

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

Sheet No. 1

UTM CO-ORDINATES <u>502830E</u> <u>5406951 N</u> <u>NAD 27</u>	Tests	Dip	Magnetic	Corrected	Project No. <u>N-4319</u> Hole No. <u>BR-99-11-01</u>
MINE GRID <u>L2600E</u> <u>2550 N</u> <u>Zone 21U</u>	Depth		Bearing	Bearing	Property <u>Buchans West</u>
ELEVATION <u>-315 m</u>	<u>250 m</u>	<u>-47°</u>	<u>145°</u>	<u>351.5°</u>	NTS <u>12A/15</u> Grid Name <u>Buchans West</u>
DIP AT COLLAR <u>-50°</u>					Date started <u>19/06/1999</u> Completed <u>06/1999</u>
BEARING <u>331°</u>					Contractor <u>Petro Drilling</u>
TOTAL DEPTH <u>252 m</u> CORE SIZE <u>NQ</u>					
REMARKS <u>Hole making water - water intersected @ 250 m</u>					Logged by <u>Harris & Oxford - 1999</u>

Depth & Lithology	Description	Alteration	Mineralization
0 - 11.0 m	Overburden		
11.0 - 15.0 m	Siltstone and tuffaceous sandstone to crystal tuff pink and green siltstones are cherty and massive, appear to be baked 11.3 - 11.6 m - may be an intermediate sill 11.6 - 12.3 m - pink "resedimented" tuff 12.3 - 15.0 m - siltstone	black chloritic fractures	
15.0 - 17.9 m	Mafic flow or sill dark green fine to medium grained, massive a few small chlorite amygdules no chilled contacts, but siltstones appear baked at contact	some black chloritic fractures to veinlets	
17.9 - 19.2 m	Siltstone light green, brecciated by black chloritic fractures and some calcite veining		
19.2 - 20.1 m	Felsic tuff pink to green, brecciated by chlorite and calcite veining small chips of felsic volcanic, siltstone and occasional jasper sericitic pumice		
20.1 - 21.3 m	Mafic to intermediate volcanic may be a fine tuff dark green, granular appearance fractured bubbly core, fault gouge @ 20.1 m 20.65 - 20.8 m - calcite-silica vein breccia		

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Depth & Lithology	Description	Alteration	Mineralization
21.3 – 23.8 m	Mafic to intermediate sill or dyke chilled contact at 21.3 m grey-green to pink amygdules of chlorite and calcite, some with hematite starts out green to grey-green and gradually becomes pink down hole a few quartz and feldspar phenos in pink section – 23.4 – 23.8 m		Minor pyrite
23.8 – 24.9 m	Mafic dyke – Qsd chilled black dyke, magnetic		
24.9 – 30.4 m	Felsic sill or dyke grey-green near contacts, pink to brown centrally hard rhyolitic, with a few quartz and feldspar phenos flecked with chlorite and sericite gradational contact at 30.4 m? mixing	some sericitic alteration of feldspars	
30.4 – 32.0 m	Mafic dyke/sill green to black, fine grained, chilled contact @ 32.0 m a few chlorite and calcite amygdules magnetic		
32.0 – 34.5 m	Mafic volcanic green to grey-green, may be fragmental sheared and locally brecciated @ 40-45° to the core some calcite/silica infill locally thin gouge coated fractures		to 1% pyrite in local zones
34.5 – 36.7 m	Mafic dyke/sill dark green to black, a few amygdules, magnetic lower contact gradational		
36.7 – 47.2 m	Felsic sill/dyke pink rhyolite, similar to 24.9 – 30.4 m flecked with chlorite and sericite, quartz phenos some areas with odd textures – small rounded "grains" spherulitic a few larger, pale green sericite blobs grades to grey-green colour at about 45.3 m, and to next unit at about 47.2 m		minor pyrite
47.2 – 50.0 m	Mafic dyke/sill dark green to black fine grained, chlorite amygdules bleached and chilled contact 49.2 – 50.0 m very thin gouge @ 50.0 m		

