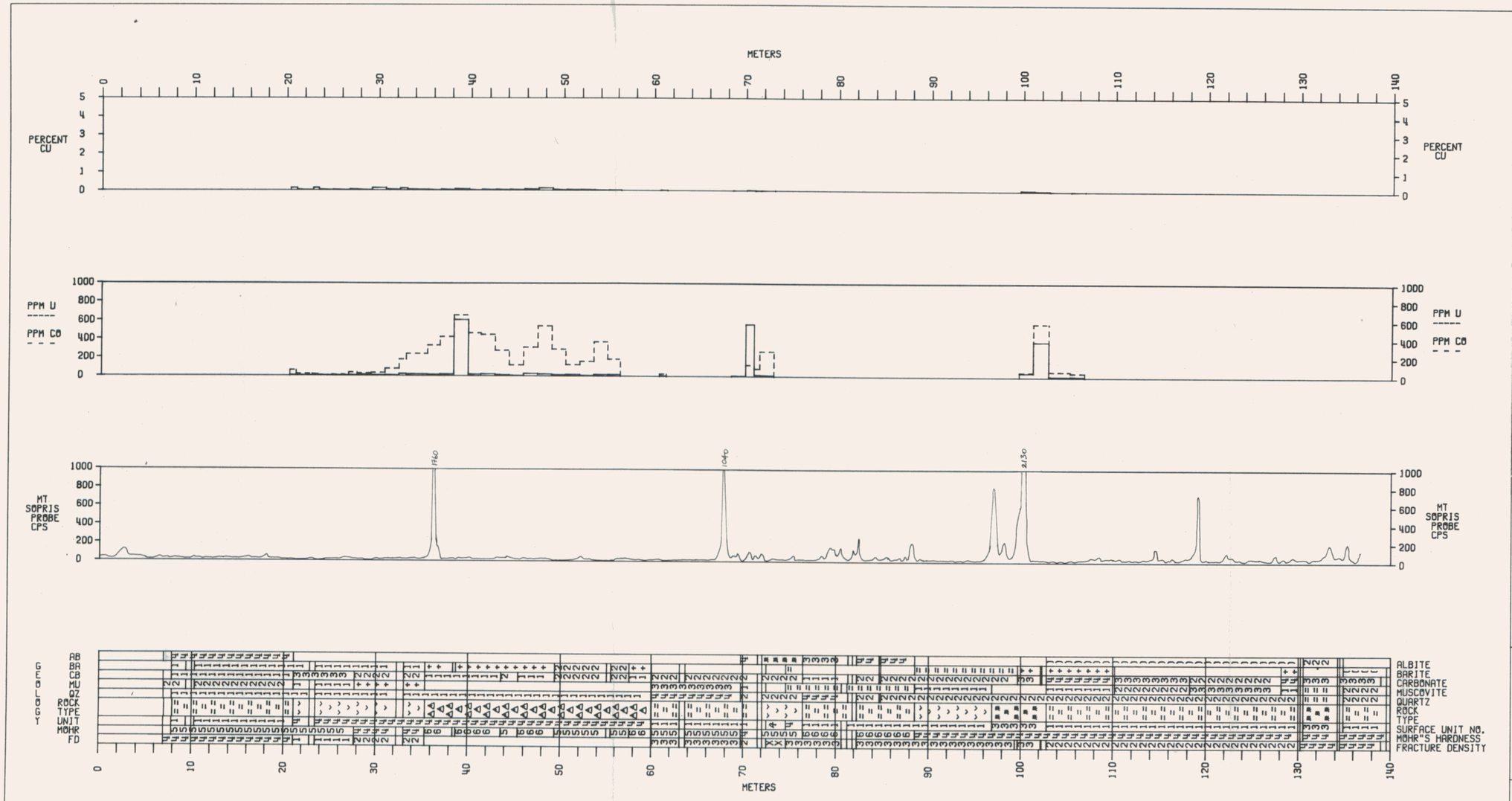
SCALE 1:400

10 8 6 4 2 0 4 8 12 16 20

metres

JAN 23 1981

To accompany report dated Sept 1980



IGC GRAFLOG LEGEND

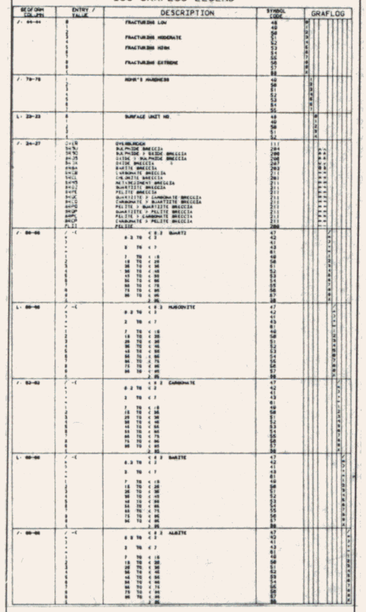


FIG. WJV 80-I37

ARCHER CATHRØ AND ASSØCIATES LTD.

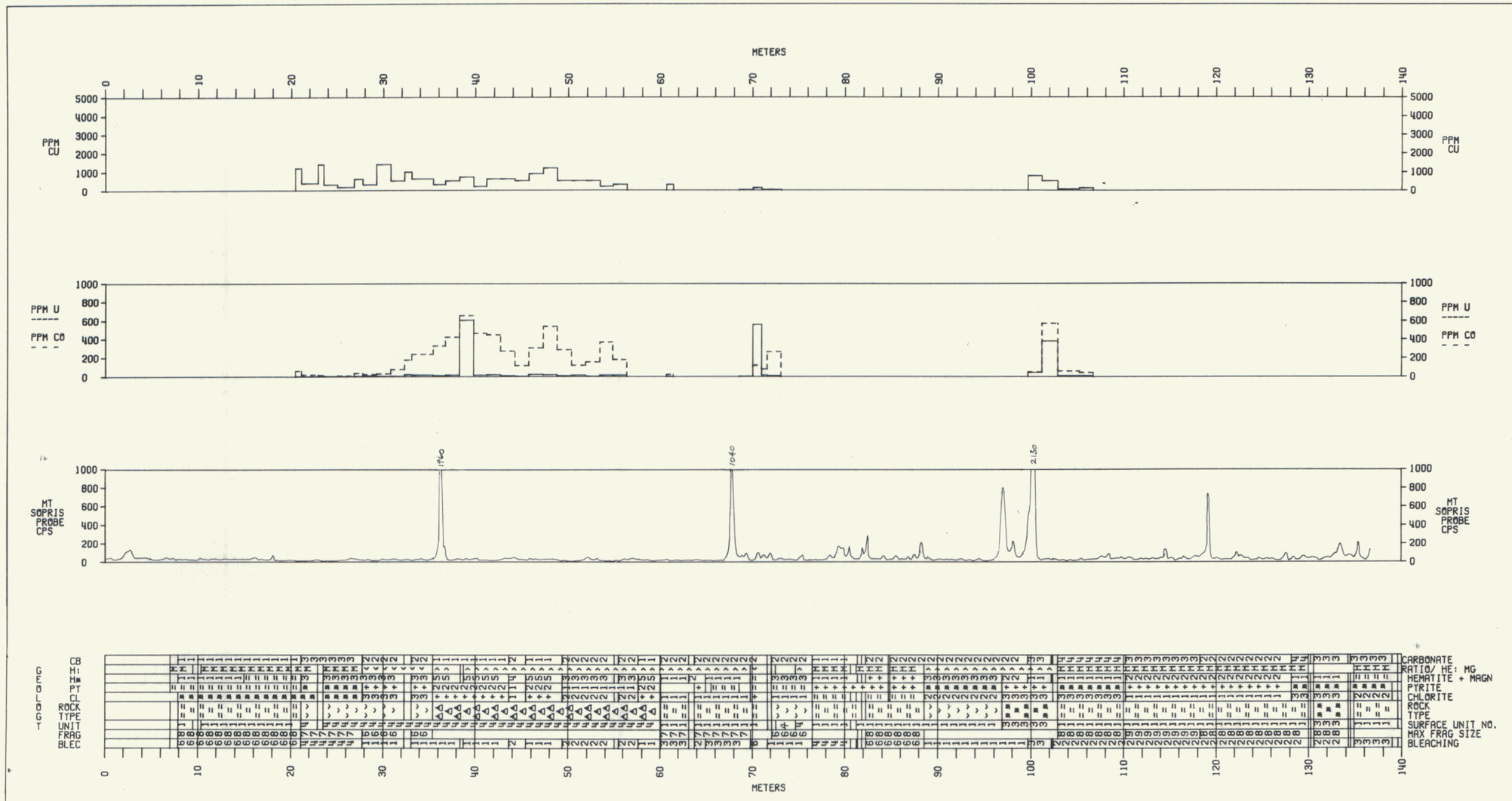
HØLE 80I009

IGØR PRØPERTY

WERNECKE JØINT VENTURE

IGC GRAFLØG

INTERNATIØNAL GEØSYSTEMS CØRP.



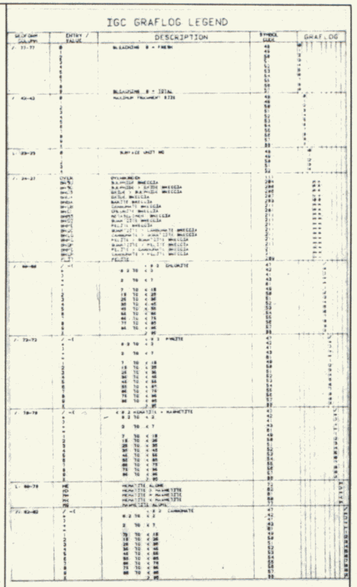


FIG. WJV 80-I38

ARCHER CATHRO AND ASSOCIATES LTD.

HOLE 80I009

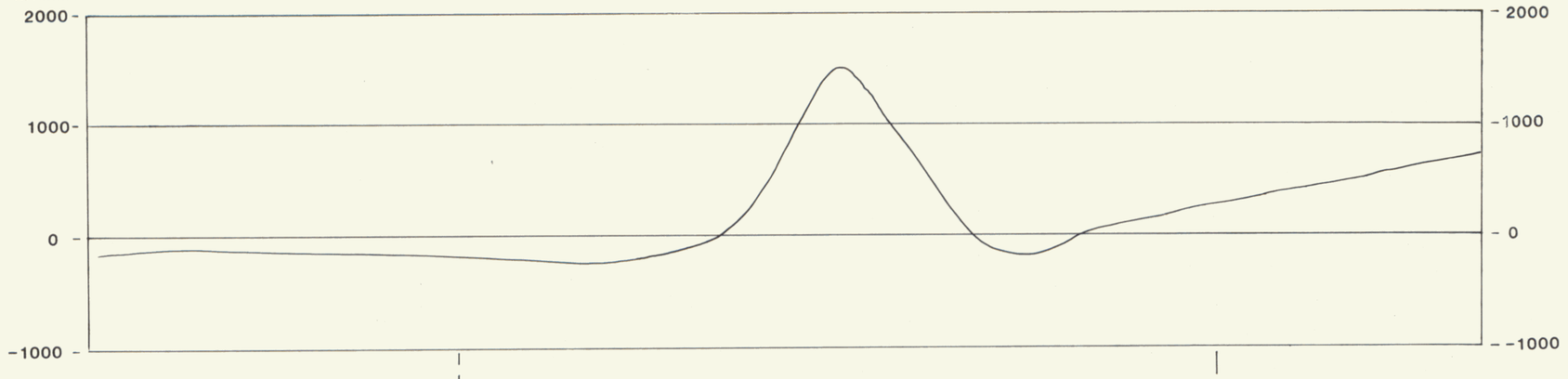
IGOR PROPERTY

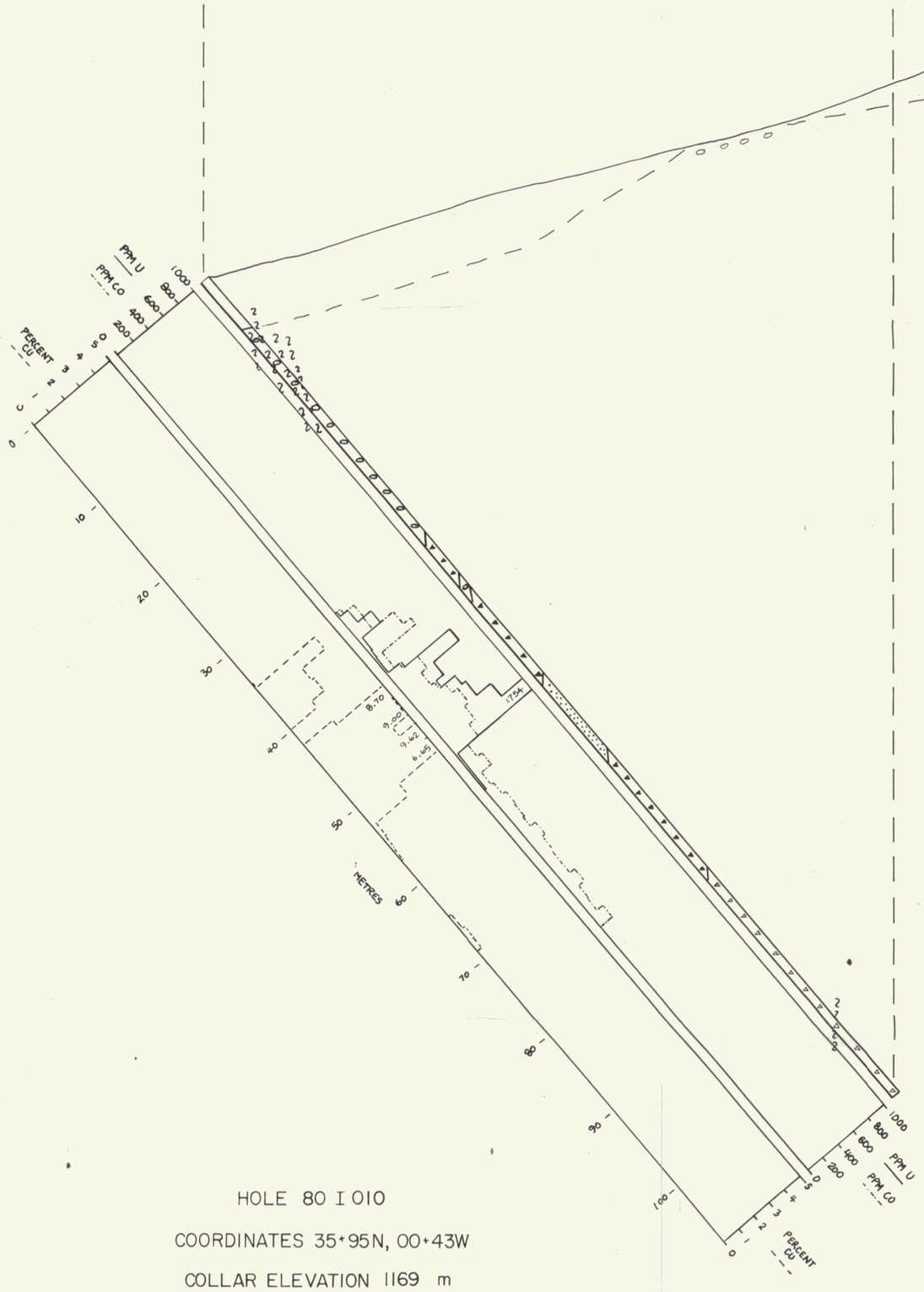
WERNECKE JOINT VENTURE

IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.

MAGNETIC PROFILE





HOLE 80 I 010

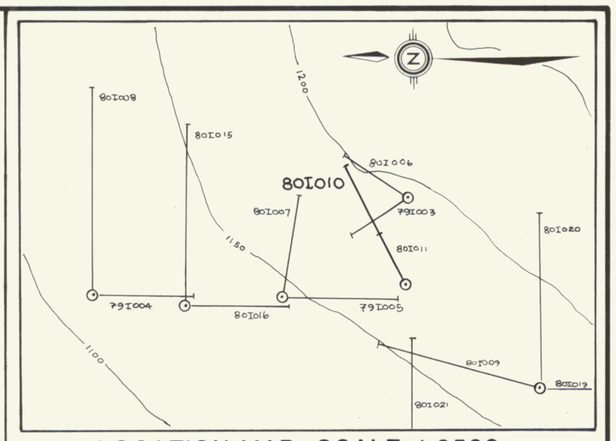
COORDINATES 35+95N, 00+43W

COLLAR ELEVATION 1169 m

AZIMUTH 063 DIP -50

DEPTH 106.7 (352')

SECTION FACING NORTH



LOCATION MAP SCALE 1:2500

50 25 0 50 100

METRES

LEGEND

HELIKIAN

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HELIKIAN, APHEBIAN?

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Altered Quartet Group (Hsa): bleached, hematized & carbonatized equivalent of Hs, pale green phyllites, brown weathering grey siltstones and white-pink quartzites, occasionally limy

fault

ppm U

ppm Cu

ppm Co

Association of Professional Engineers of the Yukon Territory
R. ARCHER
GEOLOGICAL
ENGINEER

FIGURE WJV 80-I39

ARCHER, CATHRO & ASSOCIATES LTD

SECTION HOLE 80I010

090756

IGOR PROPERTY

WERNECKE JOINT VENTURE

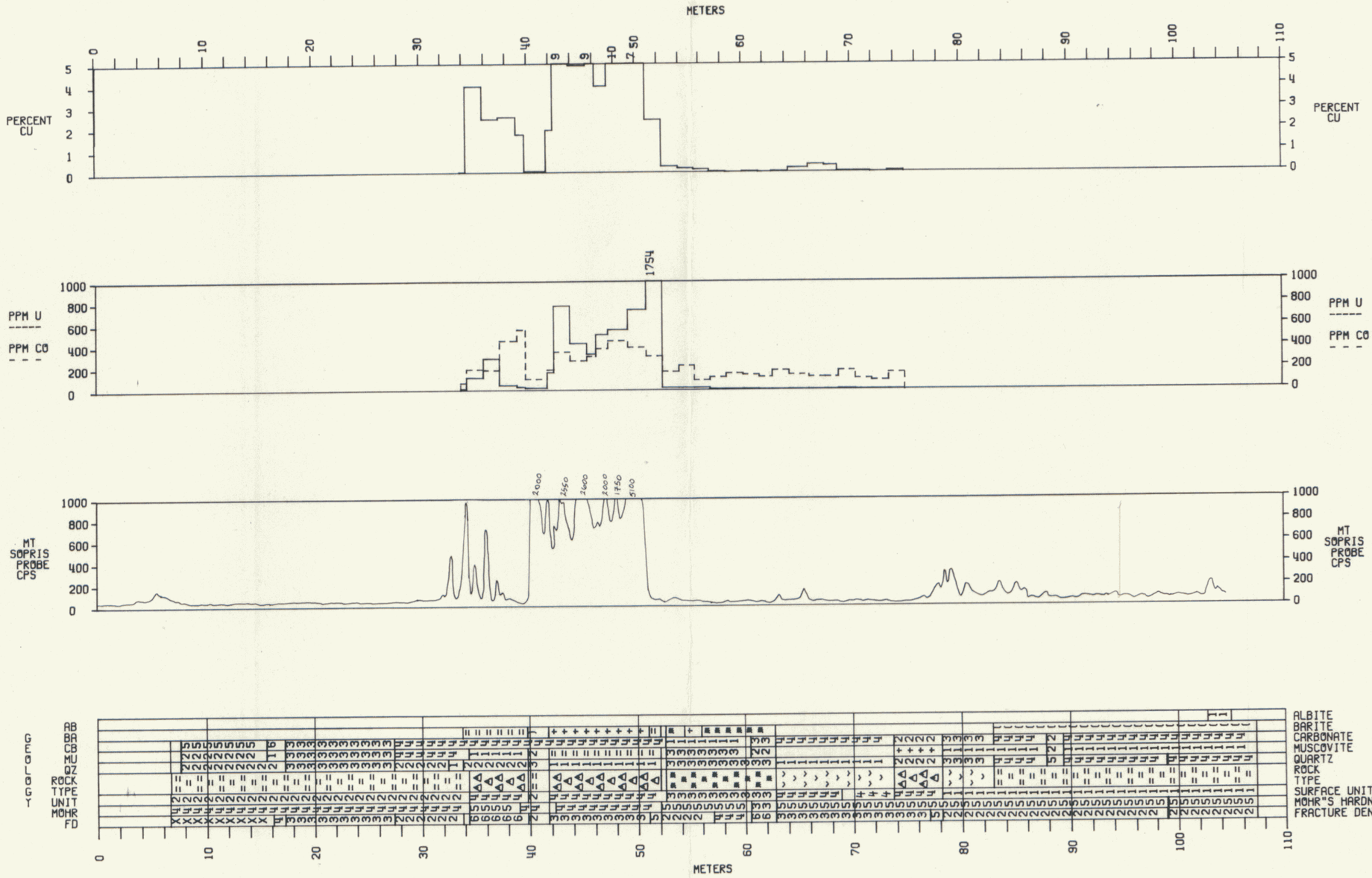
SCALE 1:400

10 8 6 4 2 0 4 8 12 14 20

metres

JAN 23 1981

To accompany report dated ~~Dec. 1980~~



IGC GRAFLOG LEGEND

DEPTH COLUMN	ENTRY / FAULT	DESCRIPTION	SYMBOL CODE	GRAFLOG
/ 00-05		FRACTURING LOW FRACTURING MODERATE FRACTURING HIGH FRACTURING EXTREME	45 46 47 48	
/ 10-15		MOHR'S HARDNESS	50 51 52 53 54 55 56 57 58 59	
L 20-25		SURFACE UNIT NO.	60 61 62 63 64 65 66 67 68 69	
/ 24-27	OVER 5952 5936 5928 5920 5912 5904 5896 5888 5880 5872 5864 5856 5848 5840 FLT	OVERBURDEN BASALTIDE BRECCIA BASALTIDE > CARBONATE BRECCIA DIDE > BASALTIDE BRECCIA DIDE BRECCIA BARITE BRECCIA CARBONATE BRECCIA MUSCOVITE BRECCIA METAMORPHIC BRECCIA QUARTZITE BRECCIA PELITE BRECCIA QUARTZITE > CARBONATE BRECCIA CARBONATE > QUARTZITE BRECCIA PELITE > QUARTZITE BRECCIA QUARTZITE > PELITE BRECCIA PELITE > CARBONATE BRECCIA CARBONATE > PELITE BRECCIA FAULT	200 201 202 203 204 205 206 207 208 209 210 211 212 213 214	
/ 00-06	/ -C	0 0 0 QUARTZ 0 2.75 0 2 2 75 < 7 7 75 < 10 10 75 < 20 20 75 < 30 30 75 < 40 40 75 < 50 50 75 < 60 60 75 < 70 70 75 < 80 80 75 < 90	40 41 42 43 44 45 46 47 48 49	
L 00-06	/ -C	0 0 0 MUSCOVITE 0 2.75 0 2 2 75 < 7 7 75 < 10 10 75 < 20 20 75 < 30 30 75 < 40 40 75 < 50 50 75 < 60 60 75 < 70 70 75 < 80 80 75 < 90	40 41 42 43 44 45 46 47 48 49	
/ 02-02	/ -C	0 0 0 CARBONATE 0 2.75 0 2 2 75 < 7 7 75 < 10 10 75 < 20 20 75 < 30 30 75 < 40 40 75 < 50 50 75 < 60 60 75 < 70 70 75 < 80 80 75 < 90	40 41 42 43 44 45 46 47 48 49	
L 00-06	/ -C	0 0 0 BARITE 0 2.75 0 2 2 75 < 7 7 75 < 10 10 75 < 20 20 75 < 30 30 75 < 40 40 75 < 50 50 75 < 60 60 75 < 70 70 75 < 80 80 75 < 90	40 41 42 43 44 45 46 47 48 49	
/ 00-06	/ -C	0 0 0 ALBITE		

FIG. WJV 80-I40

ARCHER CATHRO AND ASSOCIATES LTD.

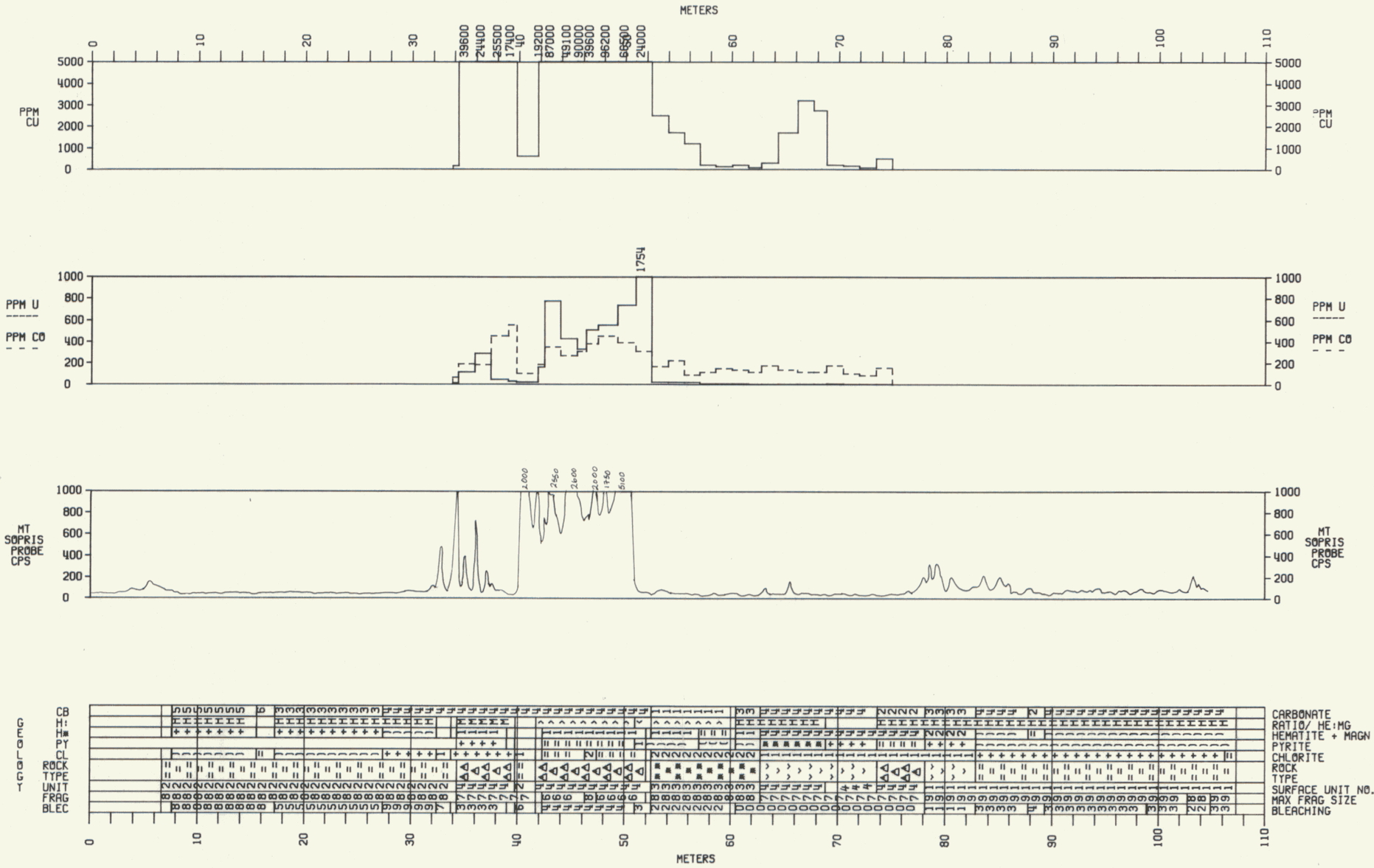
HOLE 80I010

IGOR PROPERTY

WERNECKE JOINT VENTURE

IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.



IGC GRAFLOG LEGEND

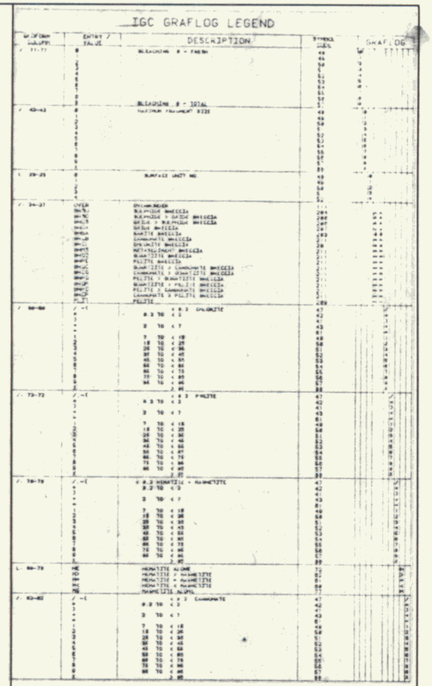


FIG. WJV 80-I41

ARCHER CATHRØ AND ASSØCIATES LTD.

