

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

Sheet No. 1

GPS CO-ORDINATES 13163.56 E 7274.3 N
GRID CO-ORDINATES 131+00 E 7300 N
ELEVATION 220.57
DIP AT COLLAR -90°
BEARING _____
TOTAL DEPTH 353 m CORE SIZE NQ
REMARKS _____

Tests Depth	Dip	Magnetic Bearing	Corrected Bearing
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
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Project No. _____ Hole No. BE-97-20
Property Buchans River Ltd.
NTS 12A/15 Grid Name Buchans East
Date started 28/10/97 Completed 04/11/97
Contractor Logan Drilling Ltd.
Logged by J. Harris - 1997

Depth & Lithology	Description	Alteration	Mineralization
0 - 18.9	Overburden		
18.9 - 133.5	Altered felsic volcanic shades of grey and buff small clear quartz phenos evident locally fragmental textures locally - may be in part due to alteration 18.9 - 28.2 - light to medium grey, fairly massive with white calcite and quartz calcite stringers fault gouge @ 24.1, also @ 27.9 - 28.2 26 - 29 m ≈ 0.4 m lost core some fault zones also some grinding of core 29 - 32 m ≈ 0.5 m lost core 32 - 35 m ≈ 1.0 m lost core 28.2 - 38.2 - often fragmental - locally looks like autobreccia, fragments are often lighter colour maybe less altered local broken wormy quartz veining 38.2 - 40.1 - pale green altered mafic dyke or flow a few small amygdulites. Contacts look chilled, lower 0.05 m bleached to felsic look and cut by Pb-Zn stringers, 38.4 - 38.55 - altered felsic inclusion 40.9 - 41.1 and 42.3 - 42.9 - altered mafic as above 41.1 - 42.3 - 20 - 30% quartz stockwork veining 40.1 - ≈ 52.0 - altered felsic as above, commonly fragmental texture 50.4 - 52.0 - some fault gouge and breccia ≈ 0.4 m lost core 52.0 - 68.0 - mainly buff to locally pinkish - massive "white rhyolite", common small, clear quartz phenos 55.1 - 55.2 - lithic tuff to agglomerate bed at ≈ 60° to the core 68.0 - 68.4 and 69.0 - 69.5 - bleached and altered mafic dykes	strong quartz and quartz-sericite - pyrite alteration bleached, local weak quartz - sericite alteration some bright green - mica? strong quartz-sericite pyrite alteration local pink albite? alteration 70.5 - 71.0 thin black stringers to fracture coating - tourmaline? 88 - 118.0 - moderate quartz sericite alteration	18.9 - 28.2 - 2-5% local zones with 20% plus, very finely disseminated pyrite as in BE-96-11 Minor Sp-Ga locally mostly with white calcite-quartz stringers but rarely disseminated 28.2 - 38.2 - 3-5% py minor pyrite galena - sphalerite and chalcopyrite over lower 0.05 m 40.1 - 41.1 < 1% sp-ga and cpy 41.1 - 52.0 2-4% pyrite - local sp, ga and cpy 46.7 - 47.9 < 1% sp and ga 48.6 - 50.2 up to 1% sp and ga 50.2 - 52.0 < 1% sp and ga 52.0 - 69.5 1% pyrite mainly as fine stringers and small "clots" of finely disseminated py 68.4 - 69.0 minor sp and ga

