

**J. TUACH GEOLOGICAL CONSULTANTS, INC.
DIAMOND DRILL CORE LOG**

LATITUDE _____	Tests _____	Dip _____	Magnetic _____	Corrected _____	Project No. _____	Hole No. <u>2902</u>
DEPARTURE <u>11.500N 13.000E</u>	Depth _____	_____	Bearing _____	_____	Property <u>Middle Branch - Buchans</u>	
ELEVATION <u>3821'</u>	_____	_____	_____	_____	NTS _____	Grid Name <u>Mine grid</u>
DIP AT COLLAR <u>-90°</u>	_____	_____	_____	_____	Date started <u>22/09/75</u>	Completed <u>28/01/76</u>
BEARING _____	_____	_____	_____	_____	Contractor _____	
TOTAL DEPTH <u>1506</u> CORE SIZE <u>Ax (Bx 80-90)</u>	_____	_____	_____	_____		
REMARKS _____	_____	_____	_____	_____	Logged by <u>J. Harris (1996)</u>	

Depth & Lithology	Description	Alteration	Mineralization
0 - 80'	- Overburden		
80 - ≈ 154'	- Interbanded mafic and felsic tuffs - light green to grey colour - Strongly foliated to schistose @ ≈ 55° to the core - Wispy banding - calcite/quartz bands common in more mafic sections - Some felsic zones are prominent quartz - 2 small fault gouge zones between 133 and 140' - 149 - 154' - fragmental	Moderate to strong sericitic and chloritic alteration Black chloritic alteration locally i.e. ≈ 120' 133 - 140 ≈ 2.5' recovered core recovery - poor throughout	py. 3 - 5% throughout but locally 20 - 25% as disseminations and conformable layers/veinlets
154 - 286'	- Felsic volcanic, tuff? locally definitely tuffaceous, buff to mottled green colour - Porphyritic with tiny or locally large quartz and flecked with chlorite - some faint feldspar phenos. - Locally appears to be brecciated rhyolite - 220 - 222' - chloritic, maybe more mafic - 273 - 277' - sheared and sericitic; foliation at 50 - 55° to the core - 279.5 - 284' - chilled mafic dyke - pale green colour (also at approx. 341 - 345', 357 - 364')	Local silicification - some weak sericitic alteration - black chlorite - silica wisps and hairline fracture infill throughout, often brecciated by alteration 220 - 222' - strong black chlorite alteration 277 - ≈ 279.5' - very strong black chloritic alteration	3 - 5% pyrite throughout with local zones of 10 - 15% 176 - 184' to 1% Pb-Zn associated with white quartz veining to silicification 277 - 279.5' - ≈ 30% py.

HOLE NO. 2902

Depth & Lithology	Description	Alteration	Mineralization
286 - 424' (Could be some Buchans River Fm. - here?)	- 280 - 431' - very poor core recovery - 280 - 286' $\approx$ 3' recovered - 286 - 293' - $\approx$ 1' recovered, 293 - 313 $\approx$ 3', 313 - 326' $\approx$ 0.5', 326 - 336' $\approx$ 0.5' - 336 - 341' - $\approx$ 0.5', 341 - 353 $\approx$ 1', 353 - 358' $\approx$ 2', 358 - 360' $\approx$ 0.2', 360 - 363' $\approx$ 3' - 363 - 366' - $\approx$ 1.2', 366 - 371' $\approx$ 1.5', 371 - 382' $\approx$ 2', 382 - 390' $\approx$ 2', 390 - 400' $\approx$ 3' - 400 - 406' - $\approx$ 4', 406 - 416' $\approx$ 1.5', 416 - 431' $\approx$ 3.5') - 286 - 293' - some coarse fragmental - vol breccia or conglomerate - 293 - 313' - quartz and feldspar (creamy coloured) porphyritic - 313 - 336' - black rhyolitic - silicified? - $\approx$ 364 - $\approx$ 416' - locally fragmental - conglomerate - agglomerate - 371 - 382' - some shearing foliation @ 45° to the core	336 - 341' - silicified $\approx$ 345 - 355' strongly silicified	336 - 341' - 8 - 10% py. in rubbly pieces 345 - 353' - some pyritic rubble possible barite
424 - 447'	- silicified felsic tuff and cherty sediments - Local bedding - layering at 50 - 60° to the core - Grey to buff colour - Some tuffaceous beds - 424 - 430.5' - mafic dyke - 441 - 446' - mainly dacitic tuff	possible silicification - some weak sericitic alteration	431 - 435' $\approx$ 5% py. disseminated in discrete beds
447 - 615'	- Felsic tuff - dacitic - Grey green to buff colour - Some cherty or silicified bands over upper 20' - 447 - 452' - porphyritic - tiny chlorite and feldspar and a few quartz phenos. - 525 - 546' - some core lost out of boxes - 539 - 542' - some core lost - some stockwork quartz veining to silicification - 609 - 616' - only 1' recovered evidence of grinding (shear - fault?)	Weak to locally moderate silicification and sericitic alteration - some black chloritic alteration along fractures - feldspar phenos. altered to sericitic where present - 505 - 510' more pronounced black chl. - 518 - 520' stockwork black chl. and some silica $\approx$ 532 - 533' - some silicification weak to moderate with black chl. 587 - 594' - somewhat more chloritic	py. generally <1% 505 - 510' 2 - 3% py. 518 - 520' 3 - 5% py. - cpy. and Pb-Zn - stockwork stringers 532 - 533' - 5 - 8% py, cpy and Sphalerite 539 - 542' - 4 - 5% py, cpy and Sphalerite (Pb) with stockwork quartz 593 - 595 - some stockwork py and cpy. mineralization to 5%
615 - 755'	- Arkose and Arkosic conglomerate - Variety of lithic fragments - pebbles - some granitic - 676 - 681' - 1 - 2" core recovered - poor recovery 662 - 712' - Occasional green siltstone beds to 1" - Mostly mainly green sandstone below 735' - bedding at about 50 - 55° to the core - Lower 3' conglomerate		
755 - 817.5'	- Mafic volcanic - dark green to reddish - fine grained - Flow, locally amygdoidal - calcite and chloritic infill, usually very small amygdules, conformable contacts - locally magnetic - 764 - 765' - fragmental - agglomerate	Epidote veining and fracture infill common and zones of alteration - reddish sections due to hematitization - occasional patch of silicification	