HØLE 80I010

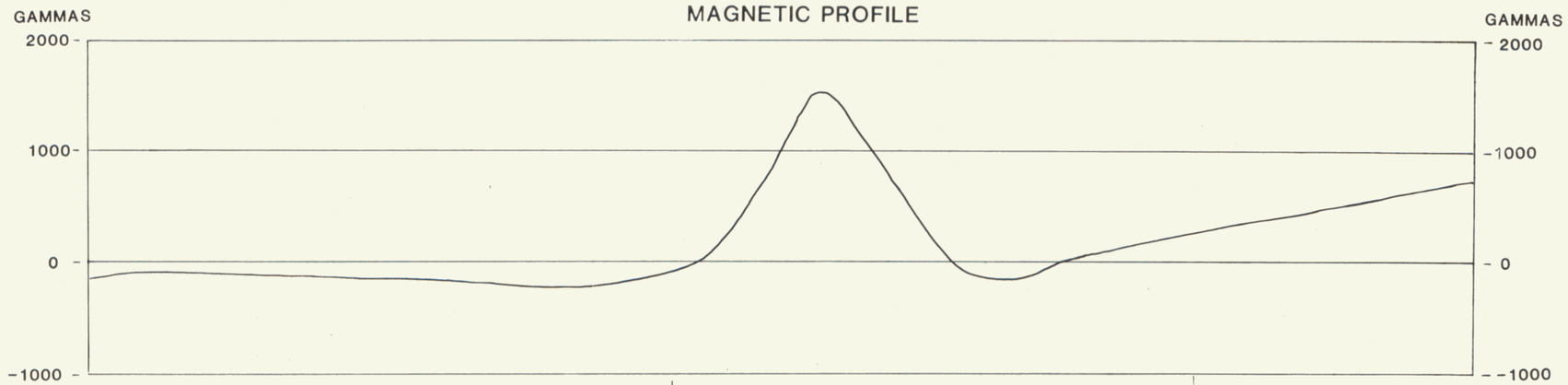
IGØR PRØPERTY

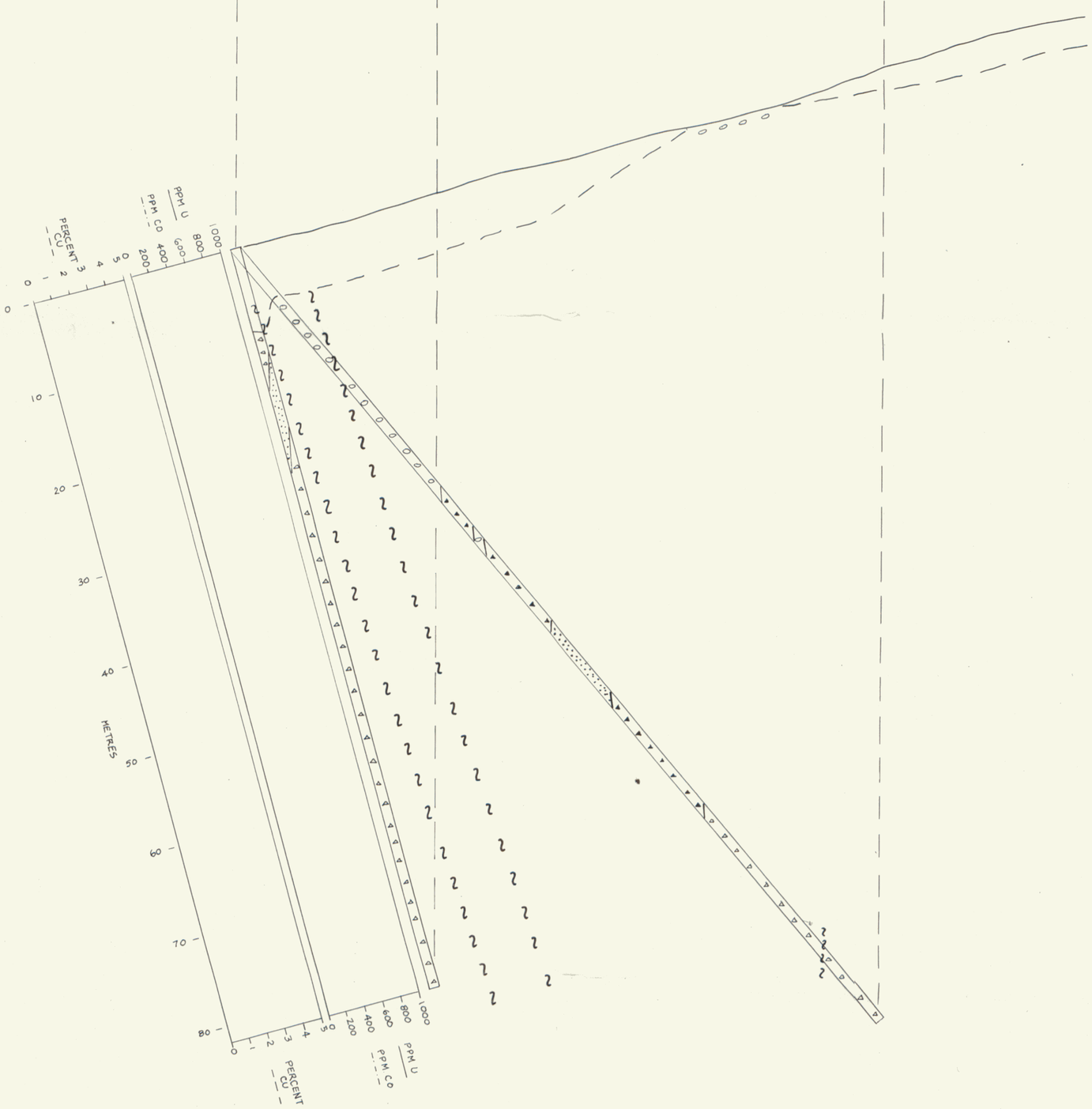
WERNECKE JØINT VENTURE

IGC GRAFLØG

INTERNATIONAL GEØSYSTEMS CØRP.

MAGNETIC PROFILE





HOLE 80 I 011

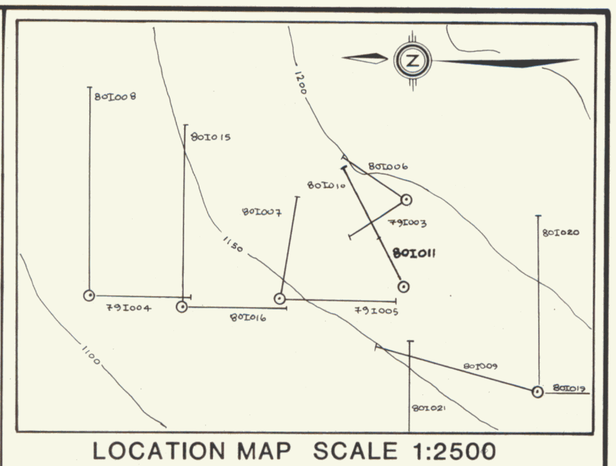
COORDINATES 35+95N, 00+43W

COLLAR ELEVATION 1169 m

AZIMUTH 063 DIP -75

DEPTH 82.4 (272 ')

SECTION FACING NORTH



LOCATION MAP SCALE 1:2500

50 25 0 50 100

METRES

LEGEND

HELIKIAN

Iron-Rich Breccia (HB4): high but variable concentrations of euhedral to massive magnetite-hematite with associated barite, pyrite, chalcopyrite & carbonates, both in matrix & replacing breccia fragments

Chloritic Breccia (HB3): dark green chloritic matrix & fragments often hematitic, associated with HB4 & fault zones

Red-Brown Breccia (HB1): heterolithic breccia with carbonate, chlorite & hematite matrix containing altered, subround His fragments. Pink to red-brown > grey to light green fragments. Breccia varies from matrix to fragment supported. Rarely foliated

Light Green Breccia (HB2): strongly foliated, silvery-grey to red-brown weathering breccia consisting of light green His phyllites, white to pink quartzite & tan limy His phyllite fragments in a tan to pink carbonate matrix; breccia is always fragment supported. Weathers recessively compared to HB1

HELIKIAN, APHEBIAN?

Quartet Group (His): grey to black shale, slate & phyllite interbedded with quartzites & siltstones exhibiting turbidite structures

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fault

ppm U

ppm Cu

ppm Co

Association of Professional Engineers, Geologists and Geophysicists of the Yukon Territory
K.R. ARCHER
GEOLOGICAL
ENGINEER

FIGURE WJV 80-142

ARCHER, CATHRO & ASSOCIATES LTD

SECTION HOLE 80I011

090756

IGOR PROPERTY

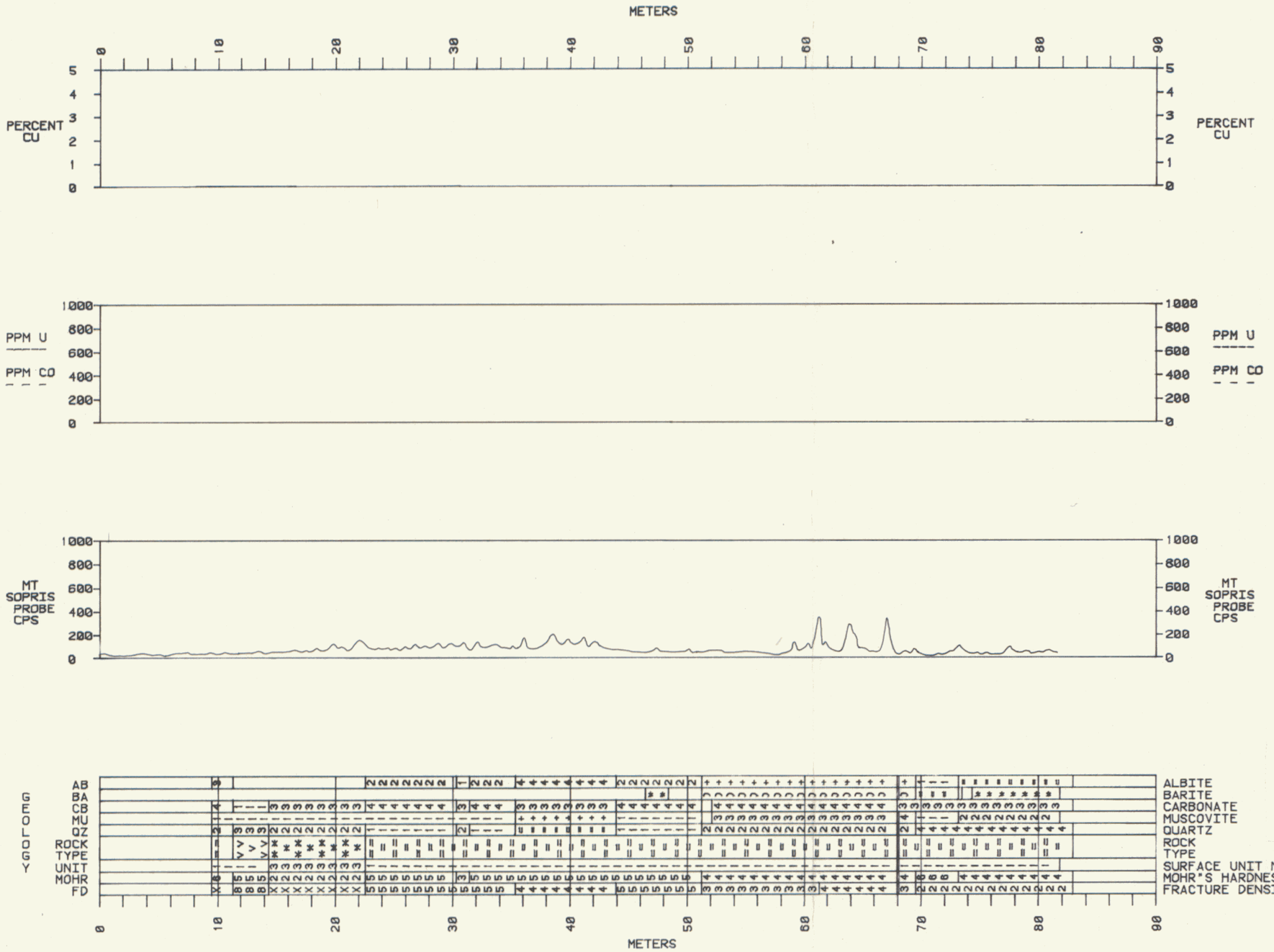
WERNECKE JOINT VENTURE

SCALE 1:400

10 8 6 4 2 0 4 8 12 16 20

metres

To accompany report dated JAN 23 1981



IGC GRAFLOG LEGEND

DEPTH (m-ft)	ENTRY / VALUE	DESCRIPTION	SYMBOL CODE	GRAFLOG
/- 66-66	0	FRACTURING LOW	66	
	1		66	
	2	FRACTURING MODERATE	66	
	3	FRACTURING HIGH	66	
	4		66	
	5	FRACTURING EXTREME	66	
/- 70-70	1	MOHR'S HARDNESS	66	
	2		66	
	3		66	
L- 25-25	0	SURFACE UNIT NO.	66	
	1		66	
/- 24-27	OVER	OVERBURDEN	111	
	SM 10	SULPHIDE BRECCIA	299	
	SM 20	SULPHIDE Y OXIDE BRECCIA	298	
	SM 25	OXIDE Y SULPHIDE BRECCIA	297	
	SM 30	OXIDE BRECCIA	297	
	SM 40	BARITE BRECCIA	295	
	SM 50	CARBONATE BRECCIA	294	
	SM 60	CHLORITE BRECCIA	293	
	SM 65	METASEDIMENT BRECCIA	292	
	SM 70	QUARTZITE BRECCIA	291	
	SM 75	PELITE BRECCIA	290	
	SM 80	QUARTZITE Y CARBONATE BRECCIA	289	
	SM 85	CARBONATE Y QUARTZITE BRECCIA	288	
	SM 90	PELITE Y QUARTZITE BRECCIA	287	
	SM 95	QUARTZITE Y PELITE BRECCIA	286	
	SM 97	PELITE Y CARBONATE BRECCIA	285	
	SM 99	CARBONATE Y PELITE BRECCIA	284	
	SM 100	PELITE	283	
/- 50-50	-1	< 0.2 QUARTZ	47	
		0.2 TO < 2	42	
		2 TO < 7	43	
		7 TO < 12	44	
		12 TO < 20	45	
		20 TO < 30	46	
		30 TO < 40	47	
		40 TO < 50	48	
		50 TO < 60	49	
		60 TO < 70	50	
		70 TO < 80	51	
		80 TO < 90	52	
		90 TO 100	53	
L- 50-50	-1	< 0.2 MUSCOVITE	47	
		0.2 TO < 2	42	
		2 TO < 7	43	
		7 TO < 12	44	
		12 TO < 20	45	
		20 TO < 30	46	
		30 TO < 40	47	
		40 TO < 50	48	
		50 TO < 60	49	
		60 TO < 70	50	
		70 TO < 80	51	
		80 TO < 90	52	
		90 TO 100	53	
/- 52-52	-1	< 0.2 CARBONATE	47	
		0.2 TO < 2	42	
		2 TO < 7	43	
		7 TO < 12	44	
		12 TO < 20	45	
		20 TO < 30	46	
		30 TO < 40	47	
		40 TO < 50	48	
		50 TO < 60	49	
		60 TO < 70	50	
		70 TO < 80	51	
		80 TO < 90	52	
		90 TO 100	53	
L- 50-50	-1	< 0.2 BARITE	47	
		0.2 TO < 2	42	
		2 TO < 7	43	
		7 TO < 12	44	
		12 TO < 20	45	
		20 TO < 30	46	
		30 TO < 40	47	
		40 TO < 50	48	
		50 TO < 60	49	
		60 TO < 70	50	
		70 TO < 80	51	
		80 TO < 90	52	
		90 TO 100	53	
/- 50-50	-1	< 0.2 ALBITE	47	
		0.2 TO < 2	42	
		2 TO < 7	43	
		7 TO < 12	44	
		12 TO < 20	45	
		20 TO < 30	46	
		30 TO < 40	47	
		40 TO < 50	48	
		50 TO < 60	49	
		60 TO < 70	50	
		70 TO < 80	51	
		80 TO < 90	52	
		90 TO 100	53	

FIG. WJV 80-I43

ARCHER CATHRO AND ASSOCIATES LTD.

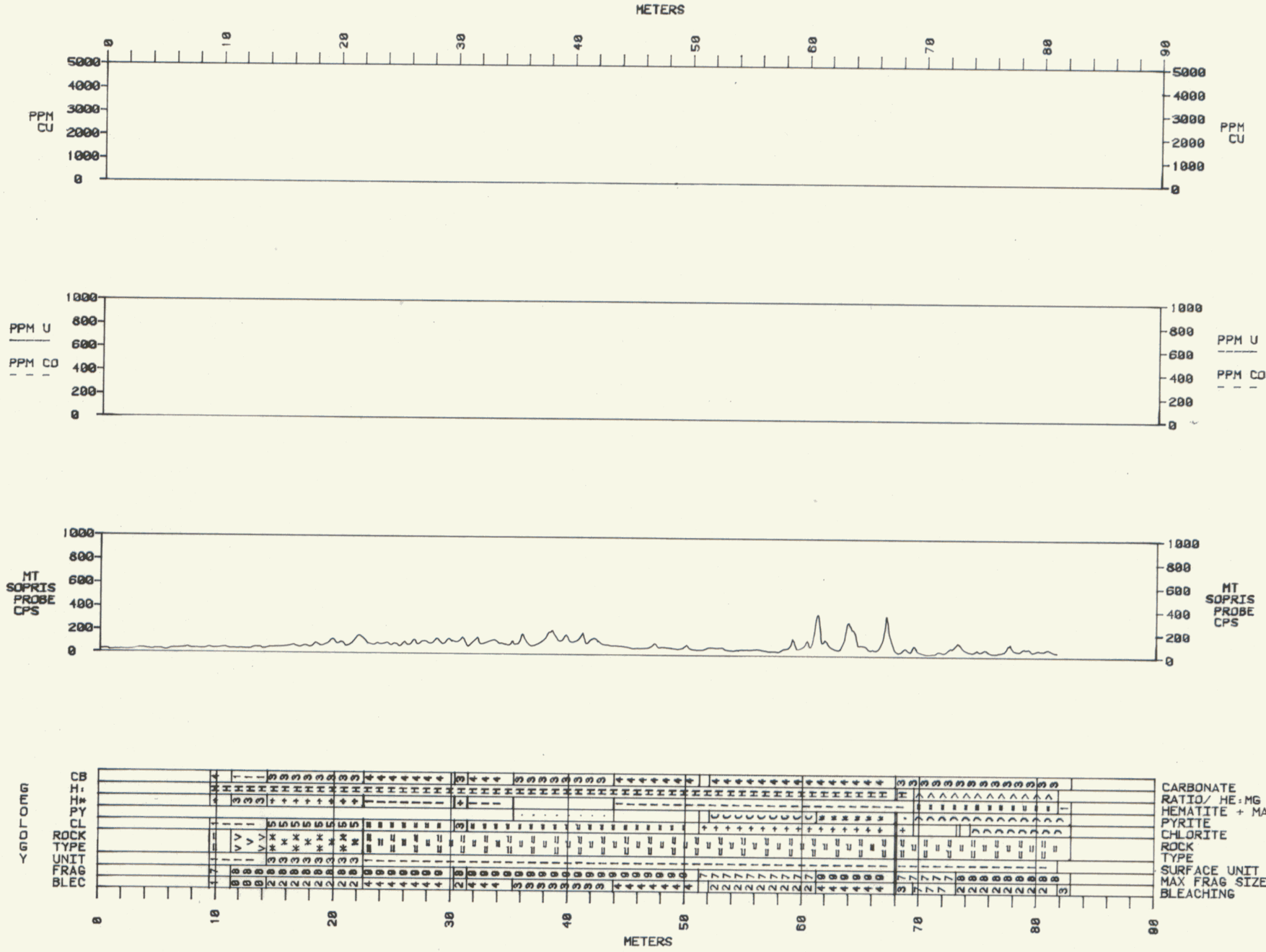
HOLE 80I011

IGOR PROPERTY

WERNECKE JOINT VENTURE

IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.



IGC GRAFLOG LEGEND

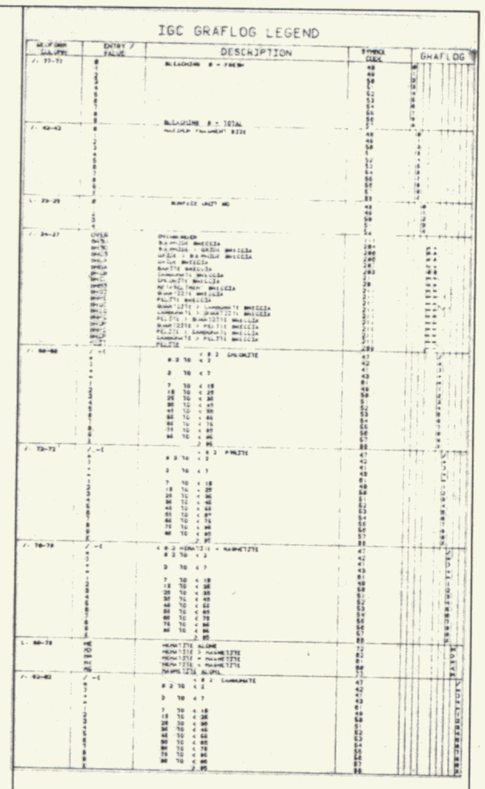


FIG. WJV 80-I44

ARCHER CATHRO AND ASSOCIATES LTD.

HOLE 80I011

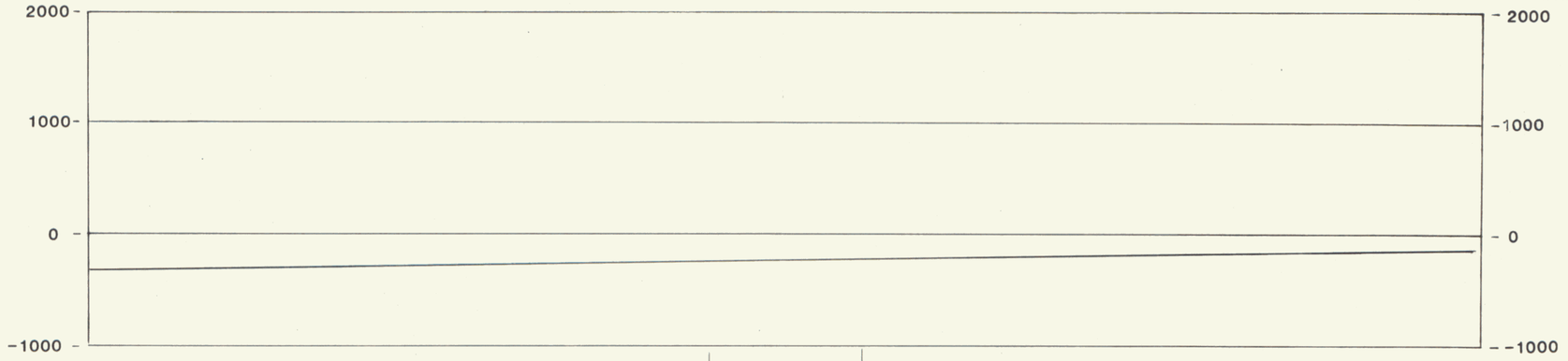
IGOR PROPERTY

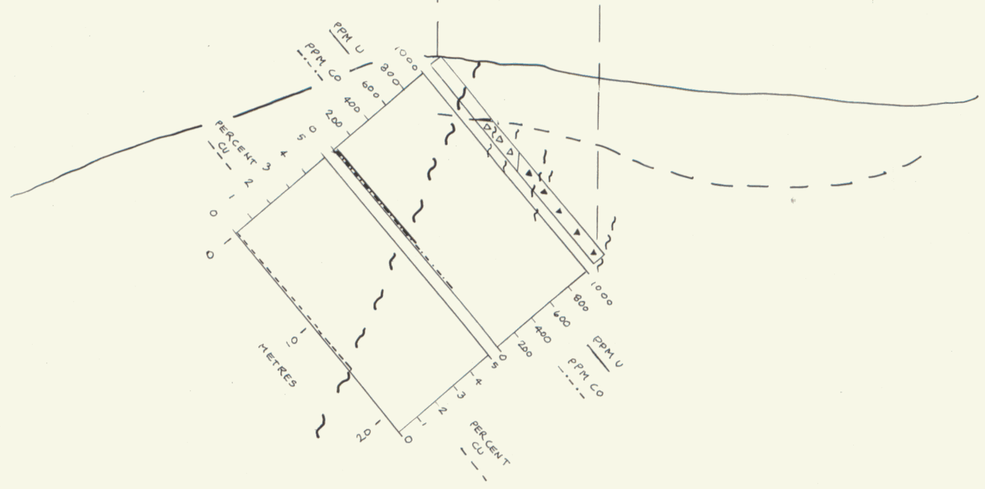
WERNECKE JOINT VENTURE

IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.

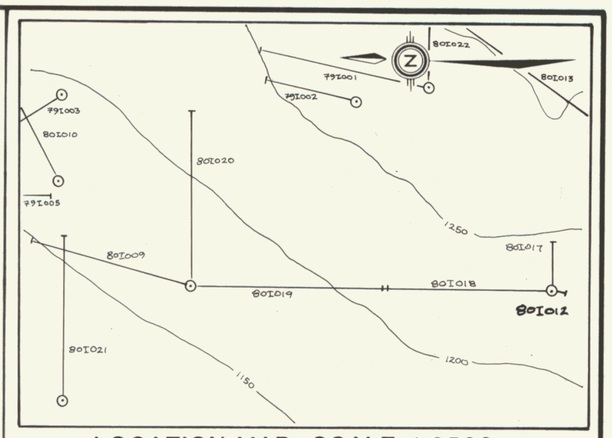
MAGNETIC PROFILE





SECTION FACING EAST

HOLE 80 I 012
COORDINATES 33+60N, 00+97.5W
COLLAR ELEVATION 1230 m
AZIMUTH 190 DIP -50
DEPTH 21.82 (72 ')



LOCATION MAP SCALE 1:2500

50 25 0 50 100
METRES

LEGEND

HELIKIAN

Iron-Rich Breccia (HB4): high but variable concentrations of euhedral to massive magnetite-hematite with associated barite, pyrite, chalcopyrite & carbonates, both in matrix & replacing breccia fragments

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HELIKIAN, APHEBIAN?