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Sheet No. 2

Depth & Lithology	Description	Alteration	Mineralization
18.9 - 133.5 (cont'd)	68 - 74 - some grinding of core (0.1 - 0.2 m lost); some fault gouge @ = 72.0 m 69.5 - 77.5 - mostly buff altered "rhyolite" as above 77.5 - 88.0 - light grey strongly silicified felsic volcanic 88.0 - 118.0 - buff rhyolite to rhyolite breccia 90 - 95.0 - locally weakly sheared/foliated @ 45 - 50° to the core 98 - 98.5 - weak foliation at 45 - 50° to the core 98.5 - 98.7 - mafic dyke bleached to almost the same colour as the felsic vol 118.0 - 133.5 - rhyolite and rhyolite breccia with occasional lithic tuff beds 119.0 - 122.5 - local brittle fracturing, minor fault gouge 127.4 - 128.0 - lithic tuff bed @ 45-50° to the core - some very pyritic clasts 130.5 - 131.8 - lapilli tuff? fairly large quartz phenos - large waxy green sericite phenos - after feldspar and unusual rounded blebs of pyrite - barite? Also small chips of fine grained massive pyrite small fault gouge @ 133.3	118.0 - 133.5 - strong quartz - sericite - pyrite alteration - locally moderate alteration	69.5 - 69.75 - 2-3% sp and ga mainly as bands/stringers @ = 45° to the core 69.75 - 75.5 - minor sp-ga 75.5 - = 86.5 - disseminated and stringer sp-ga locally 1-2% average close to 1% 88.0 - 118.0 1-3% pyrite local zones with sp-ga often with tiny quartz stringers 118.0 - 133.5 3-5% pyrite - locally >10%, often very finely disseminated rare sp and ga 130.5 - 131.8 - 10-15% pyrite to 1% barite?
133.5 - 139.0	Quartz feldspar porphyry pink with large quartz and fairly small pink feldspar phenos, some larger waxy green sericite phenos sharp upper contact @ 60° to the core, upper 0.3 m is fine grained - chilled? 136.8 - 137.0 - fault gouge and breccia	weak sericitic alteration	Minor pyrite
139.0 - 140.0	Fault gouge and breccia white to grey - all fragments are altered rhyolite upper contact @ 45° to the core, lower @ 15° to the core		
140.0 - 228.9	Rhyolite porphyry buff with a pale green tint locally abundant clear, small quartz phenos, a few plagioclase and/or waxy sericite phenos - also very pale green chlorite? phenos 140.8 - 141.2 - fault gouge and breccia 162.0 - 181.0 - altered, mainly grey silicified, quartz phenos remain - plag. phenos altered to sericite or clay minerals @ 181.8 - small clay gouge 181.0 - 190.6 - maroon and pink rhyolite with quartz and plagioclase phenos - "typical" Buchans River Fm. maroon rhyolite 190.6 - 191.35 - mafic dyke - pale green, altered; a few chlorite and calcite amygdules, also calcite veining 191.35 - variably altered rhyolite; mainly pink, grey and buff colours but local remnant maroon patches @ = 202.0 fracture to fault zone (0.10 m) 217.0 - 228.9 - altered to medium grey small quartz and plag. phenos still evident locally 216.9 - 221.0 - common fault gouge and breccia breccia is healed locally - fine sand seam at = 218.2 - = 218.6? (Brown and pink sand not like surrounding rocks) = 0.4 m lost core 218 - 221.	140.0 - = 144.0 - moderate quartz - sericite alteration 144.0 - = 162.0 - weak to moderate quartz - sericite alteration 162.0 - = 181.0 m - moderate to strong quartz - sericite alteration 173 - 176 - some (3-4%) white quartz flooding weak - local quartz sericite alteration, zones of pink bleaching often along fractures weak to locally strong quartz - sericite alteration alteration often networked through the core 212 - 217.0 moderate alteration, bleached a buff colour 217.0 - 228.9 - strong quartz - sericite alteration	to = 1% disseminated pyrite 1 - 2% - 140.0 - 144.0; also rare sp and ga 162.0 - 181.0 1-2% pyrite, minor sp and ga mainly associated with white quartz stringers @ 171.4 = 1-2 mm sp - stringers 180.0 - 180.1 <1% hematite with a quartz - calcite vein < 1% pyrite as stringers with alteration and locally disseminated 191.35 - 191.45 < 1% sp-ga - disseminated 192.9 - 193.0 - 2-5 cm thick massive py "vein" @ = 20° to the core 191.3 - 205.5 2-5% py disseminated and as local network zones, local minor sp-ga 205.5 - 212.0 8-10% pyrite as a coarse stockwork

