1991 Samatosum 823712 fully entered add. samples entered.

DRILL HOLE RECORD

PROJECT NAME : SAM	DATE STARTED (M/D/Y): 05/15/91
HOLE NUMBER : C91-7	DATE COMPLETED (M/D/Y): 05/19/91
LOCATION : CANA	DATE LOGGED (M/D/Y): 05/16/91
PROJECT NUMBER : 247	UNITS (F/M) : M
CLAIM NUMBER :	

PLOTTING COORDS		ALTERNATE COORDS	
GRID :	SAM GEOL	GRID :	ESTIMATED
NORTH :	~~6669.07 N~~	NORTH :	9+20 N
EAST :	~~12880.48 W~~	EAST :	129+00 W
ELEV :	~~1079.74~~	ELEV :	1100. m

COLLAR BRNG	GRID : 180° 00' 00"	COLLAR SURVEY (Y/N) :	Y
	ASTRONOMIC : 225° 00' 00"	RQD LOG (Y/N) :	N
	COLLAR DIP : -89° 00' 00"	PULSE EM SURVEY (Y/N) :	N

CONTRACTOR : FRONTIER	LOGGED BY : C. NAGATI
CORE STORAGE : SAMEX	START DEPTH : 0.0
CASING : Pulled.	FINAL DEPTH : 370.9
PLUGGED (Y/N) : No.	
HOLE SIZE : NQ	

PURPOSE/COMMENTS : TO TEST DOWNDIP OF TET. SHOWING IN C90-6.

DIRECTIONAL DATA: A = Acid Test, L = Light Log, M = Multishot, T = Tropari

DEPTH (m)	TYPE A/L/M/T	ASTRONOMIC AZIMUTH	DIP	FLAG	COMMENTS
74.1	A	—	-87	OK	
92.4	A	—	-87	OK	
163.8	A	—	-87	OK	
218.5	A	—	-86	OK	
263	A	—		NO	BAD ETCH
303.9	A	—	-82	OK	
346.6	A	—	-78	OK.	

HOLE NO. C91-7 LOGGED BY C. NAGATI

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
0.0 – 21.3	<CSG>							
21.3 – 72.6	<ARG/SILT>	black, shades of gray	fine.	strongly deformed, interbedded arg. and siltstone – ratio 75:25%. Siltstone commonly occurs as thin laminae to 1cm, locally to 10 cm. Rock type subintervals occur between: 42.8 – 45.6 : 90% siltstone 64.9 : 10 cm of gray chert minor cherty laminae above this point. Qtz/dol (80/20) concordant and cross cutting veins, stringers and patches and alteration. vein material generally comprises ≤ 5%. Between 51.3 – 52.8 m 15% veining. Bedding is contorted, assymetrically folded producing locally bullseye structures, broken bedding, minor boudins, local tectonic? flame structures: 27m: well developed cleavage at increasing to 70° at 28m. 31.9 – 33.2 : fold hinge zone. at 49m : bedding at 58 – 60 m : fold hinge zone at 65.5 m. cleavage at offsets and folds bedding – movement along cleavage 66.3 – 68.7 : possible fold hinge zone.	60° 50° 50°	sil/dol alt. is pervasive throughout but patchy, weak to moderate in intensity silicification exceeds dolomitization; some argillite has been weakly silicified but alt. largely in and adjacent to veining and in silty zones. 66.5 – 69.3 : weak sericite alteration of silts.	Pyrite is the only sulphide present occurs primarily with qtz/dol. occurs as cubic crystals to 1mm but generally very fine to fine grained. Minor wispy pyrite structures caused by deformation Overall Py content ≤1% locally to 10% over small intervals or patches.	21.3 – 22.9 : 80% recovery 24.7 – 26.4 : 66% recovery 27.7 – 28.7 : 77% recovery

HOLE NO C91 – 7

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				core is frequently very blocky; local minor weak to intense faulting with some clay gauge developed. +25 - 319+ intermittant moderate to intense <flt zones> 54.3-54.9: intermittant weak flt gauge +72 -72.6+ moderate to intense, intermittant <flt gauge>				
72.6 - 86.5	<SIL ARG>	black	fine	core is extremely blocky to local clay fault gauge; ≤5% qtz/dol veining/stringers to 5mm; pervasive crackle style qtz dol stringer infilling 84.4 - 86.3: qtz/dol content increases to 20% veins to 6cm, concordant veins, patches. Core becomes more competent at 79.5m. lower contact at	80.5m; 60°	weak to moderate silicification; non bleached, argillite is graphitic. 79.5 - 81.7: weak to med. dol alteration bands core (similar in appearance to the overlying unit).	1% fine grained py minor coarse grains to 2mm; Py generally occurs as coarse dissem.	
86.5 - 106.4	Tuff?/ Seds.	grayish green.	fine	unit is primarily a massive unit of tuff? which contains minor argillite clasts and very fine, disrupted argillite laminae locally but argillite for the most part has a similar appearance to		pervasive moderate to intense dol; non silicified; local pale green small sericite clots	<1% fine grained fine to coarsely dissem Py.	Possibly an immature volcaniclastic sed. May be a less altered equivalent to the Qtz-Ser Interval (85.5 - 91.2) of C90-6

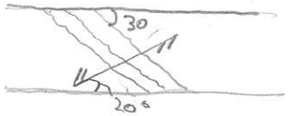
HOLE NO C91-7

ZIPPY PRINT ® BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				to a fine crackle breccia in filling; Minor qtz/carb veinlets. +101.1 – 102.2+ <ARG/SILT>; contacts at subinterval is finely bedded but beds are largely disrupted. Where beds are relatively undisturbed they are oriented at 50° to CA.	50°			
106.4 – 117.8	<SIL ARG>	black gray	fine	unit predominantly arg. but contains <10% silty material. Locally silicification and dolomitization has bleached the core. Bedding is indistinct and locally contorted. 10% white qtz/dol (60/40) stringers and veins to 3cm. Veins are both concordant and crosscutting; veins are locally vuggy – open bladed structures. +112.6 – 113.7+ <Arg/Volc> 75% sil. arg is interbedded with 25% altered volc – brownish green in color.		weak to moderate silicification of argillite throughout interval; patchy weak to mod. dol. argillite is moderately to intensely graphitic 112.6 – 113.7: mod grey sericite alt of volc.	≤1% fine to coarse grained pyrite is locally disseminated through core between 116.7 – 117.4 there is 5% pyrite 107 – 107.2: minor fine grained sp and cp in qtz/dol veins oriented @ 30° to CA	Between 115.8 – 122.8 m footage blocks inaccurate get 3.4m between 115.8 – 118.9 and only .6 m between 121.3 – 122.8 – So some core loss ≈ 65% recovery It is likely that this interval plus the next (ie 106.4 – 125.4 m) corresponds to the interval 91.2 – 110.5
117.8 – 125.5	<FLT'D SIL ARG>	black	fine	argillite as in the above unit which has been moderately to intensely fault brecciated. locally clay gauge is well		argillites are strongly graphitic; weak to moderate silicification of argillites.	<2% fine grained dissem Py in the arg.; Py bands blebs and coarse dissem of Py associated with veins. Minor	

HOLE NO C91-7

ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				developed; gradational faulted lower contact; 15% white qtz/dol veining (as above); veins are fractured by fault action +124.5-125.1 <Qtz/Dol> vein with arg. inclusions			fine grained honey sphalerite dissem in veins +124.5-125.1 <1% Sp, Cp, 7% Py> Sp, Cp are very fine grained, approx equal amounts; Py occurs as patches and coarse dissem in and adjacent to vein.	
125.5 to 133.7	<SED/VOL? TRANS ZONE>	black green grey	fine	finely laminated argillite is interbedded with a gray-green altered tuff? compositional ratio 1:1. bedding in argillite is locally contorted. General sense of bedding at offset by crenulation cleavage at Contacts parallel bedding. Tuffs? are locally bedded and bedding is contorted and folded. Tuffaceous and argillite intervals can exceed 1 meter widths 5% irregular Qtz/Dol veining; locally vuggy veins are stretched and boudined.	30° 20°	argillite is graphitic tuffs? have been moderately altered to gray sericite	≤5% coarsely dissem Py overall - primarily in and adjacent to veins.	

HOLE NO C91-7

ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				Sericite foliation is subparallel to bedding 126.8-127: concordant qtz/dol (95/5%) vein; contacts at 127.8-128.2: Fault brecciated zone; Sed and tuff clasts in clay gouge 128.2-128.4: Qtz/Dol veining.	30°		126.8-127: 10% Py in Q/Dol vein no base metals.	
133.7-173.2	<TUFF?>	grayish green	fine	Primarily a massive unit; textures washed out by alteration. A weak sense of foliation given by sericitic patches at Minor thin beds/lenses of argillite and silt? at 167.5m, bedding at. 1% white qtz/dol vein and patches. {143.3-148.4}: intermittent moderate to intense <flt bx> 172.35-172.7: interval of silt/argillite, gradational contacts at	40° 50° 65°	Patchy moderate to intense dolomitization streaky brown to mustard yellow sericite alteration. Localized talc fuchsite alteration. Minor silicification associated with veins; where dolomitization is weak dol occurs as nodules within the core.	Pyrite occurs as fine to coarse disseminations and patches. Pyrite content varies between 1% to 15% over narrow intervals.	Washed out textures similar to 'Dol Seds'.

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ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
173.2 - 183.6	<SIL ARG>	black white	fine	argillite bedding is concordant to disrupted, folded; 173.2 - 181.6: interval contains 5-15% white qtz-dol veins + patches; veins are concordant and cross cutting. Veins are folded - bullseye structures are common. veins are 80% quartz. at 176m offsetting cleavage at 176.5 - 176.7: moderate fault zone; graphitic clay gouge 181.6 - 183.6: argillite is interbedded with silt and/or tuff which gives core a gray green tint. Bedding oriented at.	40° 70°	173.2 - 181.6: moderate silicification; argillite is intensely graphitic 181.6 - 183.6: large arg beds are weakly silicified; coarser beds / tuffs are weakly dolomitized	1-3% fine grained Pyrite occurs as disseminations, patches and seams. 181.6 - 183.6: 1% py.	
183.6 - 184.6	<TUFF?>	grayish green	fine	massive unit with minor qtz-dol patches		patchy moderate dol. alt., brown sericite locally developed; minor silicification	<1% py.	may be an immature volcanic clastic sediment
184.6 - 2019	<SER ARG SILT>	black gray buff	fine	interbedded or laminated argillite and siltstone with minor ribbon chert		argillite is strongly graphitic where it is not intensely silicified the silts are generally	2% fine grained coarsely disseminated Py.	

HOLE NO C91-7

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ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				bedding is commonly contorted, folded, stretched or weakly boudinized Composition of interval is 70% argillite, 29% silt, <1% chert; 3% white qtz-dol veining to 3cm; veins are contorted. Beds range from thin laminae to 1cm wide beds -1 190.8 - 192.6 intermittent weak to intense <FLT BX> with locally developed clay gouge		weakly altered to yellow sericite with minor gray sericite local zones of intense sericite alteration occur between: 192.9-193.1 m - associated with vein and 197.4-199 m.		
201.9 - 257.6	<ARG/SILT/TUFF?>	black gray	fine	Similar to the overlying unit but lacking the sericite alt. Some subintervals may be tuffaceous. Beds can exceed 1 meter thicknesses Composition 60% arg 40% silt/tuff, minor chert Qtz-Dol veining content varies between 2-10% Some veins have been brecciated and healed by late stage fluids; veins to 10cm but are generally narrow patchy zones 222.1 - 223: intermittent moderate to intense fault gouge; interval contains brecciated and healed qtz		where argillite is not intensely silicified it is weak to intensely graphitic; patchy weak brown sericite alt.; tuff? intervals are moderately dol. 219.15 - 219.85: patchy intense brown sericite alt and patchy silic.	Pyrite content varies markedly throughout interval, Py is fine grained dissem to local semi-massive textures. Minor laminae of Py 210.1 - 211.9: 10% Py overall with concentrations to 20% associated with qtz veining 219.15 - 219.85: 20% Py coarsely dissem.	

HOLE NO C 91-7

ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				veins. Faulting is most intense at base of interval 232.1 - 232.9 : fine grained tuff?		230.8 - 231.5: intensely silicified 1% 1mm porphyroblasts of dol? (possibly after feldspar) 232.1 - 232.9: weak dol. alt.		
						233.6 - 234.05: intense silicification.	+233.6 - 234.05 ft <tr tt?, <1% gn, cp, 1% sp> mineralization is very fine grained dissem; 3% Py.	
				242.3 - 243.9: silt or tuff interval; patchy bleaching		238.5 - 238.9: intense silicification and veining. 242.3 - 243.9: weak to moderate dol. 243.9 - 245.7: intense silicification and qtz veining.		
				247 - 248.1: HINGE ZONE cleavage at causes bedding offsets and drag folding. 248.2 - 249.3. 35% patchy white qtz (dol) veining.	55°	249.7 - 250.2: intense silicification		
251.6 - 270.3	<SIL ARG>	Black White	fine.	finely laminated argillites with 10% silt, ≤30% white qtz veining (with <20% dol) Veins to 11cm veins are crosscutting veins and bedding is often		patchy weak to mod silicification of seds associated with veining.	<1% fine grained dissem py	

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				strongly deformed, and broken; minor fault brecciation and clay gauge 266.9 – 267.8 : Hinge Zone.				
270.3 – 283.7	<ARG/CHT FLT BX>	black gray	fine	85% argillite containing <10% silty laminae and 15% gray cherty arg; white qtz-dol (65/35%) comprises 30% of interval in veins up to 40 cm veins are locally fractured, faulted; some rehealing of veins locally present. interval is strongly but intermittantly fault brecciated; clay gauge locally developed; bedding + veins are offset and warped by slippage along cleavage at 274.4 m at 272.8–274.2 : cherty argillite 278.7-279.5 . subinterval of altered tuff? 281.6 m : minor ribbon chert 282.4 – 283 m : intermixed cherty? argillite.	75°	argillite is graphitic – weak to moderate; minor weak silicification	2% disseminated fine to 1/2mm cubes of pyrite., localized pyrite seams +272.7 – 273.1+ <1% sp, tr gn> fine grained disseminated in late stage qtz (dol) veins (sweats?) in cherty arg. +277.5 – 277.8+ <<2% sp, cp, gn> fine grained coarsely dissem in qtz-dol veinlets.	