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fault

ppm U

ppm Cu

ppm Co

Association of Professional Engineers of the Yukon Territory
A. R. ARCHER
GEOLOGICAL
ENGINEER

FIGURE WJV 80-I 45
ARCHER, CATHRO & ASSOCIATES LTD

SECTION HOLE 80I012

090756

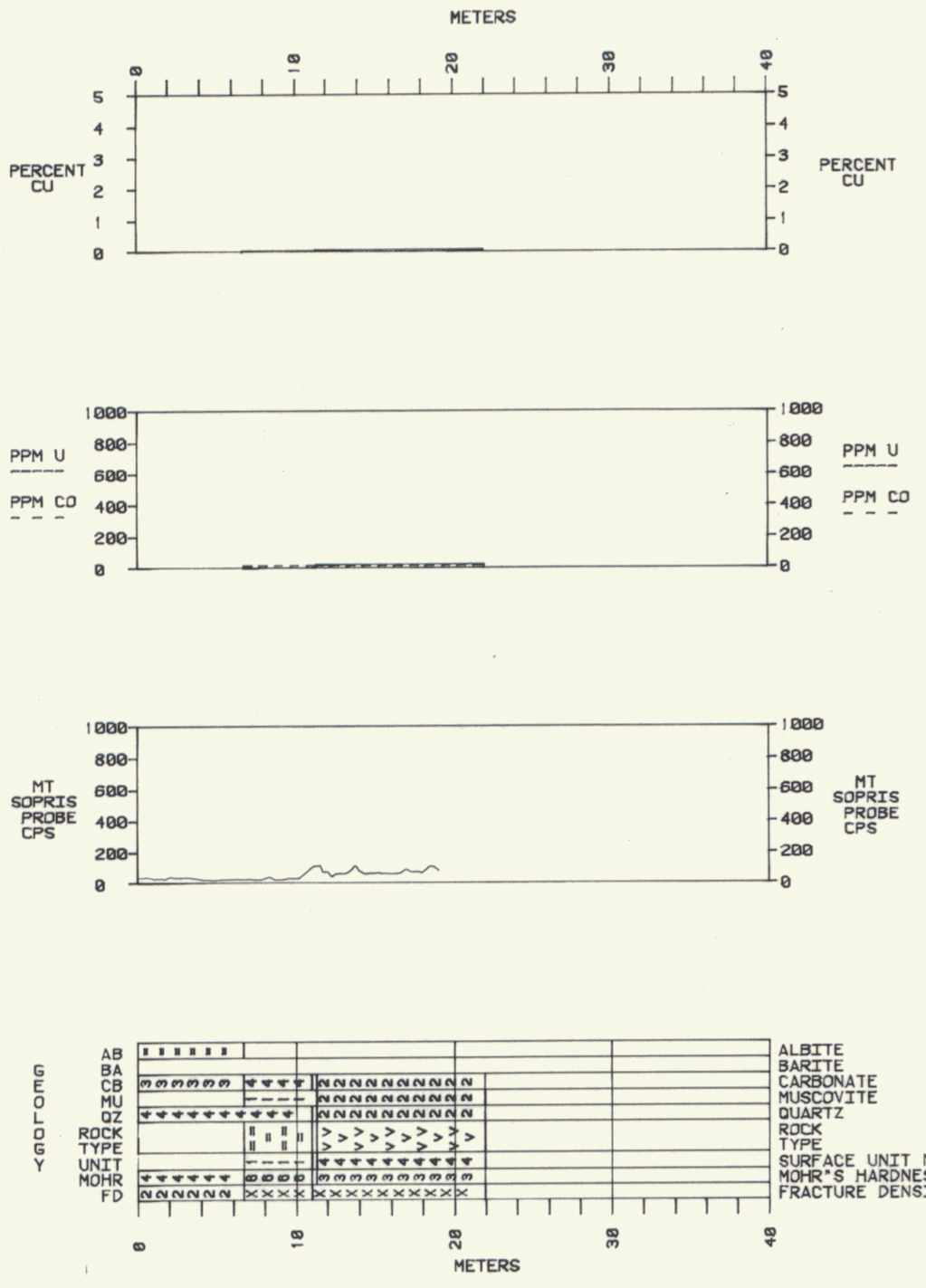
IGOR PROPERTY

WERNECKE JOINT VENTURE

SCALE 1:400

10 8 6 4 2 0 4 8 12 16 20
metres

JAN 23 1981
To accompany report dated ~~Dec., 1980~~



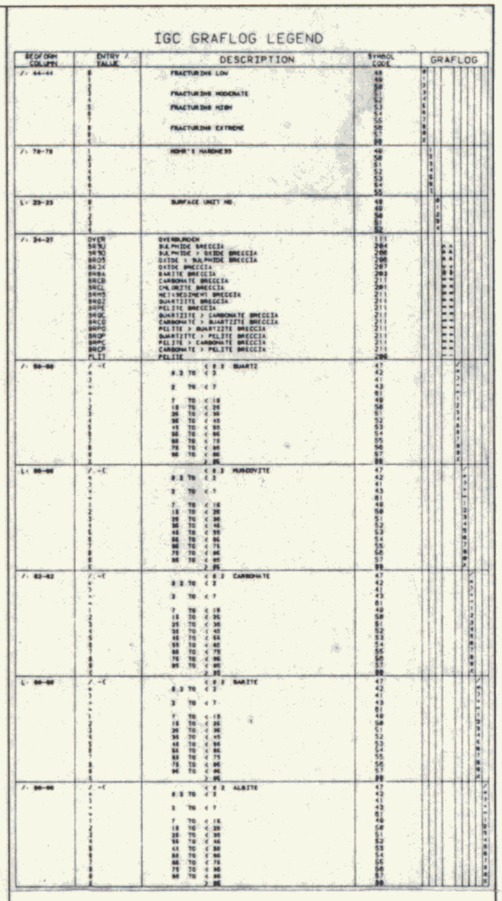


FIG. WJV 80-I46

ARCHER CATHRO AND ASSOCIATES LTD.

HOLE 80I012

IGOR PROPERTY

WERNECKE JOINT VENTURE

IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.

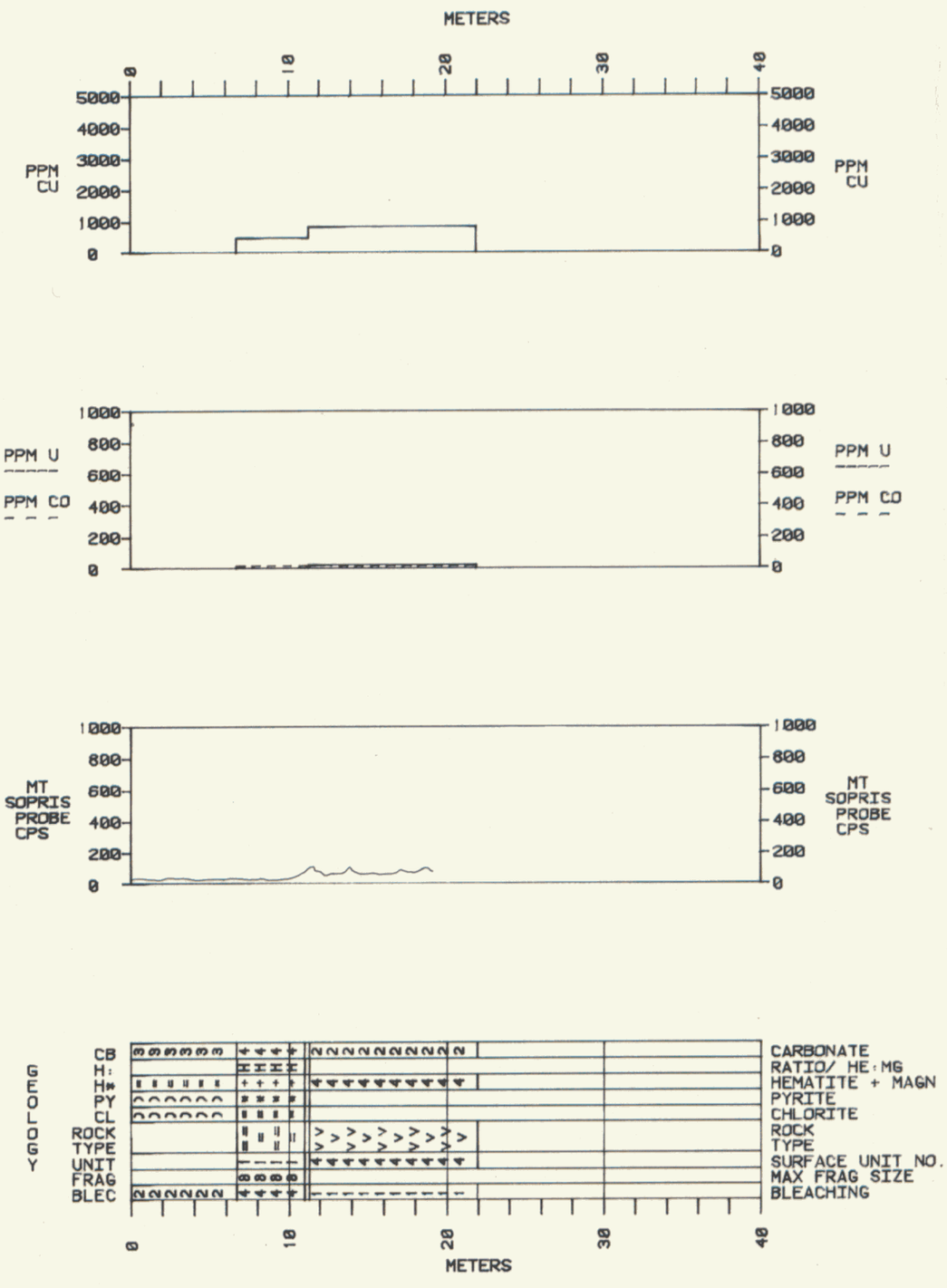


FIG. WJV 80-I47

ARCHER CATHRO AND ASSOCIATES LTD.

HOLE 80I012

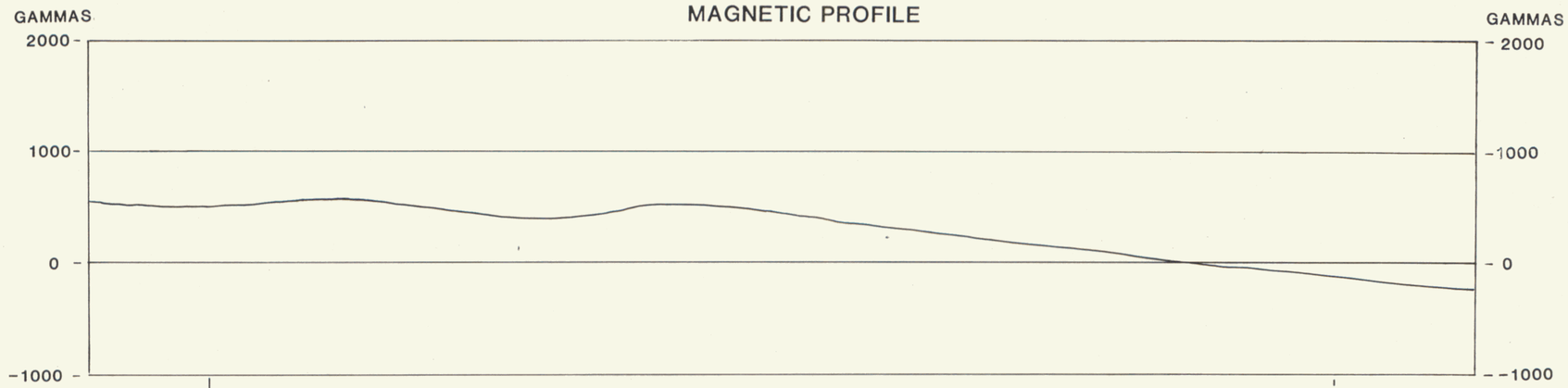
IGOR PROPERTY

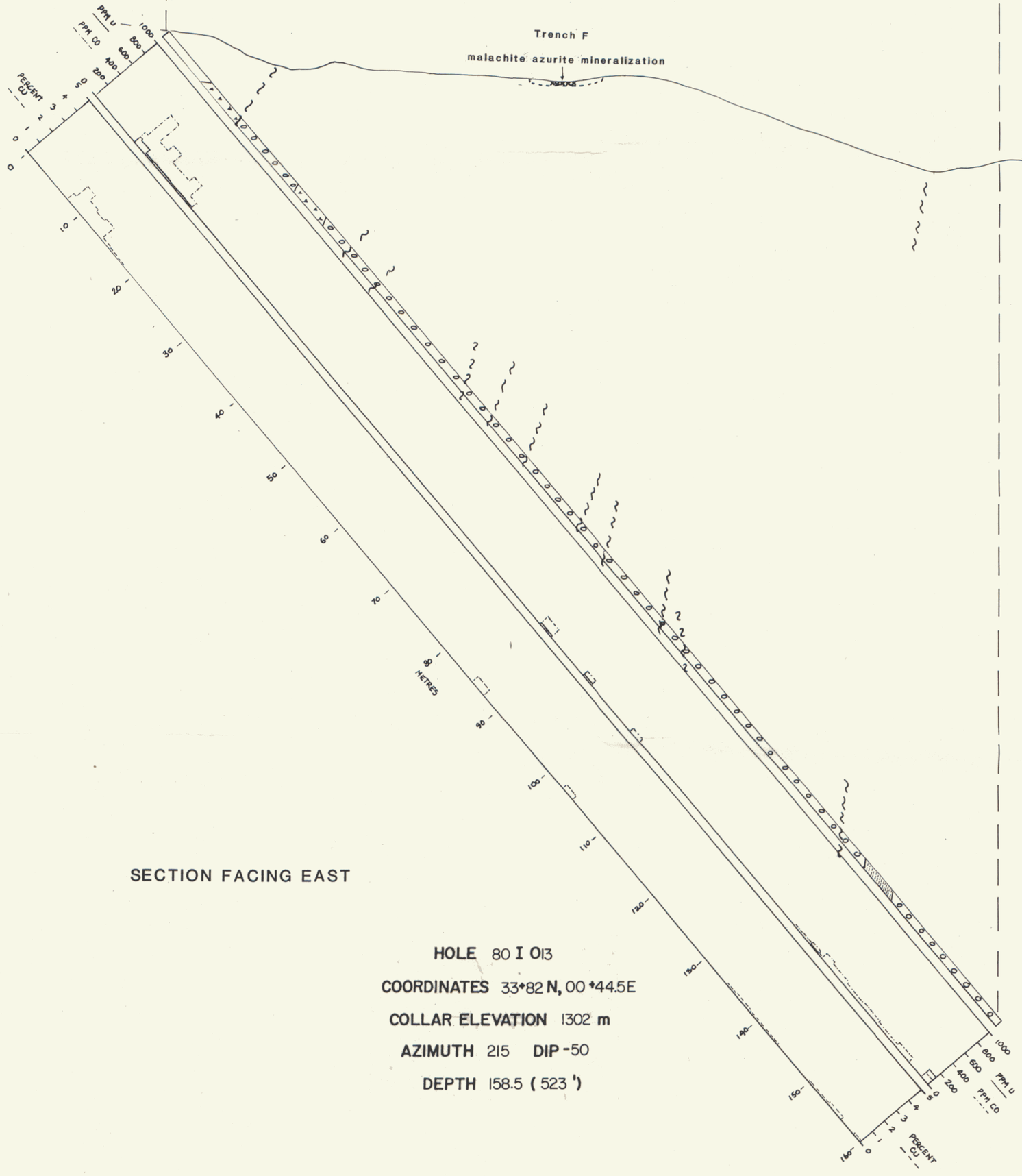
WERNECKE JOINT VENTURE

IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.

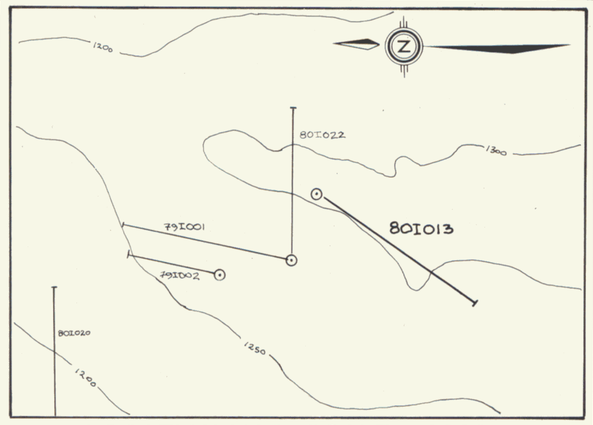
MAGNETIC PROFILE





SECTION FACING EAST

HOLE 80 I 013
COORDINATES 33+82 N, 00+44.5E
COLLAR ELEVATION 1302 m
AZIMUTH 215 DIP -50
DEPTH 158.5 (523 ')



LOCATION MAP SCALE 1:2500

50 25 0 50 100
METRES

LEGEND

HELIKIAN

Iron-Rich Breccia (HB4): high but variable concentrations of euhedral to massive magnetite-hematite with associated barite, pyrite, chalcopyrite & carbonates, both in matrix & replacing breccia fragments

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fault

ppm U

ppm Cu

ppm Co

Association of Professional Engineers of the Yukon Territory
A. R. ARCHER
GEOLOGICAL
ENGINEER

FIGURE WJV 80-I48

ARCHER, CATHRO & ASSOCIATES LTD

SECTION HOLE 80I013

090756

IGOR PROPERTY

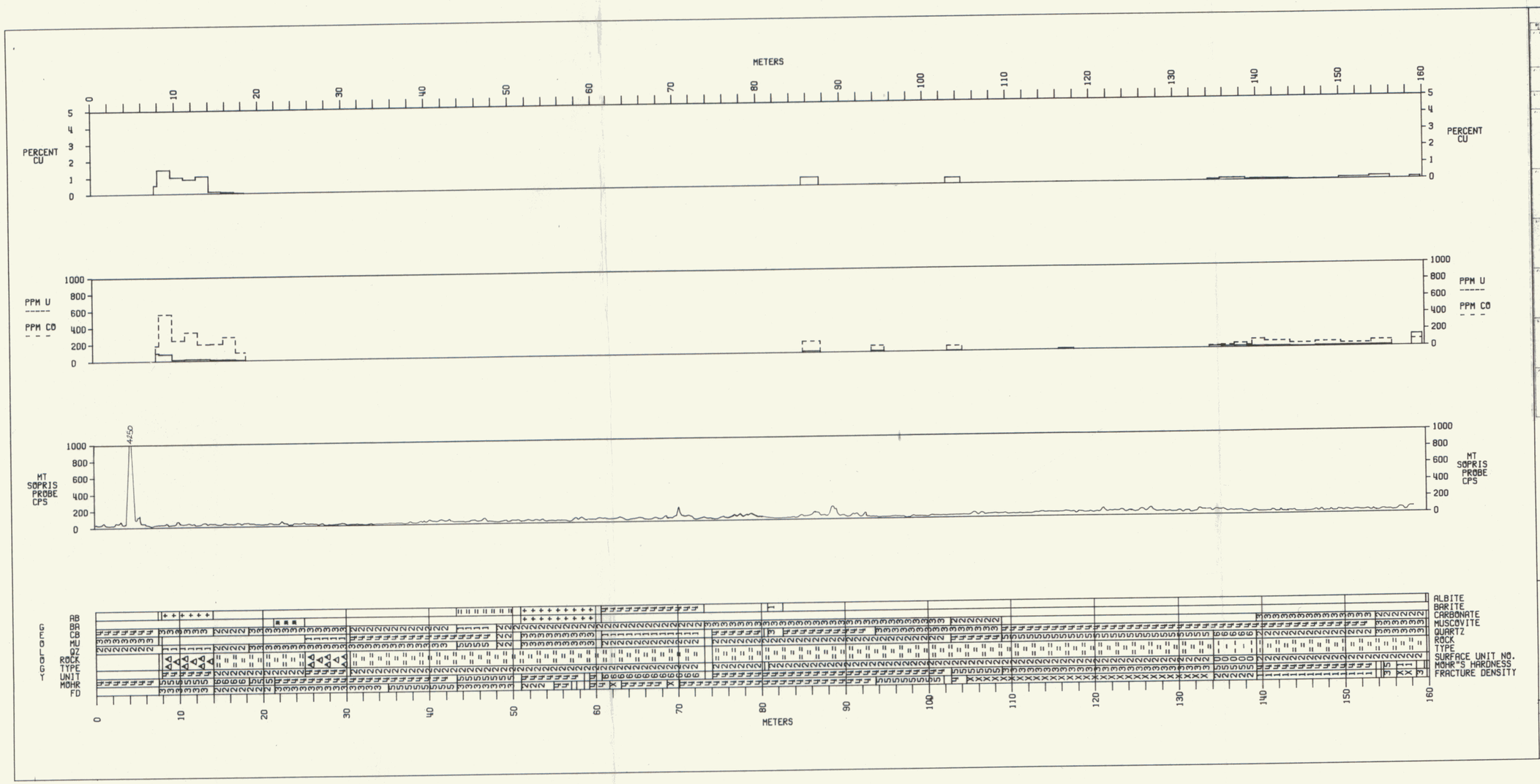
WERNECKE JOINT VENTURE

SCALE 1:400

10 8 6 4 2 0 4 8 12 14 20
metres

JAN 23 1981

To accompany report dated [illegible]



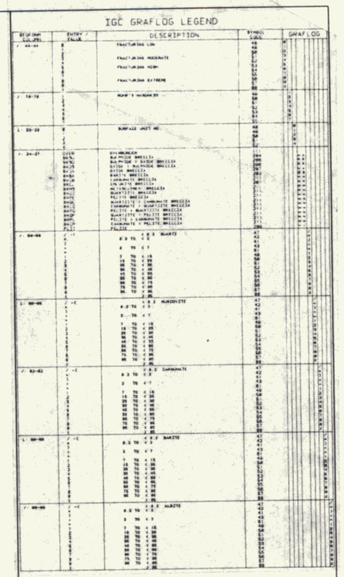


FIG. WJV 80-I49

ARCHER CATHRO AND ASSOCIATES LTD.

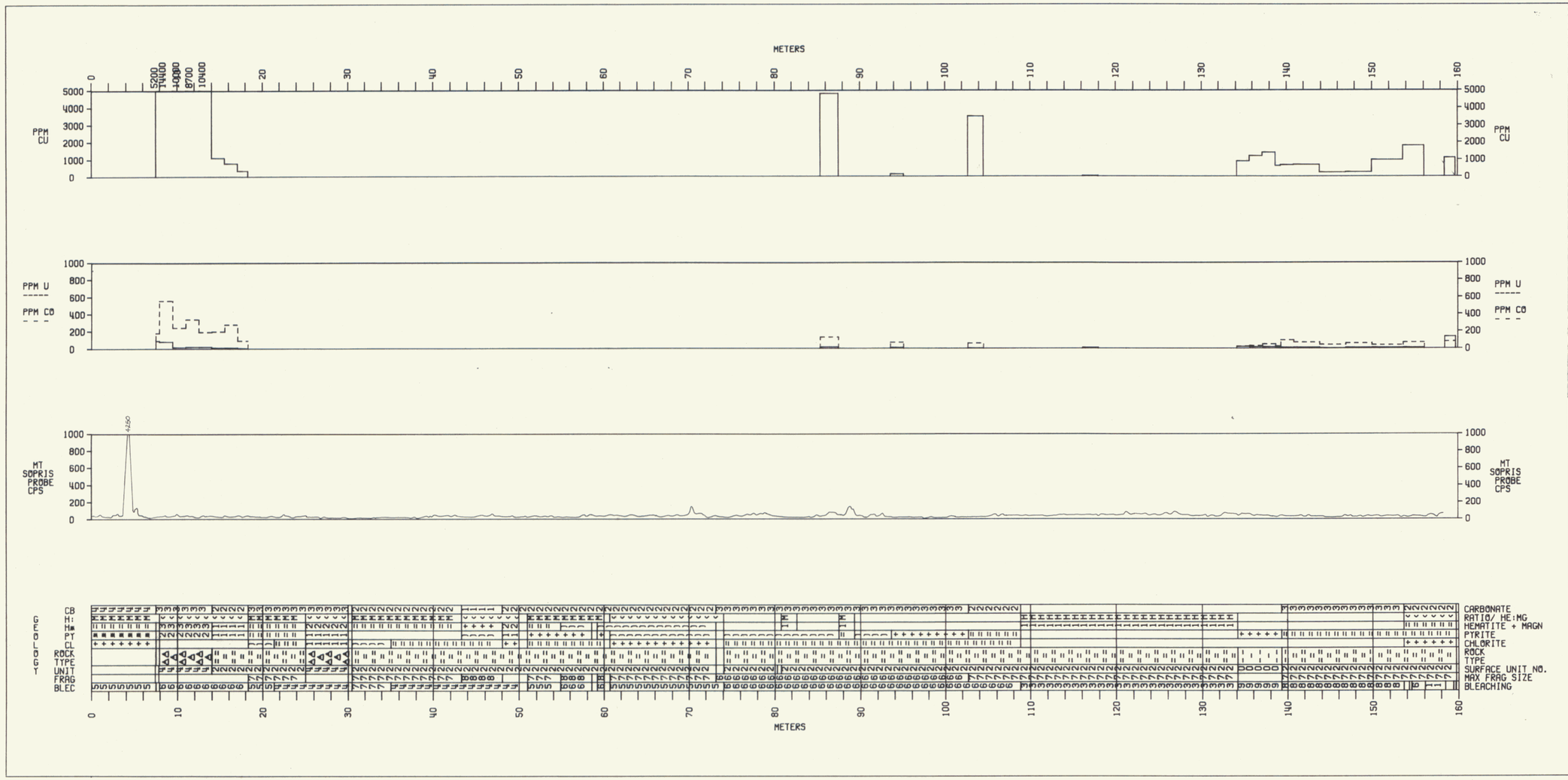
HOLE 80I013

IGOR PROPERTY

WERNECKE JOINT VENTURE

IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.



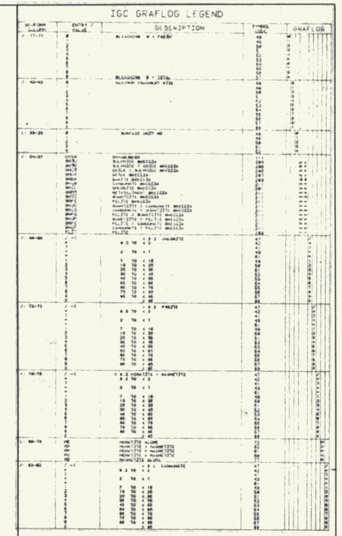


FIG. WJV 80-I50

ARCHER CATHRO AND ASSOCIATES LTD.

HOLE 80I013

IGOR PROPERTY

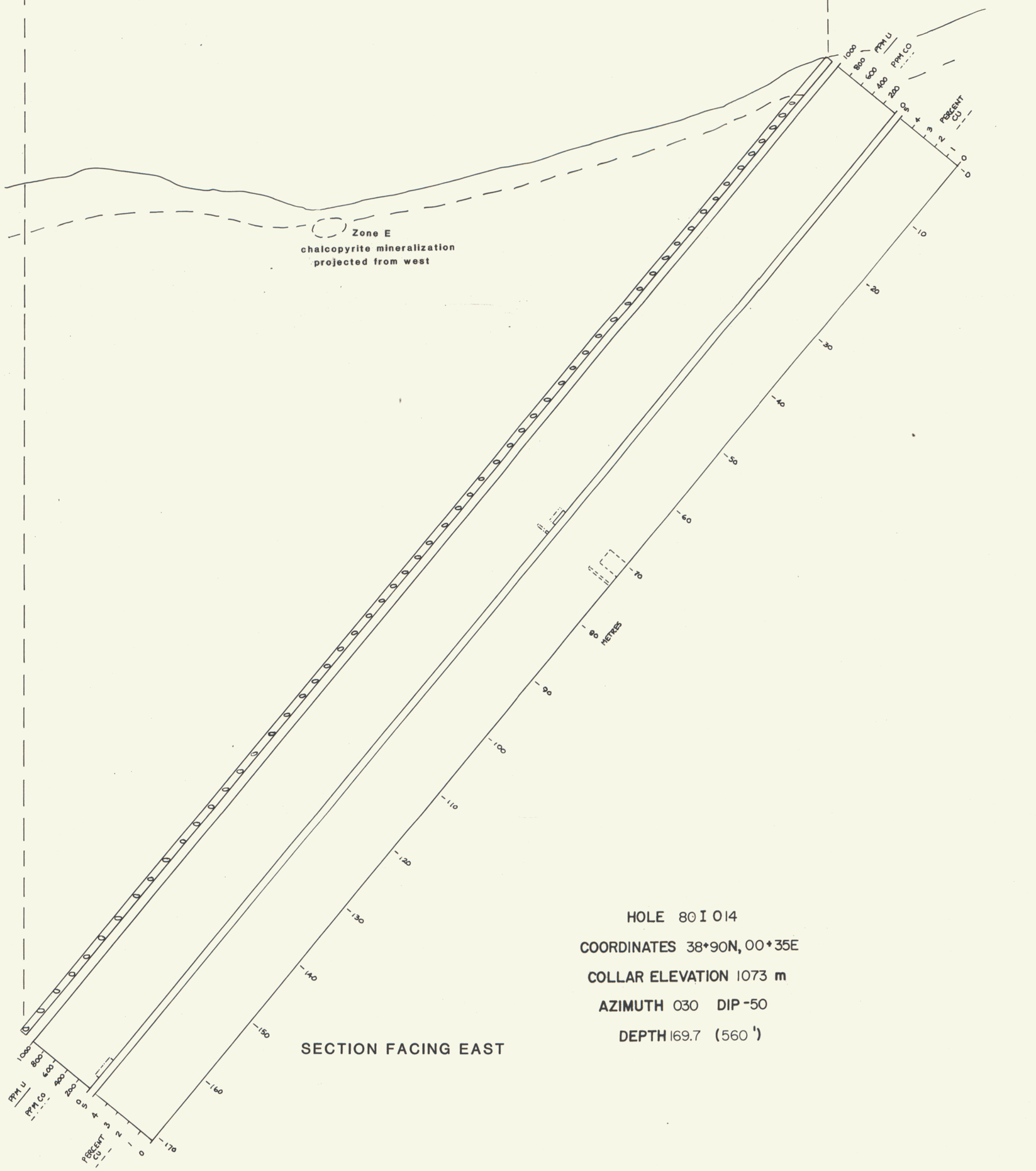
WERNECKE JOINT VENTURE

IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.