Depth & Lithology	Description	Alteration	Mineralization
817.5 - 820'	- Interbedded siltstone to sandstone and dacitic tuff - Bedding at $\approx 60^\circ$ to the core - Lower 1.5 - 2' - mainly tuff	Green and fairly common - black chloritic alteration in the tuff	
820 - 835.5'	- Interbedded lithic arkose and black siltstone - About 8" amygdoidal basalt "clasts" at base - Also some tuffaceous beds with black chloritic alteration		
835.5 - 902'	- Felsic to intermediate tuff (dacitic crystal vitric) - Feldspar crystals, wispy pumiceous to glassy shards and a few quartz crystals in a sericitic and/or chloritic groundmass - 858 - 859' - layered/banded at $75 - 80^\circ$ to the core - Reddish to green colour dependant on hematitization - Somewhat more chloritic and more fragmental below 871' - Lower contact gradational	sericitic and chloritic alteration of groundmass	to 1% disseminated hematite locally
902 - 977'	- Rhyolite to rhyolite breccia with some interbedded more intermediate dacitic, tuffs - Reddish brown to green colour, hematite veining fairly common over upper 25 - 30' - Rhyolitic sections porphyritic with orange to white feldspars and a few quartz phenos. - some colour changes may be due to alteration - 916 - 920' - shattered look with wispy carbonate veining along core @ 933' - possible fault breccia - 935.5 - 936.5' breccia and some gouge, fault - largely cemented with silica and epidote - 938 - 942' - chloritic - dacitic tuff - @ $\approx 952'$ small hematitic shear at $25 - 30^\circ$ to the core - 955 - 977' - mainly all rhyolitic	some chloritic and hematitic alteration local epidote stringers 938 - 942' some black chloritic alteration 950 - 953' epidote veining to alteration common	local disseminated hematite
977 - 1048'	- Lithic tuff to immature sediment (more likely immature sediment - Arkose) - Very angular to rounded lithic clasts in a tuffaceous to locally silty matrix - overall green colour - 977 - 1001' - variety of lithic fragments - rhyolite porphyry and some mafic also fragments of dacitic tuff - very little matrix - 1001 - 1049' - mainly coarse sandstone to siltstone sized particles with a few pebbles of amygdoidal basalt and porphyritic rhyolite		disseminated magnetite throughout, local disseminated pyrite to about 1%