HOLE NO C91-7

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
283.7 – 295.3	<Dol ARG/ SILT>	black gray	fine.	interbedded arg (40%) and siltstone (60%) Bedding is stretched, local fragmental textures present – appears to be some movement subparallel to bedding; general sknd of bedding at ≤5% Qtz-Dol-Kspar veining to 12cm and patches in ratio 80:5:15.; localized open fracturing of vein material. lower contact is faulted. 294.2-295.3: Interval is sediments which range from very fine grained to clasts (gravel ?) to 1cm Some elongation of larger clasts. Possible down hole fining of sediments. – Tops Down hole ?	30-40	Argillite is locally weakly graphitic Silts are pervasively moderately to intensely dolomitized	Pyrite content varies from 1 to 15% over narrow intervals. Py is fine grained, fine to coarsely disseminated. 290.5m: minor fine grained, coarsely dissem. Sp, gn on margin of qtz-dol-Kspar vein.	294.2-295.3 Clasts may be partly primary.
295.3 – 315.7	<ARG/CHT>	black gray	fine	interbedded argillites and cherty argillites, 70% arg. 30% chert; argillites contains 5% white qtz-Kspar-dol. veining. veins contain clots of sericite; Bedding in arg is locally folded. Veins are concordant and crosscutting veins		arg. is weakly graphitic locally; patchy weak silicification.	1-5% Py; 3% overall; Py is fine grained coarsely disseminated.	

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ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				affected by deformation veins reach 30 cm width 295.3 - 295.9: Qtz-Kspar-Dol vein.				
315.7 - 321.6	<SIL CHT>	gray.	fine.	thick cherty interval. unit is crisscrossed by numerous fine fractures which have largely been healed by qtz. Minor brecciation healed by quartz. Unit contains numerous fine cubic crystals - feldspar? - up to 10% white qtz veining and patches; relict bedding varies but is generally at very low angles to C/A.		very intense silicification throughout interval wastes out most original textures	≤2% fine grained coarsely dissem Py 1% fine grained Sphalerite overall, coarsely dissem, associated with white qtz veining; minor fine grained galena and chalcopyrite - local concentrations to 1%, trace tetrahedrite {315.7 - 321.6} <1% sp, tr cp gn, tt>	
321.6 - 322.9	<SIL ARG/ CHT>	black gray	fine	interbedded silicified argillite and chert; fine fracture system filled by quartz; bedding at	35°	moderate to intense silicification	2% coarsely dissem py	
322.9 - 335.3	<SIL CHT>	gray		an argillaceous chert unit similar to the interval 315.7 - 321.6		unit is silicified minor talc	<1% sp, gn, cp between 329.1 - 330.3 m 3% pyrite overall, pyrite is frequently concentrated in narrow pyritiferous zones of up to 20%	

HOLE NO C91-7

ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
335.3 - 346.8	<SIL ARG / CHT>	gray black	fine.	interval consists of 50% argillite 50% argilliceous chert. from fine laminations to 1cm beds. Bedding is folded, warped and disrupted. At 337m offsetting cleavage oriented at 40-50 chert content decreases downhole 335.3 - 342.8: 3% white qtz veining to 3cm 342.8 - 346.8: 20% qtz veining / flooding	40-50	pervasive moderate to intense silicification silic increases downhole in sheared zones argillite is moderately graphitic 342.8 — 346.8: abundant qtz flooding and veining and silicification.	1% very fine grained Py in dissemination and seams; trace sphalerite.	
346.8 - 356.2	<GR. ARG FLT BX>	black	fine	massive to laminated argillite containing 5% white qtz (95%) dol (5%) veining to 10cm; gradational contacts with adjacent intervals; Interval is strongly but intermittantly fault brecciated. faulting increases down hole; bedding and veinlets are strongly deformed		moderately silicified argillites; very intense graphite; minor localized bleaching with weak dol alteration	1-2% coarsely dissem Py; Trace sp in veins.	
356.2 - 370.9	<ARG/CHERT>	gray black	fine	laminated cherts and argillites (20 / 30%); chert content increases downhole. bedding is highly contorted with folds being affected by further folding; 40% of the bedding is oriented at low angles to the C/A 3% Qtz-Dol veining.		patchy weak silicification of argillite.	1% dissem Py 358 m: 10cm wide interval containing 20% Very fine grained bedded pyrite - primary textures.	

ENDOF HOLE

HOLE NO C91-7

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out of order

ASSAY SHEET

Sample Number	From ( )	To ( )	Estimate Cu	Estimate Zn	Length ( )	% Cu	% Zn	% Pb	gm T Ag	gm T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au	% Sb	% As	
31231	84.5	86.5			2.0											71	74	12	1.1	2	1	26	
31233	106.4	107.9			1.5											73	223	39	1.0	1	1	52	
31234	117.0	118.5			1.5											36	40	13	1.3	3	1	25	
31235	118.5	119.8			1.3											47	53	9	1.2	2	1	1	
31236	119.8	122.9			3.1											38	63	29	1.5	2	1	14	
31237	122.9	124.5			1.6											80	98	40	1.0	18	1	177	
31238	124.5	125.1			0.6	.050	.30	.06	3.8	.02					*	500	3001	616	3.8	18	42	668	?
31239	125.1	126.6			1.5											165	111	48	1.2	22	1	209	
31240	126.6	128.1			1.5											74	123	49	1.2	6	1	142	
31241	135.5	137.2			1.7	.034	.05	.02	4.4	.22					*	344	520	239	4.4	217	1	3260	
31243	208.4	209.9			1.5											68	80	20	1.4	1	1	145	
31244	209.9	211.4			1.5											158	141	30	1.9	3	1	72	
31245	211.4	212.9			1.5											128	100	20	1.0	3	1	103	
31246	212.9	214.4			1.5											63	56	21	1.0	2	1	69	
31247	219.1	220.7			1.6											142	92	28	1.6	22	1	62	
31248	233.6	234.5			0.9	.014	.21	.09	2.6	.02					*	140	2093	939	2.6	17	1	92	
31249	271.2	272.7			1.5											44	562	263	1.5	12	1	53	
31250	272.7	273.1			0.4											38	652	147	1.3	42	1	95	
31251	273.1	274.6			1.5											23	87	69	1.2	9	1	48	
31252	274.6	276.1			1.5											27	59	26	0.8	3	1	41	

HOLE NO C-91-7

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm T Ag	gm T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au	ppm Sb	ppm As	Ba
312 53	276.1	277.6			1.5											23	50	57	0.8	6	1	38	
312 54	277.6	278.7			1.1	.030	.14	.07	2.1	.02						296	1445	731	2.1	19	2	79	
312 55	289.7	291.2			1.5											70	68	72	1.7	15	1	69	
312 56	315.7	317.2			1.5											203	879	395	2.2	2	3	29	
312 57	317.2	318.7			1.5	.004	.15	.06	2.0	.01						43	1544	566	2.0	2	3	127	
312 58	318.7	320.2			1.5	.003	.18	.06	1.7	.01						25	1805	618	1.7	1	2	14	
312 59	320.2	321.6			1.4	.003	.10	.04	2.0	.01						32	995	361	2.0	4	1	47	
312 60	327.3	328.8			1.5											26	359	353	1.0	3	2	46	
312 61	328.8	330.3			1.5	.018	.17	.08	3.1	.01						175	1690	761	3.1	2	2	142	
312 62	330.3	331.8			1.5	.010	.16	.08	2.9	.01						103	1639	768	2.9	13	4	161	
312 63	351.6	353.2			1.6											160	290	74	1.7	6	7	65	
312 64	357.7	358.4			0.7											36	72	67	1.2	2	1	54	
31369	132.5	134.0			1.5											43	103	136	.8	17	10	797	100
31368	134.0	135.5			1.5											200	233	520	2.5	99	32	2091	72

HOLE NO C-91-7

LITHOGEOCHEMISTRY

Column:	1	2	3	4	5	6	7	8	9	12	13	16	17	18	19	20	22	23	24	25
SAMPLE NUMBER	From	To	Length	SiO_2	Al_2O_3	CaO	MgO	Na_2O	K_2O	FeO_{23}	MnO_2	TiO_2	Cu ppm	Zn ppm	Au ppb	Ba ppm	Ag ppm	Pb ppm	P_2O_5	S %	Total %	As ppm	Sb ppm
31232	89.3	92.3	3.0	41.94	14.79	7.72	6.43	.38	1.25	10.31	.18	1.24	91	80	5	52	1.4	6	.04	.34	84.70	1	1
31242	151.4	153.4	2.0	52.59	17.22	2.57	3.03	.74	2.26	9.59	.20	1.65	157	68	35	71	2.1	32	.04	2.31	92.27	1152	4

Hole No. C-91-7 Entered by _____ Logged by _____ Page No. _____

Fully entered.

DRILL HOLE RECORD

PROJECT NAME : SAM	DATE STARTED (M/D/Y): 05/20/91
HOLE NUMBER : C91-8	DATE COMPLETED (M/D/Y): 05/26/91
LOCATION : CANA.	DATE LOGGED (M/D/Y): 05/21/91
PROJECT NUMBER : 247	UNITS (F/M) : M.
CLAIM NUMBER :	

PLOTTING COORDS		ALTERNATE COORDS	
	GRID : SAM GEOL		GRID : ESTIMATED
	NORTH : 889.07 N		NORTH : 2+00 N
	EAST : 12920.17 W		EAST : 130+00 W
	ELEV : 1097.75		ELEV :

COLLAR BRNG		
	GRID : 180° 00' 00"	COLLAR SURVEY (Y/N) : Y
	ASTRONOMIC : 225° 00' 00"	RQD LOG (Y/N) : N
	COLLAR DIP : -55° 00' 00"	PULSE EM SURVEY (Y/N) : N

CONTRACTOR : FRONTIER	LOGGED BY : C. NAGATI
CORE STORAGE : SAM EX CAMP	START DEPTH : 0.0
CASING : PULLED	FINAL DEPTH : 447.1
PLUGGED (Y/N) : N.	
HOLE SIZE : NQ	

PURPOSE/COMMENTS : FOLLOW UP 348 g/t Ag INTERSECTION 100 M ALONG STRIKE.

DIRECTIONAL DATA: A = Acid Test, L = Light Log, M = Multishot, T = Tropari

DEPTH (m)	TYPE A/L/M/T	ASTRONOMIC AZIMUTH	DIP	FLAG	COMMENTS
20.4	A	—	-52	OK	
41.8	A	—	-52	OK	
93.8	A	—	-53	OK	
142.3	A	—	—	—	BAD ETCH
227.7	A	—	—	—	BAD ETCH
270.4	A	—	-51	OK	
297.8	A	—	-49	OK	
403.3	A	—	-49	OK	
430.7	A	—	-49	OK	

HOLE NO. C91-8

LOGGED BY C. NAGATI

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
0.0 - 18.3	<CSG>							
18.3 - 38	<SIL ARG>	black	fine	massive argillite; minor bedding textures; 5% white qtz-dol patches and veins to 5cm; 2 stages of qtz veining. Late stage qtz fills fine tension fractures in the argillite and early veins 25.2 - 25.6: weak to moderate fault brecciation		Late stage qtz stringers and minor qtz flooding weakly to moderately silicifies argillite; Localized patchy moderate dolomitization associated with veining. patchy weak graphite particularly in sheared zones. 19.9 - 21.6: intense silicification & veining 23.7 - 24.65: patchy intense green sericite and talc alteration	2% fine to med. grained Py. Py occurs as fine to coarse disseminated and minor seams; local small intervals with up to 10%. †20.9 - 21.6† <minor cp, tr. tt?> very fine grained, in veins. 34.6 - 34.8 10% coarsely disseminated py; minor sphalerite.	Core is quite blocky
38 - 50.9	<ARG/SILT>	black gray	fine	finely interbedded argillites and siltstones. Bedding has been highly disrupted - stretching, folding and fragmentation of beds common - interval is composed of equal parts argillite and siltstone; 5% Qtz/Dol (80/20%) veining/flooding Minor qtz/dol veining is late stage, crosscutting.		patchy weak silicification; patchy weak dolomitization of silts. pervasive weak dol intervals between 38.2 - 39.4m and 40.2 - 41.9m.	2% fine grained coarsely disseminated py minor pyritic seams.	

HOLE NO C91-8

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
50.9 - 55.6	<ARG/SILT FLT BX>	black gray	fine	similar to overlying unit except the unit is very blocky due to fault activity - very little clay gauge.		minor graphite, patchy weak silicification and dolomitization	<1% dissem, fine grained py.	
55.6 - 83.6	<ARG/ SILT>	black gray	fine	unit is identical to the unit between 38-50.9m except that argillite comprises 60% of the interval. 70-70.3: argilliceous chert interval. 72-72.2: flt bx.		patchy weak dol., locally intense dol over narrow widths.	<1% dissem Py +76.4 -76.8 + << <1% cp, tr tt, sp> sulphides are very fine grained; locally cp rims py.; mineralization occurs in qtz (dol) veins.	75.3- 78.3: core blocks indicate a 70% core recovery, but there doesn't appear to be any core loss.
83.6 - 87.8	<ARG/SILT FLT BX>	black gray	fine	arg and siltstone as in the overlying intervals which have been strongly fault brecciated; Clay gauge developed between 84.8-86.3m; interval is comprised of 80% argillite		faulted argillite surfaces are moderately graphitic	<1% py	
87.8 - 88.8	<SIL ARG>	black	fine	argillite is blocky, slippage along cleavage planes caused by overlying fault zone. 3% stretched, boudined white qtz veining		weak to moderate silicification; fracture surfaces are weakly graphitic	3% v. fine grained py in disseminations and thin seams.	