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Sheet No. 3

Depth & Lithology	Description	Alteration	Mineralization
50.0 – 91.0 m	Mafic sill or flow dark green, fine grained, massive 4 cm sheared and veined mafic @ 50.0 – 50.04 m no chilled contact at 50.04 m or 91.0 m small black chlorite flecks, occasional tiny calcite amygdules a few thin calcite stringers local thin black chloritic "fractures" – could be pillow rims 67.7 – 68.3 m - bleached with some calcite-silica veining small gouge @ 67.9 m		50.0 – 50.04 m - 1-2% pyrite @ 81.9 m - minor cpy in a thin calcite veinlet 89.9 – 91.0 m - 2-3% pyrite mainly as veining
91.0 – 94.3 m	Felsic lithic tuff (4 cq?) grey with black chloritic pumice chips of siltstone, pink rhyolite, quartz and pumice fairly coarse grained to 92.9 m 92.9 – 94.3 m - fine grained, layering defined by fragments at 55 - 60° to the core		1-2% disseminated pyrite, mainly as coarse cubes
94.3 – 118.3 m	Siltstone and tuffaceous siltstone grey-green and pink, bedding @ 60-70° to the core 94.3 – 99.4 m - grey green tuffaceous siltstone, more tuffaceous near 94.3 m 99.4 – 108.6 m - cherty siltstone, pink, green and grey - locally looks rhyolitic 101.0 – 101.5 m - fractured to brecciated, silica and calcite cement 103.3 – 104.0 m - fractured rubbly core, some fault gouge 108.6 – 110.7 m - felsic tuff to tuffaceous sediment, as for 91.0 – 94.3 m 110.7 – 118.3 m - siltstone as above, commonly fractured and rubbly 117.5 – 118.3 m - fault breccia, minor calcite cement	some chloritic fractures local minor sericitic alteration	94.3 – 99.4 m - minor py 99.4 – 118.3 m - 1-2% pyrite 96.3 – 96.7 m - 0.5 – 1 cm pyrite-chlorite vein along the core, on a fracture 101.0 – 101.5 m - = 3% py 101.9 – 102.0 m - minor sp-ga with quartz veining 108.7 – 108.95 m - 0.8 cm wide vein of sulphides, chlorite, calcite and sulphides, chlorite, calcite and quartz py, sp and ga at 10° to the core occasional small veins with base metal sulphides at low angles to the core from 108.7 – 118.3 m
118.3 – 161.6 m	Mafic volcanic dark green and grey-green - altered 118.3 – 120.6 m - flecked with chlorite, with a few calcite-silica amygdules becomes progressively more altered below 120.6 m 122.0 – 123.3 m - hard pink and grey felsic rock, some layering – bedding or flow banding? Could be alteration or cherty sediment? 160.9 – 161.2 m and 161.4 – 161.5 m - fault gouge and breccia @ 40-45° to the core 161.4 – 161.5 m contact at 161.6 m - conformable (irregular - erosional) some mineralization along the contact	strong black chloritic stockwork alteration cherty silica veining to alteration local carbonate alteration also local pink potassic alteration chlorite and sulphides appear to form the matrix to a pillow breccia, locally	starting at about 120.7 m stockwork pyrite and base metal sulphide veining with chlorite, silica and calcite, likely barite as well disseminated pyrite also = 4-6% sulphides short, <0.10 m, semi-massive sulphide zones 137.5 – 139.0 m - = 15% sulphides = 2% base metals stockwork veining with chlorite to 161.8 m - veins from 05 to 10 cm 144.22 – 144.58 m - semi-massive sulphide pyrite, galena, sphalerite, quartz and chlorite