MAGNETIC PROFILE

GAMMAS 2000 / 1000 / 0 / -1000 — NOT COVERED BY MAGNETIC SURVEY



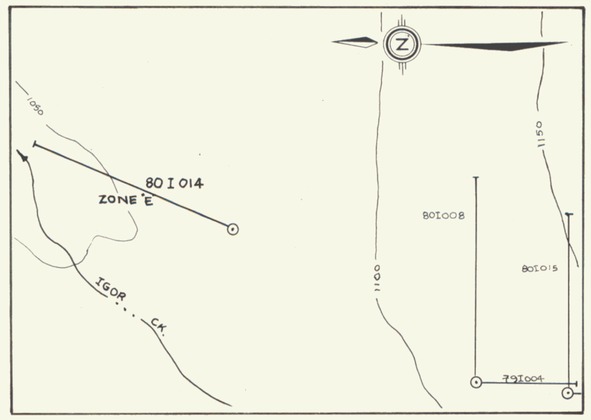
HOLE 80 I 014

COORDINATES 38+90N, 00+35E

COLLAR ELEVATION 1073 m

AZIMUTH 030 DIP -50

DEPTH 169.7 (560 ')



LOCATION MAP SCALE 1:2500

50 25 0 50 100
METRES

LEGEND

HELIKIAN

Iron-Rich Breccia (HB4): high but variable concentrations of euhedral to massive magnetite-hematite with associated barite, pyrite, chalcopyrite & carbonates, both in matrix & replacing breccia fragments

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fault

ppm U

ppm Cu

ppm Co

Association of Professional Engineers of the Yukon Territory
A. R. ARCHER
GEOLOGICAL
ENGINEER

FIGURE WJV 80-I51

ARCHER, CATHRO & ASSOCIATES LTD

SECTION HOLE 80I014

090756

IGOR PROPERTY

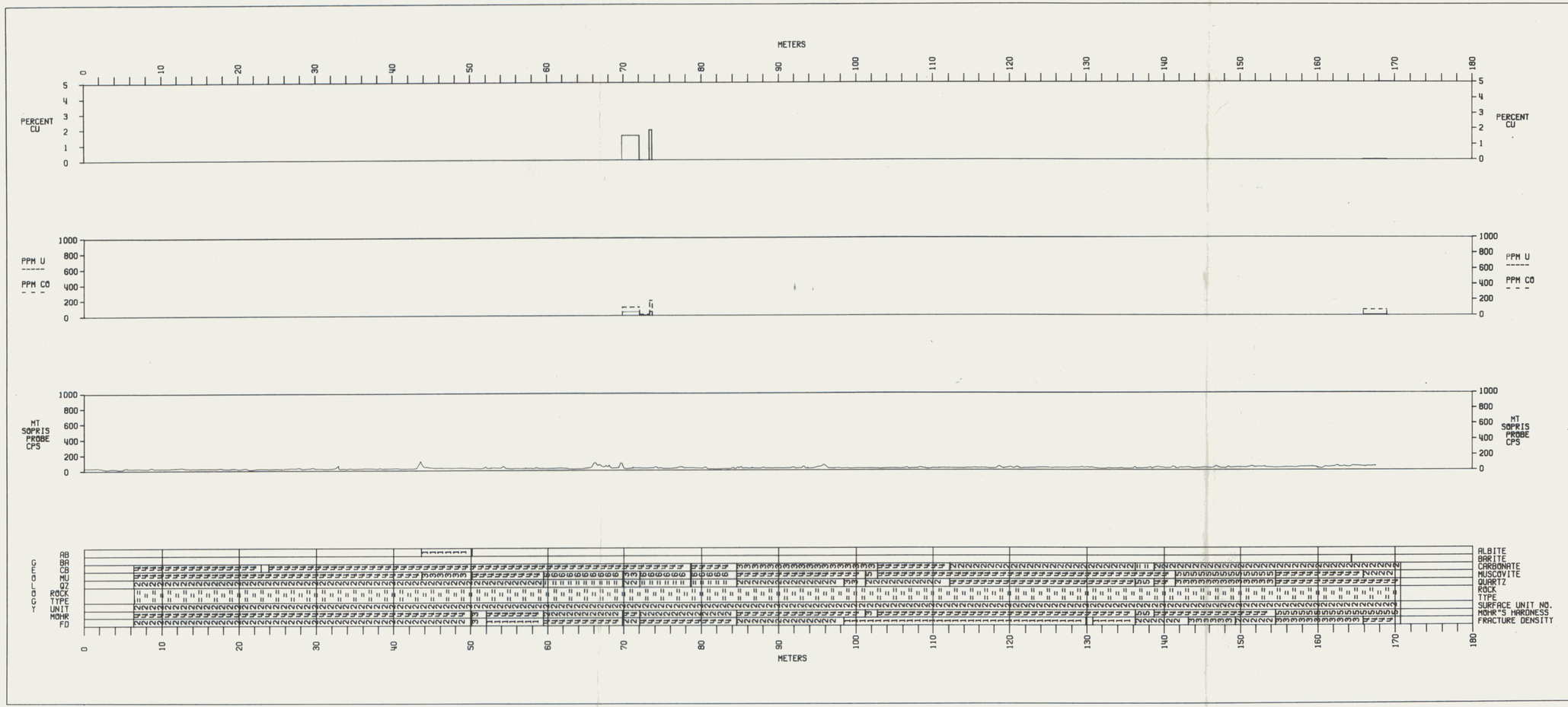
WERNECKE JOINT VENTURE

SCALE 1:400

10 8 6 4 2 0 4 8 12 16 20
metres

JAN 23 1981

To accompany report dated ~~Dec. 1980~~



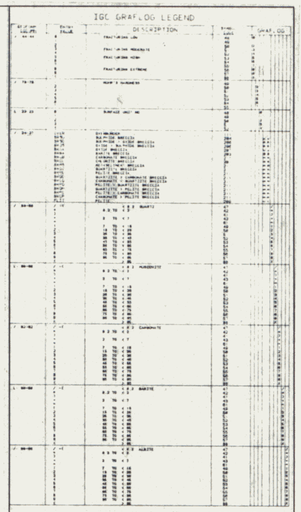


FIG. WJV 80-I52

ARCHER CATHRO AND ASSOCIATES LTD.

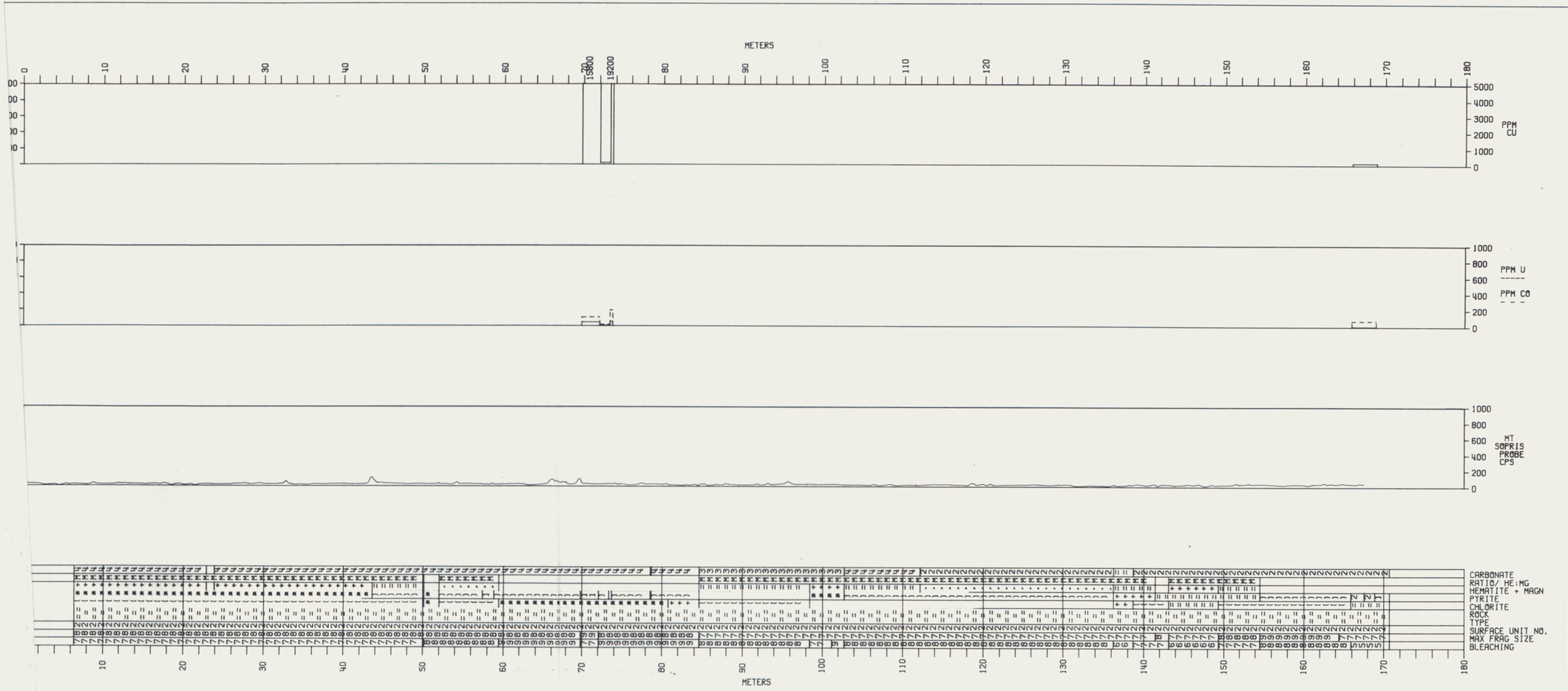
HOLE 80IO14

IGOR PROPERTY

WERNECKE JOINT VENTURE

IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.



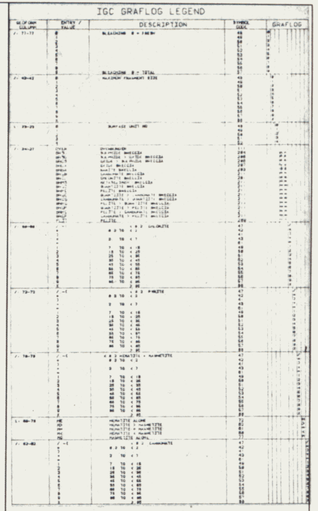


FIG. WJV 80-I53

ARCHER CATHRO AND ASSOCIATES LTD.

HØLE 80IO14

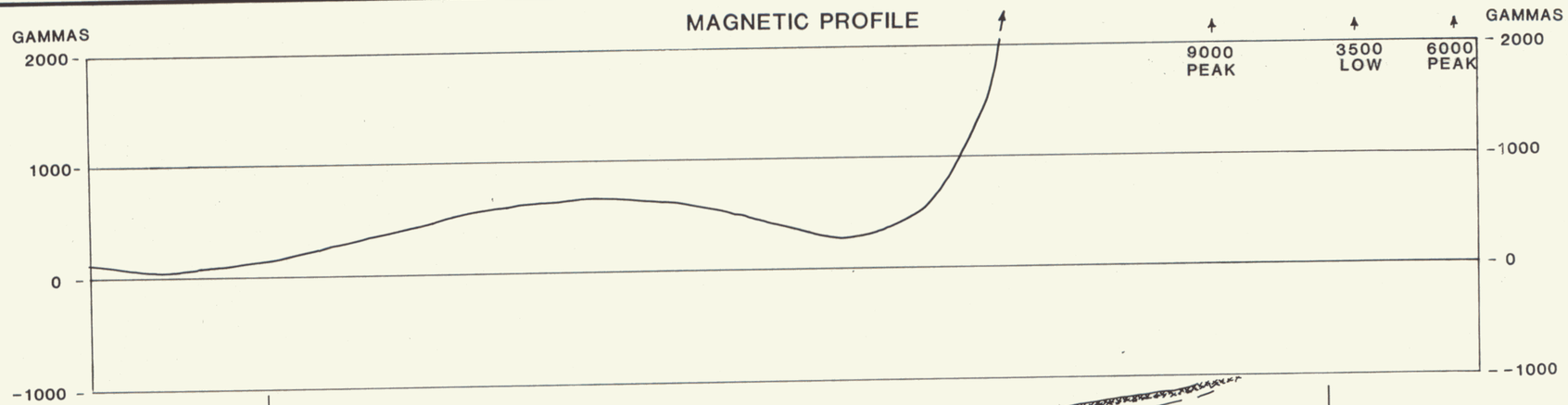
IGOR PROPERTY

WERNECKE JOINT VENTURE

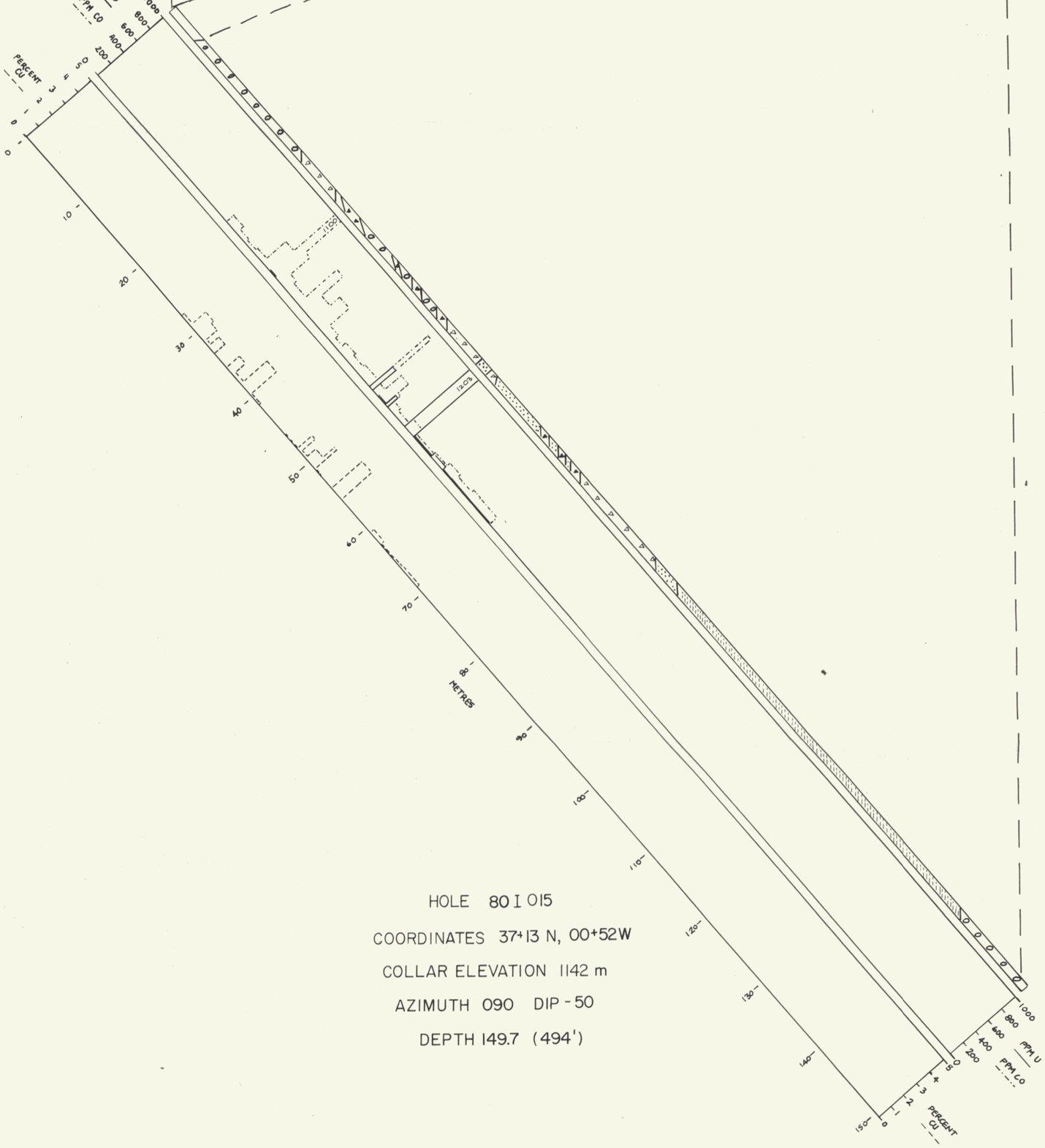
IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.

MAGNETIC PROFILE



Mg 10-40% He T-25%
Py T-20%, Cp T-5%
(Ma) (0-50%)



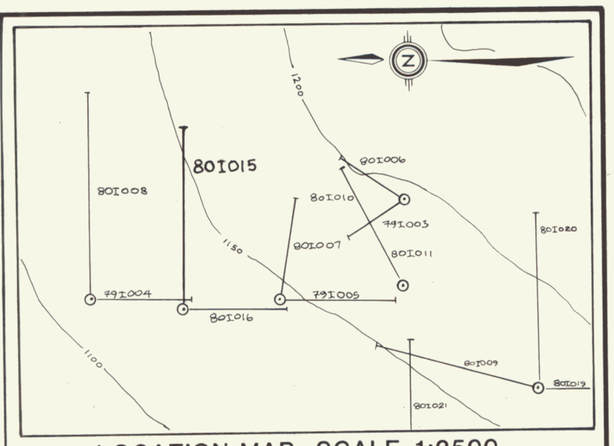
HOLE 80 I 015

COORDINATES 37+13 N, 00+52W

COLLAR ELEVATION 1142 m

AZIMUTH 090 DIP -50

DEPTH 149.7 (494')



LOCATION MAP SCALE 1:2500

50 25 0 50 100
METRES

LEGEND

HELIKIAN

- Iron-Rich Breccia (HB4): high but variable concentrations of euhedral to massive magnetite-hematite with associated barite, pyrite, chalcopyrite & carbonates, both in matrix & replacing breccia fragments
- Chloritic Breccia (HB3): dark green chloritic matrix & fragments often hematitic, associated with HB4 & fault zones
- Red-Brown Breccia (HB1): heterolithic breccia with carbonate, chlorite & hematite matrix containing altered, subround Hs fragments. Pink to red-brown > grey to light green fragments. Breccia varies from matrix to fragment supported. Rarely foliated.
- Light Green Breccia (HB2): strongly foliated, silvery grey to red-brown weathering breccia consisting of light green Hs phyllites, white to pink quartzite & tan limy Hs phyllite fragments in a tan to pink carbonate matrix. Breccia is always fragment supported. Weathers recessively compared to HB1

HELIKIAN, APHEBIAN?

- Quartet Group (Hs): grey to black shale, slate & phyllite interbedded with quartzites & siltstones exhibiting turbidite structures
- Altered Quartet Group (Hsa): bleached, hematized & carbonatized equivalent of Hs, pale green phyllites, brown weathering grey siltstones and white-pink quartzites, occasionally limy

- fault
- ppm U
- ppm Cu
- ppm Co

Mineral occurrences:
(5%) - the percentage of rocks in the occurrence area that are mineralized; If no square bracketed number is given, less than 1% of the rocks are mineralized.
Cp 1-2%, Py 5-10% - average mineral content of mineralized fragments
(He, Mg) - minor minerals present

- single rock location with % of various minerals

T	trace
Cp	chalcopyrite
Py	pyrite
Mg	magnetite
He	hematite
Ma	malachite
Az	azurite
Ba	barite
Sd	siderite

Association of Professional Engineers of the Yukon Territory
A. R. ARCHER
GEOLOGICAL
ENGINEER

FIGURE WJV 80-154

ARCHER, CATHRO & ASSOCIATES LTD

SECTION HOLE 80I015

090756

IGOR PROPERTY

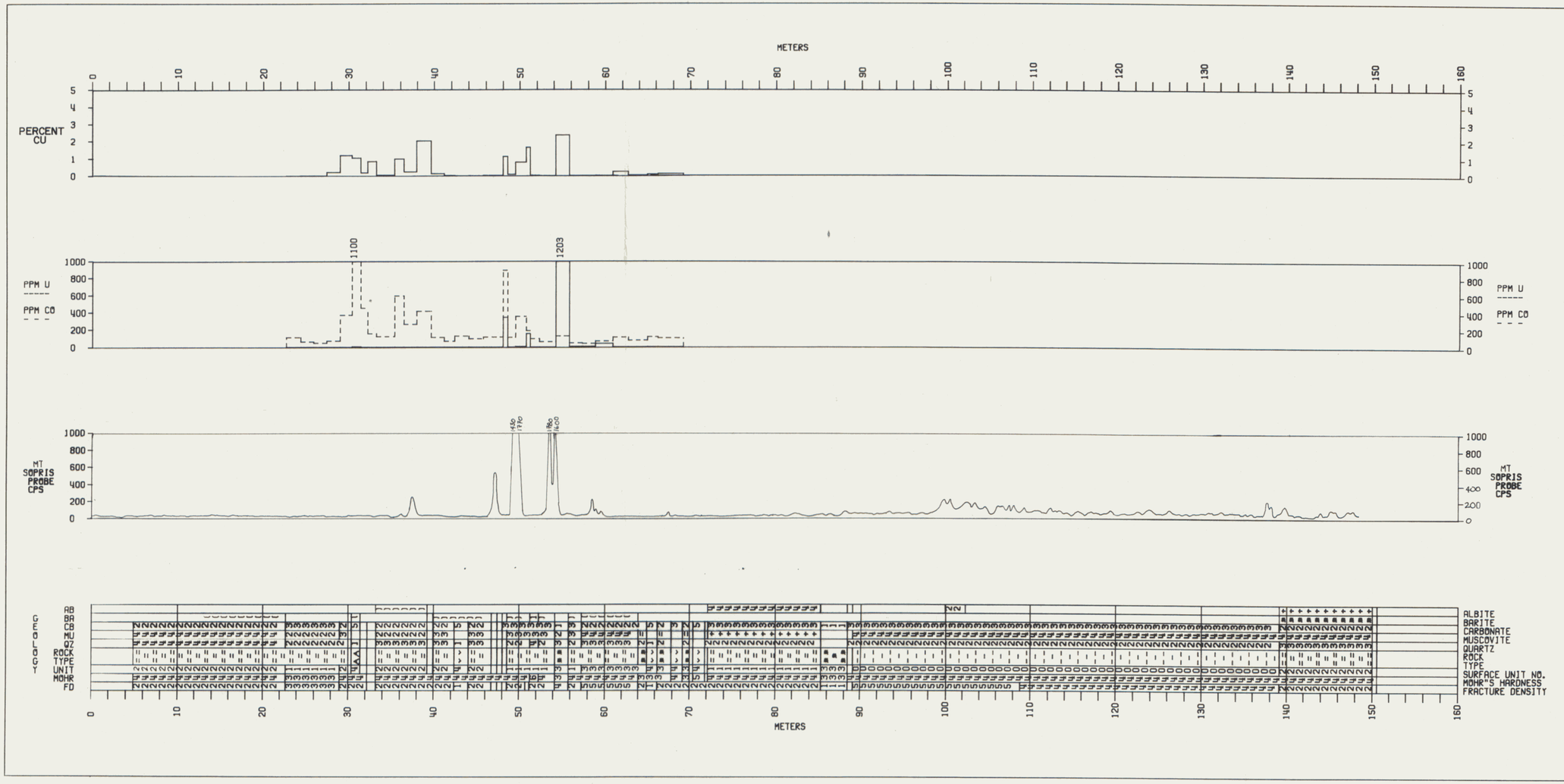
WERNECKE JOINT VENTURE

SCALE 1:400

10 8 6 4 2 0 4 8 12 16 20
metres

JAN 23 1981

To accompany report dated ~~Dec., 1980~~



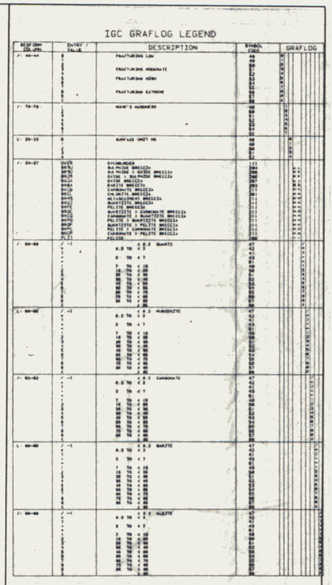


FIG. WJV 80-I55

ARCHER CATHRO AND ASSOCIATES LTD.

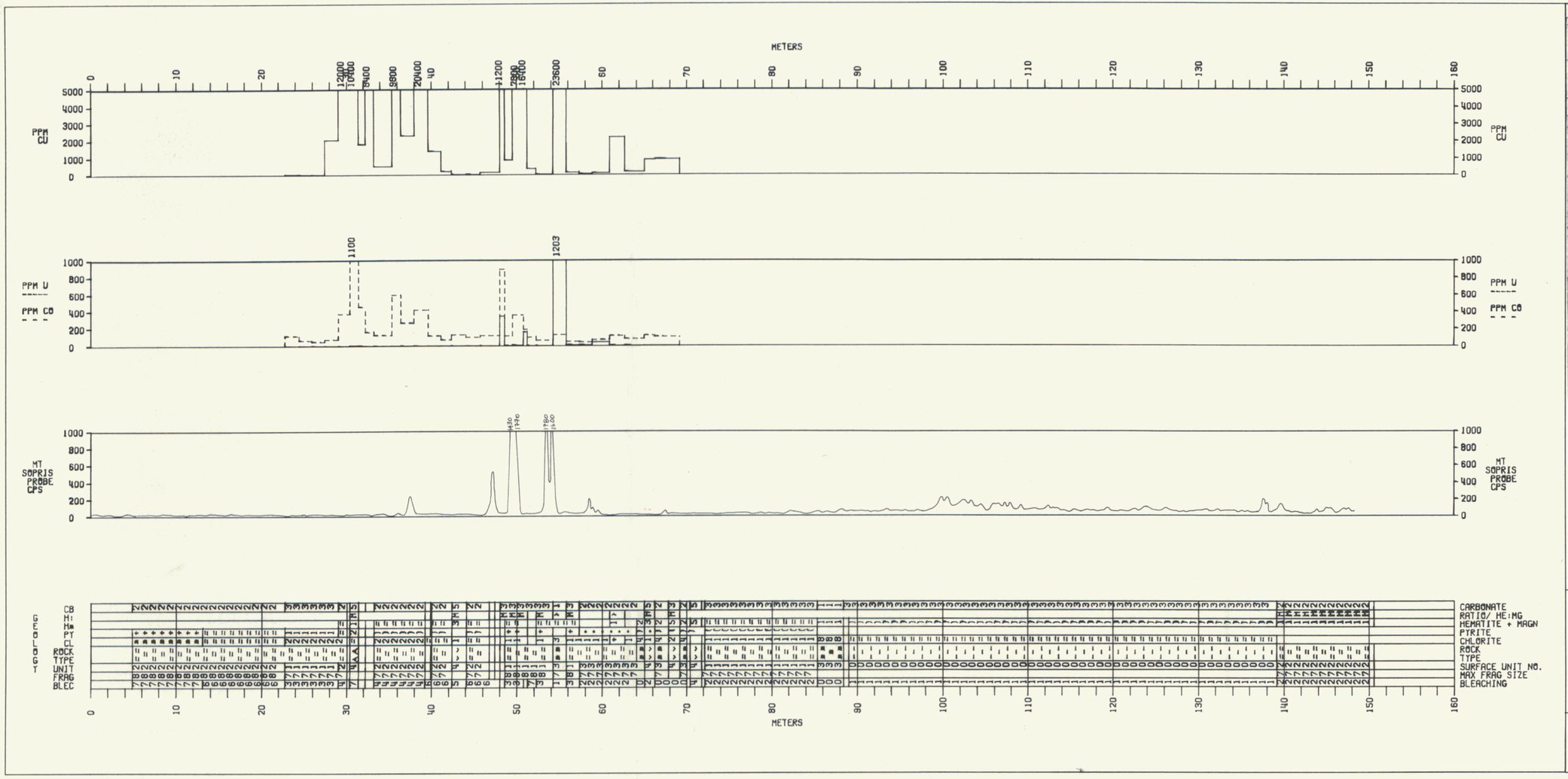
HØLE 80IO15

IGOR PROPERTY

WERNECKE JOINT VENTURE

IGC GRAFLØG

INTERNATIONAL GEOSYSTEMS CORP.



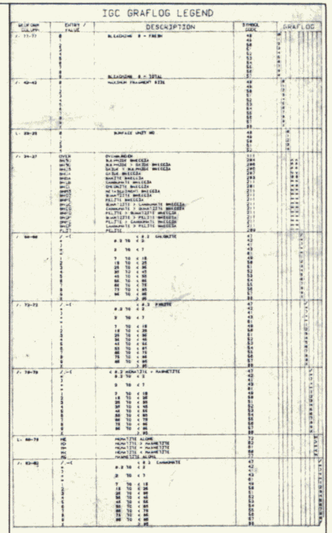


FIG. WJV 80-I56

ARCHER CATHRO AND ASSOCIATES LTD.