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Sheet No. 3

Depth & Lithology	Description	Alteration	Mineralization
140 - 228.9 (cont'd)	223.5 - 233.8 - pale green altered and brecciated mafic dyke, ductile shear @ 50° to the core @ 223.6 - 223.7	223.5 - 223.8 - bright green mica - local black chlorite on fractures 212 - 223.8	finely disseminated pyrite is often in the wallrock to stockwork veinlets 210.1 - 210.5 - semi-massive py = 0.08 m thick - offset along a quartz - calcite vein, appears to run @ 25-30° to the core minor sp in quartz-calcite 217.0 - 228.9 - 2-4% pyrite, 228.3 - 228.9 - minor sp, ga and cpy
228.9 - 239.0	Quartz porphyry large "prominent" creamy white quartz and small pinkish feldspars in a pink to green rhyolitic groundmass 228.9 - 229.8 - is without the large phenos and may be a chilled contact. Upper contact is fairly sharp @ 50 -60° to the core 229.8 - 230.3 - strongly altered 232.3 - 232.45 - lithic tuff band or inclusion, irregular contacts - upper @ ≈ 10-15° to the core; large clast of "overlying" maroon rhyolite @ 232.45 238.3 - small fault gouge 235.3 - small fault gouge	generally weak sericitic and silicic alteration with local strong alteration i.e. 229.8 - 230.3 and 232.7 - 233.0 238.0 - 239.0 moderate to strong alteration	minor pyrite 229.8 - 230.3 minor sp and ga 1-2% py 233.5 - 237.4 to 1% py >1% sp, ga and cpy as stringers and along fractures often with small calcite stringers
239.0 - 241.3	Mafic dyke; pale green, flecked with chlorite common calcite veining; occasional porphyry inclusions		
241.3 - 257.6	Altered felsic volcanic appears to be altered quartz porphyry at least locally - may be altered fragmental locally (lapilli tuff) 241.3 - 244.6 - pink to buff colour 244.6 - 257.6 - grey colour 246.1 - 249.9 - common fault gouge and breccia zones - also common veins and pieces of altered mafic dyke (contacts often along core) local thin gouge zones continue to 257.6	241.3 - 244.6 - moderate quartz - sericite alteration 244.6 - 257.6 - strong quartz-sericite - pyrite alteration bright green mica associated with mafic dyke	241.3 - 244.6 - to 1% py 244.6 - 257.6 - 5-10% pyrite minor fracture controlled sp - ga i.e. @ 255.5
257.6 - 264.8	Quartz porphyry pink to grey and greenish large quartz phenos - commonly fractured with calcite and quartz-calcite infill 259.6 - 260.1 - fault gouge and breccia lower contact @ ≈ 20° to the core - appears sheared lower 1.2 m without quartz phenos and is flecked with chlorite - small mafic volcanic or dyke inclusions near 262.0 m	weak quartz-sericite alteration with local stronger alteration associated with faults i.e. 259.2 - 260.2 black chloritic alteration along fractures	to 1% pyrite 261 - sp-ga and cpy associated with fractures and quartz veins to clots <1% overall but short zones with 2-3% i.e. 261.8 - 261.9 and 262.3 - 262.4

