

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

Sheet No. 1

UTM CO-ORDINATES 510800 E 5406700 N
 MINE GRID 7987.585E 2000 N
 ELEVATION 3837'
 DIP AT COLLAR -90°
 BEARING _____
 TOTAL DEPTH 495.67m CORE SIZE NQ
 REMARKS _____

Tests Depth	Dip	Magnetic Bearing	Corrected Bearing
<u>415 m</u>	<u>-89°</u>	<u>109°</u>	<u>86°</u>
_____	_____	_____	_____
_____	_____	_____	_____
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_____	_____	_____	_____

Project No. G-4806 Hole No. BR-99-01-01
 Property Buchans - Mining Lease
 NTS 12A/15 Grid Name Mine Grid
 Date started 31/05/99 Completed _____
 Contractor _____
 Logged by Harris & Oxford - 1999

Depth & Lithology	Description	Alteration	Mineralization
0 - 9.0 m	Overburden		
9.0 - 14.1 m	Felsic tuff light grey to buff altered felsic tuff some rhyolite and bleached mafic "dyke" fragments chloritic blotches	moderate to strong quartz-sericite ± chlorite alteration	3-4% disseminated pyrite
14.1 - 18.0 m	Mafic dyke light grey, bleached, inclusions of above unit 14.85 - 15.1 m and 15.9 - 16.2 m fractured and faulted, breccia and/or gouge @ 14.3 - 14.8 m, @ 15.7 m and 17.4 - 18.1 m chilled contacts at 14.1 m and 18.0 m and also against inclusions small chlorite amygdules	bleached, moderately altered	1-2% pyrite
18.0 - 27.2 m	Rhyolite porphyry (PQ) grey to brown rhyolite, with prominent quartz and pink feldspar phenocrysts fine grained hard groundmass commonly fractured to brecciated, some quartz-carbonate veining fault breccia 18.0 - 18.1 m, 19.6 - 19.8 m, @ 26.3 m and 27.1 - 27.2 m 25 - 25.4 m grey, fine grained "breccia" along the core, pyritic - 3-5%	weak quartz - sericite alteration	to 1% disseminated pyrite
27.2 - 29.9 m	Mafic dyke as for 14.1 - 18.0 m grey-green, flecked with chlorite commonly fractured, some carbonate infill fault breccia 27.2 - 27.7 m	bleached, weakly altered	

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Depth & Lithology	Description	Alteration	Mineralization
29.9 - 43.2 m	Prominent quartz rhyolite, as for 18.0 - 27.2 m commonly fractured to brecciated 38.6 - 39.4 m - chilled mafic dyke 36.1 - 38.6 m - brecciated, with small gouge zones 40.4 - 42.2 m - mostly fault breccia 39.4 - 40.4 m - fractured, with calcite veining 42.2 - 43.2 m - felsic lithic tuff, prominent quartz	29.9 - 40.4 m' - weakly altered 39.4 - 40.4 m - weak to moderate chloritic alteration	29.9 - 40.4 m - ≈ 1% disseminated pyrite 39.4 - 41.5 m - 1-2% pyrite 41.5 - 43.2 m - 4-8% pyrite
43.2 - 44.4 m	Mafic dyke grey, chilled contacts 43.7 - 44.0 m - faulted inclusion of felsic tuff 0.04 m - fault gouge @ 43.7 m, 0.6 m gouge @ 44.4 m	leached, weakly altered	to 1% pyrite, minor cpy and sp-ga, associated with thin quartz stringers
44.4 - 50.1 m	Altered felsic flow or sill pink to buff, fine grained, could be altered mafic local rounded chlorite blebs, resemble anhydrites locally flecked with chlorite conformable contact at 50.1 m @ 55° to the core, may be a more altered version of the unit below 45.9 - 47.3 m - highly fractured with some fault gouge	moderate to strong quartz-sericite ± chlorite alteration possible pink potassic alteration	≈ 2% disseminated pyrite
50.1 - 58.3 m	Felsic to intermediate flow or sill (dacite) grey-green, fine grained, fairly hard locally cut by thin quartz veinlets some pink bleaching along fractures	moderate quartz-sericite ± chlorite alteration	≈ 2% disseminated pyrite
58.3 - 110.4 m	Felsic flows and fragmentals buff, grey-green and pink mostly dacitic to rhyolitic, commonly flecked with chlorite and/or sericite, locally quartz porphyritic 58.3 - 59.0 m - fault breccia 58.3 - 60.3 m - felsic breccia, mainly pink dacitic fragments, some sericitic pumice 60.3 - 64.0 m - fine grained rhyolite to dacite 64.0 - 70.9 m - felsic pyroclastic breccia, as above, a few jasper and bright pink felsic fragments - fault breccia 64.0 - 64.2 m a few prominent quartz grains 70.9 - 73.0 m - fine grained buff dacitic flow and flow breccia 73.0 - 95.0 m - pyroclastic breccia, chloritic and sericitic matrix fragments mainly as for "dacitic" flows 84.4 - 92.0 m - some fragments to boulders of prominent quartz intrusive 95.0 - 110.4 m - mainly dacitic flow, grey to pink, fairly massive small fault breccia @ 95.0 m 103.6 - 103.65 m - fault breccia 105.0 - 107.0 m - fractured along core, some breccia conformable contact @ 110.4 m	moderate to strong alteration, variable quartz-sericite-chlorite-pyrite 64.0 - 70.9 m - more chloritic alteration semi-massive pyrite bands strongly conductive over widths up to 0.1 m 95.0 - 110.4 m - moderately altered, some cherty quartz veining local chloritic stockwork	58.3 - 60.3 m - 15-20% pyrite 60.3 - 65.3 m - 3-4% pyrite 65.3 - 67.8 m - 30% pyrite disseminated and as semi-massive clots and bands to 0.12 m 67.8 - 70.9 m - 2-5% pyrite 70.9 - 73.0 m - 1-2% pyrite @ 70.2 m - minor sphalerite 73.0 - 82.0 m - 5-6% pyrite 82.0 - 92.0 m - 1-2% pyrite 92.0 - 95.0 m - 10% pyrite as semi-massive bands and disseminations 95 - 110.4 m - generally about 2% disseminated pyrite, with local zones of 10-20% 95.2 - 95.35 m - 30% pyrite 104.15 - 104.7 m - ≈ 20% pyrite and minor sp-ga associated with chlorite