HØLE 80IO15

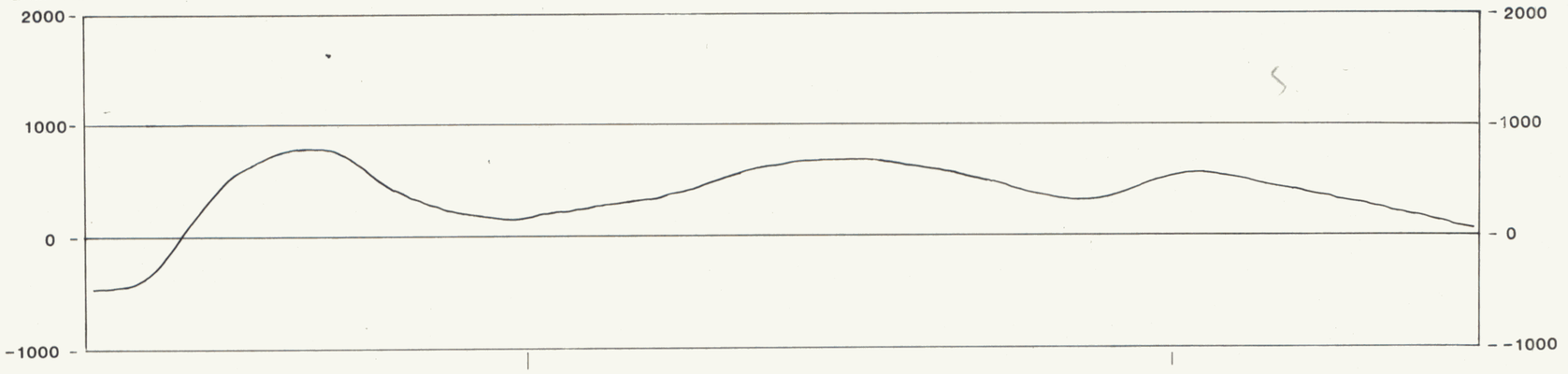
IGØR PROPERTY

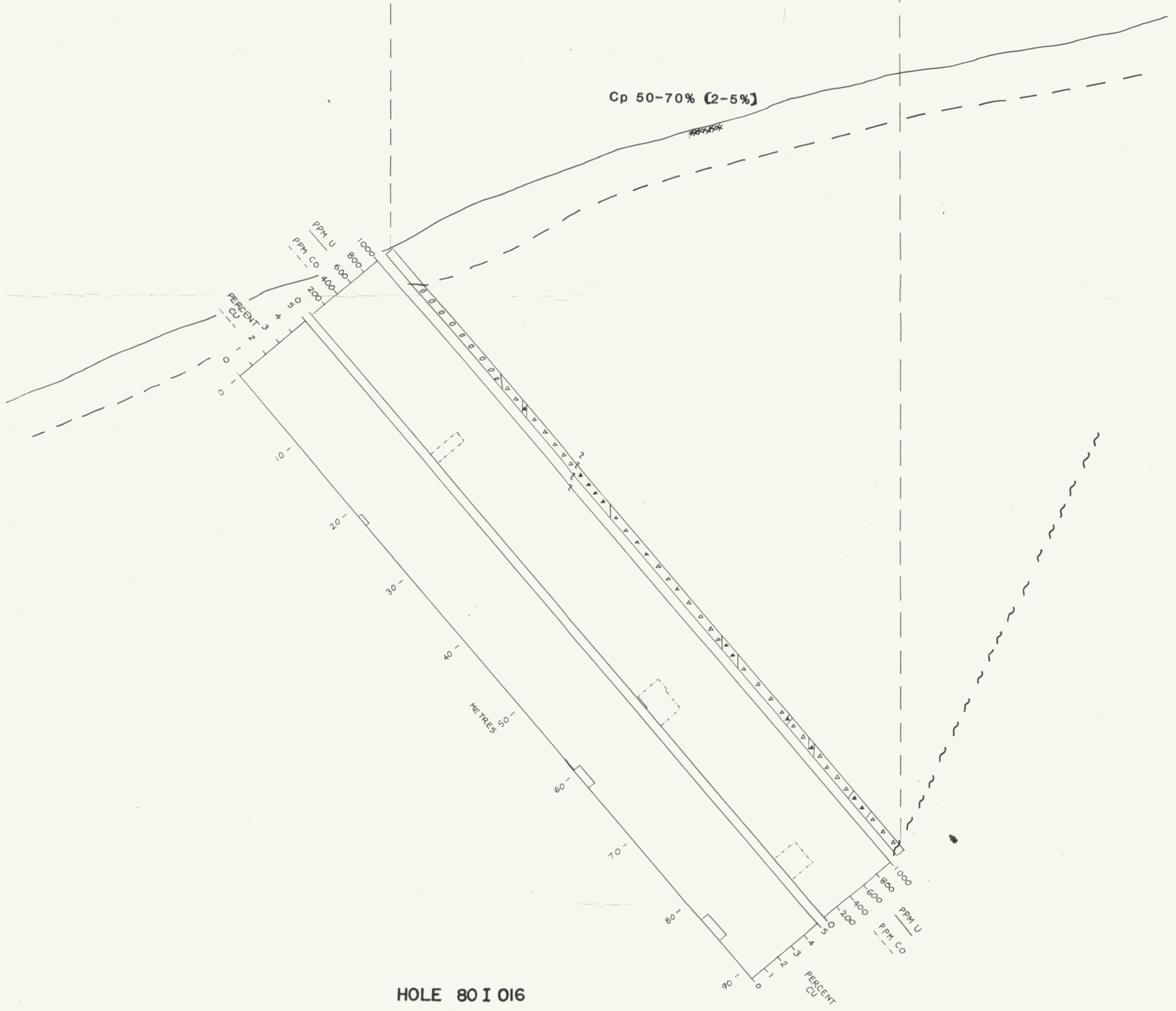
WERNECKE JOINT VENTURE

IGC GRAFLØG

INTERNATIONAL GEOSYSTEMS CORP.

MAGNETIC PROFILE





HOLE 80 I 016

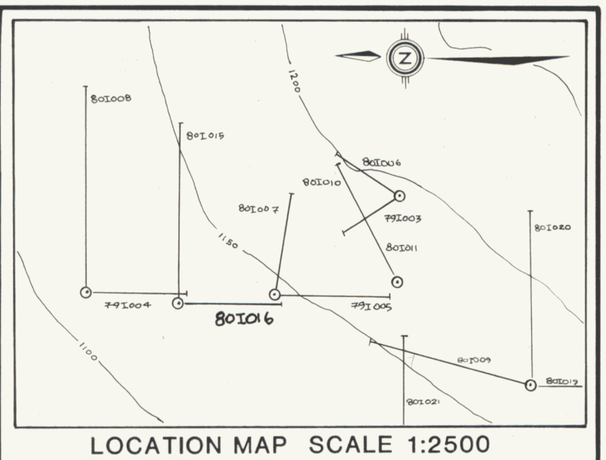
COORDINATES 37+13 N, 00+52W

COLLAR ELEVATION 1124 m

AZIMUTH 180 DIP -50

DEPTH 90.61 (299')

SECTION FACING EAST



LOCATION MAP SCALE 1:2500

50 25 0 50 100

METRES

LEGEND

HELIKIAN

Iron-Rich Breccia (HB4): high but variable concentrations of euhedral to massive magnetite-hematite with associated barite, pyrite, chalcopyrite & carbonates, both in matrix & replacing breccia fragments

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Red-Brown Breccia (HB1): heterolithic breccia with carbonate, chlorite & hematite matrix containing altered, subround His fragments. Pink to red-brown > grey to light green fragments. Breccia varies from matrix to fragment supported. Rarely foliated

Light Green Breccia (HB 2): strongly foliated, silvery grey to red-brown weathering breccia consisting of light green His phyllites, white to pink quartzite & tan limy His phyllite fragments in a tan to pink carbonate matrix. Breccia is always fragment supported. Weathers recessively compared to HB1

HELIKIAN, APHEBIAN ?

Quartet Group (His) : grey to black shale, slate & phyllite interbedded with quartzites & siltstones exhibiting turbidite structures

Altered Quartet Group (Hsa) : bleached, hematized & carbonatized equivalent of His, pale green phyllites, brown weathering grey siltstones and white-pink quartzites, occasionally limy

fault

ppm U

ppm Cu

ppm Co

gossan

Mineral occurrences
(5%) - the percentage of rocks in the occurrence area that are mineralized; if no square bracketed number is given, less than 1% of the rocks are mineralized.
Cp 1-2%, Py 5-10% - average mineral content of mineralized fragments
(He, Mg) - minor minerals present

single rock location with % of various minerals

T trace
Cp chalcopyrite
Py pyrite
Mg magnetite
He hematite
Ma malachite
Az azurite
Ba barite
Sd siderite

Association of Professional Engineers of the Yukon Territory
G. R. ARCHER
GEOLOGICAL
ENGINEER

FIGURE WJV 80-157

ARCHER, CATHRO & ASSOCIATES LTD

SECTION HOLE 80I016

090756

IGOR PROPERTY

WERNECKE JOINT VENTURE

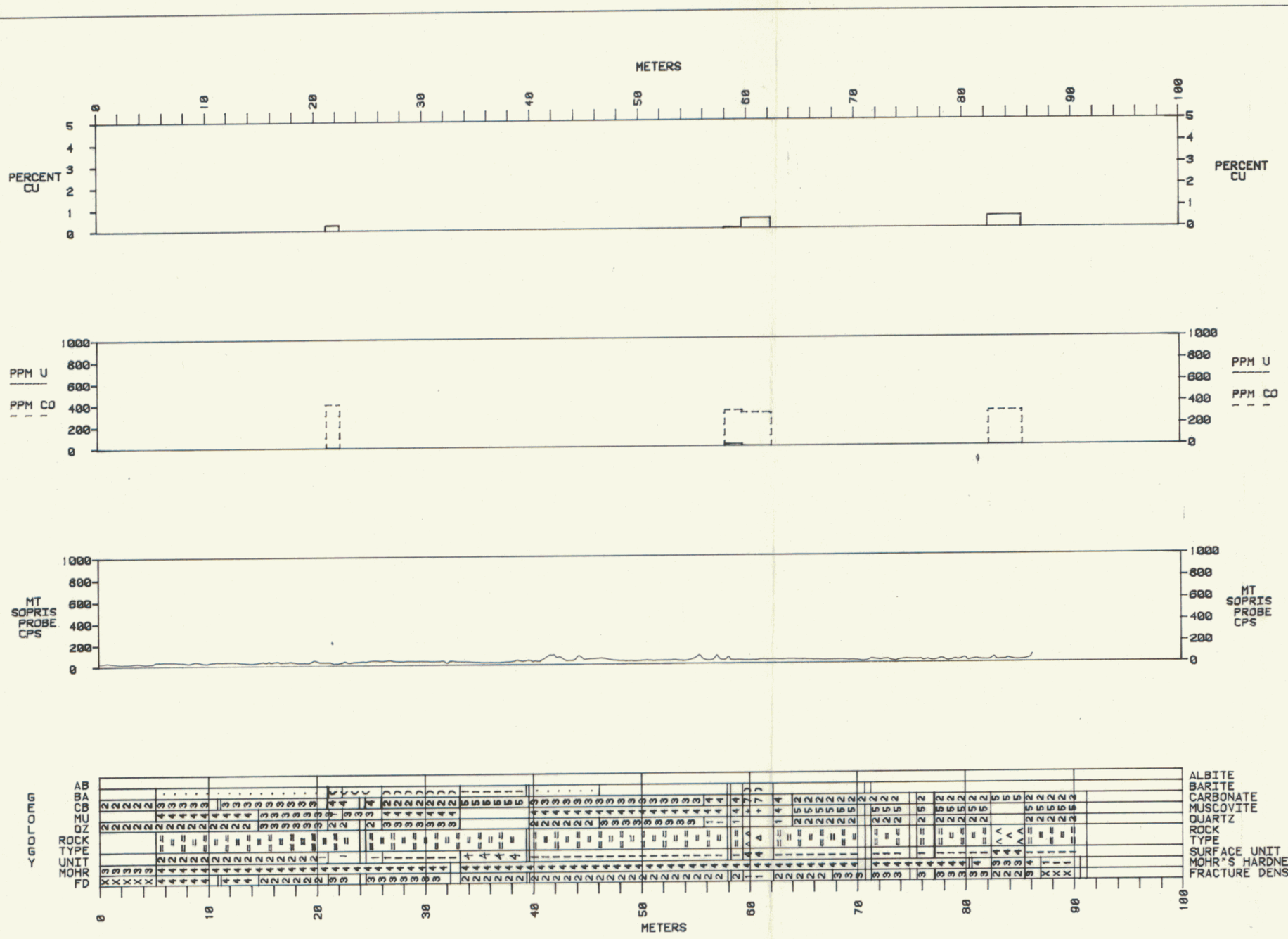
SCALE 1:400

10 8 6 4 2 0 4 8 12 16 20

metres

JAN 23 1981

To accompany report dated [illegible], 1980



IGC GRAFLOG LEGEND

BEGIN DEPTH (COLUMN)	ENTRY / TRACK	DESCRIPTION	SYMBOL	GRAF. LOG
1: 00-04	0	FRACTURING LOW FRACTURING MODERATE FRACTURING HIGH FRACTURING EXTREME		
1: 04-19	0	ROCK TYPE NUMBERS		
1: 19-23	0	SURFACE UNIT NO.		
1: 23-27	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99	BIOHERMAL BASALTIC BRECCIA BASALTIC / SILICEOUS BRECCIA BASALTIC / SILICEOUS-PYRITIC BRECCIA SILICA BRECCIA BARITIC BRECCIA CARBONATE BRECCIA CARBONATE-BARITIC BRECCIA SILICEOUS-BARITIC BRECCIA BARITIC BRECCIA PELITIC BRECCIA BARITIC / CARBONATE BRECCIA CARBONATE / BARITIC BRECCIA PELITIC / BARITIC BRECCIA BARITIC / PELITIC BRECCIA CARBONATE / PELITIC BRECCIA PYRITIC		
1: 27-31	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99	0 1 2 3 QUARTZ 0 1 2 3 MUSCOVITE 0 1 2 3 CARBONATE 0 1 2 3 BARITE 0 1 2 3 ALBITE	

FIG. WJV 80-I58

ARCHER CATHRO AND ASSOCIATES LTD.

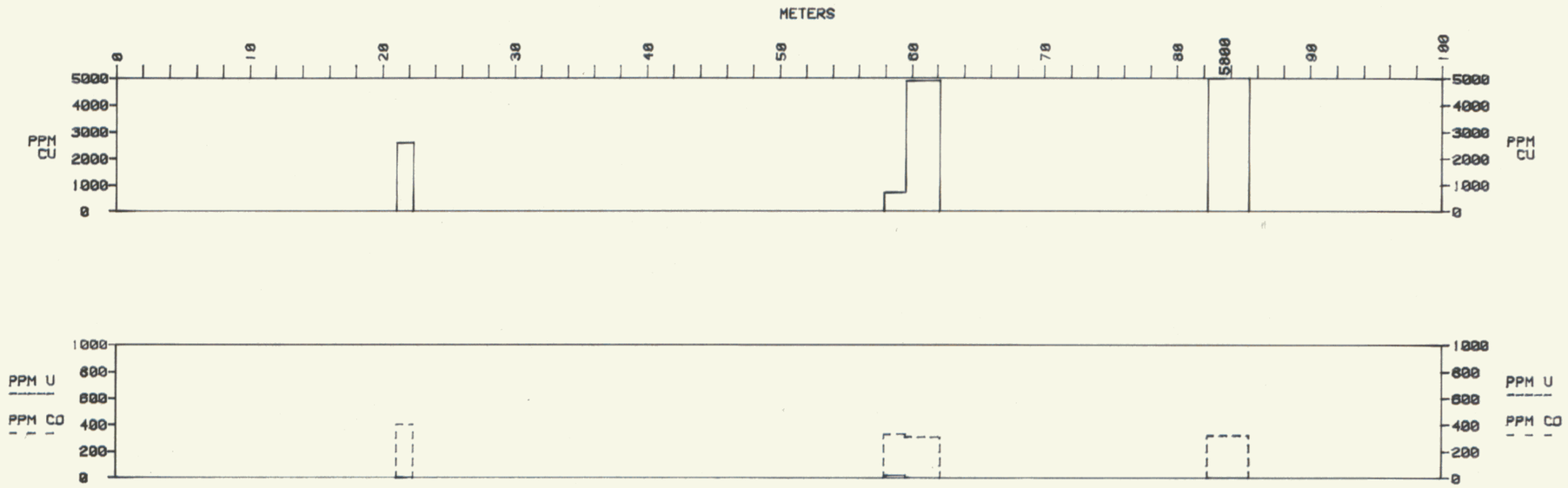
HOLE 80I016

IGOR PROPERTY

WERNECKE JOINT VENTURE

IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.



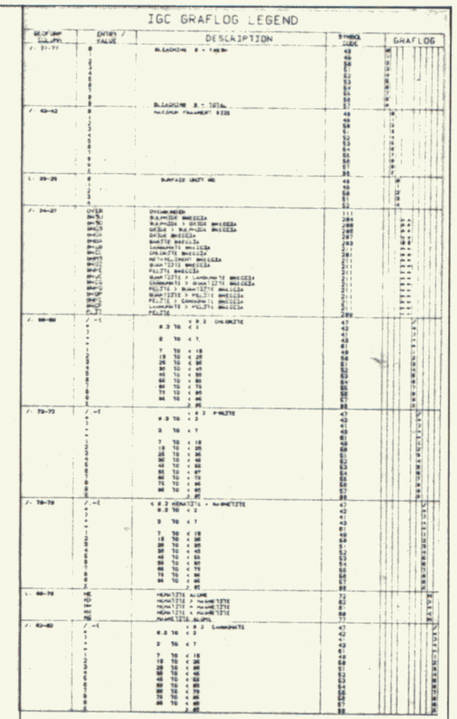


FIG. WJV 80-I59

ARCHER CATHRO AND ASSOCIATES LTD.

HOLE 80I016

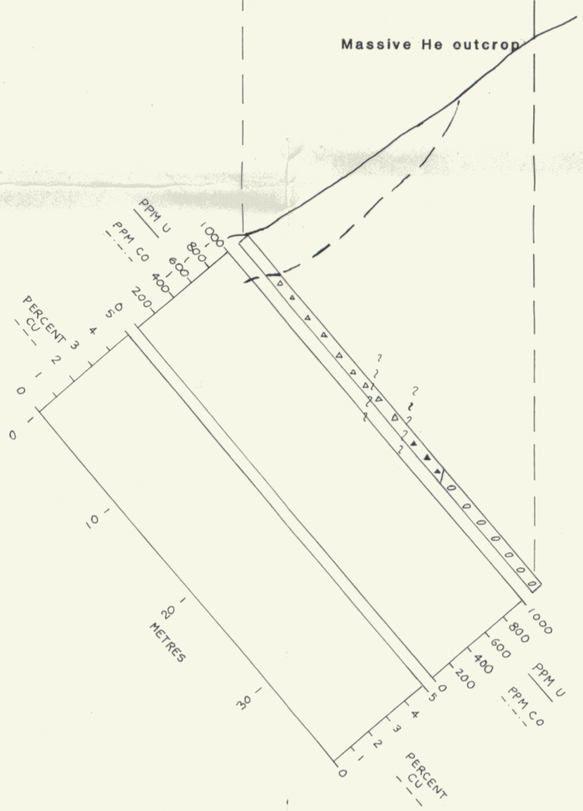
IGOR PROPERTY

WERNECKE JOINT VENTURE

IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.

MAGNETIC PROFILE



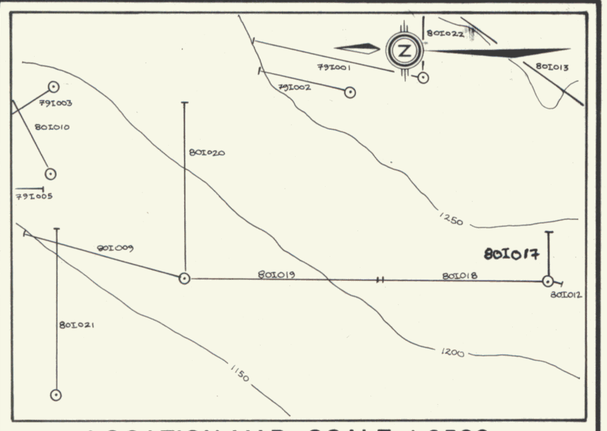
HOLE 80 I 017

COORDINATES 33+36N, 00+97.5W

COLLAR ELEVATION 1230 m

AZIMUTH 090 DIP -050

DEPTH 40.30 (133 ')



LOCATION MAP SCALE 1:2500

50 25 0 50 100

METRES

LEGEND

HELIKIAN

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- Altered Quartet Group (Hsa): bleached, hematized & carbonatized equivalent of Hs, pale green phyllites, brown weathering grey siltstones and white-pink quartzites, occasionally limy
- fault
- ppm U
- ppm Cu
- ppm Co

Association of Professional Engineers of the Yukon Territory
R. ARCHER
GEOLOGICAL
ENGINEER

FIGURE WJV 80-160

ARCHER, CATHRO & ASSOCIATES LTD

SECTION HOLE 80I017

090756

IGOR PROPERTY

WERNECKE JOINT VENTURE

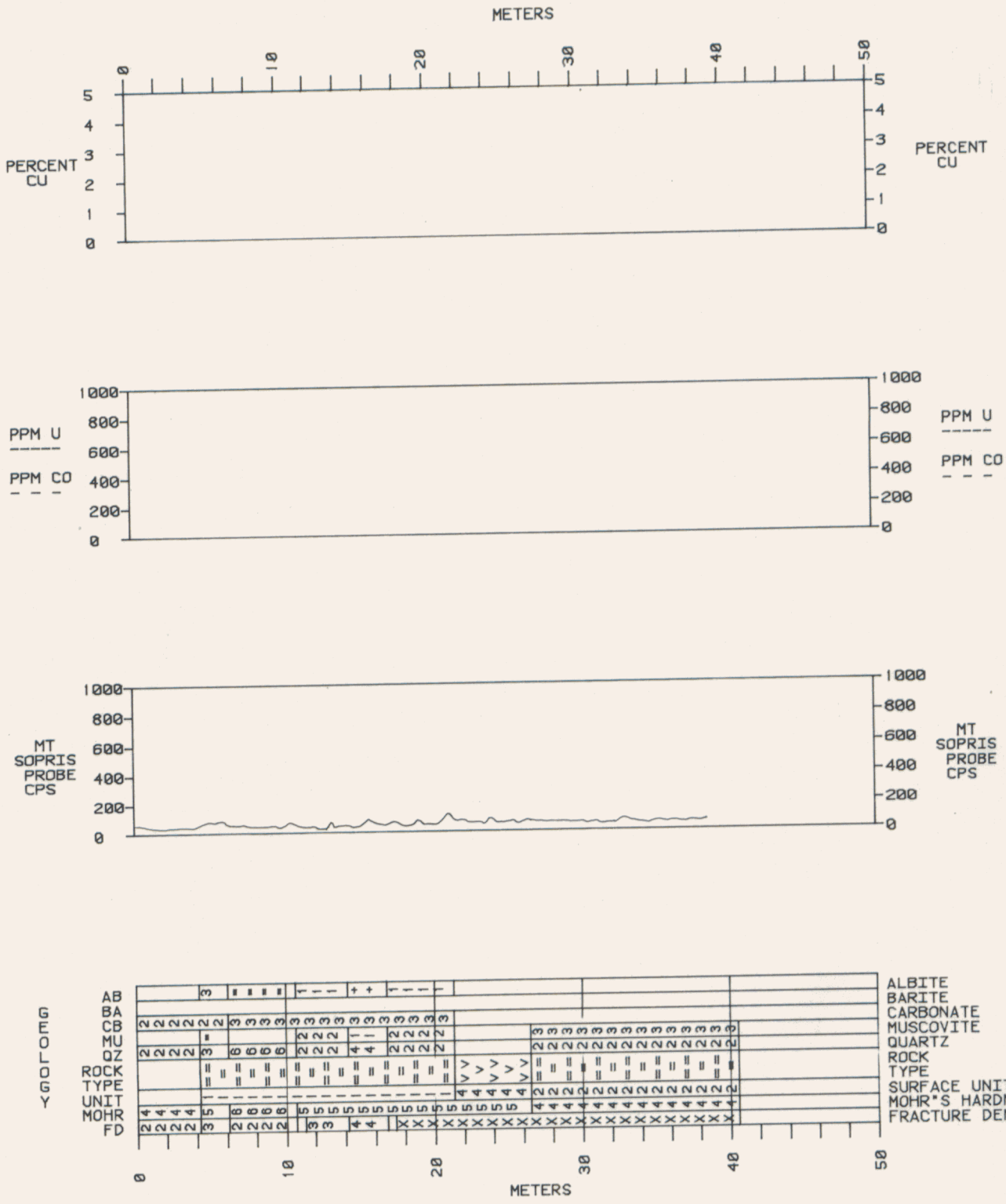
SCALE 1:400

10 8 6 4 2 0 4 8 12 16 20

metres

JAN 23 1981

To accompany report dated Dec 1980



IGC GRAFLOG LEGEND

BEGIN DEPTH (COLUMN)	ENTRY / VALUE	DESCRIPTION	SYMBOL / CODE	GRAFLOG
/ 66-69	0	FRACTURING LOW FRACTURING MODERATE FRACTURING HIGH FRACTURING EXTREME		
/ 70-73		MOHR'S HARDNESS		
L 23-23		SURFACE UNIT NO.		
/ 24-27	OVER BAPC BAGR BAGA BAGA BAMU BAMU BAQZ BAQZ BAMC BAMC BAPC BAPC BAMU BAMU BAPC BAPC BAMC BAMC	SYENOGRANITE BARITE BRECCIA BARITE > SILICA BRECCIA SILICA > BARITE BRECCIA SILICA BRECCIA CARBONATE BRECCIA CARBONATE BRECCIA IRON OXIDE BRECCIA METAMORPHIC BRECCIA QUARTZITE BRECCIA PELITE BRECCIA QUARTZITE > CARBONATE BRECCIA CARBONATE > QUARTZITE BRECCIA PELITE > QUARTZITE BRECCIA QUARTZITE > PELITE BRECCIA PELITE > CARBONATE BRECCIA CARBONATE > PELITE BRECCIA PELITE		
/ 28-29	/ =<	0.0 TO < 0.2 QUARTZ 0.2 TO < 3 3 TO < 7 7 TO < 10 10 TO < 20 20 TO < 30 30 TO < 40 40 TO < 50 50 TO < 60 60 TO < 70 70 TO < 75 75 TO < 80 80 TO < 85		
L 30-30	/ =<	0.0 TO < 0.2 MUSCOVITE 0.2 TO < 3 3 TO < 7 7 TO < 10 10 TO < 20 20 TO < 30 30 TO < 40 40 TO < 50 50 TO < 60 60 TO < 70 70 TO < 75 75 TO < 80 80 TO < 85		
/ 31-31	/ =<	0.0 TO < 0.2 CARBONATE 0.2 TO < 3 3 TO < 7 7 TO < 10 10 TO < 20 20 TO < 30 30 TO < 40 40 TO < 50 50 TO < 60 60 TO < 70 70 TO < 75 75 TO < 80 80 TO < 85		
L 32-32	/ =<	0.0 TO < 0.2 BARITE 0.2 TO < 3 3 TO < 7 7 TO < 10 10 TO < 20 20 TO < 30 30 TO < 40 40 TO < 50 50 TO < 60 60 TO < 70 70 TO < 75 75 TO < 80 80 TO < 85		
/ 33-33	/ =<	0.0 TO < 0.2 ALBITE 0.2 TO < 3 3 TO < 7 7 TO < 10 10 TO < 20 20 TO < 30 30 TO < 40 40 TO < 50 50 TO < 60 60 TO < 70 70 TO < 75 75 TO < 80 80 TO < 85		

FIG. WJV 80-I61

ARCHER CATHRO AND ASSOCIATES LTD.

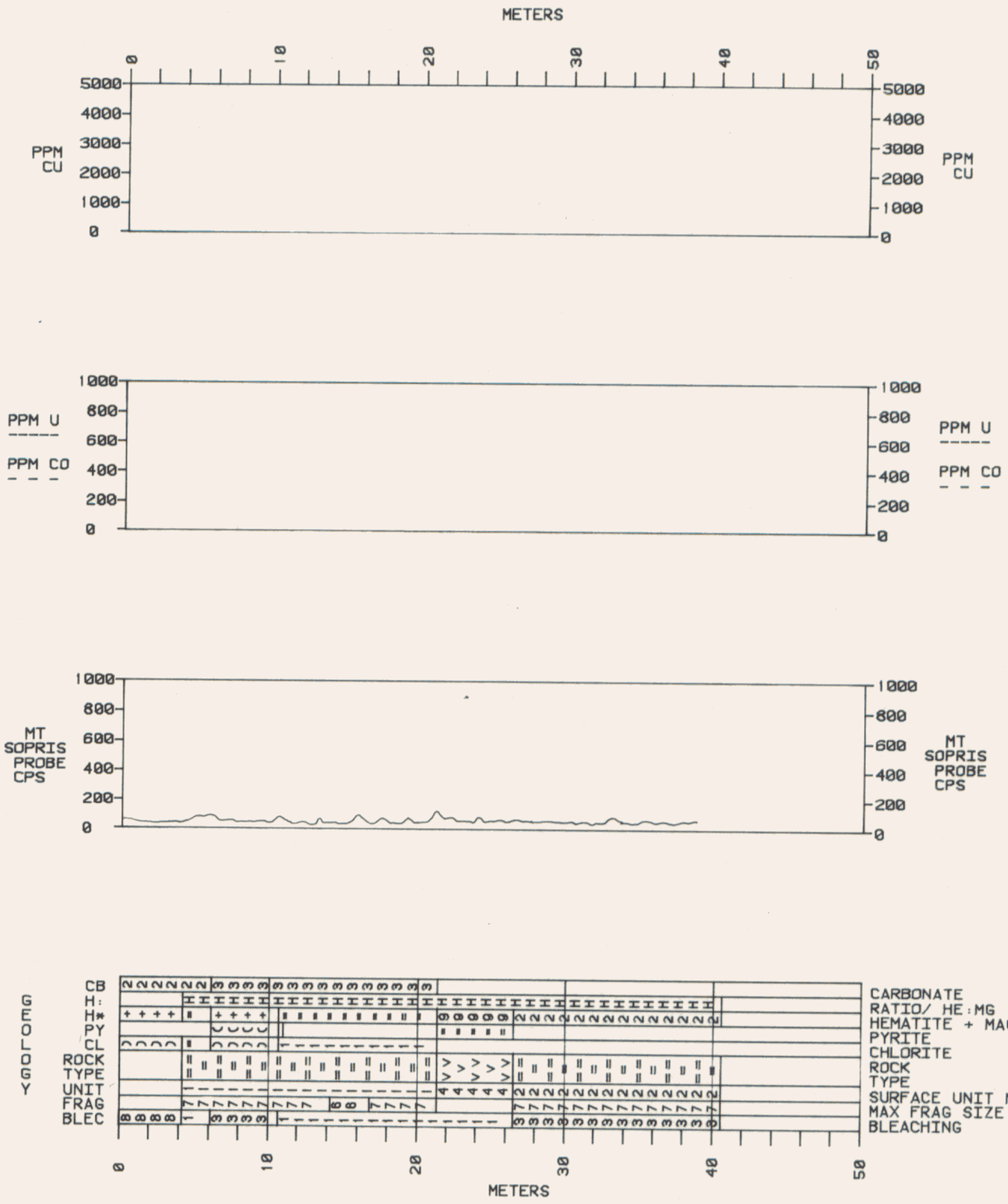
HOLE 80I017

IGOR PROPERTY

WERNECKE JOINT VENTURE

IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.