HOLE NO C91-8

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
88.8 - 89.7	<CHERT>	gray	fine	argilliceous, laminated cherts; bedding orientations convoluted; 3% white crosscutting qtz veining.			3% very fine grained Py in diseem and lenses. Py is primarily found in argillite partings.	
89.7 - 93.8	<SIL ARG FLT BX>	black	fine	siliceous argillites are weakly to moderately fault brecciated; no clay gauge developed; minor cherty bands; 15% white to gray qtz stringers, brecciation infilling, and flooding. Bedding is convoluted.		argillites are moderately silicified.	3-10% v. f. grained pyrite diseem and seams; py content is highest from 91.7-93.8 m	
93.8-96.7.	<CHERT>	gray	fine	locally laminated cherts with 5% argillite partings., 10% diffuse white qtz crosscutting veining; unit is in fault contact with adjacent units		interval may have been silicified.	1% fine grained Py blebs, coarse diseem and minor seams.	
96.7-97.3	<FLT GOUGE>	gray		interval is intensely faulted sericitically altered sediments; clay gauge is well developed.		intense yellow sericite alt'n becoming prevalent downhole.	1% py.	
97.3-104.2	<QTZ/SER ALT SEDS>	gray, yellow-gray	fine	intense alteration of sediments is prevalent; where alteration is less intense the host rock is primarily argillite 10% of the interval is qtz veining and flooding veins each 10cm widths		intense yellow sericite alteration is prevalent throughout the majority of the interval. Minor yellow sericite alt'n between 100.3-102m	5% fine grained Py in blebs, dissemination and seams. Local concentrations to 15% over 10cm	Alt'n caused by the underlying vein

Foliation at 75°

HOLE NO C91-8

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				97.3 - 102.4: interval is intermittantly fault brecciated; minor chert.				
104.2 - 105.7	<QTZ VN>	white gray	fine	massive qtz vein with 3% altered argillite partings minor dolomite along fractures.		argillite is moderately to intensely sericitically altered: 3% talc in final 10cm of interval	2% fine grained py patches	Some of the interval may be intensely silicified country rock
105.7 - 116.3	<SER/SIL ARG>	black white gray yellow	fine	Unit is a bedded argillite which has been variably altered. Bedding is highly contorted - orientations vary between 0 - 70° to CA; General sense of cleavage is at 10% disrupted white qtz veining. Lower contact is gradational	60°	argillites are weakly silicified locally; intermittant weak to moderate yellow sericite alt'n - principal zones of sericitic alteration are located between 105.7 - 106.4m, 108.5 - 109.9m, and 114 - 116.3m. Minor weak dol. alt'n. Between 110.4 - 112.5m there is 2% of a brilliant green soft mineral - talc. Minor weak dol. alt'n.	≤ 5% fine grained patches of pyrite.	
116.3 - 132.1	<QTZ - SER ALT SEDS>	gray yellow	fine	intensely altered sediments; gradational contacts; a few cherty laminae and beds to 20cm present at base of of interval; 7% patchy		intense yellow sericite alteration, minor talc	2 - 20% py; pyrite concentrations over 10cm widths, Pyrite is fine to med grained	

HOLE NO C91-8

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				irregular white qtz veining to 25cm widths. Bedding irregular, cleavage -|126.1-130.1|- <ALT'D TUFF?> - massive unit.	60°	126.1-130.1: patchy yellow brown sericite alt'n, patchy moderate dolomitization.	and commonly occurs as patches of semi-massive Py.	
132.1-139.4	<SIL ARG/CHT>	black gray	fine	Interval consists of 55% argillite laminated and interbedded with 45% gray chert. Bedding is strongly contorted with some fold noses, stretched and boudinied beds/qtz stringers. There are 4 wide qtz/dol (90/10%) veins to 16cm. The argillites are pervasively crossed by small discontinuous qtz stringers; Argillites are locally friable. Principal cleavage orientation at 136.8m	75°	argillites are moderately silicified. argillite partings are moderately graphitic	2% fine grained Py clots. Some of these clots are rounded indicating some movement along cleavage planes. -|138.4-138.6|- <1% sp, gn> coarse grained, occurs in qtz vein -|139.2-139.27|- <20% Py, 5% gn 2% tt, sp, cp> Tet. is very fine grained, coarsely dissem; Py, gn is fine to med grained, coarsely dissem. Mineralization is associated with silicification.	
139.4-142.4	<SIL CHT>	gray white	fine	laminated cherts are cross-cut by 20% white qtz veins. These veins are irregular and contain some argillaceous stylolites. Qtz veining increases			<1% fine grained Py associated with argillite remnants. Trace coarse grained sphalerite	

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				downhole. Some veins contain up to 10% dolomite			in qtz veins.	
142.4 – 146.2	<ARG/SILT/CHT>	black	fine	Interval contains 90% argillite and 10% silts and cherty laminae. Bedding is non conformable cleavage plane at 65°. Minor white qtz veins except for a twinned vein between 145.6 – 146.2m surrounding an argillite remnant 145.2 – 145.6 : core has been weakly fault brecciated	65°	interval is weakly silicified; local weak graphite associated with highly fractured rock	3% v. fine grained pyrite occurring in disseminations, patches and seams parallelling bedding. 145.86 – 145.9 : 25% semi-massive py.	
146.2 – 148.9	<CHERT>	gray	fine	laminated ribbon cherts; bedding is somewhat disrupted but general sense of bedding is at 70°. 5% white qtz veining. Veins are irregular.	70°		<1% pyrite patches.	
148.9 – 161.4	<SIL ARG/CHT>	black gray	fine	90% argillite, 10% chert. The principal chert interval occurs between 149.1 – 149.9m and 150.6 – 151.1m. Bedding is generally highly disrupted to the		Argillites are weak to moderately silicified; local graphite	6% py overall. Py occurs as fine to med grains. Py is found in disseminations through to pyrite seams	

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				point where texture resembles a HET FRAG, but clastic texture probably caused by tectonic brecciation. 15% white qtz veining present. Principal qtz occurences are between 152 - 152.75m, 157.7 - 158.3m Interval is quite blocky and is affected by some late fault activity - no fault gouge found 156.1 - 156.3 : intensely altered volcanics? H 155.5 - 155.8 t Possible zone of <HET FRG?> clasts of sil. ag, qtz, alt. vole? to 1cm. clasts are subangular		156.1 - 156.3 : sericite, talc alteration	4mm wide. 156.1 - 156.3 : 15% coarsely disem. py. 155.5 - 155.8 : 7% py 157.8 trace sp, gn in qtz	
161.4 - 170.7	<DOL VOLC>	green gray	~~fine~~	Massive volcanic unit. upper contact is gradational. lower contact is sharp at 7 Original textures indistinct Minor white to gray qtz veining	70°	patchy brown sericite mod dol. alter with patchy intense dolomitization bleaching the core	pyrite content is v. fine to fine grained. Content varies between 1-5%. in disem to pyritic patches	

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
170.7 - 178.3	<ARG>	black	fine	90% of interval is comprised of argillites, 10% silts. Bedding highly contorted, cleavage at 10% qtz/dol (80/20%) in veins to 2cm, abundant qtz/dol infilled fractures Core is blocky; ↓174.2-175.8↓ <FLT>, fault brecciation is moderate, intermittant	70-90	patchy weak silicification and dolomitization argillite	1-2% fine tomed grained Py dissem and blebs.	
178.3 - 186.3	<DOL SEDS>	black gray	fine.	50% of interval is black argillite, 50% dolomitized sediments, minor altered volcanics?; Altered volc intervals occurs between 182.2-182.35m; Minor qtz veining, <1cm wide.		Patchy moderate dolomite alteration; Minor, moderate graphite	1% coarsely dissem. Py.	
186.3 - 200.4	<ARG/SILT>	black gray	fine.	black argillites are finely laminated by 15% gray silt.; 15% white qtz veining with <20% dolomite Veining primarily occurs between 190.7 - 194.8m; Bedding is highly contorted ↓191.9 - 193.2↓ <FLT BX> local clay gauge developed ↓195.2 - 196.8↓ <FLT BX> Minor clay gauge Minor intervals of altered volcanics? occur between		Patchy weak silicification and dolomitization; Patchy brown sericite and dol. alt'n of volcanics?.; Minor talc; Argillites are weakly graphitic	2% Pyrite dissem and blebs.	

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				187.8 - 188.25m and 190.4 - 190.5m				
200.4 - 200.75	<HET FRAG>	gray	< 2cm	Aphanitic silty matrix hosts 50 % subangular clasts. Clast composition is primarily qtz and sediments with minor amounts of altered volcanics and pyrite lithoclasts. Clasts are weakly elongated in plane of foliation at 80° locally the interval is framework supported			2% py disseminations and trace lithoclasts	
200.75 - 239.8	<ARG/SILT>	black gray	fine	argillites and silts similar to those in the interval 186.3 - 200.4m. except that there are occasional cherty laminae.		Patchy weak silicification and dolomitization	1% coarsely dissem py 238.2 - 238.5: 1% coarsely dissem sphalerite 3% py.	
239.8 - 245.1	<DOL VOLC?/ SIL ARG>	green black.	fine	60% of interval is comprised of green altered volcanics? original textures 'washed out'; 10% patchy white quartz; 40% of interval comprised of silicified black argillites. Argillites contain 30% white, irregular qtz veining and patches, a few possible qtz clasts.		volcanics? are (brown) sericitically altered, and moderately dolomitized locally. Argillites are moderately to intensely sil. Minor talc alteration of volcanics.	Overall pyrite content is 2%; local concentrations to 5%. Pyrite is fine to med. grained. +243.2 - 244.6+ <<1% sp, cp, gn> cp, gn occur in trace	

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
							amounts. Sphalerite is fine to med grained coarsely to finely disseminated. Principal base metal sulphide occurrence is between 243.2-243.7m.	
245.1-249.7	<SIL ARG FLT BX>	black	fine	laminated argillite bedding is locally weakly brecciated/contorted, general sense of bedding at core is blocky 247.1-249.7: core is increasingly fault brecciated with depth	80-90°	argillites contain patchy weak silicification	5% med grained disseminated pyrite 245.3m: 5cm wide interval contains 5% coarsely diasem sphalerite.	
249.7-303.5	<QTZ SER ALT SEDS>	grayish-yellow	fine	intensely altered sediments original rock constituents indeterminable; Foliation 10% white qtz veining and patches, vein orientations are highly variable; max vein width is 18cm. 277.6-277.9: weakly fault brecciated.	70°	intense pervasive yellow sericite alteration.	5% very fine grained to medium grained Py occurs as fine disseminations to discontinuous contorted seams and patches. Minor arsenopyrite associated with pyrite in some qtz veins. Minor sp, gn, cp in some qtz veins. Concentrations of base metals as indicated below: 264.7-265.1: interval contains a 9 cm band	

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				Lower contact is fault brecciated, moderate clay gauge. +302.9 - 303.5 + <FLT Bx>			of semi massive pyrite overall pyrite content 15% +281 - 281.1 + <1% sp, tr gn, cp> in qtz. vein. 282.2 - 294.9m: 7-10% py in contorted, discontinuous seams and patches, minor arsenopyrite. 285.3 - 285.47: qtz vein with minor sphalerite. +293.1 - 293.5 + silicified and veined rock containing minor cp, tr sp, 2% gn <2% gn, minor cp, tr sp>	
303.5-304.3	<SER HET FRAG>	dark gray	fine to 25mm	aphanitic, pyritiferous matrix supports stretched to rounded clasts of arg, sericitically altered sedo, qtz, and minor pyrite lithoclasts. Foliation plane 90° minor qtz veining massive white, fractured qtz veining between 303.57-303.78m		Interval is intensely altered to yellow and gray sericite.	7-15% very fine grained pyrite in matrix and as patches. +303.5 - 303.85 + <10% gn> galena is fine to medium grained, in coarse disseminations. The greatest concentrations are in the footwall of	

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				304.1 - 304.2: silicified, sericitically altered seds			of the major qtz veining.	
304.3 - 305.3	<GRAY SER SEDS>	dark gray	fine	intensely altered sediments; original textures destroyed 5% white qtz veining		patchy weak silicification; pervasive moderate to intense gray sericite alt'n	3% coarsely dissem pyrite	
305.3 - 343.2	<QTZ-SER ALT SEDS>	yellow gray black	fine	similar to the unit between 249.7-303.5m except that the alteration is not as complete which results in 20% of the interval consists of black argillite laminae in sericitically altered sediments. The proportion of argillite increases down hole where bedding is distinct it is commonly highly contorted - tight isoclinal folds present. Fold axis at 338.4m at 5%. massive white qtz veins/patches to 25cm. Veins are generally conformable to bedding/foliation Veins contain minor dolomite; Approx 15% qtz sweats, silicification with vague boundaries in groundmass. Small intervals of fault	85° 70-85°	Pervasive to patchy yellow sericite alt'n Patchy moderate to weak silicification.	2-5% fine grained disseminated pyrite.	"YELLOW AND BLACK" unit.

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305.3
343.2

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				gouge locally developed. +330.9 - 331.9 + patchy, moderate <FLT GOUGE>				
343.2 - 348.6	<SIL ARGI/ CHT>	black	fine	bedding is indistinct, cleavage plane oriented at chert comprises 5% of interval; chert occurs as disrupted laminae, primarily in top half of the unit; 5% white, irregular qtz veining 348.1 - 348.6: weak shear.	70°	patchy weak, locally moderate, silicification; argillites are strongly graphitic, intensity increases downhole	4% pyrite in patches, disseminations and seams associated with qtz stringers; locally seams are folded.	
348.6 - 351.1	<QTZ VEIN>	White	fine.	massive white qtz vein. upper contact is weakly sheared and intermixed with graphitic argillite vein is fractured and rehealed with qtz and minor dol. Vein contains 5% argillite inclusions and stylolitic partings +350.3 - 350.95 + <FLT BX> interval consists of faulted fragments of argillite and qtz in a clay gauge matrix		350.3 - 350.95: patchy yellow sericite alteration of argillite	<1% py; Pyrite occurs in argillite inclusions, no sulphides seen in the quartz vein.	
351.1 - 366.2	<SER ALT SEDS>	yellow black gray green	fine	Similar to the interval 305.3 - 343.2 m. Laminated black argillite (25%) is interbedded with		patchy intense gray and yellow sericite alt'n	1% pyrite	

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				intensely altered seds Argilliceous chert between 354.9 - 355.15m 7% qtz veining. Some veins have been strongly brecciated and rehealed. The two largest veins occur: 356.2 - 357m: 98% massive qtz 364.4 - 364.75m: healed qtz vein, possibly a silicified chert Fault brecciation and gouge common in narrow occurrences throughout interval and increasing in frequency downhole.				
366.2-367.6	<ARG FLT BX>	black	fine.	argillite and cherty? sediments have been strongly fault brecciated; 10% white to gray brecciated qtz vein.		argillite is strongly graphitic; patchy weak silicification of argillite	3% fine to med. grained Pyrite, finely disem	
367.6-368.8	<QTZ VN>	white gray black	fine	white to gray qtz veining contains 15% argillite inclusions and argillite/graphite stylolites; fracture surfaces are graphitic			5% medium grained coarsely discriminated Pyrite and patches. Pyrite is primarily associated with argillite.	