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Sheet No. 3

Depth & Lithology	Description	Alteration	Mineralization
110.4 – 136.0 m	Pyroclastic breccia, poly lithic abundant angular fragments of dacite, bleached mafic, prominent quartz rhyolite and a few of jasper rare rounded fragment chloritic matrix with coarse quartz grains, local prominent quartz local minor fault zones, i.e. 113.5 – 113.7 m, @ 116.3 m, and at 120.5 – 121.5 m	moderate to strong chloritic alteration of matrix local zones and fragments with strong quartz-sericite-pyrite alteration	3-5% pyrite with local zones of 10-15% as semi-massive bands
136.0 – 163.9 m	Prominent quartz tuff and rhyolite 136.0 – 139.8 m - tuff with some chloritic matrix 139.8 – 163.9 m - rhyolite or welded tuff, fine grained, silicic matrix – only occasional feldspar phenos cut by hairline fractures which are lined with calcite small fault breccia @ 143.8 m, other thin gouge seams	moderate chloritic alteration	generally <1% pyrite 136.0 – 139.8 m and 163 – 163.9 m a few thin semi-massive pyrite bands
163.9 – 167.05 m	Pyroclastic breccia to conglomerate (4sa) local arkosic matrix, assorted fragment types 164.0 – 164.3 m - sheared with some fault gouge and breccia weak shearing throughout		167.0 – 167.05 m - minor sphalerite in thin quartz stringers
167.05 – 179.3 m	Fault/shear zone 167.05 – 173.3 m - fault gouge and breccia mainly grey pyritic gouge with fragments of silicic alteration 168.9 – 170.1 m - green chloritic breccia local foliation @ 70-75° to the core 173.3 – 175.8 m - strongly foliated @ ≈ 75° to the core still breccia, some larger intermediate tuff or sediment fragments 177.4 – 179.3 m - sheared and brecciated felsic rock grey to buff, some larger, light pink fragments, rhyolite or siltstone	gouge and breccia zones are weakly conductive	mostly 5-10% or more of fine pyrite and less than 1% sp, ga and cpy in altered fragments mostly in thin quartz and quartz- carbonate veinlets 175.8 – 177.0 m - clasts of massive sulphide, mainly sphalerite and galena clasts are weakly conductive ≈ 5-6% combined base metals
179.3 – 188.0 m	Mafic volcanic (4b) medium green to reddish, sheared amygdaloidal basaltic fragmental, small white and pink calcite amygdules minor thin bands of arkosic		
188.0 – 191.4 m	Rhyolite porphyry dyke or sill orange brown with orange feldspar phenocrysts thin chilled margins at 45° to the core		
191.4 – 197.4 m	Mafic volcanic as for 179.3 – 188.0 m (4b) 195.3 – 196.0 m - arkosic conglomerate moderate to strong shearing, local folding of the foliation thin fault gouge @ 197.4 m		