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

Sheet No. 4

Depth & Lithology	Description	Alteration	Mineralization
264.8 - 326.2	Altered felsic volcanic light grey colour, local large quartz phenos to 269 m weakly foliated at 65-80° to the core down to about 269 m small mafic dyke @ 267.3 - altered 266.5 - 266.7 - less altered quartz porphyry below 269.0 - mostly looks more like altered maroon rhyolite but there are occasional large quartz phenos - is very likely all altered from the coarse quartz porphyry 293.1 - 293.4 - fine grained pyritic and sericitic 271.9 - 272.0 - fault gouge and breccia 295.0 - 295.2 - fault gouge and breccia, rock is fragmental above and below fault - may be healed fault breccia 293.1 - grey to white, very strongly altered; local fragmental textures - appear to be due to alteration 301.3 - 302.3 - fault gouge and breccia; fairly common brittle fracture and thin gouge zones throughout 308.0 - 308.2 - fault gouge and fracture 310.0 - 310.7 - common fault gouge and fracture 313.4 - 317.0 - common fault gouge and fracture 317.0 - 318.8 - altered quartz porphyry 318.0 - 320.0 - common fault gouge and breccia - zones to 0.2 m 323 - 323.4 - fault gouge and breccia local wispy foliation @ = 45° to the core near 326.0	strong quartz - sericite - pyrite alteration blotches of black chlorite with pyrite below = 270.0 m 269.1 - 270.3 - patchy pink alteration (albite?) 281.0 - 298.0 - fairly common black chlorite blotches 281.0 - 294.7 - common pervasive pale pink alteration (albite?) 285.4 - 285.7 - cherty silicification and solution breccia, minor sp-Ga 293.1 - 293.4 - strong sericite pyrite alteration 298.0 - 326.2 - very strong quartz - sericite alteration, wispy sericite, local white silica flooding and stringers tiny flecks of chlorite common below 319.0 - fairly common white quartz - sericite zones local bright green mica towards 326.2	5 - 10% pyrite, disseminated and as semi-massive stringers 264.8 - 268.0 minor sp-ga and cpy, mostly associated with fractures but dissem. locally; strongest @ 267.65 - 267.8 270.4 - minor sp, ga and cpy, local orange and honey coloured sphalerite and/or galena on fractures 278.7 - 279.0 - 10% py to 1% sp, ga and cpy @ 280.3 - 4-5 cm broken quartz vein with 3-5% sp-ga @ 281.5 - 1 to 1.5 cm quartz vein @ 45° to the core with 3-5% sp-ga 289 - 290 - 2 or 3 small mineralized quartz veins 293.1 - 293.4 - 30 - 40% py 298.0 - 314.0 - 5 - 8% py minor sp-ga and cpy scattered throughout with local more concentrated areas fairly common orange to honey coloured sp and smears of galena on fractures - remobilized 308.9 - 309.0 - 8-10% sp, ga and cpy 314.0 - 326.2 - to 1% pyrite minor disseminated sp, especially @ 325.6 - 326.0
326.2 - 332.0	Quartz porphyry grey to brown colour fragmented and altered - quartz phenos often broken, fairly sharp wavy contact at = 45° to the core less altered than rocks above and below - may have been intruded during alteration	moderate sericite - chlorite ± quartz alteration	2 - 3% disseminated py local minor disseminated cpy some galena and sphalerite smeared on fractures local disseminated sp, with chlorite i.e. @ 331.3
332.0 - 349.3	Strongly altered felsic volcanic as above mostly grey, white and buff, quartz and sericite sericite often forms wispy bands - shears rock often has a brecciated appearance 345.0 - 346.5 - zones and pieces of quartz porphyry preserved gouge coated fractures not uncommon - larger fault zones @ 340.9 - 341.0 and 347.5 - 348.2 lower 1 to 1.5 m - strongly sheared mostly @ 50 - 70° to the core	very strong quartz - sericite alteration - local blebs or bands of chlorite alteration common bright green mica, especially over lower	332.0 - 349.3 - pyrite mostly 1% or less, but locally 2 - 3% finely disseminated sp and ga locally <1%

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DIAMOND DRILL CORE LOG

Sheet No. 5

Depth & Lithology	Description	Alteration	Mineralization
349.3 - 351.4	Sheared mafic volcanic (Sandy Lake Fm.?) dark green with abundant white and pink calcite one jasper fragment and a couple of rhyolite fragments evident strong shear @ $\approx 70^\circ$ to the core at 351.4	chlorite and calcite alteration	
351.4 - 353.0	Arkose sheared pink to reddish arkose some quartz and quartz-calcite stringers 2 or 3 small strong shears at $70-80^\circ$ to the core - 353.0 m E.O.H. -		