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
368.8-375.2	<ARG/SILT/CHRT>	black gray	fine	interval consists of 85% argillite, 10% silty material and 5% cherty laminae. General sense of bedding at 60-75°. Minor qtz veining. Between 371.7 - 375.2m the core is increasingly friable, local fault gouge	60-75°	patchy weak silicification argillites are graphitic	7% coarsely dissem. Pyrite patches; fine to med. grained.	
375.2-379.3	<ARG FLT BX>	black	fine.	Fault brecciated argillite containing 25% white qtz veining, flooding and fragments. Qtz veining does not appear to have a preferred orientation. 378.5 - 378.8 : strongly altered volcanics.		argillite is strongly graphitic. 378.5-378.8: chloritic and sericitic alteration of volcanics; patchy weak dolomitization - minor; minor talc	2% coarsely dissem Py.	
379.3-381.8	<FLT. VOLC>	green	fine	massive green altered volcanics - possibly tuffs or volcanic epiclastics; minor shearing; minor argillite		patchy weak to moderate dolomite alteration and brown sericite alt'n. minor talc	1% disseminated fine grained pyrite	
381.8-383.8.	<SIL ARG FLT BX>	black white	fine	black argillites are brecciated by 40% qtz veining and flooding. Interval exhibits brittle fault bracciation; clay		patchy weak silicification, weak to moderate graphite	2% pyrite	

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				gauge developed in top 40cm				
383.8-387.	<ALT. SED/TUFF? TRANS.>	black green	fine	50% black to gray argillite intimately intermixed with green altered tuff?; 3% qtz veining + patches; minor localized fault gauge		argillites are weak to moderately graphitic, patchy weak to moderate green and gray sericite alteration in volcanics.	1% disseminated pyrite	Green seds? may be tuffaceous, Possibly a less altered member of the 'black + yellow' unit with green to gray sericite development rather than yellow or weakly developed 'MVT'
387-392.4	<ARG FLT BX>	black gray.	fine	>80% argillite intermixed with <20% altered sediments. Interval is intermittantly brecciated by faulting with development of clay gauge 3% white quartz veining except between: 387-388.3m: 50% qtz veining and silicification		patchy weak yellow and gray sericite alteration	1% dissem. pyrite	
392.4-404.6	<ARG/ ALT TUFF?>	black green buff gray.	fine	35% argillite intermixed with green to buff altered tuffs(?); 3% of interval is faulted in narrow zones.; 3% quartz veining		Alteration consists of yellowish to green sericite. Interval of most intense alteration occurs between 392.4-399.5m. Alteration is moderate to intense yellow to green sericite 399.5-402m interval	minor dissem. pyrite	

HOLE NO C91-8

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
						is contains only minor alteration: 402 - 404.6 : banded green sericite alt'n		
404.6 - 420.5	<SIL ARG>	black	fine	Black argillites beds have been fractured and then infilled by quartz. 15% quartz veining and stringers, No preferred orientation; Two green tuffaceous intervals occur between 410.2 - 410.8m and 412.7 - 413m. other minor beds of tuff to 5cm also present. Core is blocky throughout Principal zones of faulting occur between 406.5 - 406.9 <FLT BX> 414.2 - 415.1 <FLT BX> Foliation orientation ranges widely 55-80° to CA.		patchy weak silicification: argillite is moderately graphitic Tuffs are weakly dolomitic.	1% disseminated pyrite.	
420.5 - 426.2	<ARG FLT BX>	black gray	fine	similar to the overlying unit; Interval is strongly fault brecciation localized fault gouge; Minor tuff intervals 15% qtz veining and		argillite is graphitic minor weak silicification; Between 421.5 - 422.7 patchy moderate gray dol alteration.	1% coarsely disseminated pyrite.	423.6 - 425.8 : 30% core recovery

HOLE NO C91-8

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				fracture fillings				
426.2 - 430.3	<ARG/SILT>	black gray	fine	90% of interval is argillite in which is finely interbedded silt. Beds are disrupted, 5-10% quartz which primarily occurs as stringers and fracture infilling.		patchy weak silicification of argillite occurs sporadically throughout interval; minor brown sericite	1% disem. Py.	
430.3 - 435.6	<DOL VOLC>	green	fine	intensely altered mafic volcanics; minor argillite; 10% white and gray, qtz/dol veinlets. Veins exhibit no preferred orientation		intense dolomitic alteration; minor brown sericite	Trace chalcopyrite in veinlets, 1% Pyrite.	
435.6 - 442.8	<:ARG, FLT BX>	black	fine	interval is primarily argillite. Brittle fault breccia common throughout. Upper contact is faulted. Contact oriented at 60°		argillite is graphitic	1% coarsely disem. Pyrite.	440.9 - 443.2: 10% core recovery
442.8 447.1	<DOL VOLC>	green	fine	as in interval 430.3 - 435.6 m except that there is 15% qtz/dol veining and flooding.		intense dol. alt'n; minor brown sericite	trace chalcopyrite in veinlets; 1% Pyrite.	
				END OF HOLE.				

HOLE NO C 91-8

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ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm/T Ag	gm/T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	As ppm	Ba ppm	Sb ppm	Ag ppm	Au ppb
31265	20.4	21.6			1.2											46	53	40	1		10	1.5	1
31266	23.7	24.65			.95											257	82	15	244		1	0.6	3
31267	34.2	35.7			1.5											46	380	16	15		3	1.9	2
31268	74.9	76.4			1.5											62	39	28	47		1	1.4	2
31269	76.4	76.8			0.4											714	316	36	21		30	2.8	1
31270	76.8	79.4			2.6											41	59	37	18		1	2.0	7
31271	91.7	93.2			1.5											44	143	82	1063		42	2.0	98
31272	100.3	102.1			1.8											60	53	72	1091		42	2.1	250
31273	102.1	103.6			1.5											16	44	40	222		8	0.8	21
31274	104.2	105.7			1.5											27	128	37	127		6	0.7	10
31275	95.2	96.7			1.5											19	51	18	94		7	0.6	3
31276	121.6	123.1			1.5											17	72	41	113		2	1.5	9
31278	137.7	139.2			1.5	.021	.12	.07	9.0	.06					*	207	1181	731	165		77	9.0	61
* 31279	139.2	139.27			.07	1.741	1.43	5.75	454.0	2.2													
31280	139.27	140.8			1.53											40	80	61	144		12	1.5	82
31281	145.2	146.2			1.0											56	251	93	2360		64	2.9	280
31282	151.5	152.7			1.2											37	92	36	177		6	1.1	24
31283	155.5	155.8			0.3	.013	.07	.06	4.9	.86					*	127	655	634	4819		90	4.9	860
31284	155.8	156.6			0.8											104	345	425	5475		141	5.0	338
31285	157.3	158.7			1.4											50	299	248	294		5	2.3	100

HOLE NO C-91-8

PAGE 1 of 3

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm/T Ag	gm/T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	As ppm	Ba ppm	Sb ppm	Ag ppm	Au ppb
31286	136.6	137.7			1.1											95	228	137	173		52	7.2	65
31287	140.8	142.3			1.5											11	177	41	43		4	0.6	17
31288	190.6	192.1			1.5											60	60	25	34		2	1.2	4
31289	198.9	200.4			1.5											52	87	57	90		1	1.4	19
31290	200.4	200.75			.35											72	525	123	156		4	1.3	8
31291	200.75	202.25			1.5											82	108	64	34		4	1.2	3
31292	226.4	227.6			1.2											49	66	28	25		3	1.2	2
31293	238.0	238.7			0.7											74	649	274	503		18	2.0	26
31294	241.4	242.9			1.5											67	481	232	611		5	2.2	51
31295	242.9	244.1			1.2	.019	.88	.17	3.6	.04					*	195	8781	1672	251		14	3.6	43
31296	244.1	245.1			1.0	.017	.24	.25	4.5	.06					*	176	2402	2524	806		25	4.5	61
31297	245.1	246.6			1.5											19	404	474	660		16	1.2	55
31299	264.6	265.4			0.8											69	137	63	2233		52	2.7	113
31300	267.7	269.4			1.7											66	122	28	358		9	1.3	23
31301	280.6	281.7			1.1											99	367	63	1949		43	2.2	330
31302	284.1	285.7			1.6											74	93	31	1232		17	1.2	1
31303	291.3	292.8			1.5											40	72	54	1612		32	1.2	3
31304	292.8	293.5			0.7											271	266	754	2035		49	3.9	136
31305	295.7	297.2			1.5											63	89	96	924		9	1.4	42
31306	303.5	304.3			0.8	.025	.01	1.57	34.8	.13					*	253	83	15730	527		81	34.8	127

HOLE NO C-91-8

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm/T Ag	gm/T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	As ppm	Ba ppm	Sb ppm	Ag ppm	Au ppb
31307	304.3	305.3			1.0											20	56	150	313		7	1.8	63
31308	306.6	307.3			0.7											103	137	241	85		7	3.7	9
31309	344.5	346.1			1.6											94	109	53	190		7	2.0	22
31310	348.6	349.8			1.2											34	38	42	35		3	0.6	4
31311	349.8	351.1			1.3											56	63	59	54		4	1.1	2
31312	367.6	368.8			1.2											49	222	37	204		14	1.7	17
31313	387.0	388.3			1.3											60	190	97	108		10	1.6	1

HOLE NO C-91-8

LITHOGEOCHEMISTRY

Column:	1	2	3	4	5	6	7	8	9	12	13	16	17	18	19	20	22	23	24	25
SAMPLE NUMBER	From	To	Length	SiO_2	Al_2O_3	CaO	MgO	Na_2O	K_2O	FeO_{23}	MnO_2	TiO_2	Cu ppm	Zn ppm	Au ppb	Ba ppm	Ag ppm	Pb ppm	P_2O_5	S %	Total %	As ppm	Sb ppm
31277	126.4	128.2	1.8	53.86	17.49	1.16	2.71	.01	4.22	11.37	.56	2.33	91	69	5	31	2.0	29	.04		93.83	158	1
31298	254.9	257.9	3.0	64.36	14.90	2.69	1.71	.46	3.36	5.55	.15	.66	21	85	5	84	1.3	31	.01		93.93	120	1

Hole No. _____ Entered by _____ Logged by _____ Page No. _____

fully entered

DRILL HOLE RECORD

PROJECT NAME : CANA-SAM JV	DATE STARTED (M/D/Y): 05/26/91
HOLE NUMBER : C91-9	DATE COMPLETED (M/D/Y): 06/02/91
LOCATION : CANA	DATE LOGGED (M/D/Y): 06/01/91
PROJECT NUMBER : 247	UNITS (F/M) : M.
CLAIM NUMBER :	

PLOTTING COORDS		ALTERNATE COORDS	
	GRID :		GRID : ESTIMATED
	NORTH :		NORTH : 10+35 N
	EAST :		EAST : 127+00 W
	ELEV :		ELEV :

COLLAR BRNG		
	GRID : 180° 00' 00"	COLLAR SURVEY (Y/N) :
	ASTRONOMIC : 225° 00' 00"	RQD LOG (Y/N) :
	COLLAR DIP : -85° 00' 00"	PULSE EM SURVEY (Y/N) :

CONTRACTOR : FRONTIER	LOGGED BY : C. NAGATI
CORE STORAGE : SAM EX CAMP	START DEPTH : 0.0.
CASING : PULLED	FINAL DEPTH : 486.8
PLUGGED (Y/N) : N	
HOLE SIZE : NQ.	

PURPOSE/COMMENTS : TEST UPPERMOST SAM HORIZON ADJACENT TO MAJOR NE TRENDING STRUCTURE.

DIRECTIONAL DATA: A = Acid Test, L = Light Log, M = Multishot, T = Tropari

DEPTH (m)	TYPE A/L/M/T	ASTRONOMIC AZIMUTH	DIP	FLAG	COMMENTS
94.5	A	—	-54	OK	
152.4	A	—	-54	OK	
243.8	A	—	-54	OK	
300.7	A	—	-54	OK	
403.3	A	—	-52	OK	
441	A	—	-51	OK	
465.1	A	—	-51	OK	

HOLE NO. C91-9

LOGGED BY C. NAGATI

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
0.0 – 92.0	<CSG>							
92.0 – 103.2.	<ARG/SILT/ WACKE>	gray black	<2mm	Interbedded argillites and siltstones and graywackes. Bedding at Local graded bedding and load casting indicates tops are uphole. Overall composition 55% graywackes, 45% argillite/Silt.; Grad. contact; Unit is blocky. 192 – 96.6t <FLT Bx> minor local clay gauge.	80-90°	faulted argillite is weakly graphitic	minor disseminated Py.	
103.2 – 113.7.	<SER ALT SEDS>	gray pale yellow pale green	fine	sediments are derived from sediments similar to those above. Original textures are largely destroyed. Foliation oriented at 103.7 – 106.8t <FLT Bx> interval is strongly fault brecciated, clay gauge is common. 103.8 – 106: subinterval consists of 70% bull quartz. Veining is strongly brecciated (brittle) and	55-65	Seds are intensely altered to pale yellow to buff and gray Sericite	10% finely dissem pyrite.	