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Sheet No. 4

Depth & Lithology	Description	Alteration	Mineralization
197.4 – 224.6 m	Siltstone 4s light green, grey and brown, generally thinly bedded bedding commonly disrupted by soft sediment slumping but mainly at 50-60° to the core where not disturbed 220.1 – 220.3 m - fault breccia	223 – 224.6 m - locally hematitized	minor finely disseminated pyrite, some small blebs of fine pyrite
224.6 – 228.1 m	Felsic sill pink granitic to granodioritic mainly fine grained, a few feldspar phenocrysts and 8-10% mafic pheno's – amphibole contacts weakly chilled		minor pyrite
228.1 – 319.2 m	Siltstone to mudstone, as above light green, grey-green and black thinly bedded at 35-55° to the core, commonly disrupted tops up hole – loading 245.5 – 246.5 m - brecciated by silica – carbonate veining 265.4 – 266.3 m - cut by wormy white quartz veining to vein breccia, also locally below, especially 280.5 – 281.7 m black siltstone more common down hole a few thin, white sandy beds @ 291.7 m - small fault breccia		@ 254.7 m - minor sp-ga in a thin quartz vein 245.5 – 246.5 m - <1% sp, ga, py and cpy disseminated in cherty silica veining
319.2 – 325.8 m	Fault breccia, minor gouge black and grey siltstone fragments in a fine gritty matrix with some calcite cement	gouge zones are weakly conductive	minor pyrite
325.8 – 382.6 m	Siltstone to mudstone black & grey, thinly bedded at 45° to the core bedding is occasionally folded/slumped a few white sandy beds local graphitic looking coatings on fractures – doesn't conduct 371.2 – 371.35 m - chilled, grey dyke, veining 376.7 – 376.8 m - quartz vein breccia 379.4 – 379.8 m - breccia – fault breccia of angular siltstone pieces cemented with calcite and silica, porous	279.4 – 379.8 m - weak silicification of some fragments	379.4 – 379.8 m - 1-2% pyrite as infill in the breccia and disseminated in silicified fragments
382.6 – 396.5 m	Mafic dyke grey to black, fine grained, chilled contacts upper contact at 10° to the core, lower contact broken and rubbly, but at a higher angle 383.7 – 384.6 m - siltstone inclusion along the core, (about half the core) dyke is weakly magnetic		<1% disseminated pyrite and/or pyrrhotite

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Depth & Lithology	Description	Alteration	Mineralization
396.5 – 433.2 m	Siltstone, as above black and grey, bedded @ about 50° to the core 400 – 400.6 m - siltstone breccia 401 – 403.0 m - fractured at 10-15° to the core 398.8 – 398.9 m - quartz vein at 30° to the core 425.9 – 427.0 m - siltstone breccia, brecciated by hairline fractures, some open, vuggy fractures 431.6 – 431.8 m - minor shearing, small white sandy bed thin tuffaceous bed @ 433.1 m	minor silica and calcite and pyrite introduction along fractures	minor pyrite <1% pyrite locally 1-2% over 0.1 m
433.2 – 435.9 m	Mafic dyke grey-green, fine grained, chilled contacts upper contact conformable @ about 35-40°, lower contact @ 5-10°		
435.9 – 439.2 m	Siltstone, as above locally brecciated with silica-calcite veining thin fault breccia @ 439.2 m	some weak silicification	
439.2 – 447.2 m	Mafic dyke (as above) fine grained, grey to black, massive weakly to moderately magnetic chilled contacts at 40-50° to the core		minor pyrite
447.2 – 495.67 m	Siltstone, as above black to grey, bedded at about 45° to the core 462.1 – 463.3 m - tuffaceous sandstone, pink, quartz, feldspar and siltstone grains, sericitic matrix and some pumice moderate shearing parallel to bedding 471.1 – 471.2 m - weak shearing bedding at = 60° to the core 471.3 – 495.67 m 471.3 – 495.67 m - occasional thin sandy beds - 495.67 m E.O.H.	weak to moderate sericitic alteration, related to shearing	minor pyrite 462.1 – 463.3 m - to 1% disseminated pyrite

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