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Sheet No. 4

Depth & Lithology	Description	Alteration	Mineralization
161.6 – 180.2 m	Rhyolite breccia – 3rbv angular to occasionally subrounded white and pink rhyolite fragments – a small proportion of sericitic and/or chloritic matrix – local dacitic tuff matrix small quartz and feldspar phenos evident in least altered clasts very similar to rhyolite breccias just southeast of Clementine Prospect dacitic tuff 170.2 – 170.7 m and local short zones below below 177.0 m mainly dacitic tuff lower contact gradational over $\approx$ 0.3 m	moderate to strong quartz $\pm$ sericite $\pm$ chlorite alteration	about 1% pyrite disseminated in the matrix and in clasts <1% sphalerite and galena disseminated in clasts and in the matrix – may be clastic grains locally, i.e. 163.65 m also some base metal sulphides associated with quartz and calcite stringers only rare base metal sulphides below 167.0 m
180.2 – 249.3 m	Mafic to intermediate fragmental – Ski Hill Fm. black to dark green fragments of chloritic mafic, purple rhyodacite with silica amygdules and a few chips of rhyolite as above local fairly felsic polyolithic breccia zones to 191.0, (i.e. 183.8 – 184.7 m) 191.0 – 191.5 m - weakly sheared with 70% silica-calcite veining 194.9 – 195.1 m - minor shear @ 65-75° to the core local zones with calcite-pyrite amygdules silica amygdules common below 203.0 m below 227.0 m local pale grey-green silica and clay? matrix	moderate chloritic alteration to $\approx$ 198 m silicification locally 198 – 215.0 m mottled with pink quartz-sericite alteration	1 – 3% disseminated pyrite 216.4 – 216.6 m - $\approx$ 1% sp – ga and 5% pyrite with quartz-calcite veining 219.2 – 224.2 m - 4-5% pyrite minor sphalerite below 224.2 m <1% pyrite
249.3 – 250.9 m	Shear/fault zone, 0.5 m lost core 249.3 – 249.55 m - strongly sheared at 85-90° to the core 249.55 – 250.9 m - fault gouge and breccia mainly fragments of bleached mafic to intermediate a few small jasper chips		
250.9 – 252.0 m	Hematitized sediment or tuff some fault breccia hard, maybe in part jasper small chips of quartz, sericite and felsic volcanic		disseminated hematite
	- 252.0 m E.O.H. -		

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

SHEET NO. 1 of 2PROJECT NO. N-4319HOLE NO. BR-99-11-01PROPERTY Buchans West

Sample No.	From (meters)	To (meters)	Length (meters)	DESCRIPTION	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Au (ppb)	Ba (ppm)
20101	119.8	120.8	1.0	Altered mafic volcanic, 1-2% pyrite	81	43	283	0.3	2	60
DUP-20101	119.8	120.8	1.0		71	35	277	0.3	3	80
20102	120.8	122.0	1.2	Altered mafic volcanic, 1-2% py, minor sp, ga	712	4130	6860	1.1	7	941
20103	122.0	123.3	1.3	Altered mafic volcanic, 1-4% py, minor sp, ga and cpy	63	278	895	0.3	2	364
20104	123.3	124.7	1.4	Altered mafic volcanic, 1-4% py, minor sp, ga and cpy	41	20	340	0.3	-1	134
20105	124.7	125.9	1.2	Altered mafic volcanic, 1-4% py, minor sp, ga and cpy	19	53	904	0.3	5	668
20106	125.9	126.9	1.0	Altered mafic volcanic, 1-4% py, minor sp, ga and cpy	19	34	421	0.3	3	1180
20107	126.9	127.9	1.0	Altered mafic volcanic, 1-4% py, minor sp, ga and cpy	-10	34	163	0.3	10	163
20108	127.9	128.9	1.0	Altered mafic volcanic, 1-4% py, minor sp, ga and cpy	30	44	1110	0.3	3	651
20109	128.9	129.9	1.0	Altered mafic volcanic, 2-4% py, stockwork sp-ga	10	35	312	0.3	-1	12320
20110	129.9	131.0	1.1	Altered mafic volcanic, 3-10% py, stockwork sp-ga	16	413	571	0.3	2	12990
20111	131.0	132.0	1.0	Altered mafic volcanic, 3-10% py, stockwork sp-ga	15	117	499	0.3	1	3850
20112	132.0	133.0	1.0	Altered mafic volcanic, 3-10% py, stockwork sp-ga	14	832	1120	0.3	3	1960
20113	133.0	134.0	1.0	Altered mafic volcanic, 3-10% py, stockwork sp-ga	23	1720	317	0.3	4	2350
DUP-20113	133.0	134.0	1.0		16	1740	288	0.3	4	2230
20114	134.0	135.0	1.0	Altered mafic volcanic, 3-10% py, stockwork sp-ga	24	149	336	0.3	2	1020
20115	135.0	136.0	1.0	Altered mafic volcanic, 3-10% py, stockwork sp-ga	25	21	346	0.3	8	6230
20116	136.0	137.0	1.0	Altered mafic volcanic, 3-10% py, stockwork sp-ga	71	68	262	0.3	4	286
20117	137.0	138.0	1.0	Alt. mafic volcanic, 1-15% py, ~ 5% stockwork sp-ga	27	755	498	0.3	7	75
20118	138.0	139.0	1.0	Alt. mafic volcanic, 1-15% py, ~ 5% stockwork sp-ga	130	7120	17900	0.9	9	69
20119	139.0	140.0	1.0	Altered mafic volcanic, 8-10% py, stockwork sp-ga	30	583	229	0.3	-1	121
20120	140.0	141.0	1.0		-10	1080	231	0.3	3	93
20121	141.0	142.0	1.0		31	669	2560	0.3	5	49
20122	142.0	143.0	1.0		53	1810	2800	0.5	2	50
20123	143.0	144.0	1.0		-10	31	272	0.3	10	29
20124	144.0	144.9	0.9	Alt. mafic volcanic, 10-20% py, stockwork sp-ga, 0.3 m massive py, sp, ga	-10	9910	488	0.9	14	27