IGC GRAFLOG LEGEND

COLUMN	ENTRY / VALUE	DESCRIPTION	SYMBOL USED	GRAFLOG
/ 21-22	0	BLEACHING 0 = FRESH		
/ 42-43	0	BLEACHING 0 = TOTAL		
L 29-29	0	BOREHOLE UNIT NO		
/ 24-27	LYCLA	CHLORITE		
	DK'S	BASALT BRECCIA		
	DK'S	BASALT > DIKE BRECCIA		
	DK'S	DIKE > BASALT BRECCIA		
	DKLY	LAMPROPHYRE BRECCIA		
	DKDA	DACITE BRECCIA		
	DKLP	LAMPROPHYRE BRECCIA		
	DKCL	SYENOMONZONITE BRECCIA		
	DKFE	METASOMATIC BRECCIA		
	DKCC	QUARTZITE BRECCIA		
	DKFL	FELSITE BRECCIA		
	DKQF	QUARTZITE > LAMPROPHYRE BRECCIA		
	DKFL	LAMPROPHYRE > QUARTZITE BRECCIA		
	DKFL	QUARTZITE > FELSITE BRECCIA		
	DKFL	FELSITE > QUARTZITE BRECCIA		
	DKFL	LAMPROPHYRE > FELSITE BRECCIA		
	DKFL	FELSITE		
/ 66-66	/ =5	< 0.2 SYENOMONZONITE 0.2 TO < 2 2 TO < 3 3 TO < 10 10 TO < 20 20 TO < 30 30 TO < 40 40 TO < 50 50 TO < 60 60 TO < 70 70 TO < 80 80 TO < 90 > 90		
/ 72-72	/ =5	< 0.2 = FELSITE 0.2 TO < 2 2 TO < 3 3 TO < 10 10 TO < 20 20 TO < 30 30 TO < 40 40 TO < 50 50 TO < 60 60 TO < 70 70 TO < 80 80 TO < 90 > 90		
/ 76-76	/ =5	< 0.2 = QUARTZITE + FELSITE 0.2 TO < 2 2 TO < 3 3 TO < 10 10 TO < 20 20 TO < 30 30 TO < 40 40 TO < 50 50 TO < 60 60 TO < 70 70 TO < 80 80 TO < 90 > 90		
L 88-78		QUARTZITE ALONE QUARTZITE > FELSITE QUARTZITE = FELSITE QUARTZITE < FELSITE FELSITE ALONE		
/ 82-82	/ =5	< 0.2 CARBONATE 0.2 TO < 2 2 TO < 3 3 TO < 10 10 TO < 20 20 TO < 30 30 TO < 40 40 TO < 50 50 TO < 60 60 TO < 70 70 TO < 80 80 TO < 90 > 90		

FIG. WJV 80-I62

ARCHER CATHRO AND ASSOCIATES LTD.

HOLE 80I017

IGOR PROPERTY

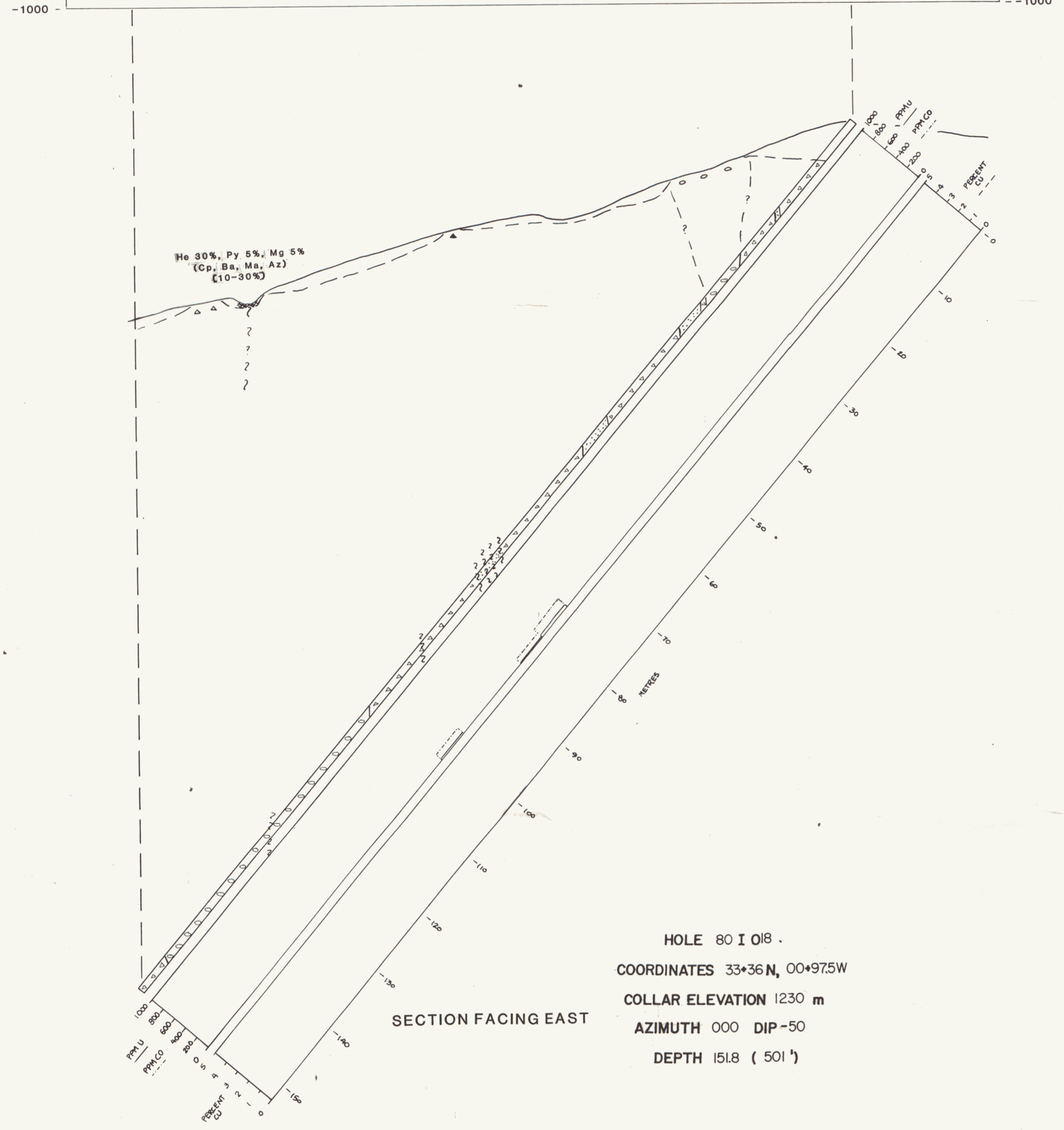
WERNECKE JOINT VENTURE

IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.

MAGNETIC PROFILE

GAMMAS 2000 / 1000 / 0 / -1000 — GAMMAS 2000 / -1000 / 0 / --1000



SECTION FACING EAST

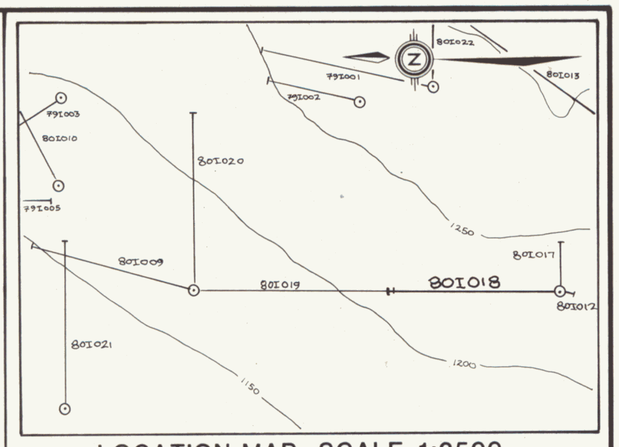
HOLE 80 I 018 .

COORDINATES 33+36 N, 00+97.5W

COLLAR ELEVATION 1230 m

AZIMUTH 000 DIP -50

DEPTH 151.8 (501 ')



LOCATION MAP SCALE 1:2500

50 25 0 50 100

METRES

LEGEND

HELIKIAN

- Iron-Rich Breccia (HB4): high but variable concentrations of euhedral to massive magnetite-hematite with associated barite, pyrite, chalcopyrite & carbonates, both in matrix & replacing breccia fragments
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HELIKIAN, APHEBIAN?

- Quartet Group (Hs): grey to black shale, slate & phyllite interbedded with quartzites & siltstones exhibiting turbidite structures
- Altered Quartet Group (Hsa): bleached, hematized & carbonatized equivalent of Hs, pale green phyllites, brown weathering grey siltstones and white-pink quartzites, occasionally limy
- fault
- ppm U
- ppm Cu
- ppm Co

Mineral occurrences:
(5%) - the percentage of rocks in the occurrence area that are mineralized; If no square bracketed number is given, less than 1% of the rocks are mineralized.
Cp 1-2%, Py 5-10% - average mineral content of mineralized fragments
(He, Mg) - minor minerals present

- Cp 5%, Py 10% — single rock location with % of various minerals
- T — trace
- Cp — chalcopyrite
- Py — pyrite
- Mg — magnetite
- He — hematite
- Ma — malachite
- Az — azurite
- Ba — barite
- Sd — siderite

Association of Professional Engineers of the Yukon Territory
A. R. ARCHER
GEOLOGICAL
ENGINEER

FIGURE WJV 80-163

ARCHER, CATHRO & ASSOCIATES LTD

SECTION HOLE 801018

090756

IGOR PROPERTY

WERNECKE JOINT VENTURE

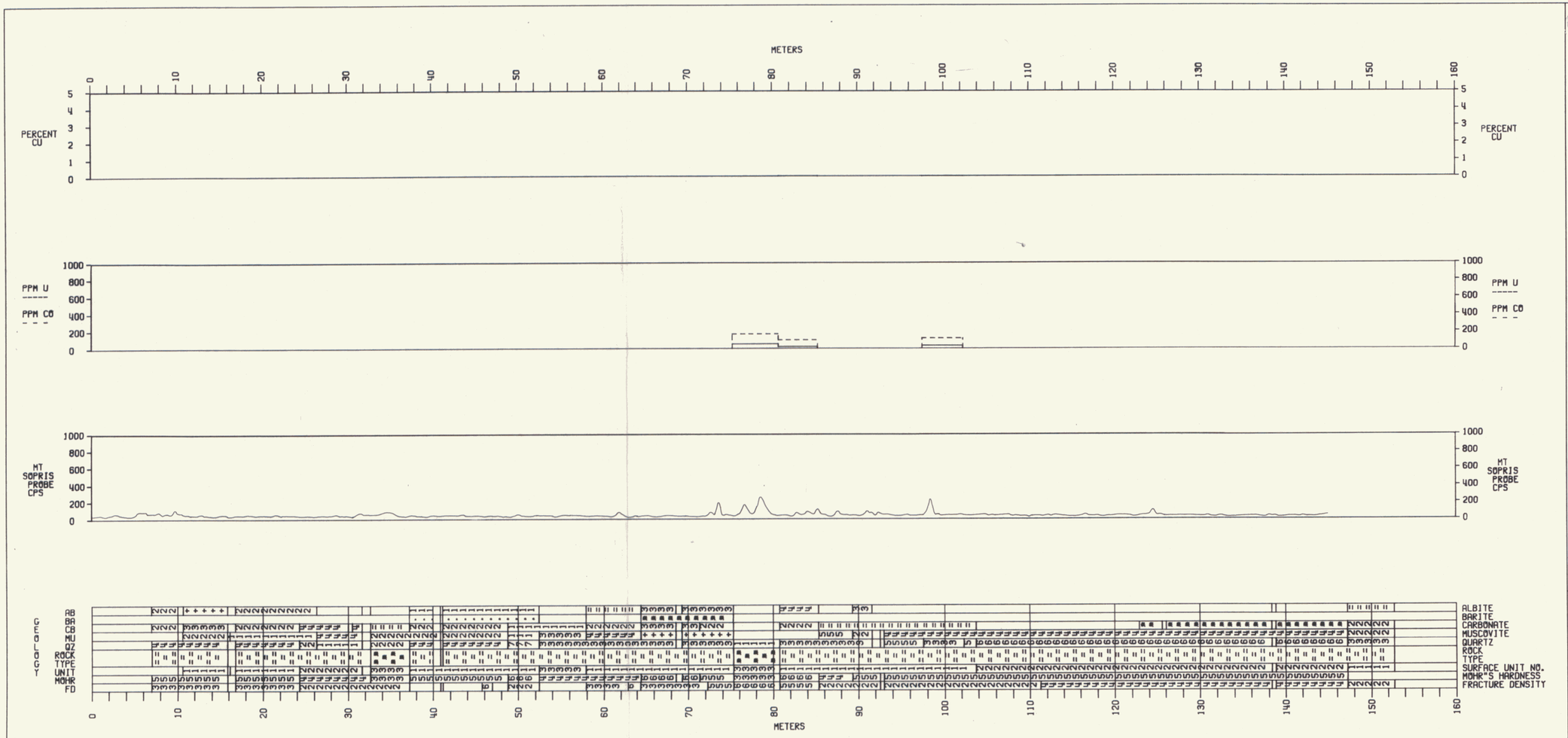
SCALE 1:400

10 8 6 4 2 0 4 8 12 16 20

metres

JAN 23 1991

To accompany report dated



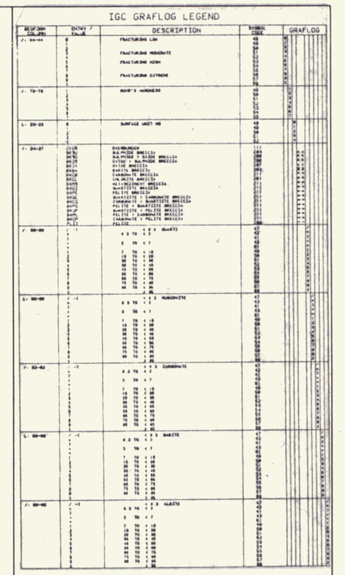


FIG. WJV 80-I64

ARCHER CATHRO AND ASSOCIATES LTD.

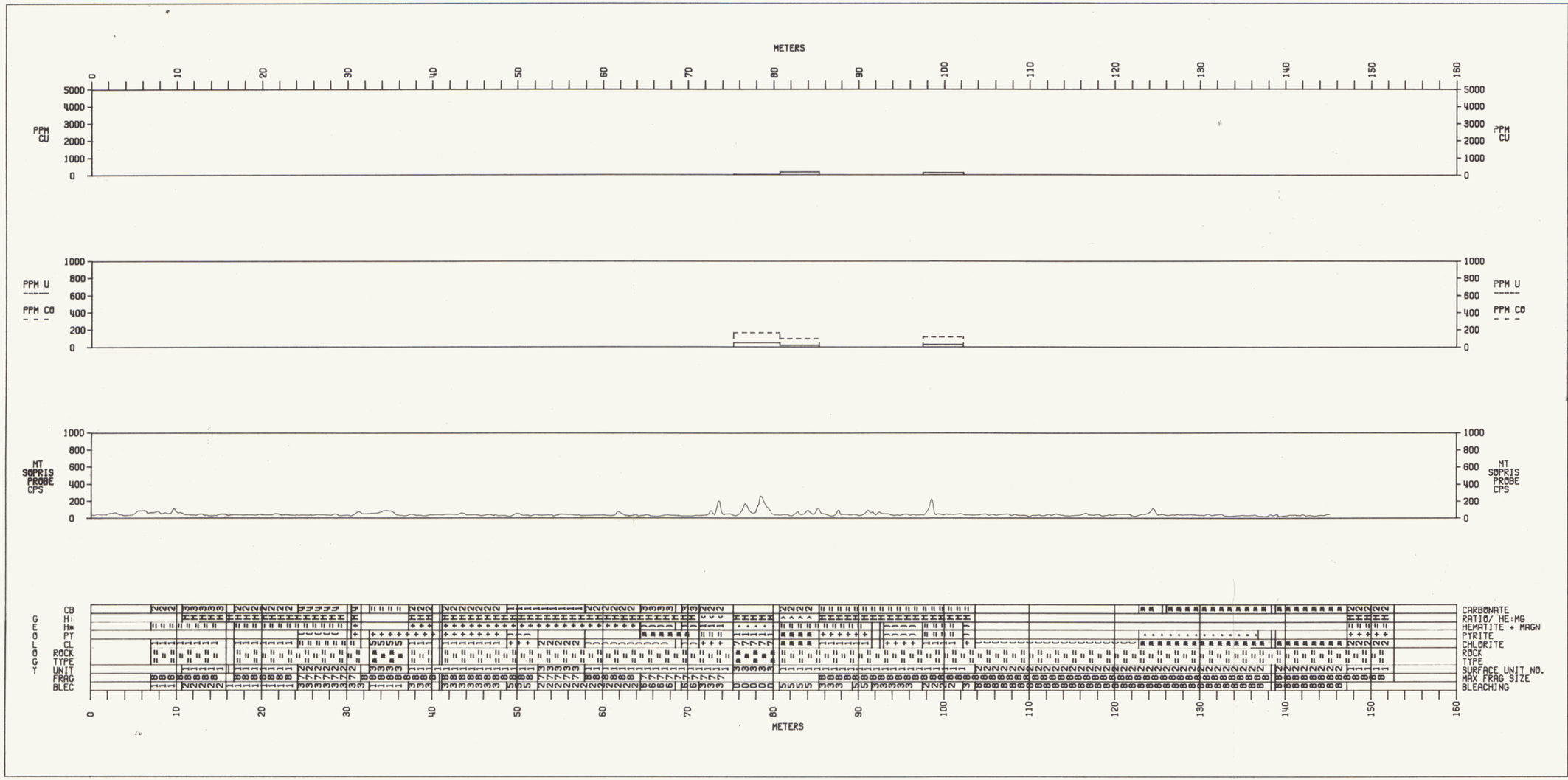
HØLE 80IO18

IGOR PROPERTY

WERNECKE JOINT VENTURE

IGC GRAFLØG

INTERNATIONAL GEOSYSTEMS CORP.



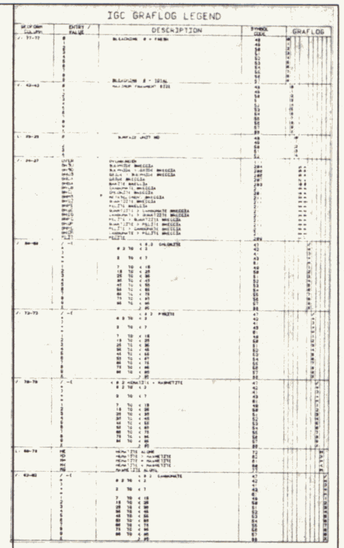


FIG. WJV 80-I65

ARCHER CATHRO AND ASSOCIATES LTD.

HØLE 80IO18

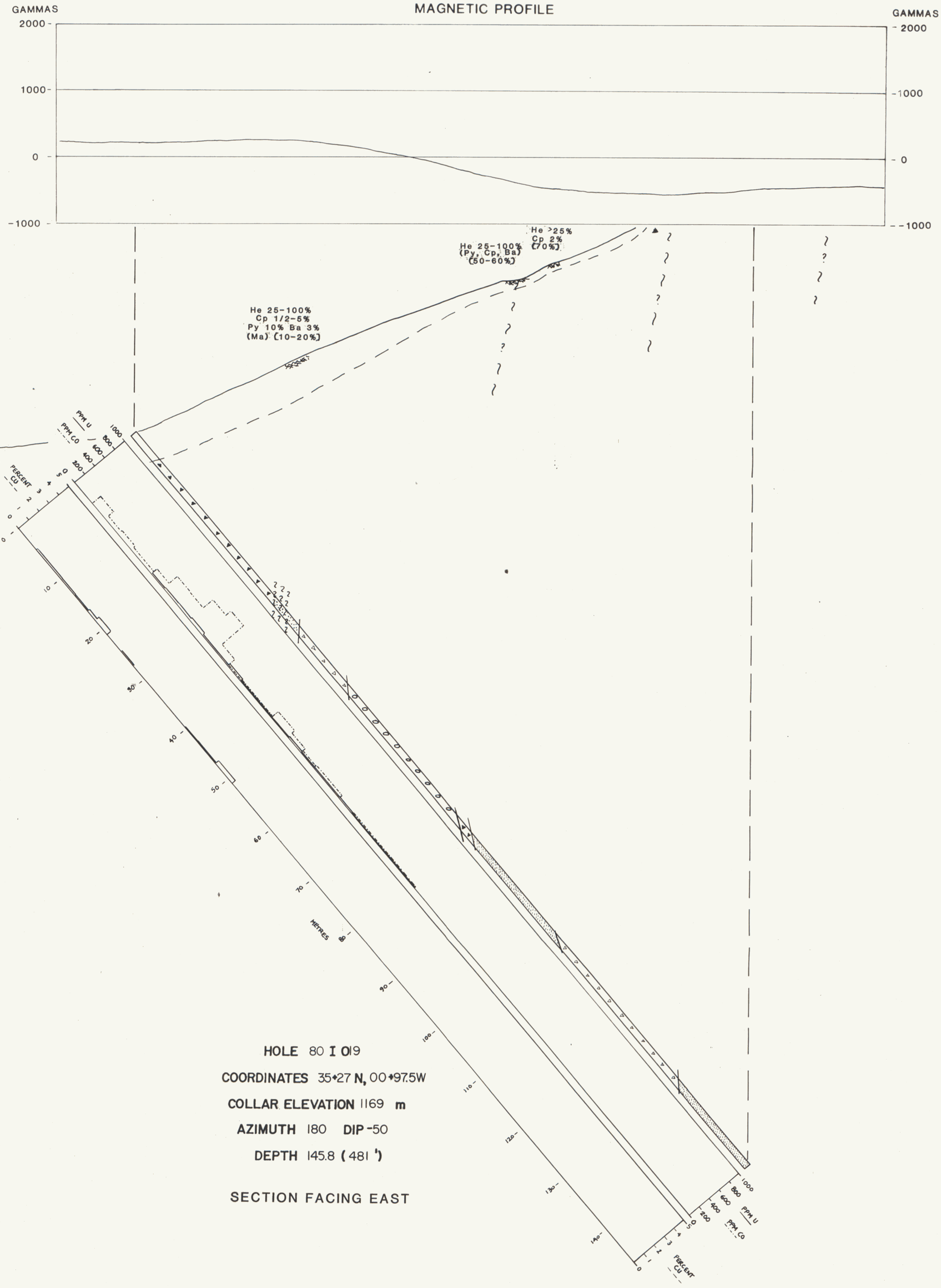
IGØR PRØPERTY

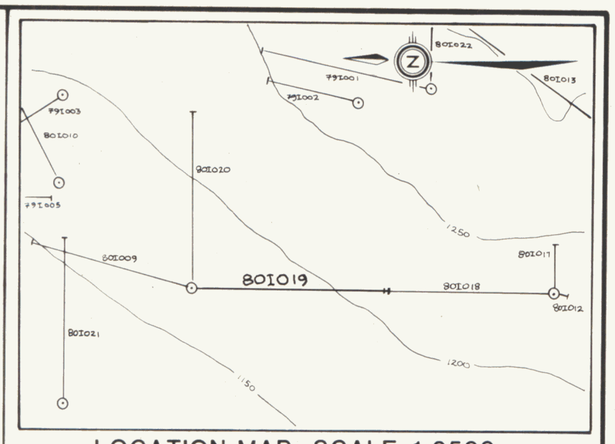
WERNECKE JØINT VENTURE

IGC GRAFLØG

INTERNATIONAL GEØSYSTEMS CØRP.

MAGNETIC PROFILE





LOCATION MAP SCALE 1:2500

50 25 0 50 100
METRES

LEGEND

HELIKIAN

- Iron-Rich Breccia (HB4): high but variable concentrations of euhedral to massive magnetite hematite with associated barite, pyrite, chalcopyrite & carbonates, both in matrix & replacing breccia fragments
- Chloritic Breccia (HB3): dark green chloritic matrix & fragments often hematitic, associated with HB4 & fault zones
- Red-Brown Breccia (HB1): heterolithic breccia with carbonate, chlorite & hematite matrix containing altered, subround Hs fragments. Pink to red-brown > grey to light green fragments. Breccia varies from matrix to fragment supported. Rarely foliated
- Light Green Breccia (HB2): strongly foliated, silvery grey to red-brown weathering breccia consisting of light green Hs phyllites, white to pink quartzite & tan-rusty Hs phyllite fragments in a tan to pink carbonate matrix. Breccia is always fragment supported. Weathers recessively compared to HB1

HELIKIAN, APHEBIAN?

- Quartet Group (Hs): grey to black shale, slate & phyllite interbedded with quartzites & siltstones exhibiting turbidite structures
- Altered Quartet Group (Hsa): bleached, hematized & carbonatized equivalent of Hs, pale green phyllites, brown weathering grey siltstones and white-pink quartzites, occasionally rusty

- fault
- ppm U
- ppm Cu
- ppm Co

Cp 1-2%, Py 5-10% (He, Mg) (5%) — Mineral occurrences:
(5%) - the percentage of rocks in the occurrence area that are mineralized; if no square bracketed number is given, less than 1% of the rocks are mineralized.
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- Cp — chalcopyrite
- Py — pyrite
- Mg — magnetite
- He — hematite
- Ma — malachite
- Az — azurite
- Ba — barite
- Sd — siderite

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FIGURE WJV 80-I66

ARCHER, CATHRO & ASSOCIATES LTD

SECTION HOLE 80I019

090756

IGOR PROPERTY

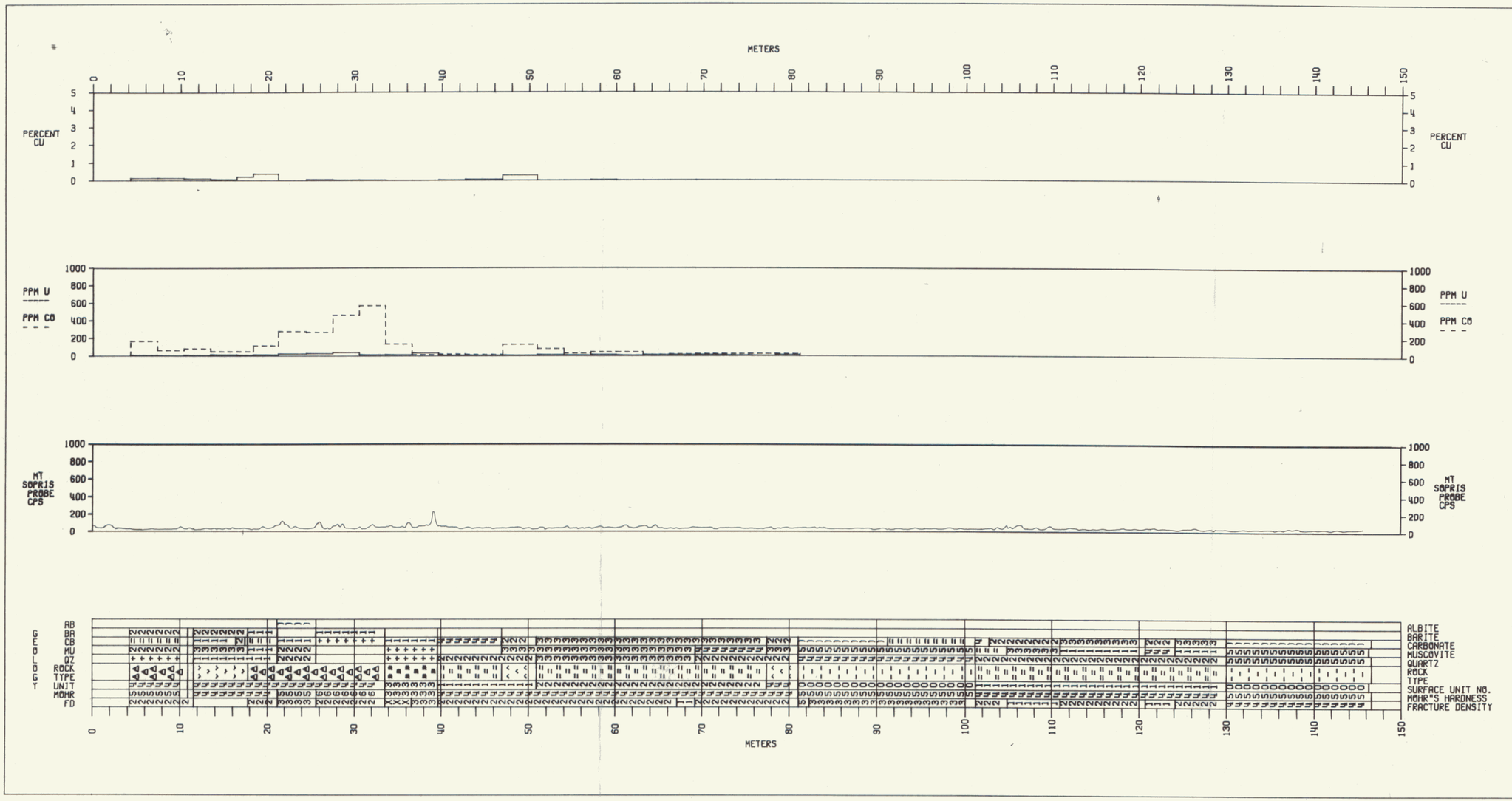
WERNECKE JOINT VENTURE

SCALE 1:400

10 8 6 4 2 0 4 8 12 16 20
metres

JAN 2 3 1981

To accompany report dated [redacted]



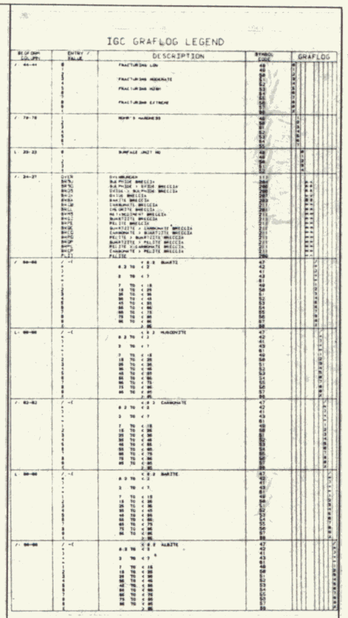


FIG. WJV 80-I67

ARCHER CATHRO AND ASSOCIATES LTD.