HOLE NO C91-9

PAGE 2

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				fractured. Veins are barren of sulphides. 111 — 113.7: interval is intermittantly altered to fault gouge along fracture surfaces 112.1 - 112.9: weakly altered cherty black argillite.				
113.7 - 123.9	<ARG/CHT FLT BX>	black	fine.	interval has been subjected to intermittant intense brittle fault brecciation: clay gouge developed locally; 35% of the interval is laminated ribbon cherts with argillite partings. General bedding orientation 15% white quartz veining and flooding with associated base metals. Veins contain 1% white crystals (≤1mm) of feldspar? +117.1 - 117.25+ silicified interval of what appears <HET FRAG>; clasts of argillite and altered rock comprise 10% of interval.	65°	minor patchy weak silicification; 113.7 - 115.3: intermittant moderate silicic alteration of argillite	Background sulphide content of unit consists of 1-3% coarsely disseminated pyrite, trace sphalerite 114.6 m: 4cm wide silicified zone containing 20% very coarse grained coarsely dissem py <1% sp, cp. +115.6 - 115.7+ <1% tt, 1% sp, cp, gn> 5% py; sulphides are in a silicified interval; sx are fine grained, fine to coarsely dissem. +117.1 - 117.2+: 5% py 2% coarsegrained sp, 1% tet.; sx are coarsely disseminated in silicified Het Frag	114.6 - 117.5: 67% recovery 117.5 - 121: 60% recovery 121 - 122.8: 90% recovery 122.8 - 124: 75% recovery 115.6 - 115.7+ 117.1 - 117.2: strike extension of the C90-6 mineralized intersection? Poor core recovery in this interval.

HOLE NO C91-9

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
						119.9 - 120.9 : intense qtz flooding / silicification.	+ 119.9 - 120.1 + <1% sp, tr gn > 5% py at top of silicified interval.	
123.9 - 129.85	<DOL / SER ALT. VOLC?>	gray	fine.	original textures are destroyed except for minor argillite interbeds. minor qtz / dol veining. Foliation at.	50°	Pervasive mod to intense dolomite alteration Pervasive weak to moderate gray sericite alteration gives foliation a phyllitic sheen. Trace fuchsite	2% pyrite.	
129.85 - 134.4.	<ARG / VOLC FLT GOUGE>	black gray	fine	Black argillites are interbedded with altered volcanics similar to that of the overlying interval. Argillite occurs between 129.85 - 131 and 131.6 - 132.2 m. Contacts at 35-45° 129.85 - 132.3m: the core intensely faulted with abundant clay gouge developed. 132.3 - 134.4m: patchy clay gouge, more of a brittle fault zone.		Dol and ser. alt'n of volcanics, Argillite is weakly graphitic	Minor py.	

HOLE NO C91-9

ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
134.4 175.2	<TUFF/ LAPILLI TUFF>	green	fine to 5cm	134.4 – 150 m: massive fine grained unit, no noticable clasts; 150 – 173 lapilli tuff 5% clasts at top of interval, 25% clasts at base of interval clasts are more altered than the groundmass 173 – 175.2: massive, dark green.		134.4-150: patchy weak dolomitization bleaches core. minor brown sericite. 150 – 175.2: unit is calcareous, patchy weak dol. alt'n Clasts are sericitically altered; groundmass is still weakly chloritic 173 – 175.2: moderate patchy dol. alt'n, & ? v. fine grained brown sericite alt'n	minor disseim. py	
175.2 – 177.9.	<ARG FLT BX>	black	fine	black argillites containing 10% white quartz fracture fillings, patches and veinlets.; Minor silty to tuffaceous interbeds Pervasive brittle fault brecciation throughout		patchy weak silicification, and graphite.	5% fine grained pyrite local concentrations to 20%, semi massive.	
177.9 – 179.5.	<MAF Vac>	gray-green	fine	massive unit, moderately altered; original textures indistinct; Lower contact is brecciated and ground		trace fuchsite; patchy dol and brown/green sericite alt'n.	minor py except in 4cm silicified interval at base of unit which contains 10% coarse grained pyrite.	177.6 – 179.8: 70% core recovery.

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
179.5-191.5	<ARG/SILT FLT BX>	black	fine	Interval is extensively fault brecciated, patchy clay gouge. Argillite comprises 85% argillite with 15% interbedded siltstone. Bedding is contorted. At 184m offsetting cleavage plane at 5% white fractured qtz veining. Some quartz infilling of fractures.	70°	patchy weak silicification. Argillite is strongly graphitic in strongly faulted areas.	1% dissem pyrite local concentrations to 5% 189.8-190.1: 10% fine to coarse grained pyrite.	
191.5-198.8	<FLT'D ARG/TUFF>	black green	fine	10% fine grained altered tuffs are interbedded with argillite +/- silt. Tuffs are generally <10cm wide; Principal tuff bed occurs between 193.7-194.4m. Bedding is contorted, varies between 55-90° Interval is brittlely fault brecciated, minor clay gouge; 195.6-196.3: Qtz/Feldspar? vein. 80% qtz.; the feldspar have been altered to a pale green clay and sericite.		Tuffs are dolomitic Minor graphitic argillite.; Trace fuchsite	1% coarsely dissem pyrite.	

HOLE NO C91-9

ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
198.8 - 212.7.	<ARG FLT BX>	black	fine	argillites are laminated by 5% chert and 5% silts; 10% massive and fractured white quartz veins to 20cm. locally abundant qtz stringers and flooding silicifies core. Core is intermittently but strongly fault brecciated over 80% of the interval.		faulted argillite is strongly graphitic minor gray to green sericite in faulted intervals. 201.8 - 205.6: moderate silicification of argillite.	2% fine grained coarsely disseminated pyrite. +201.8 - 203.1+ <10% py> local concentrations of 40% semi-massive pyrite over 5cm.	
212.7 - 226.5.	<ARG/SILT>	black gray	fine	argillite is laminated by 20% gray siltstone and cut by 5% white quartz veining. Minor dirty laminae. Bedding is strongly contorted by small scale disharmonic folds. Cleavage at core is blocky; 5% narrow, brittle fault zones; fault bx and clay gouge increases downhole. Lower contact is faulted.	75-90°	Minor dol. alt'n of silts and silic. of argillites. Minor graphite.	1% pyrite disseminations.	
226.5 - 232.6	<ALT. HOT FRAG.>	gray	fine to 4cm.	At 224.2m bedding at 75°. 212.7-213.3: intermixed arg and altered volcanics? argillite to silty matrix supports up to 40% angular to subangular clasts. Clast composition order of decreasing abundance are, chert/quartz, argillite/silt		Interval is weakly phyllitic due to formation of gray sericite; local green sericite	4% disseminated pyrite.	

HOLE NO C91-9

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ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				sericite altered clasts. Interval has been weakly sheared to moderately altered to gouge. Core is foliated at Clasts show weak alignment and stretching parallel to foliation. Some clasts are brecciated. 228.0 – 229.6: massive, fractured white qtz vein. Somewhat vuggy with minor white kaolinite? Vein is intermittent throughout interval, oriented subparallel to C/A.	70°		228.4 – 229.6: minor fine to coarse grained, coarsely disseminated galena.	
232.6 – 233.6	<DOL TUFF?/ ARG>	gray black	fine	70% intensely altered tuffs? interbedded with black argillite and minor Hel Frag.; 5% white quartz veining		Tuffs? are intensely dol. altered, patchy brownish sericite alteration. 232.6 – 232.9: moderate gray sericite alteration in sheared core.	2% pyrite	
233.6 – 237.1	<CHERT>	gray	fine	top of interval has been brecciated and healed by white quartz fracture infilling. 235.1 – 235.9: core is fault brecciated with moderate fault gouge. 235.9 – 237.1: fractured relatively clean laminated cherts.		235.1 – 235.9: patchy weak sericite alteration.	Minor pyrite	

HOLE NO C91-9

ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				Bedding at. Chests at top of interval are gray ribbon cherts Sharp lower contact	55°, 60°			
237.1 - 239.	<HET FRAG>	black gray	fine to 3cm	Het Frag is locally well developed with up to 30% subangular clasts of chert/quartz sediments and sericitically altered volc?. Overall the clastic texture is poorly developed. Matrix is silty; 237.4 - 237.6: fault gouge		patchy moderate silicification and dolomitization.	3% fine grained, disseminated pyrite	
239 - 242.2	<DOL TUFF>	gray buff	fine	intense alteration destroys original textures 15% patchy quartz/dol. Rock was volcanic in origin - tuff?		Tuffs? are intensely but sporadically dol. altered. Dol alt'n is interspersed with brownish sericite alt'n	5% very fine grained, finely disseminated Pyrite.	
242.2 - 243.7	<TUFF?/ ARG TRAN ZONE>	gray black white	fine.	Tuffs? are interbedded with 2% argillite and flooded with qtz/dol Tuffs? are as in the overlying interval.		Qtz/dol flooding of and associated with argillite. Tuffs? are dol altered.	3% pyrite.	
243.7 - 246.9	<HET FRAG>	Shades of gray	fine to 4cm	243.7 - 244.6: interval is primarily silt which contains <5% qtz (dol) clasts. Rock contains 5% spotty dol. alt'n. Foliation at.	65	243.7 - 244.6: moderate gray sericite alt'n gives core foliation and phyllitic sheen. Patchy mod. dol alt'n	243.7 - 244.6: 7% very fine grained, finely disseminated pyrite.	

HOLE NO C91-9

ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				244.6 - 245.4: Well developed clastic texture. Clasts are angular to subangular. In order of decreasing abundance, clast composition is qtz/dol, argillite, sericite altered clasts. Clasts are matrix supported. Matrix is silty with a few thin argillite interbeds; 8cm qtz vein at 245.1m. 245.4 - 245.6: Faulted, and ground core 245.6 - 246.1: Intensely altered tuff?, dark green brown-color. 10% qtz/dol flooding/veining 246.1 - 246.9: Het Frag as in 244.6 - 245.4m.		244.6 - 245.4: patchy moderate dol alteration 245.6 - 246.1: strong green/brown sericite alt'n gives rock phyllitic sheen streaky moderate silicification.	< 5% disseminated pyrite between 244.6 - 245.4m. 245.6 - 246.1: 5% disseminated pyrite.	
246.9 - 248.5	<ALT VOLC>	green/gray	fine	intensely alteration has destroyed original textures 3% white qtz veining cross cutting foliation. Foliation poorly developed	50°	strong, streaky brownish sericite alteration. Initial 30 cm are moderately to intensely silicified	10% disseminated pyrite.	
248.5 - 250.4	<QTZ/DOL VEIN>	White		massive white quartz contains 20% gray, coarsely disseminated dolomite and 5% altered feldspar? Well developed fracture minor tolc inclusions.	40-45°	Feldspars? alter to calcite and clay.	1% combined sulphides - Py, gn, cp.	

HOLE NO C91-9

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
250.4 - 254.	<DOL/SER/QTZ ALT. VOL>	gray.	fine.	intense alteration destroys original textures 15% white quartz veining to 3cm. Vein orientation varies 250.4 - 250.9: silicified, qtz veined argillite		Volcanics are intensely dolomitically + (brown) sericitically altered in banded zones with sporadic moderate silicification.	5% fine to coarsely disseminated pyrite. 250.9 - 251.05: 10% pyrite.	
254 - 268.5	<ARG/ VOLC>	black gray	fine.	80% of interval is composed of silty argillite which is inter bedded with 20% gray-green volcanics-tuffs? 3% irregular quartz veins. Beddings is chaotic locally tectonically brecciated. Foliation at 259-263.5: interval is intermittantly sheared and fault brecciated minor clay gauge	65°	Volcanics are calcareous; phyllitic sheen caused by development of green to gray sericite; Minor talc. Argillites are weakly graphitic, graphite content increases on faulted intervals.	2-3% pyrite	
268.5 - 274.3	<SIL ARG / CHERT>	black gray white	fine	interval consists of well silicified and qtz veined argillite interbedded with <15% ribbon chert; Local foliation some veins contain gray to pink dolomite? and base metals	70°	intense silicification, qtz flooding, some phyllitic surfaces	minor cp, sp in some qtz/dol veins. Base metals are fine grained, fine to coarse disdm. Principal mineralized zones occur between 268.8 - 270m, 272.5 - 272.8m and 273.3 - 273.45 t <3% sp, gn, cp> Interval contains 1% coarsely disseminated pyrite	

HOLE NO C91-9

ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
274.3 – 283.1	<ARG/VOLC TRAN. ZONE>	black gray	fine	60% silty argillite is interbedded with altered volcanics. Bedding in argillites is chaotic – fine localized folds, tectonic brecciation present argillites are laminated by silts and some fine qtz/dol stringers. AH'n of volcanics has obliterated original textures but volcs. are similar to underlying unit. 2% qtz veining		argillites are locally moderately graphitic, minor weak silicification. Volcanics are intensely dol altered with bands of brown sericite.	1% coarsely dissem. Pyrite.	
283.1 – 300.9	<DOL VOLC>	grey		intensely altered mafic Volcanics Narrow zones (≤5cm) of translucent to white qtz flooding occur locally which are associated with base metals; The major veined interval occurs between 284.1–285.5m 294–299.4: intermittant narrow shear and fault gauge zones.		core is intensely dol. altered and banded by brown sericitic alteration. minor fuchsite.	narrow qtz veins can carry up to 7% Combined base metals qn>sp>cp. Base metal content over entire interval is minor. 284.1–285.5: <1% galena, minor sp, cp. <2% pyrite overall, concentrations to 5%.	Principal mineralized zones have been sampled.

HOLE NO C91-9

ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
300.9 - 315.6	<SED/VOLC TRAN ZONE>	black gray green	fine	Interval consists of 70% argillite with silty laminae and beds and 30% gray green altered volcanics. Bedding in seds is chaotic; a few bullseye structures present. Volcanic intervals are <1m in thickness. 5% irregular white qtz veining crosscutting argillites		minor brownsericite, trace fuchsite alt'n of volcanics. Volcs are calcareous, Fe-Dol alt'n. Argillite is locally graphitic minor moderate silicification of argillite	1% coarsely dissem pyrite.	
315.6 - 352.5	<ARG/QTZ STWK>	black white	fine	black argillite which is locally silty is contains up to 40% quartz stockwork. Veins reach a max width of 4 cm. Veins have no preferred orientation and are generally barren of sulphides; some veins are vuggy or contain clay altered feldspar?, minor dol. Two stages of quartz veining. 345.6 - 352.5: qtz veining decreases to <15%, minor altered volcanics? 346.8 - 351.4: intermittant narrow fault gouge zones and gouge along fractures.		argillite is strongly graphitic; local weak to moderate silicification 345.6 - 352.5: minor talc/fuchsite in altered volcanics weak dol alt'n of silty laminae/volc.	1-2% dissem py 332.7 - 332.8 <20% py 7% sp 2% gn, cp> sphalerite is zinc poor Sx are medium grained coarsely dissem. Associated with intense quartz flooding.	Base of interval is typical argillite.