HOLE NO. 2902

Depth & Lithology	Description	Alteration	Mineralization
1048 - 1156'	- Andesitic breccia - - a variety of mafic volcanic clasts in a tuffaceous to silty matrix - Mafic clasts are commonly amygdoidal with calcite and/or chlorite and/or quartz infill - also contains a few granitic, rhyolitic and pyritic siltstone clasts - darker sections commonly magnetic - @ 1067' - small fault gouge, calcite vein along core 1067' - 1068' - Mafic dykes - hard, black, aphanitic and magnetic 1057' - 1060' and 1067' - 1069' - Some carbonate/quartz veining - Below 1105' - mainly all fragmental andesite to basalt - rare rhyolite clasts - more common carbonate veining and epidote veining to alteration	Chloritic alteration - some local epidote alteration Local pink carbonate matrix Locally hematitized	Local disseminated py. - generally only in a few clasts
1156 - 1180'	- Pink rhyolite to rhyolite breccia - Some interbanded mafic volcanic - Shattered - highly fractured to brecciated - some silica - epidote cement - Very poor core recovery - 1166 - 1180' ($\approx$ 1.8') fault zone?		
1180 - 1195'	- Tuffaceous wacke (sandstone) with some dacitic crystal tuff bands - Grey green colour - Lower foot - fine grey siltstone	Some black chloritic alteration	Disseminated magnetic and/or hematite and a pale blue clayey mineral
1195 - 1198'	- Hetrolithic breccia - conglomerate - Felsic volcanic and siltstone fragments - possible tuffaceous matrix - Angular to subrounded clasts	Some sericitic alteration of groundmass	<1% py disseminated to fragments - possible minor Pb-Zn grains
1198 - 1219'	- Very fine grey to green siltstone - Pyritic - cherty - 1198 - 1214' $\approx$ 2' recovered includes some conglomerate as above - Bedding generally around 45° to core		very finely dissem. py.
1219 - 1244'	- Hetrolithic breccia - conglomerate - Core very broken and rubbly but good recovery - Clasts are mainly siltstone and rhyolite but some are andesitic - Matrix is mainly siltstone but locally may be tuffaceous - Quite a few fragments of dacitic tuff - Upper 3' mainly brecciated rhyolite	Some sericitic altered tuff fragments	A few grains of pyrite and some pyritic siltstone clasts
1244 - 1288'	- Intermediate tuff - Light to medium green, porphyritic with laths of white plagioclase - Mostly soft and chloritic, contains occasional fragments of andesite - @ 1260' - small 2 - 3" bed of fragmental - mainly andesitic grains but some felsic - at $\approx$ 1288' - some chips of foliated rock - possible sheared contact - 1265 - 1274' - somewhat more felsic	Weak to moderate chloritic alteration Poor core recovery 1268 - 1292' 1286 - 1292' only 3 - 4" core	

HOLE NO. 2902

Depth & Lithology	Description	Alteration	Mineralization
1288 - 1298'	- Rhyolite - fragmental - Deep red brown to maroon colour - hematitized, hard silicic - Fragmental texture may be due to alteration	locally silicified giving fragmental texture	some disseminated hematite
1298 - 1320'	- Intermediate lapilli tuff - Altered a pale green to locally pinkish, bleached - Foliated at $\approx 60^\circ$ to the core at 1298' - Angular and sometimes wispy lapilli in a fine grained matrix - Layering locally appears to be at $35 - 45^\circ$ to the core - Core recovery $\approx 70\%$ - 1306 - 1314' no recovery - Around 1314' - unit of more felsic tuff	lapilli altered to sericite - sericitic and locally silicification of matrix black chlorite on fractures and locally as disseminations	
1320 - 1336'	- Felsic volcanic - rhyolitic tuff - As for 1288 - 1298' - Poor core recovery, especially 1331 - 1339'		
1336 - 1346'	- Dacitic tuff - Overall reddish colour due to hematitization - Altered plagioclase crystals throughout, fragmental texture apparent locally - Core recovery 60 - 70%	hematitized, also moderate sericitic alteration	
1346 - 1400'	- Lapilli tuff - altered - pale grey to grey green - Wispy and often haphazardly arranged lapilli and fragments - appears to be been andesitic to dacitic composition - some quartz crystals locally - Somewhat indistinct coarse fragments locally - agglomerate - Waxy sericite after feldspars? some bright green mineral (mariposite?)	Bleached - sericitic alteration throughout and locally silicified lower 2' brecciated by hairline black chlorite	Up to 1% very fine pyrite disseminated, especially towards the base - also some small pyritic clasts
1400 - 1503'	- Andesitic lapilli tuff to agglomerate, very likely less altered equivalent to above unit - Medium to dark green colour, a variety of generally porphyritic andesitic clasts in a tuffaceous matrix - Clast boundaries are often wispy and embayed - Some fragments are more felsic, occasional rhyolitic clast - @ 1447.5' small 1" ductile shear @ $\approx 65 - 70^\circ$ to the core - @ 1461 - 1461.5' silicification in a shear zone? @ $55 - 60^\circ$ to the core	variable chloritic and sericitic alteration 1426 - 1431' fractured with black chloritic alteration	Very rare pyrite except in rare pyritic clasts (70%+ fine py) i.e. at $\approx 1414'$ At 1425' - fairly large "dacitic" clast with finely disseminated pyrite around the edges
1503 - 1506'	- Mafic dyke - Fine grained chilled some calcite veining		
	- E.O.H.-		

HOLE NO. 2902

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