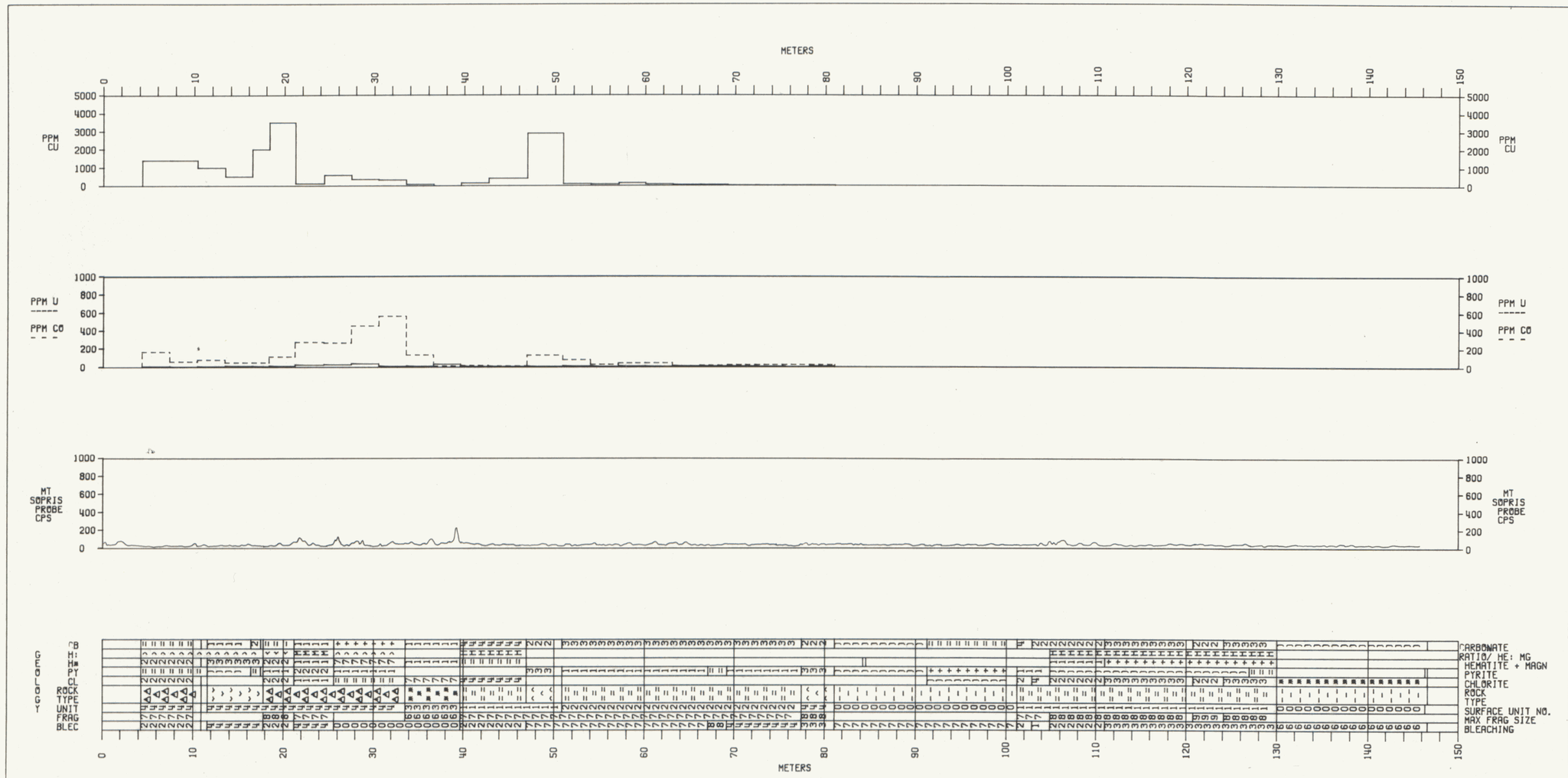
HOLE 80IO19

IGOR PROPERTY

WERNECKE JOINT VENTURE

IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.



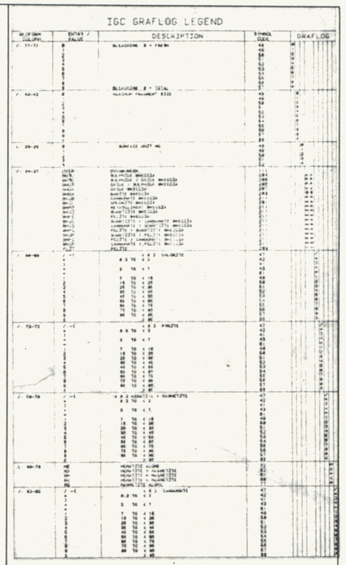


FIG. WJV 80-I68

ARCHER CATHRO AND ASSOCIATES LTD.

HOLE 80IO19

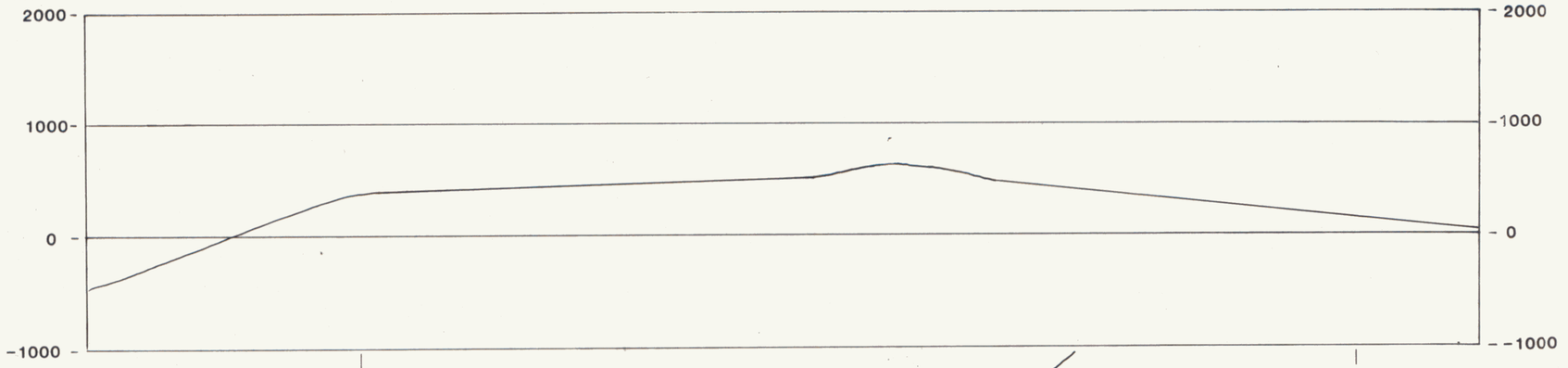
IGOR PROPERTY

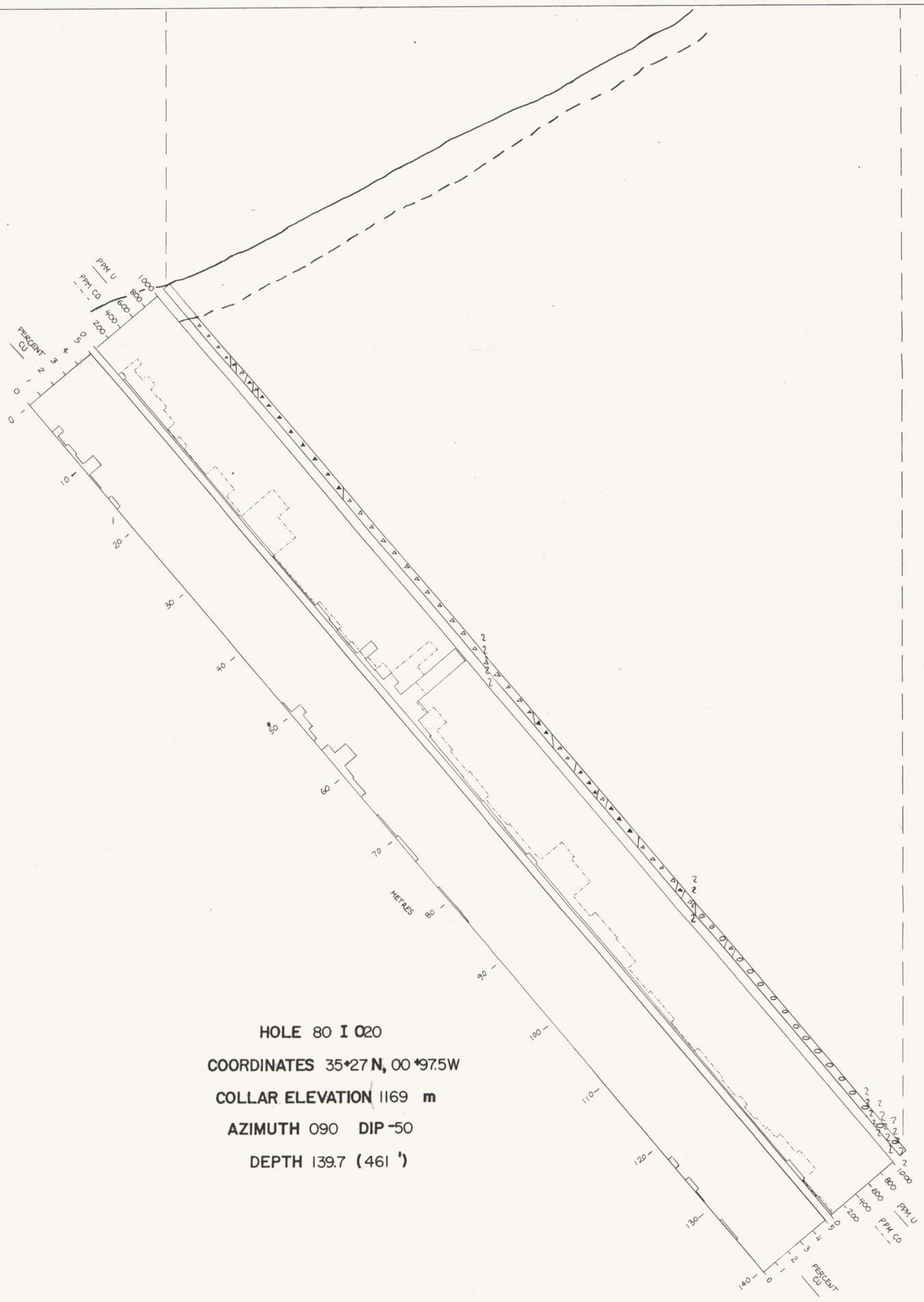
WERNECKE JOINT VENTURE

IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.

MAGNETIC PROFILE





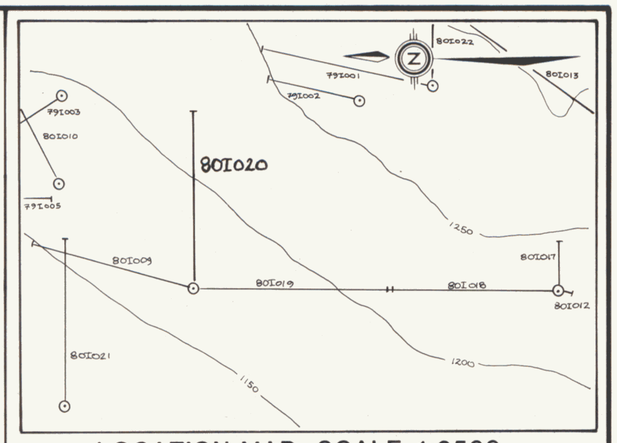
HOLE 80 I 020

COORDINATES 35+27 N, 00+97.5W

COLLAR ELEVATION 1169 m

AZIMUTH 090 DIP -50

DEPTH 139.7 (461 ')



LOCATION MAP SCALE 1:2500

50 25 0 50 100

METRES

LEGEND

HELIKIAN

Iron-Rich Breccia (HB4): high but variable concentrations of euhedral to massive magnetite-hematite with associated barite, pyrite, chalcopyrite & carbonates, both in matrix & replacing breccia fragments

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fault

ppm U

ppm Cu

ppm Co

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GEOLOGICAL
ENGINEER

FIGURE WJV 80-169

ARCHER, CATHRO & ASSOCIATES LTD

SECTION HOLE 80I020

090756

IGOR PROPERTY

WERNECKE JOINT VENTURE

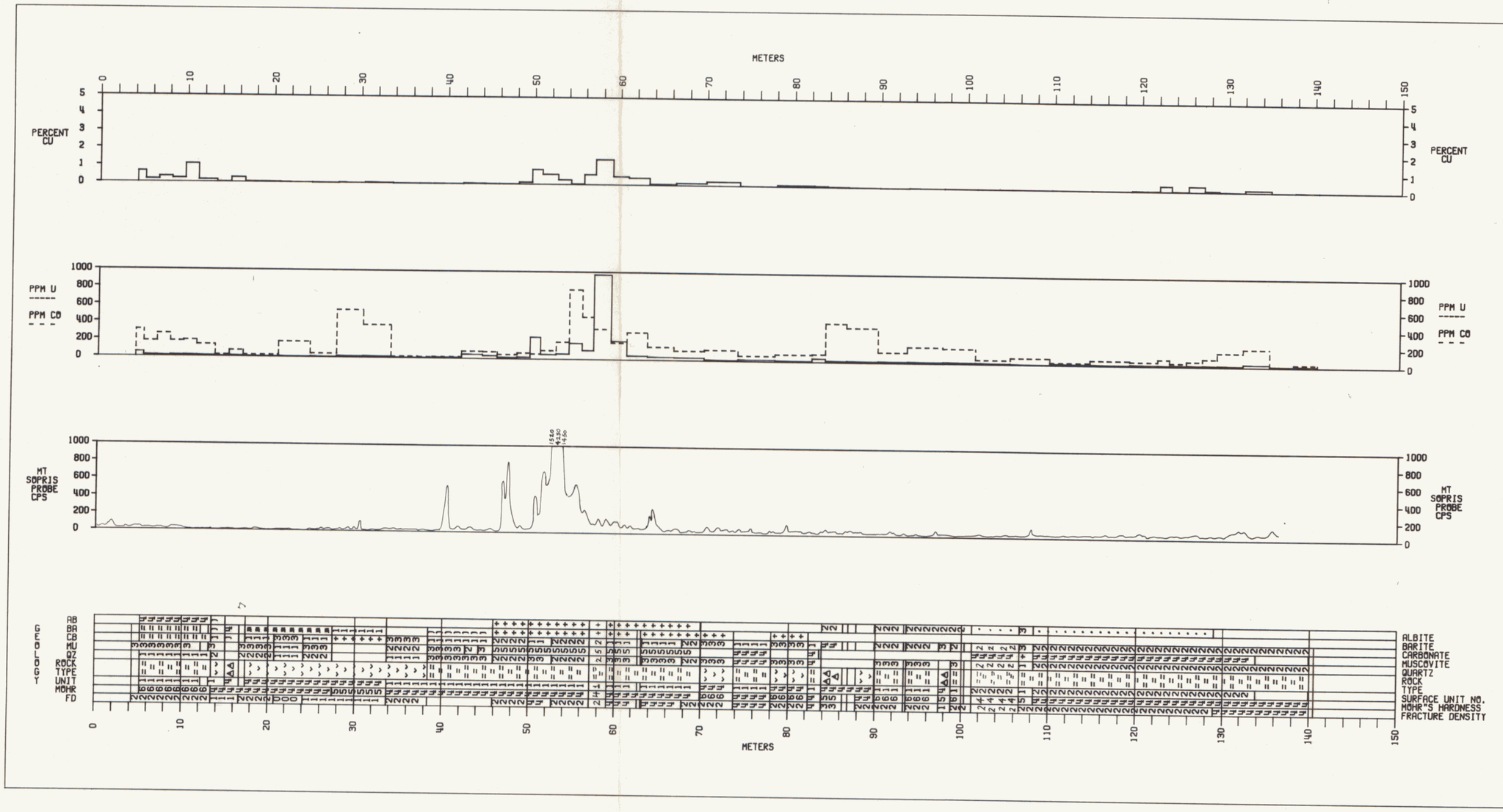
SCALE 1:400

10 8 6 4 2 0 4 8 12 16 20

metres

JAN 23 1981

To accompany report dated



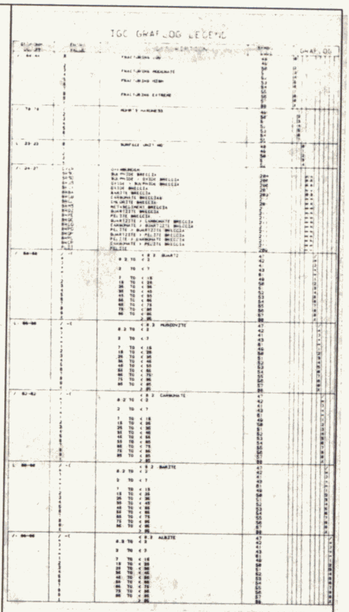


FIG. WJV 80-I70

ARCHER CATHRO AND ASSOCIATES LTD.

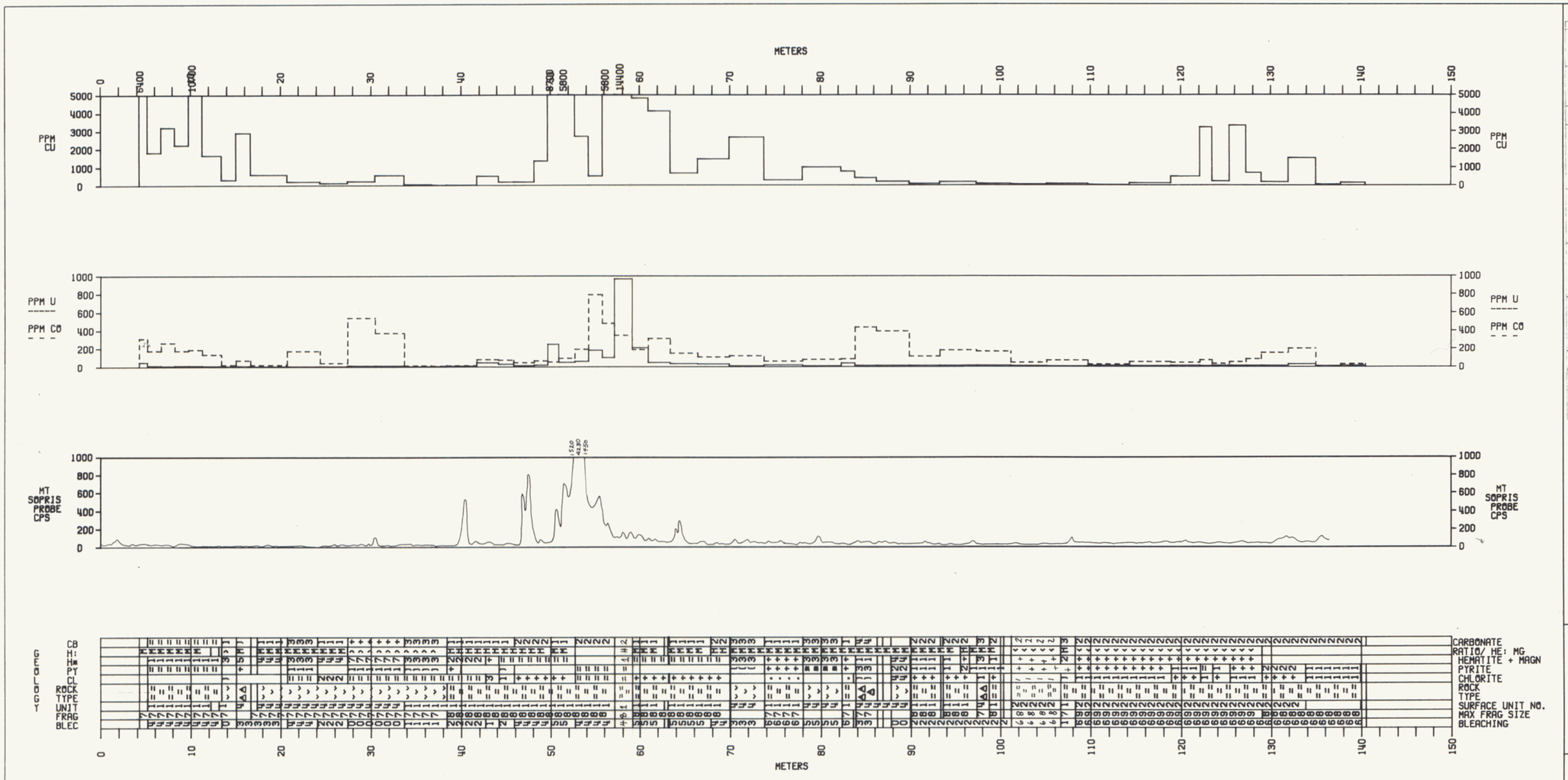
HOLE 80I020

IGOR PROPERTY

WERNECKE JOINT VENTURE

IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.



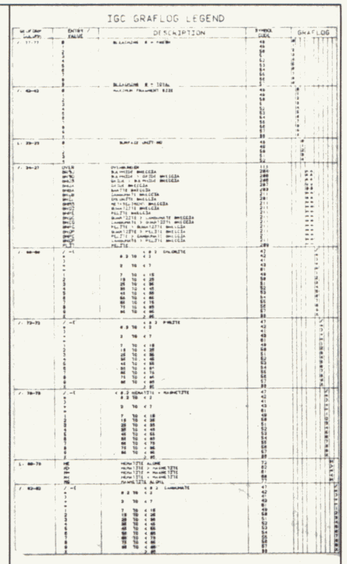


FIG. WJV 80-I71

ARCHER CATHRØ AND ASSØCIATES LTD.

HØLE 80I020

IGØR PRØPERTY

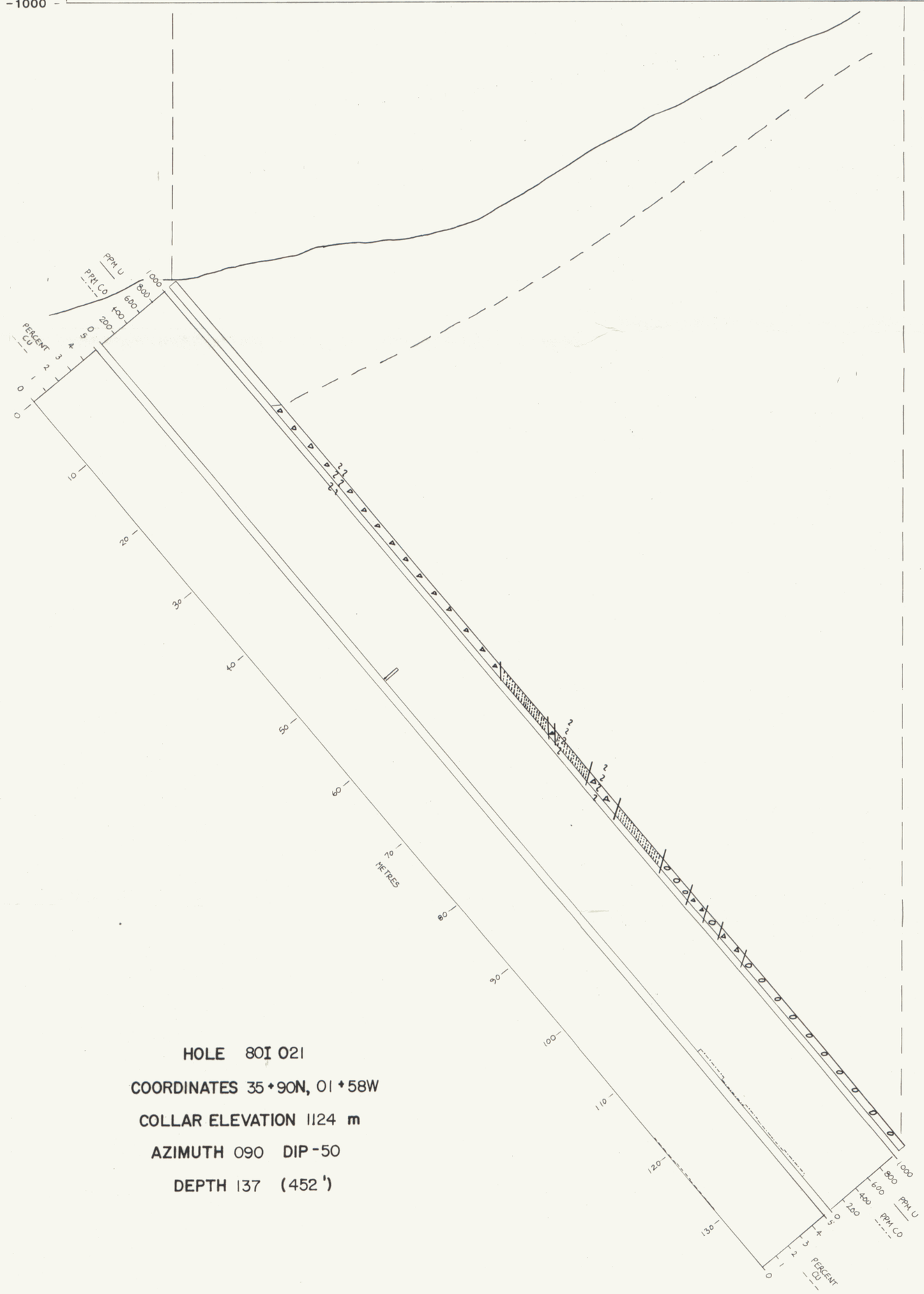
WERNECKE JØINT VENTURE

IGC GRAFLØG

INTERNATIONAL GEØSYSTEMS CØRP.