HOLE NO C91-9

ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
352.5- 363.3	<HET. FRAG/ ARG/ALT. VOL>	black gray green	fine.	Interval consists of a rapidly changing lithology which includes, argillite, sil arg, altered volcanics, and Het. fragmental as described below:				
				352.5-352.85: Het Frag interval consists of 25% clasts between 1mm to 30mm in a silty matrix. Clasts are angular to sub-rounded. Some alignment of elongate clasts parallel to foliation (bedding?) Clast composition 50% sericite altered, 35% qtz/dol; 15% argillite.	65°	352.5-352.85: weak dol/ser alt'n of clasts	352.5-352.85: 7% fine to med grained dissem. pyrite.	
				352.85-354.8: ARG and SIL. ARG.: black argillite is flooded/veined by 30% white to gray qtz and dol (60/40%); minor altered volc.		352.85-354.8: patchy moderate silicification, patchy weak dol. alt'n.	352.85-354.8: minor fine to med grained dissem. sphalerite <5% pyrite, coarsely disseminated except + 352.9-353.25 + <1% sp, tr gn, 7% py> in qtz and 354.5-354.8m where there is 20% pyrite.	
				354.8-355.3: ALTERED VOLC., original textures destroyed.		354.8-355.3: brown/green sericite alt'n, 1% fuchsite/talc; phyllitic sheen	354.8-355.3: 5% coarsely dissem pyrite.	

HOLE NO C91-9

ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				355.3 - 355.9: silty argillite minor altered volc.		355.3 - 355.9: weak patchy dol. alt'n.	355.3 : 355.9: 2-3% pyrite.	
				355.9-356 : Het Frag as in 352.5-352.85.				
				356 - 357.05 : SIL ARG. black argillites, 20% white qtz veining and flooding		356 - 357.05: moderate to intense silicification. minor graphite	356-357.05 <1% sp> fine to med. grained coarsely disem. sphalerite associated with silica. 5% coarsely disem py except 356 - 356.35m where there is 20% py.	
				357.05 - 357.9: 80% altered volcanics interbedded with poorly developed Het Frag. with silty matrix supporting 20% clasts.		357.05 - 357.9: Volcanics are moderately dol, massive patchy brown sericite; minor talc/fuchsite.	357.05 - 357.9 : 3% disem. py.	357.05 - 357.9: Volc may be large clasts in Het Frag.
				357.9 - 362.85 : SIL/CHTY ARG. : 30% irregular qtz veining/flooding, local chert laminae. 360 - 360.1: fault gouge.		357.9 - 362.85: patchy silicification	357.9 - 362.85: 1% sphalerite, minor cp galena in qtz veins. Sp. grains are fine to medium grained, coarsely disseminated.; 5% pyrite	
				362.85 - 363.3: ALT VOL FLT BX : volcanics have altered to clay gouge		362.85 - 363.3 : patchy grey/white silicification/veining	362.85 - 363.3 : 4% pyrite	
363.3 - 365.7	<HET FRAG>	gray	fine to 4cm	silty matrix; interval is largely framework supported. 363.3 - 364.1 clasts are elongate and possibly stretched parallel			The final 20cm of the interval contains 1% medium grained disseminated sphalerite	

HOLE NO C91-9

ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				to foliation at Clast composition is approx. 70% white to gray qtz(dol)/chert, 20% argillite, 10% pale, weakly sericitic fragments of volc? From 364.1 - 365.7m Core is unfoliated. 363.5 - 363.75: qtz vein with argillite inclusions (<10%) and stylolites. 364.2 - 364.7: qtz veined and flooded sericitically altered and veined argillite (70%/30%)	80°		in quartz; 2-5% medium grained pyrite	
365.7 - 372.05	<INTERB ARG/VOL>	black gray brown	fine	60% argillite, 40% altered volcanics. Bedding in argillites are contorted Cleavage at 15% qtz veining and flooding in argillite, Dol. contain 10% patchy, irregular qtz/dol veining.	75°	Volcanics are are intensely dolomitically altered with patchy brown sericite alt'n. Argillites are generally moderately silicified. Argillites are graphitic	2% pyrite in argillite 5% pyrite in volcanics in coarse dissem, patches and bands.	
372.05 - 373.1	<HET FRAG>	gray	fine to 7cm	silty to sandy matrix (minor argillite) supports up to 40% but coarse clastic content decreases down hole. 5% patchy qtz veining with dol along fractures. Minor shear texture		Matrix is calcareous - Fe-dol, bleached, patchy brown sericite alt'n	3% dissem. py.	

HOLE NO C91-7

ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

VANCONBY STORE STORE

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
373.1-375.5.	<INTERB ARG/VOL>	black green	fine	373.1-373.65: primarily Volc. tuff, minor argillite component. argillite occurs as irregular patches and streaks in the volc. Volc. are otherwise massive, gradational contact with Het Frag.		373.1-373.65: Volc are calcareous, patchy minor brown sericite	373.1-373.65: 2% disseminated pyrite	
				373.65-375.6: primarily argillite with 5% volc? component. 15% white to gray crosscutting qtz stringers and veins. At least 2 stages of qtz veining. Veins are contorted, brecciated. Minor fault gauge.		373.65-375.6: patchy weak silicification.	5% very coarsely disseminated pyrite - barren intervals are interspersed with highly mineralized intervals.	
375.5-377.65	<HET FRAG>	gray.	fine to 6cm	silty to sandy matrix supports up to 70% clasts, clasts are angular to sub-rounded, Minor narrow zones of stretching. Clasts are 70% white, gray, pinkish qtz/cherty fragments with the remainder made up of argillite and minor sericite altered clasts.		Matrix is locally weakly sericitic	3-5% medium to fine grained disseminated pyrite.	
377.65-380.4.	<DOL VOLC>	gray	fine	intensely altered volcanic minor narrow zones of fault gauge, 5% argillite beds		moderate to intense dol alteration; patch brown sericite	2% disseminated and stringers of py.	

HOLE NO C91-9

ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
380.4 – 386.8	<HET FRAG>	gray	fine to 5cm	poorly developed heterolithic texture due at least in part to tectonism. Clasts are qtz/chert, argillite/sericite altered clasts, locally clasts appear to have been created by slippage along cleavage planes subparallel to bedding causing elongate slivers of different lithologies to be emplaced adjacent to one another. Intense sericitic, altered angular clasts can not have been moved any great distance 35% remnants of argillite and volc beds. Matrix is indistinct due to extensive alteration Foliation at Sil. Chert: 384.5 - 384.7 + 380.4 - 380.9 + <FLT Bx>	75°	Patchy silica flooding (weak) of matrix and pervasive moderate yellowish sericite alteration which gives phyllitic surfaces. 384.1 – 386.1: intense silicification of cherty? interval. Some clastic textures	Pyrite content varies between 3-10%. Pyrite is fine grained and occurs as coarse dissem, patches and bands. 382-386.1: <1% combined sp, cp, gn with total concentrations between + 384.6-386.1 + <2% sp, cp, gn> Base metals occur in white qtz.	Resembles a weak yellow/black alteration (ie qtz/ser ALT SEDS) with the exception that interval is clastic
386.8 – 389.1	<INTER B ARG/VOLC>	black gray	fine	argillite is interbedded with minor Het Frag between 387.8 - 387.9m and altered volcanics between 388.85 - 389.1 m. Bedding within argillites has been disrupted		patchy intense yellow to brownish sericite alt'n of arg. Volc are dol altered with brownish sericite and minor talc.	3% coarsely dissem pyrite.	

HOLE NO C91-9

ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				with minor tect. breccia. cleavage plane at patchy qtz veining/flooding in 3% of interval.	60			
389.1 – 391.65	<HET FRAG>	gray	fine to 3cm	matrix to framework supported; subangular to subrounded clasts; much of the clastic textures appears to be caused by movement along cleavage planes oriented clasts are predominantly qtz/chert, 10% arg, minor pyrite lithoclasts and 10% weak sericite altered clasts; matrix is pyritiferous.	65°	interval is weakly sericitically - gray to green - giving coal phyllitic texture.	7% dissem. py blebs and patches in the matrix	
				390.6 – 391.3: strongly altered argillite and Het Frag		390.6-390.9: qtz flooded and veined 390.6-391.3: moderate gray-green sericite	390.6-391.3: 10-15% pyrite.	
391.65 – 397.4	<ARG/CHT>	black gray	fine	black argillites are interbedded with ribbon cherts and cherty argillites at 393m and 397m bedding is but between 394.1 – 397.1m bedding is strongly contorted and frequently subparallel to CIA, cleavage at	80-90° 60-80°	black argillites are weakly graphitic 391.65-392.5: white qtz flooded/veined interval.	+391.65-392.8+ <3% sp, tr cp, gn> sphalerite is fine to coarse grained, coarsely dissem in quartz 10% pyrite in the same interval	394.1-397.1: possible HINGE ZONE.

HOLE NO C91-9

ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				–		393.4 – 393.9: qtz flooded veined interval	393.1: 5cm wide 1% cp, gn; 7% pyrite. {393.4 – 393.9} <2% sp, gn, cp 15% py> sulphides in qtz	
397.4 – 400.4	<HET FRAG>	gray	fine to 2cm.	similar to overlying Het Frag intervals. Clastic texture is weak – silty matrix supports up to 40% clasts but generally <20% clasts. Clastic textures become more pronounced downhole.		weakly developed sericite produces phyllitic surfaces.	2% disseim py.	
400.4 – 402.4	<ARG/HET FRAG>	black gray	fine.	Black to altered gray argillite as inter bedded with minor sandy beds and 2 Het Frag intervals of 7cm width. Minor qtz veining; 40% qtz veining and flooding between 401.8 – 402.4m. General sense of bedding	60°	Patchy moderate gray to yellow sericite alteration Yellow sericite occurs with qtz in the final 60cm of the interval	1% pyrite.	
402.4 – 405.1	<HET FRAG>	gray.	fine to 2cm.	Similar to overlying Het Frag intervals? matrix is silty. Clasts are 30% argillite, 50% qtz/chert, 20% sericitic clasts, Matrix supported		interval is weakly sericitic, patchy weak silicification	<5% pyrite; fine to coarse grained, in disseminations Trace sphalerite	May be caused in part by tectonism.

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ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				Matrix is locally pyritiferous or silicified. 10% white qtz veining veins to 8cm. Clasts are subrounded to angular				
405.1 – 423.2	<ARG TECT BX>	black gray yellow.	fine.	black argillites exhibit some tectonic breccia textures; Bedding is disrupted; Clasts include altered mafic clasts 405.1 – 405.4: moderate fault brecciation 406.1 – 406.7: silicified chert? 408.1 – 409: 70% mafic vole.		406.1 – 406.7: weak to mod. silic. if original rock was chert, very intense silic. if argillite 410.9 – 415.6 + patchy <QTZ ISER ALT> sericite is yellow, intense to moderate alteration 415.6 – 423.2: minor moderate yellow sericite alt'n.	2% coarsely disem. Py. and Py. stringers 406.1 – 406.7: minor medium grained brown sphalerite in white qtz silic. in chert?	410.9 – 415.6: weak "YELLOW + BLACK" UNIT.

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ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
423.2 - 428.1	<SIL ARG/ CHT>	black gray	fine	silicified argillite is interbedded with 20% argilliceous ribbon chert and minor coarse silt?; 5% white qtz veining and minor flooding. Veins have no preferred orientation 10% silt to sandy? beds Bedding is contorted, wk. tectonite 426.3 - 427: minor gauge		argillites are moderately graphitic locally weak to moderate silicification.	Trace sphalerite and chalcopyrite in quartz veins 1-2% stringers and disvem. of pyrite.	
428.1 - 442.8	<MIXED SEDS>	gray black	fine.	interval consists of 5% gray wacke?, 15% argilliceous and locally silicified ribbon cherts and 85% argillites laminated locally with ribbon chert or silt. Bedding is contorted, locally weakly tectonized 5% white quartz veining to 30cm with argillite inclusions, minor dol. Some quartz sweats? in chert cut by more recent qtz stringers Minor narrow gauge zones and shears.		Patchy, minor weak silicification, argillites are locally weakly graphitic; Weak sericite alt'n of wackes. Localized fine dol. growths - porphyroblastic		
442.8 - 443.9	<DOL SEDS>	gray	fine	gray silty? sediments are pervasively altered by dolomitic / feldspathic growths giving much of the core a spotted appearance.	? nodular	near gradational contacts there is patchy green brown sericite. Body of interval is weakly	Minor pyrite except +443.15 - 443.75 + <6% sp 1% gn 3% py> sphalerite occurs as both very pale brown	

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				5% white qtz patches and veinlets. Minor argillite patches. Original textures destroyed		to moderately dolomitized.	and medium brown. Sulphides are fine to medium grained coarse disseminations.	
443.9 – 454.9	<ARG/SAND>	black gray	fine.	black argillite is interbedded with siltstones and fine grained sandstone. Bedding is contorted, locally tectonically bx. Local strong foliation 15% quartz veining. Qtz veinlets exhibit minor small scale folding. – axial plane parallel to foliation. Minor cherty intervals. Principal qtz vein zones: 449.5 – 450.4 : <Qtz Vn> 80% vein material with with argillite inclusions and stylolitic sutures. 452.7 – 454.4m: 35% qtz veining. Veins contain minor feldspar, dol; Some veins well fractured. 450.6 – 451: fine sandstone contains 10% subangular quartz/chert and minor argillite clasts. to 1cm. 454.0 – 454.9: intermittant fault gauge zones. over 60% of interval.	50°	argillite within quartz veins is intensely graphitic. Weak sericite developed in faulted, sheared and tectonized zones	1% Pyrite.	