HOLE NO. BE-97-20

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

SHEET NO. _____

PROJECT NO. _____

HOLE NO. BE-97-20

PROPERTY Buchans East

Sample No.	From (metres)	To (metres)	Length (metres)	DESCRIPTION	Cu* ppm(%)	Pb* ppm(%)	Zn* ppm(%)	Ag* (ppm)	Au* ppb(g/t)	Ba** (ppm)	
BE-97-20	46.7	47.9	1.2	altered vf <1% sp and Ga	47	476	1837	1.8	100		
	48.6	50.2	1.6	altered vf to 1% sp and Ga	49	1669	0.44%	2.3	41		
	69.5	69.8	0.3	altered vf 1-2% sp and Ga	244	687	2.38%	2.3	46		
	69.8	71.0	1.2	altered vf minor sp and Ga	17	182	82	0.5	5		
	75.4	76.6	1.2	altered vf >1% sp and Ga	161	1631	0.40%	1.5	24		
	76.6	77.5	0.9	altered vf minor sp and Ga	21	112	130	0.5	5		
	77.5	79.8	2.3	altered vf >1% sp and Ga	124 (<0.01)	0.28% (0.27)	0.55% (0.50)	1.2 (<0.07)	12 (0.01)	195	
	79.8	81.4	1.6	altered vf 1 - 2% sp and Ga	312 (0.03)	0.39% (0.38)	1.26% (1.27)	1.9 (1.2)	44 (0.05)	201	
	81.4	83.4	2.0	altered vf >1% sp and Ga	175 (<0.01)	300 (0.04)	0.69% (0.68)	0.5 (1.3)	42 (0.05)	217	
	83.4	85.0	1.6	altered vf >1% sp and Ga	212 (0.02)	1464 (0.15)	0.76% (0.78)	0.9 (<0.7)	14 (0.02)	216	
	85.0	86.0	1.8	altered vf minor sp and Ga	106 (<0.01)	1274 (0.12)	0.32% (0.27)	0.6 (<0.7)	12 (0.01)	269	
	101.0	102.0	1.0	altered vf minor sp and Ga	42	904	791	0.5	18		
	130.5	131.5	1.0	altered vf 8 - 10% py	69	60	118	2.2	30		
	210.0	212.0	2.0	altered vf 10% py	258	126	137	5.3	33		
	233.5	235.5	2.0	quartz porphyry, fracture controlled sp-Ga, cpy	332	673	113	0.5	5		
	235.5	237.4	1.9	quartz porphyry, fracture controlled sp-Ga, cpy	323	853	121	0.5	5		
	260.5	261.5	1.0		95	16	171	0.5	5		
	261.5	262.5	1.0	quartz porphyry, with to 1% sp, Ga & cpy in qtz stockwork veins	620 (0.06)	0.52% (0.51)	2.33% (2.30)	1.6 (<0.7)	19 (0.02)	231	

* (-) Duplicate assays performed by Bondar-Clegg; Val d'Or, PQ

** Assays performed by Bondar-Clegg; Val d'Or, PQ

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

SHEET NO. _____

PROJECT NO. _____

HOLE NO. BE-97-20

PROPERTY Buchans East

Sample No.	From (metres)	To (metres)	Length (metres)	DESCRIPTION	Cu* ppm(%)	Pb* ppm(%)	Zn* ppm(%)	Ag* (ppm)	Au* ppb(g/t)	Ba** (ppm)	
BE-97-20	262.5	263.5	1.0		128	241	309	0.5	5		
	265.1	267.1	2.0	Altered felsic vol. - py 2 - 3%	148	614	0.29%	1.5	19		
	277.7	278.7	1.0		21	299	788	0.6	5		
	278.7	279.7	1.0	altered vf 5% py, <1% sp and Ga	236 (0.02)	0.27% (0.30)	0.63% (0.59)	1.4 (2.0)	32 (0.03)	491	
	279.7	280.7	1.0		44	612	0.25%	0.5	20		
	307.7	308.7	1.0		1050	155	111	1.8	25		
	308.7	309.1	0.4	Altered vf, 1% sp and gn	1656 (0.15)	121 (<0.01)	1.81% (1.76)	2.5 (<0.7)	23 (0.02)	510	
	309.1	311.0	1.9	Altered vf, 2 - 3% py <1% sp and gn and cpy	285	79	479	1.2	23		
	320.3	321.5	1.2	Altered vf, <1% sp disseminated	39	5	28	0.5	5		
	330.5	331.7	1.2	Altered vf, cpy, disseminated sp and on fractures	242	27	102	0.5	5		
	336.0	338.0	2.0	Altered felsic vol. - 1% or greater diss. sp and gn, minor py	26	240	342	0.5	5		

* (-) Duplicate assays performed by Bondar-Clegg; Val d'Or, PQ

** Assays performed by Bondar-Clegg; Val d'Or, PQ