MAGNETIC PROFILE

GAMMAS 2000 / 1000 / 0 / -1000 — GAMMAS 2000 / 1000 / 0 / -1000



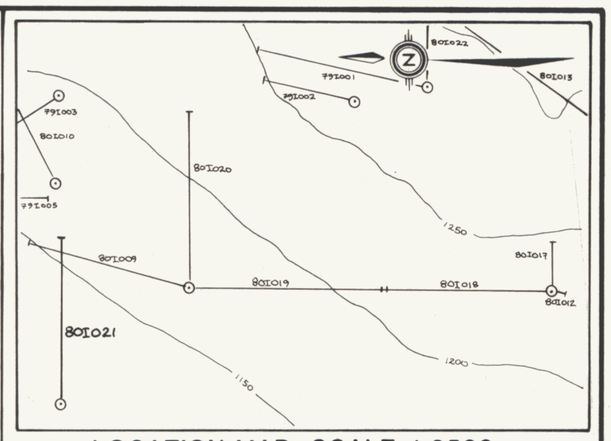
HOLE 80I 021

COORDINATES 35+90N, 01+58W

COLLAR ELEVATION 1124 m

AZIMUTH 090 DIP -50

DEPTH 137 (452')



LOCATION MAP SCALE 1:2500

50 25 0 50 100

METRES

LEGEND

HELIKIAN

Iron-Rich Breccia (HB4): high but variable concentrations of euhedral to massive magnetite-hematite with associated barite, pyrite, chalcopyrite & carbonates, both in matrix & replacing breccia fragments.

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HELIKIAN, APHEBIAN?

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fault

ppm U

ppm Cu

ppm Co

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GEOLOGICAL
ENGINEER

FIGURE WJV 80-172

ARCHER, CATHRO & ASSOCIATES LTD

SECTION HOLE 80I021

090756

IGOR PROPERTY

WERNECKE JOINT VENTURE

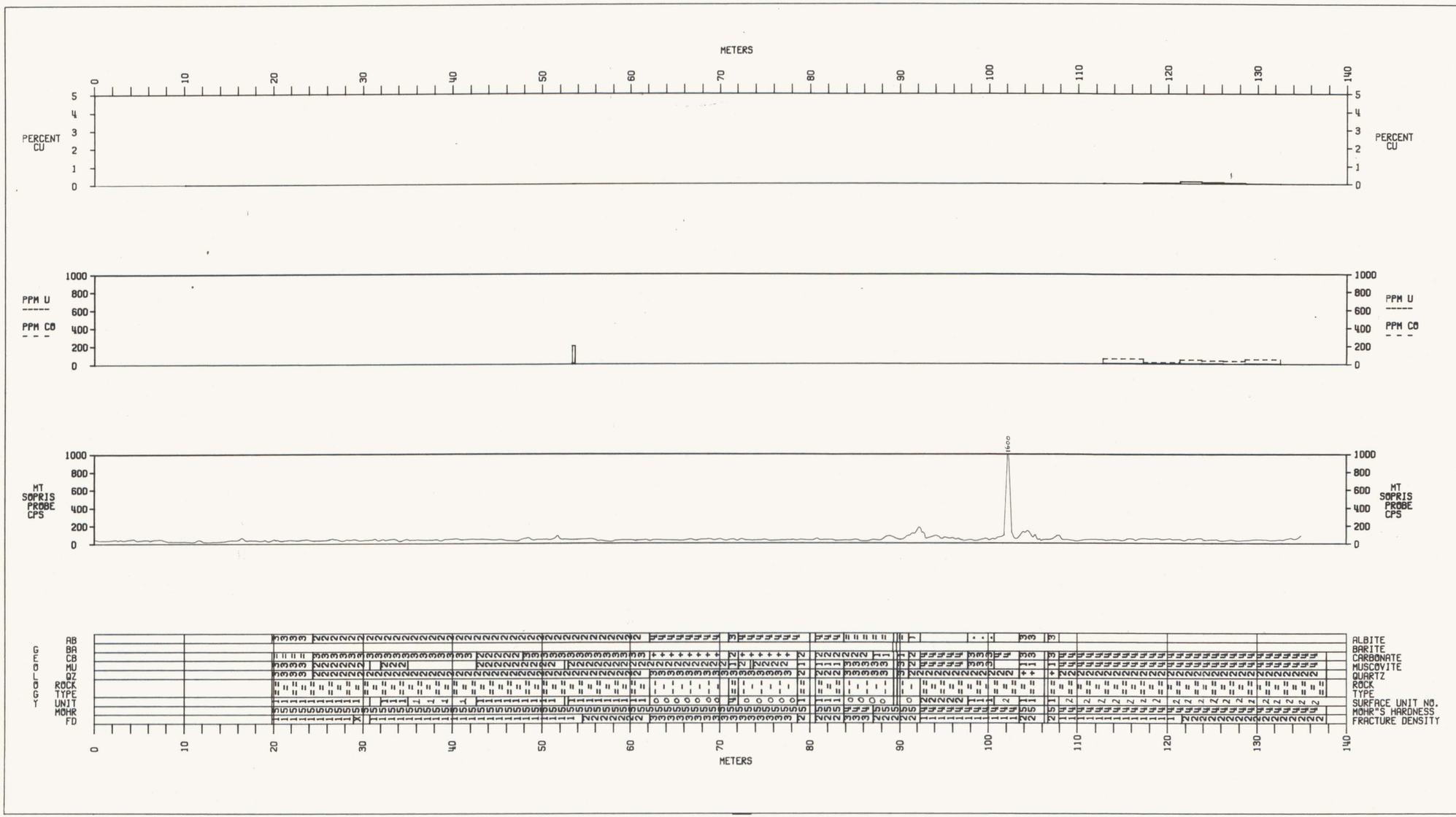
SCALE 1:400

10 8 6 4 2 0 4 8 12 16 20

metres

JAN 23 1981

To accompany report dated



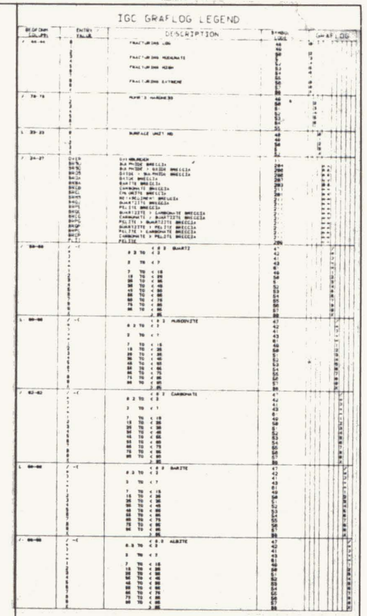


FIG. WJV 80-I73

ARCHER CATHRØ AND ASSØCIATES LTD.

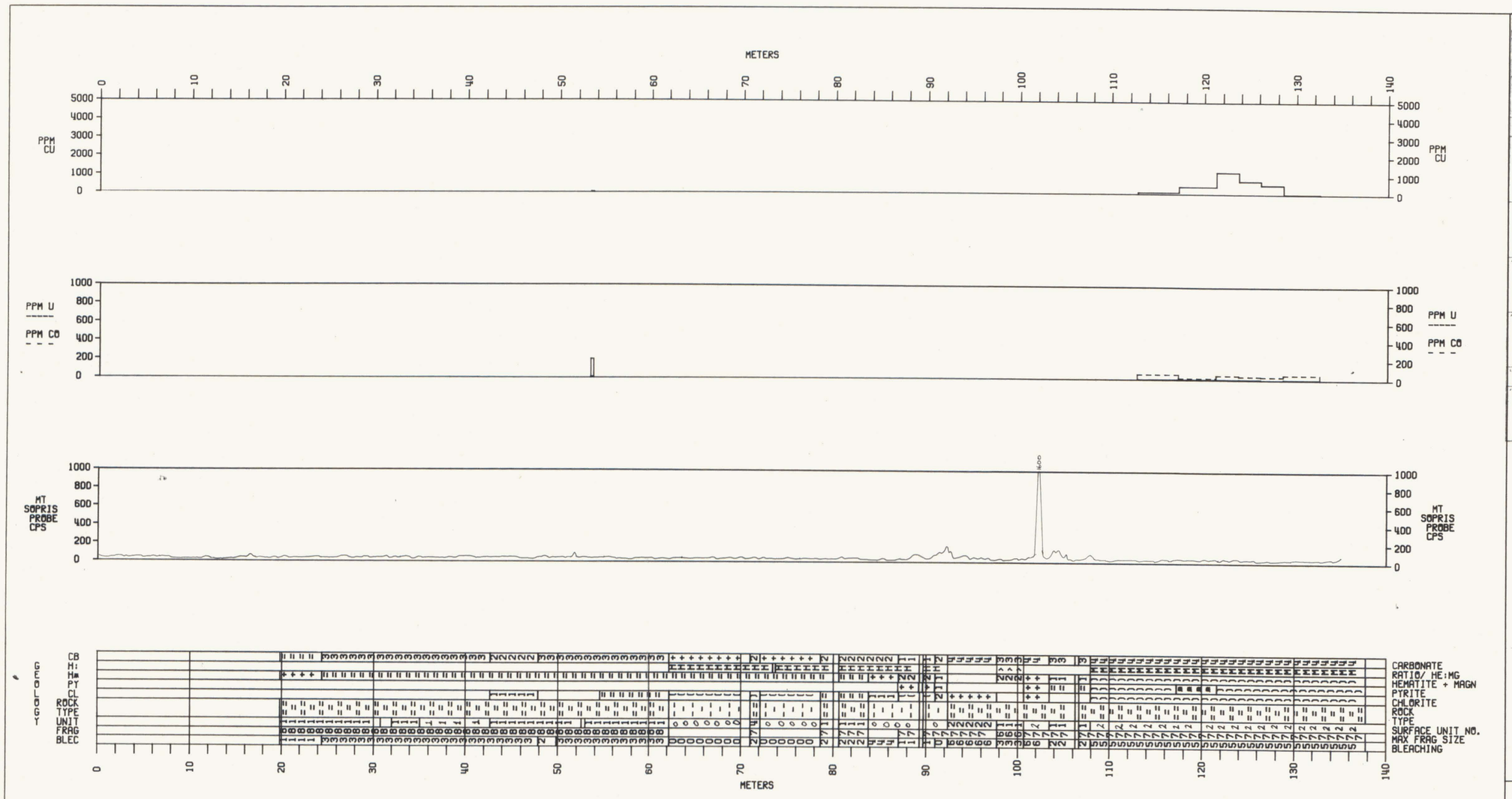
HØLE 80I021

IGØR PRØPERTY

WERNECKE JØINT VENTURE

IGC GRAFLØG

INTERNATIONAL GEØSYSTEMS CØRP.



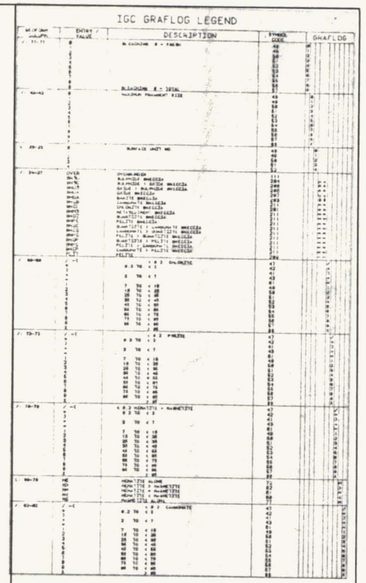


FIG. WJV 80-I74

ARCHER CATHRO AND ASSOCIATES LTD.

HOLE 80I021

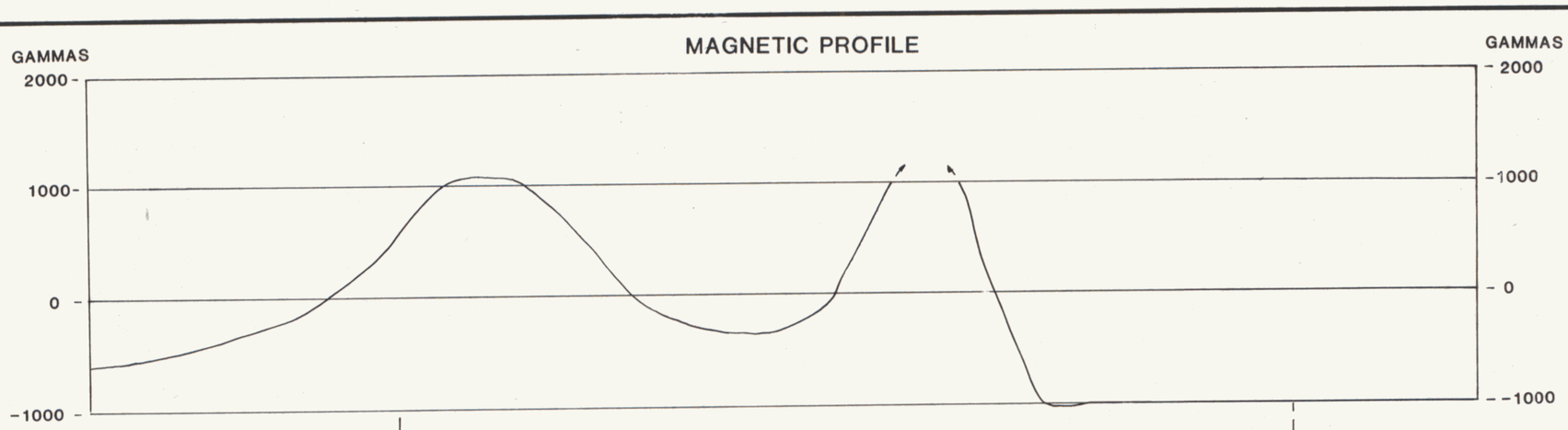
IGOR PROPERTY

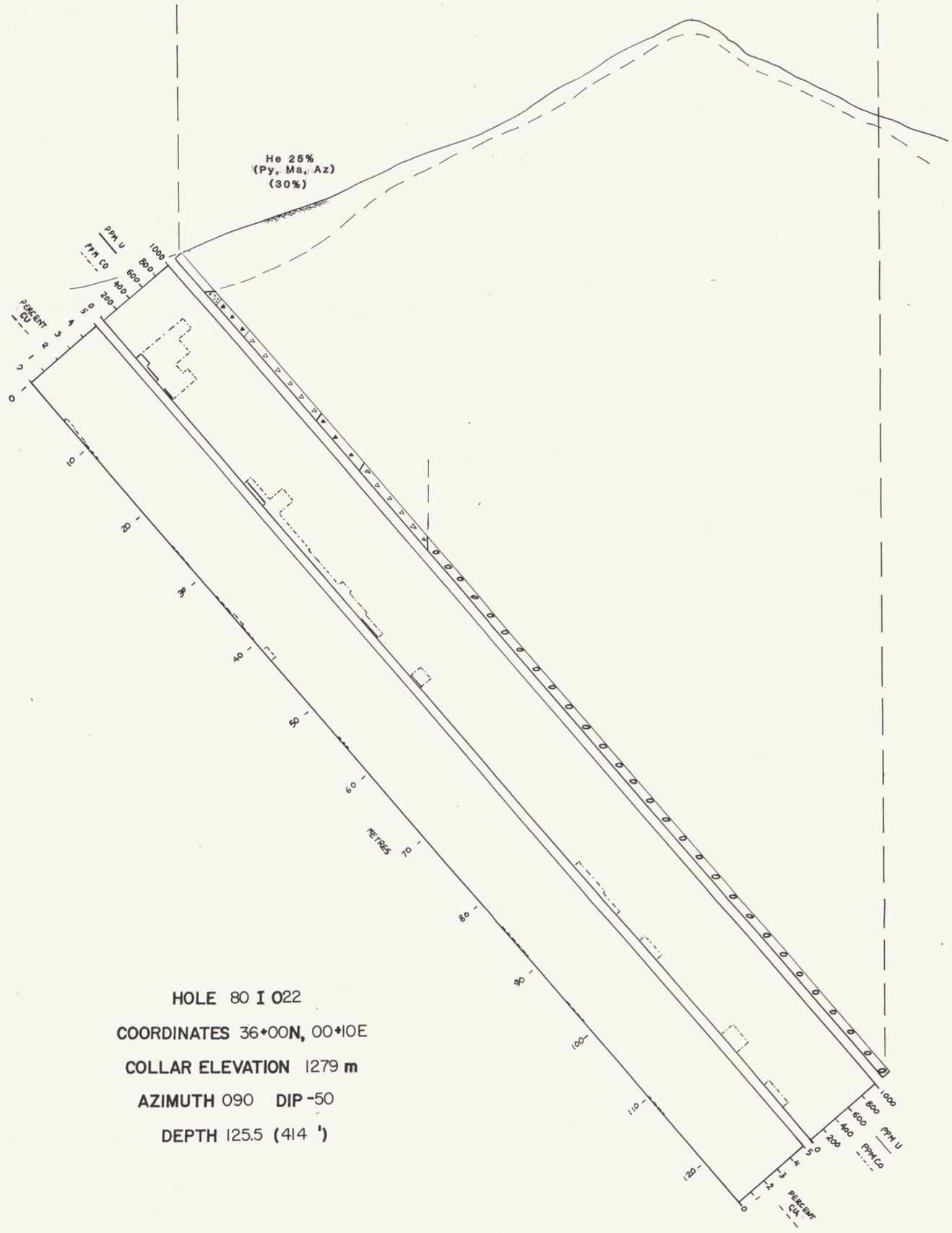
WERNECKE JOINT VENTURE

IGC GRAFLOG

INTERNATIONAL GEOSYSTEMS CORP.

MAGNETIC PROFILE





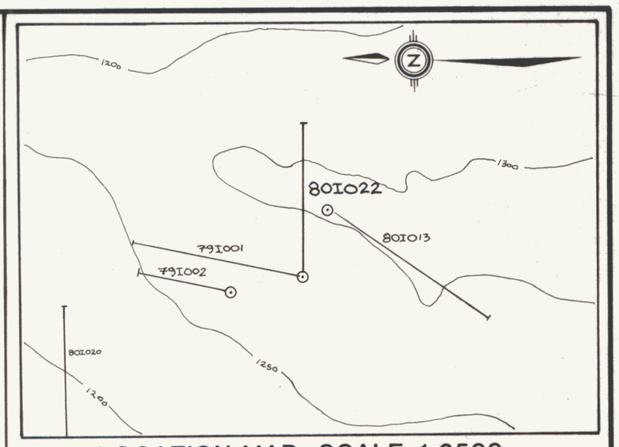
HOLE 80 I 022

COORDINATES 36+00N, 00+10E

COLLAR ELEVATION 1279 m

AZIMUTH 090 DIP -50

DEPTH 125.5 (414 ')



LOCATION MAP SCALE 1:2500

50 25 0 50 100

METRES

LEGEND

HELIKIAN

- Iron-Rich Breccia (HB4): high but variable concentrations of euhedral to massive magnetite-hematite with associated barite, pyrite, chalcopyrite & carbonates, both in matrix & replacing breccia fragments
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- fault
- ppm U
- ppm Cu
- ppm Co

Cp 1-2%
Py 5-10%
(He, Mg)
(5%)

Mineral occurrences:
(5%) - the percentage of rocks in the occurrence area that are mineralized; if no square bracketed number is given, less than 1% of the rocks are mineralized.
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(He, Mg) - minor minerals present

Cp 5%
Py 10%

single rock location with % of various minerals

T	trace
Cp	chalcopyrite
Py	pyrite
Mg	magnetite
He	hematite
Ma	malachite
Az	azurite
Ba	barite
Sd	siderite

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GEOLOGICAL
ENGINEER

FIGURE WJV 80-I75

ARCHER, CATHRO & ASSOCIATES LTD

SECTION HOLE 80I022

090756

IGOR PROPERTY

WERNECKE JOINT VENTURE

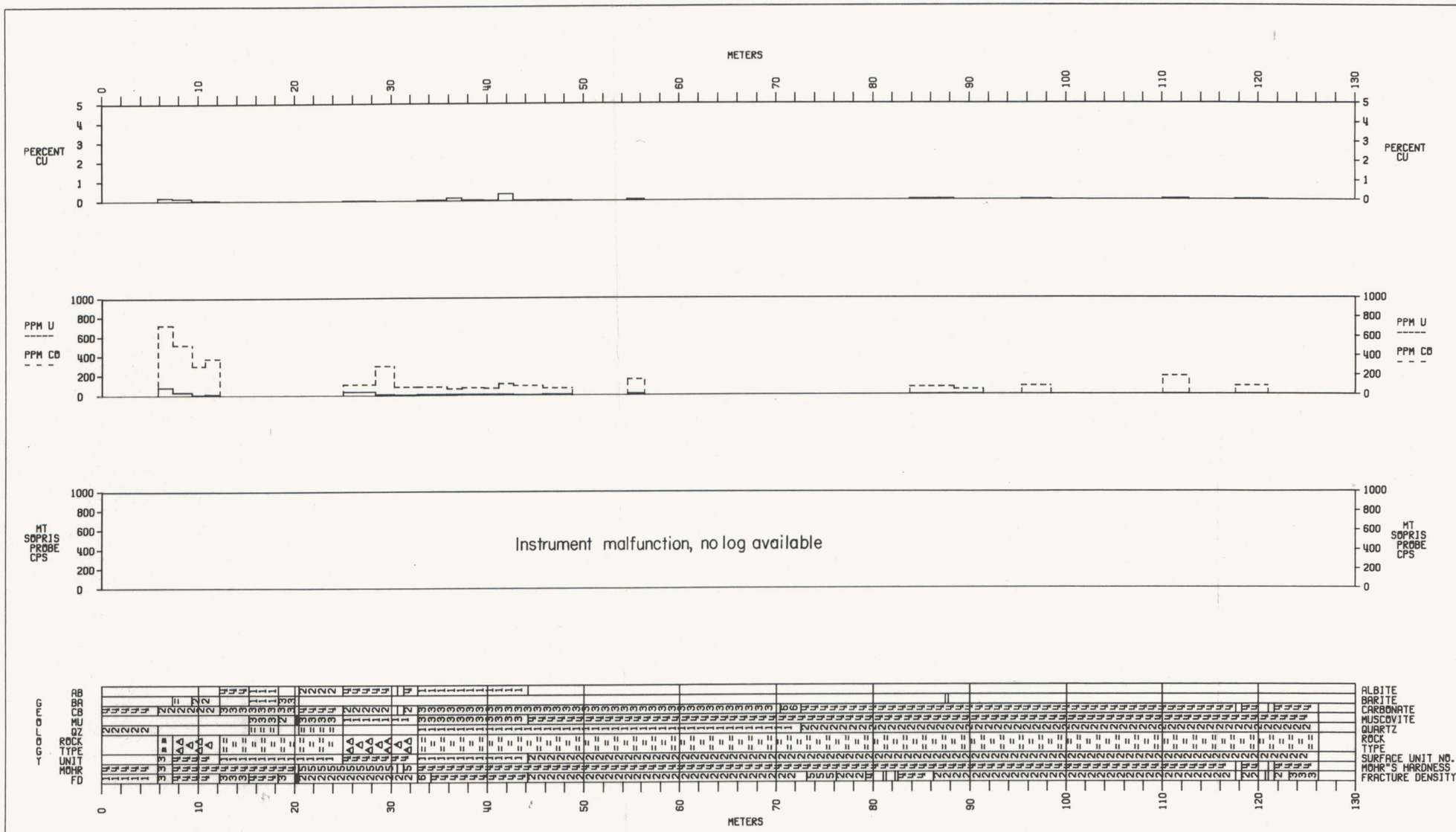
SCALE 1:400

10 8 6 4 2 0 4 8 12 16 20

metres

JAN 23 1981

To accompany report dated [redacted]



IGC GRAFLØG LEGEND

FIG. WJV 80-I76

ARCHER CATHRØ AND ASSØCIATES LTD.

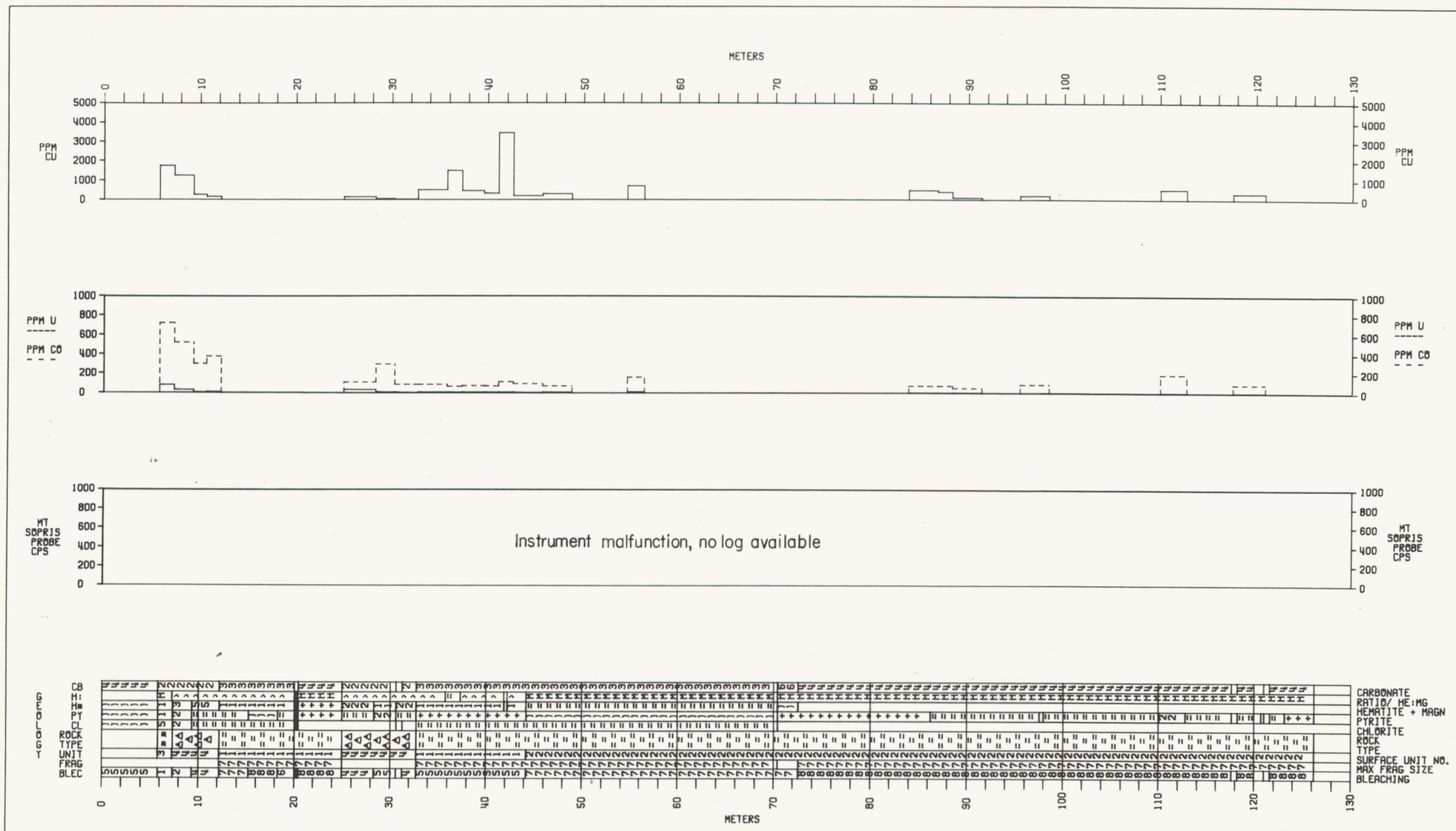
HØLE 80I022

IGØR PRØPERTY

WERNECKE JØINT VENTURE

IGC GRAFLØG

INTERNATIONAL GEØSYSTEMS CØRP.



IGC GRAFLOG LEGEND

RECORDING CALIPH.	ENTRY / FALSE	DESCRIPTION	SYMBOL CODE	GRAFLOG
/- 77-77	0	BLEACHING 0 = FRESH		
/- 42-42	0	BLEACHING 0 = TOTAL MAGNUM FRAGMENT SIZE		
\- 26-25	0	SURFACE UNIT NO.		
/- 24-27	OVER BN-N BN-S BN-E BN-W BNBLK BNMAG BNPYR BNCHL BNCLY BNMIX BNPLT BNMET BNMIC BNMAR BNSIL BNSER BNSUL BNCAL BNDOL BNANK BNSID BNFEL BNGAR BNEPI BNTOU BNAMP BNPYX BNOLI BNSPH BNZIR BNRUT BNAPA BNFLU BNBAR BNTOP BNCOR BNSPI BNGAH BNCHR BNVAN BNMAN BNBER BNGAL BNSCH BNWOL BNTUR BNBIO BNMUS BNPHL BNVER BNKAO BNPRE BNLAU BNWAV BNSTI BNHEU BNSTA BNBRE BNCHA BNLAB BNMOR BNNAT BNSAN BNGYP BNANH BNHAL BNSYL BNTRO BNPET BNCRY BNSAL BNBOR BNCOA BNGRA BNANT BNSMI BNBAS BNSER BNSUL BNCAL BNDOL BNANK BNSID BNFEL BNGAR BNEPI BNTOU BNAMP BNPYX BNOLI BNSPH BNZIR BNRUT BNAPA BNFLU BNBAR BNTOP BNCOR BNSPI BNGAH BNCHR BNVAN BNMAN BNBER BNGAL BNSCH BNWOL BNTUR BNBIO BNMUS BNPHL BNVER BNKAO BNPRE BNLAU BNWAV BNSTI BNHEU BNSTA BNBRE BNCHA BNLAB BNMOR BNNAT BNSAN BNGYP BNANH BNHAL BNSYL BNTRO BNPET BNCRY BNSAL BNBOR BNCOA BNGRA BNANT BNSMI BNBAS		
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