HOLE NO C91-9

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
454.9-463.9.	<SIL ARG / CHERT>	black gray	fine	black argillites are laminated by gray cherts. Bedding is disrupted by tectonism particularly between 454.9-456.3 where tectonic bx is pervasive. Cleavage plane at where bedding is undeformed it frequently parallels cleavage	75°	locally argillite is weakly graphitic Argillite is weak to moderately silicified	2-5% coarsely dissem. pyrite with local concentrations to 20%.	Two most pyritiferous intervals sampled.
463.9-477.8	<MIXED SEDS / VOLC?>	black gray	fine.	463.9-472.2: interbedded black argillites with minor cherty laminae and silt/sand stone. The coarser sediments have a greenish tint - possibly a tuffaceous component. Cleavage plane. 35% of interval is arg/chert 65% sand/tuff?. 2% qtz patches and veins 472.2-477.8: 90% argillite cherty argillite and argilliceous chert; 10% coarse seds/tuff?; Abundant small discontinuous qtz stringers Minor fault bx, Bedding is disrupted, cleavage	70° 85°	463.9-472.2: argillite is graphitic seds/tuffs is locally bleached, calcareous 472.2-477.8: argillite is intensely graphitic and mod to int. silicified.	<2% coarsely dissem. pyrite 475-475.15: 20% semi massive patches of pyrite. 477.55-477.7: 20% semi massive patches of pyrite.	

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
477.8 – 486.8	<DOL MAF>	gray	fine	pale gray altered mafic volcanics; 1% qtz/dol veins and patches. Local nodules of qtz/dol. Minor narrow fault gouge/tx zones. Contact is faulted		patchy moderate to intense dol. alteration with streaks of brownish sericite. Minor talc.	1% pyrite in coarse dissem and stringers.	—
486.8	END	OF	HO	LE.				

HOLE NO C91-9

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= tetrahedrite observed

ASSAY SHEET

Sample Number	From ( )	To ( )	Estimate Cu	Estimate Zn	Length ( )	% Cu	% Zn	% Pb	gm/T Ag	gm/T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	As ppm	Ba ppm	Sb ppm	Ag ppm	Au ppb
31314	114.5	115.53			1.03	.021	.07	.04	3.0	.14					+	207	660	359	1294		21	3.0	138
31315	115.53	115.7			0.17	.112	.24	.21	24.6	.06					+	1123	2441	2082	155		425	24.6	64
31316	115.7	117.05			1.35											41	59	101	72		7	0.7	23
31317	117.05	117.2			.15	.171	.60	.31	72.4	.28					+	1711	5989	3106	1112		734	72.4	278
31318	117.2	118.8			1.6	.020	.03	.01	5.6	.07					+	197	311	141	189		60	5.6	66
31319	120.0	120.9			0.9	.034	.09	.04	4.5	.01					+	344	889	356	105		132	4.5	3
31320	122.0	123.9			1.9											34	107	65	168		6	0.6	26
31321	175.2	176.7			1.5											118	127	111	168		1	1.0	46
31322	201.8	203.1			1.3											60	192	129	374		3	0.1	24
31323	228.0	229.6			1.6											42	143	149	23		1	0.8	13
31324	237.1	239.0			1.9											114	257	164	58		1	0.9	5
31325	243.7	245.4			1.7											141	308	128	59		1	0.8	16
31326	245.4	246.9			1.5											117	153	112	55		1	0.9	9
31327	246.9	248.5			1.6											80	113	80	66		1	0.6	17
31328	248.5	249.5			1.0											12	30	15	1		1	1.5	3
31329	249.5	250.4			0.9											7	59	179	5		1	1.5	2
31330	250.4	251.9			1.5											59	583	256	93		1	1.6	18
31331	251.9	253.4			1.5											42	66	121	36		1	1.0	4
31332	269.3	270.8			1.5											23	410	335	34		4	1.6	2
31333	270.8	272.3			1.5											22	83	116	46		1	1.0	17

HOLE NO C91-9

ASSAY SHEET

Sample Number	From ( )	To ( )	Estimate Cu	Estimate Zn	Length ( )	% Cu	% Zn	% Pb	gm/T Ag	gm/T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	As ppm	Ba ppm	Sb ppm	Ag ppm	Au ppb
31334	272.3	273.8			1.5											126	1595	253	70		1	1.0	25
31335	284.5	286.2			1.7											213	410	703	109		1	2.4	18
31336	296.5	298.0			1.5											124	449	347	88		1	0.7	66
31337	298.0	299.5			1.5	.102	.36	.16	5.1	.02					*	1015	3625	1555	126		3	5.1	19
31338	332.6	333.0			0.6	.028	.87	.39	13.3	.42					*	278	8739	3866	376		38	13.3	418
31339	352.9	353.3			0.4											61	1467	523	155		1	2.0	36
31340	353.3	354.8			1.5											65	777	301	128		1	1.6	20
31341	355.9	357.05			1.15											70	2328	812	216		14	2.4	56
31342	358.4	359.9			1.5											41	1113	563	172		4	1.9	46
31343	359.9	361.4			1.5	.012	.17	.09	3.2	.08					*	119	1721	850	193		9	3.2	82
31344	361.4	362.85			1.45	.023	.06	.08	5.0	.13					*	227	583	790	186		9	5.0	126
31345	364.3	365.7			1.4											16	284	293	60		1	0.9	1
31346	372.05	373.1			1.05											29	154	279	8		1	0.6	3
31347	373.8	375.5			1.7											168	2864	1663	96		2	2.2	18
31348	375.5	377.0			1.5											17	71	65	45		1	0.2	4
31349	381.6	383.1			1.5	.020	.06	.04	7.2	.07					*	201	584	485	446		22	7.2	65
31350	383.1	384.6			1.5	.055	.08	.07	11.2	.11					*	551	846	720	310		22	11.2	112
31351	384.6	386.1			1.5	.072	.34	.15	29.0	.08					*	721	3434	1472	415		88	29.0	84
31352	389.1	390.6			1.5											32	73	66	229		2	0.5	36
31353	390.6	391.65			1.05											66	93	204	356		8	1.0	54

HOLE NO C-91-9

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm/T Ag	gm/T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	As ppm	Ba ppm	Sb ppm	Ag ppm	Au ppb
31354	391.65	392.8			1.15	.027	1.00	.36	13.7	.05					*	266	10045	3589	396		11	13.7	46
31355	392.8	393.9			1.1	.032	.39	.18	8.0	.01					*	323	3923	1752	316		11	8.0	1
31356	393.9	395.4			1.5											18	94	65	108		1	0.6	16
31357	400.9	402.4			1.5											9	102	44	67		1	0.5	2
31358	402.4	403.9			1.5											44	77	88	125		1	0.5	20
31359	403.9	405.1			1.2											22	51	44	110		1	0.2	17
31360	423.7	425.2			1.5											27	169	111	65		4	0.9	8
31361	430.5	432.0			1.5											49	163	88	69		3	0.5	6
31362	441.3	442.8			1.5											37	75	126	40		6	0.8	4
31363	442.8	443.9			1.1	.005	.47	.30	5.9	.02					*	51	4745	3042	1		6	5.9	18
31364	455.9	457.5			1.6											47	61	55	108		5	0.2	1
31365	462.4	463.9			1.5											99	451	197	169		5	0.5	22
31366	474.7	476.2			1.5											36	79	48	76		5	0.7	17
31367	476.2	477.8			1.6											40	87	59	133		2	0.2	25

HOLE NO C-91-9

fully entered

DRILL HOLE RECORD

PROJECT NAME : CANA- SAM JV	DATE STARTED (M/D/Y): 06/02/91
HOLE NUMBER: C91-10	DATE COMPLETED(M/D/Y): 06/07/91
LOCATION : CANA	DATE LOGGED (M/D/Y): 06/04/91
PROJECT NUMBER : 247.	UNITS (F/M) : M
CLAIM NUMBER :	

PLOTTING COORDS		ALTERNATE COORDS	
	GRID :		GRID : ESTIMATED
	NORTH :		NORTH : 9+00 N
	EAST :		EAST : 126+00 W
	ELEV :		ELEV : 1075.

COLLAR BRNG		
	GRID : 180° 00' 00"	COLLAR SURVEY(Y/N) :
	ASTRONOMIC : 225° 00' 00"	RQD LOG (Y/N) :
	COLLAR DIP : -55° 00' 00"	PULSE EM SURVEY(Y/N):

CONTRACTOR : FRONTIER	LOGGED BY : C. NAGATI
CORE STORAGE : SAM Ex CAMP	START DEPTH: 0.0
CASING : PULLED	FINAL DEPTH: 397.2
PLUGGED (Y/N) : N.	
HOLE SIZE : NQ	

PURPOSE/COMMENTS :

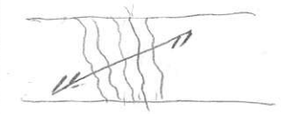
FILL IN ON LOWER SAM HORIZON

DIRECTIONAL DATA: A = Acid Test, L = Light Log, M = Multishot, T = Tropari

DEPTH (m)	TYPE A/L/M/T	ASTRONOMIC AZIMUTH	DIP	FLAG	COMMENTS
185.0	A	—	-56	OK	
236.8	A	—	-55	OK	PARTIAL ETCH.
243.8	A	—	-57	OK	
313.0	A	—	—	—	BAD ETCH/BROKEN
352.7	A	—	-52	OK	
382.2	A.	—	-52	OK	

HOLE NO. C91-10

LOGGED BY C. NAGATI

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
0.0 - 90.5	<CSG>							
90.5 - 101.	<ARG/SILT/ WACKE>	black gray	fine.	sediments are finely bedded. Bedding at. local weak foliation at (eg 98m); Tops are uphole indicated by graded bedding Bedding is locally weakly contorted - Axial Plane parallel to C/A. Minor qtz veining. Core is very blocky local fault bx and gauge zones between: 91-91.5m, 95.9-96m, and 100.3-101m	75° 40°	argill.te is weakly graphitic in faulted intervals.	Trace pyrite.	 CLEAN H/W SEDIMENTS
101 - 103.7.	<SER HET FRAG> "sericitic heterolithic fragmental"	gray yellow.	fine.	Clast content varies between 1-20%. Clasts are subangular to subrounded. Clastic texture likely due to tectonism. Clast composition consists of qtz/chert and argillite (<10%) near upper contact.; local weak to moderate fault bx. Clastic texture is intermittant, Minor fractured chert?		pervasive weak to mod yellow sericite, patchy moderate silicification	3% fine to coarse grained pyrite dissem and blebs	102.1-104.5: 90% core recovery.
103.7. - 146.5	<QTZ/ YEL SER SEDS>	yellow gray	fine	intensely altered sediments generally destroys original textures. Some zones contain less sericite and appear to be more		intense yellowish gray to mustard sericitic alteration pervasive through interval except as noted below. 25% white	10% very fine grained pyrite disseminated throughout, In vicinity of some quartz veins pyrite occurs as semi-massive patches or	105.8 - 108.8: 80% core recovery 108.8 - 109.7: 33% recovery 109.7 - 111.6: 63% recovery 111.6 - 114: 73% recovery 114 - 116.4: 6% recovery — triconed.

HOLE NO C91-10

PAGE 2

ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				siliceous – altered arg. chert??. Core is very blocky to 129.3m and includes strongly faulted intervals. Principal fault zones: +108.5 – 111.2+ intense, pervasive <FLT Bx> minor gauge. +113.1 – 113.7+ <FLT GOUGE> +130.7 – 137.2+ <FLT GOUGE> – contains intervals of sheared core, foliation at. 125.8 – 126.2: dark gray chert	65°	quartz veins, veinlets and patches and some flooding. Some late stage? qtz veins to 20cm out core. Other veins, sweaty, flooding commonly have diffuse margins. 118.4 – 128.8: 15% massive white qtz veins / flooding which stands out from host rock and which is associated with pyrite concentrations. 133.7 – 134.8: core is locally a faulted black silicified argillite.	discontinuous stringers. 124.4 – 125.8: 15% fine grained pyrite patches.	120.5 – 124.6: core has similar appearance to an altered felsic volcanic which has been intensely sericitized - LITHO taken.
146.5 – 171.7	<SER/DOL ALT SEDS /ARG>	Shades of gray, black	fine.	Interval has gradational 'contacts'. Interval is is distinguished from adjacent intervals by style and degree of alteration. 10% laminated (locally dol) argillite patches to 1meter thickness are found in sericitically, dol. altered seds +/- minor volcanics. Bedding is		alteration is predominantly weak to moderate gray sericite and dolomitization which grades into and out of black argillite with dol silty laminae and zones of yellow qtz / sericite alt'n. 167.8 – 168: moderate fuchsite alteration	Pyrite content reaches 20% over 5cm widths; overall content 5%. Pyrite is most abundant in sericitically altered rock.	

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ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				Chaotic, some tectonic brecciation. <5% white quartz veining 157.2-159.8: intermittent narrow fault bx/gouge zones.		and intense dol associated with qtz veins — altered volc?		
171.7-184.	<QTZ/YEL SER ALT SEDS>	yellow gray	fine.	as in interval 103.7-146.5 except that there is a minor amount of black argillite and the qtz and sericite is more banded. Foliation	70°	intense qtz sericite alt'n.	5-10% fine grained disem. py in sericite.	
184-187.5	<CHERTY ARG>	black gray	fine	black arg is laminated by gray chert bands. Bedding is chaotic, locally tectonized; Cleavage 7% patchy white qtz veining and stringers. Some stringers exhibit small scale folding. 1% dolomite stringers and veinlets which are also contorted.	60-90	minor graphite; weak gray sericite patchy weak to moderate silicification, weak dolomitization of some laminae.	1-3% very fine grained patches of pyrite. Minor brecciation of pyrite by qtz stringers.	
187.5-190.	<SER SEDS? FLT Bx>	yellow gray.	fine	intensely altered seds which grade into black argillite in final 20 cm of interval.		rock is pervasively and intensely altered to yellow sericite	2% disem. pyrite.	

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ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				Interval is strongly faulted brecciated and sheared with abundant fault gouge 12% quartz veining and clasts. Principal vein intersection 188.9-189.2m.				
190-190.7.	<SER/DOL VOLC?>	gray yellow	fine	intensely altered volcanics in which original textures have been destroyed		Patchy moderate yellowish sericite and gray dolomite alteration, minor fuchsite.	4% fine grained dissem. pyrite.	This unit is very similar to the overlying interval but with slightly darker coloration, particularly towards base of unit. - Possibly the units are derived from same proto lith.
190.7-191.4.	<SIL ARG>	black	fine.	black argillites are cut by numerous qtz/dol stringers and veinlets; 190.7-191m fault bx zone.		patchy weak to moderate graphite. pervasive weak silicification.	1% fine grained dissem. pyrite	
191.4-195.1	<DOL/SER VOLC>	gray green/brown	fine	Intense alteration destroys original textures Minor argillite inclusions, Minor qtz/dol stringers. Minor narrow gauge		Pervasive intense dolomite alteration and patchy to pervasive moderate green/brown to gray sericite	3-5% fine grained dissem inated pyrite concentration increases downhole.	