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SHEET NO. 2 of 2PROJECT NO. N-4319HOLE NO. BR-99-11-01PROPERTY Buchans West

Sample No.	From (meters)	To (meters)	Length (meters)	DESCRIPTION	Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Au (ppb)	Ba (ppm)
20125	144.9	146.0	1.1	Altered mafic volcanic, 2-5% py, stockwork sp-ga	36	1090	261	0.3	4	62
DUP-20125	144.9	146.0	1.1		34	975	244	0.3	4	57
20126	146.0	147.0	1.0	Altered mafic volcanic, 2-5% py, stockwork sp-ga	40	4140	1520	0.6	-1	60
20127	147.0	148.0	1.0	Altered mafic volcanic, 2-5% py, stockwork sp-ga	44	386	256	0.3	5	45
20128	148.0	149.0	1.0	Altered mafic volcanic, 2-5% py, stockwork sp-ga	106	2070	9420	0.4	4	68
20129	149.0	150.2	1.2	Altered mafic volcanic, 2-5% py, stockwork sp-ga	39	19370	790	1.4	2	96
20130	150.2	151.4	1.2	Altered mafic volcanic, 5-6% py, 2-3% sp-ga	643	13660	11000	1.2	4	41
20131	151.4	152.4	1.0	Altered mafic volcanic, 2-5% py, stockwork sp-ga	163	10920	12000	1.0	5	37
20132	152.4	153.4	1.0	Altered mafic volcanic, 2-5% py, stockwork sp-ga	366	7200	3890	0.7	3	41
20133	153.4	154.3	0.9	Altered mafic volcanic, 2-5% py, 1-2% sp-ga	1270	27500	44400	2.3	4	31
20134	154.3	155.3	1.0	Altered mafic volcanic, 2-5% py, minor sp-ga	17	451	479	0.3	6	46
20135	155.3	156.3	1.0	Altered mafic volcanic, 2-5% py, minor sp-ga	46	468	258	0.3	1	47
20136	156.3	157.3	1.0	Altered mafic volcanic, 2-5% py, minor sp-ga	-10	1450	734	0.4	5	33
20137	157.3	158.3	1.0	Altered mafic volcanic, 2-3% py, ~ 1% sp-ga	109	9980	8220	0.8	8	23
DUP-20137	157.3	158.3	1.0		111	9160	8210	0.9	6	40
20138	158.3	159.3	1.0	Altered mafic volcanic, 2-3% py, minor sp-ga	39	4380	2390	0.6	4	36
20139	159.3	160.3	1.0	Altered mafic volcanic, 2-3% py, minor sp-ga	-10	2690	805	0.4	3	36
20140	160.3	161.6	1.3	Altered mafic volcanic, 2-3% py, minor sp-ga	116	4980	5720	0.6	2	42
20141	161.6	163.0	1.4	Rhyolite breccia, minor sp-ga 1% py	10	440	576	0.3	-1	113
20142	163.0	164.3	1.3	Rhyolite breccia, minor sp-ga 1% py	-10	725	790	0.3	1	37

NOTE: Pb - 20 = <20; Ag - 0.3 = <0.3