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ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				Zones.		Minor fuchsite.	194.8 – 195.1 : 10% pyrite.	
195.1 – 197.3	<SIL ARG FLT BX>	black	fine	black argillite extensively cut by quartz veinlets and stringers. Two ages of qtz veining. Late stage veining fills tension fractures. Interval is moderately fault brecciated with minor fault gouge		argillite is moderately graphitic, weakly silicified.	1% disem pyrite.	
197.3 – 200.8	<DOL/SOR VOL>	gray green/ brown	fine	core is similar to that in the interval 191.4 – 195.1m. except that +199 – 200.8+ intense <FLT GOUGE> and bx.		as in 191.4 – 195.1m	2% fine grained disem. pyrite.	
200.8 – 203.	<ARG FLT GOUGE>	black	fine	intensely faulted argillite, 15% fractured white qtz veining. 10% of interval is grayish clay possibly derived from volcanics		moderate graphite	2% pyrite except in some qtz veins/clasts where semi massive pyrite can occur. +201.35 – 201.47+ <40% py, tr gn> in siliceous/vein interval.	
203 – 208.7	<ALT. ARG/ VOL/HET. FRAG>	black gray	fine to 2cm.	black argillites comprise 30% of interval, Het Frag makes up 8% of		argillite is weakly silicified; volcanics are intensely altered	2% fine to med grained disseminated pyrite in	

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ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				interval, 62% strongly altered volcanics?; argillite is silicified by numerous small qtz stringers. Bedding is indistinct, intense alteration of volcanics? destroys original textures. Foliation at Het Frag occurs between 203 - 203.3m and 208.2 - 208.6m. Uppermost Het Frag is sheared in a continuation of the overlying fault zone. Lower Het Frag consists of elongate clasts of qtz, argillite and sericite in a qtz/sericite matrix - possibly tectonic in origin; Narrow fault gauge zones; 204.5 - 206.6 : 25% massive fractured white qtz veining. Local dolomite up to 30%; Some veins are weakly vuggy. Minor white clayey alteration - after feldspar?	55°	to a banded green sericite alternating with gray qtz +/- dol veinlets. which are locally brecciated. Locally sericite is a pale yellow. Minor tale.	argillite and Het Frag. <5% pyrite, disem and stringers in alt. volc?. 5% pyrite in lower Het Frag.	

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ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
208.7 -213.3	<DOL/SER VOLC?>	gray green/ brown	fine	intense alteration has destroyed all original textures. 15% white to gray qtz/dol (90/10%) veining and lenses. The majority of the vein material occurs between 212.-213.3 (30%) Minor argillite remnants present. Minor gouge.		Pervasive intense dol. alt'n which is banded by brownish sericite; Minor talc and fuchsite?	2-3% very fine grained disseminated py Some coarse disseminations in veins. Veins are associated with minor amounts of base metals, except ⊣212-213.3⊢ <<2% gn, cp, sp> which are fine grained and occur in coarse to fine disem. in qtz veins.	
213.3- 214.7.	<HET FRAG>	gray black	fine to 3mm.	tectonically derived? Het. frag. Clasts are subangular to rounded. Clasts are comprised of quartz, argillite, and sericite and trace pyrite lithoclasts. Matrix is argilliceous. Minor narrow fault gouge zones. Gradational contact with underlying unit.		Some clasts (volc?) are intensely sericite altered. Matrix is weakly altered to gray sericite.	3% fine grained disseminations and blebs.	
214.7- 219.2	<SER/DOL SEDS>	gray black	fine	214.7-217.4: interbedded argillite and siltstone? Foliation (bedding?) at 70-85° Seds contain irregular		214.7-217.4: Intense patchy dol. alteration Minor weak silicification of argillite Patchy weak to	214.7-217.4: 2% coarsely dissem py.	

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				white to gray qtz/dol veins, patches and flooding 217.4–219.2: intense alteration destroys original textures; granular minor qtz/dol veinlets.		moderate gray/brown sericite banding. 217.4–219.2: intense dol. alteration Patchy minor, brown sericite alt'n.	217.4–219.2: 1% disem py.	
219.2–262.1	<HET FRAG>	gray	fine to cobbles	silty matrix supports clasts ranging in size from 1mm to cobble size. Clasts are comprised of quartz, argillite and altered volcanics. Clasts are angular to subrounded and can make up 70% of the volume. Het Frag is locally interbedded with other seds – arg, silt, wacke and possibly volcanics (may be boulders), minor pyrite lithoclasts. Principal interbeds of sediments are: 220.4–221.7: Silt/Wacke upper contact is gradational; lower contact at a silicified Het frag 237.5–238.5: intermixed altered seds with black argillites.		Core is pervasively weakly weakly altered to gray sericite. Local alteration includes weak to moderate patchy dol; local yellow sericite of some sed. beds and clasts; Minor moderate silicification 220.4–221.7: core is dol altered with weak gray sericite alt'n 237.5–238.5: 90% of interval is intensely yellow sericite	Pyrite content is variable but is generally in the range 2–5% which occurs as fine to med. grained disseminations and blebs. Concentrations occur between: +224.9–225.3+ <25% py> 225.8–4cm silicified zone with 1% gn, 3% sp 227.15–227.4: <1% sp, gn coarsely disseminated in silicified core. +222.6–222.9+ <3% sp, gn, min tt, 2% py> sp, gn, tt are very fine grained. Mineralization is associated with silica.	237.5–238.5: "Qtz/Ser Seds."

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ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				253.1-254.35: gray highly altered volcanic? appears to have some washed out cataclastic texture. The interval contains relatively little quartz veining (<3%) except between 245.3-247.6m which contains 15% veins.		altered seds banded by grayish qtz veinlets/patches. 253.1-254.35: moderate dol alt'n, weak silicification, moderate gray to green sericite.	245.3-247.6: qtz veins are barren and side of 1% pyrite. 255.6 - patch of quartz containing minor cp, sp, gn in a single patch.	
262.1-269.8	<SER ALT SED>	black gray yellow.	fine.	black argillite is banded with yellow to gray sericitically altered seds (finer is prevalent) Minor qtz veinlets and stringers. Minor fault gouge. Bedding plane is locally chaotic but foliation due to banding (after bedding?) is at 70° 264.25-264.7: argilliceous <CHERT>		Patchy intense yellow sericite alteration, Minor gray sericite	1% dissem. pyrite	Typical "Yellow and BLACK".
269.8-273.45	<HET FRAG>	gray	fine to sem.	similar to the Het frag at 219.2-262.1m except clasts are smaller and		weak sericite (gray) formation causes phyllitic partings.	3% dissem. pyrite.	

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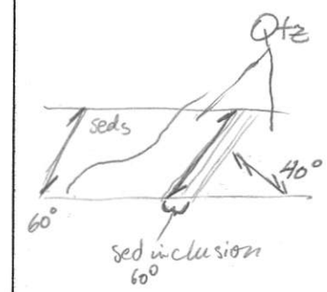
ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				sericitic clasts are less abundant.				
273.45-278.8.	<ALTERED SEDS>	black gray	fine.	protolith is primarily argillite with silty interbeds Bedding is contorted with some tect. brecciation Local bleaching of core 5% qtz veining and patches 277.9-278.3: interval of intense tectonic bx; clasts primarily qtz. 278.3-278.8: white to gray intensely fractured chert?		Core has been wk to intense patchily dolomitized which washes out textures. Small intervals of moderate to intense yellow sericite alteration. very fine grayish sericite alteration common.	Trace cp in qtz veins. 1-2% very fine grained, coarse to finely dissem pyrite	
278.8-337.4	<QTZ/SER ALT SED/ ARG>	black gray yellow	fine.	black argillite is banded by intense yellow sericitically altered sediments Bedding within argillite is contorted; cleavage offsets bedding. Banding of sericite and argillite also oriented at Core is generally competent with local narrow fault gouge zones. Abundant (20%) white qtz veining. Veins are massive to fractured. Some veins	65° 65-70°	60% of interval is strongly qtz/sericite altered. Alteration is generally intense. But at 328.3-337.4 m yellow sericite alteration weakens and becomes more patchy as alteration grades into that of the underlying unit.	1-3% fine grained disseminated pyrite	Typical "YELLOW AND BLACK" texture

HOLE NO C91-10

ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				contain argillite or sericite inclusions / stylolites.				
				281.3 – 281.6: qtz vein with brilliant green fuchsite? along fractures and inclusions. Strong silicification and veining in vicinity of vein.				
				302.1 – 302.4: white qtz veining with cleavage which is opposite the sense of cleavage / foliation in the seds at	40° 60°			
				{302.4 – 303.8} <CHERT?> weakly laminated with sericitic partings. Possibly an intensely silicified zone.				
				316.8 – 317.4: qtz vein				
		Should this be 320.2 – 320.6?		120.2 – 120.6: moderately altered to fault gouge.				
				323.6 – 324.1: intermittent narrow fault gouge zones.				
				330.4 – 330.88: 60% qtz veining and silicification.			330.4: 1% coarsely disem. galena, 5% pyrite in a 5cm wide zone in a sericite/qtz altered H/W to a qtz vein.	
							330.45 – 330.63: <1% combined fine grained coarsely disseminated sp, gn, 5% py.	
							{331.63 – 331.88} <8% sp, gn, cp, 20% py>	

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ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				333.2 - 333.5: intense fault bx in gauge matrix weak faulting and gauge in vicinity.			6% sphalerite is fine to med. grained, coarsely dissem. 2% combined gn, cp. coarsely dissem. gn > cp ; < 1% medium grained arsenopyrite Pyrite is fine to medium grained, coarsely dissem to semi-massive.	
337.4 - 351.2	< QTZ/SOK ALT SED?>	gray	fine	interval is pervasively altered Banding where visible is weakly to strongly contorted. Banding is locally subparallel to C/A. Interval may be a hinge zone. Interval contains 10% late stage white qtz veining. Interval has gradational contacts +346.5 - 346.6+ intense < FLT. GOU> 346.6 - 347.8 : fractured qtz vein with sericitic altered inclusions. +347.8 - 348.2+ < FLT BXX>, and gouge.		patchy wk to mod dol. alteration patchy silicification/ veining; pervasive moderate to intense sericite alt'n. sericite is gray to greenish., minor yellow sericite sericite becomes darker to green-brown down hole, toward base of interval. - Rock may have a volcanic component.	< 4% fine to coarse grained pyrite occurring in patches, bands and disseminations. +348.5 - 348.6+ < 20% py > fine to med. grained; semi-massive to coarse dissem.	Original textures are totally destroyed by intense pervasive alterations. When lithologies change is a subjective decision.

HOLE NO C91-10

ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				{350.4 - 351.2} <FLT Bx> in moderate gauge matrix				
351.2 - 370.1	<ALT. TRANS ZONE>	gray black white	fine	40% of interval is black argillite, silicified argillite, 55% altered volcanic tuffs? and some 5% wacke? Bedding is disrupted. Foliation at. Up to 20% white to grey veins, patches and clasts of qtz. {352.3 - 353.3} <FLT Bx, Gou> interval includes brecciated qtz vein. which is partially healed {358.2 - 358.4} <HOT FRAG> Clastic texture likely caused by tectonism Elongate clasts of qtz, sericite, argillite comprise 45% of interval 359.4 - 359.6 : fault bx and gauge; 361.4 - 361.7 : fault bx and gauge	60°	locally argillites are weakly silicified except 361.9 - 362.4 m where there is intense veining and silicification. Tuffs? locally contain abundant dolomite growth nodules / porphyroblasts growing over textures. Volc. are intensely dolomitic with patchy brown sericite and lesser amounts of talc.	Pyrite content varies over range 1 - 10% with some local qtz / brown sericite intervals associated with <25% semi massive pyrite patches. Pyrite also occurs as fine dissem through bands. Minor base metals in interval. BM are concentrated on margins of gray qtz veins. {358.4 - 361.3} <10% py> associated with qtz veins and flooding 363.3 m: 3cm wide siliceous zone with 20% BM. sp > cp > gn BM are fine to med. grained coarsely dissem. 359 m: 2cm wide with 10% sp, gn, cp 2%	This interval grades into thicker sequences of tuff and argillite indicated by the intervals below

HOLE NO C91-10

ZIPPY PRINT ® — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
							arsenopyrite	
370.1- 372.5.	<ARG TECT BX>	black gray	fine	Black argillite contains 20-40% tectonized white to gray cherty? fragments, Minor competent but contorted quartz veinlets. Bedding destroyed, Cleavage ~5% altered volcanics Minor gauge, lower contact is fault gauge.	55°	Some gray sericite and clay	5% fine to med. grained pyrite diosem, patches and wisps.	
372.5- 377.2	<MIXED ALT. VOLC/ SED>	gray brown buff	fine	interval is largely altered but some remnant argillite patches present Some core appears to be an altered wacke but appearance may be due to alteration. 3% white to gray dol/qtz veinlets.		pervasive intense dol; weak to mod. patchy gray to brown sericite giving phyllitic surfaces. 377.0 - 377.2: moderate silicification	2% fine to coarsely diosem. py 377-377.2: 12% fine grained, coarsely diosem pyrite and pyrite patches.	
377.2- 385.9.	<SIL/PY ARG>	black white. brass.	fine	black argillite has been flooded by quartz which forms a stringer stockwork. Stringers and patches are discontinuous Quartz stringers are commonly fracture infilling		argillites are pervasively moderately to intensely silicified. Argillite is graphitic - particularly in faulted intervals.	fine grained, semi-massive patches and stringers of pyrite are common throughout 15-20% pyrite overall but local concentra-	

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FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
				Core is blocky throughout †382.7 – 385.9† intermittant <FLT Bx> with minor gauge			tions to 40% over 10 cm. Some pyrite appears to have been brecciated and deformed to wisps.	
385.9 – 397.2	<ARGL/SILT>	black gray	fine.	Interval consists of 50% argillite, 50% altered silty seds. When argillite is silicified it contains abundant discontinuous qtz stringers as in the overlying interval. Bedding is weakly contorted to tectonically bx (minor) Small scale axial planes oriented at low angles to C/A General sense of bedding <5% white to gray qtz veins and veinlets. Core is not quite as blocky as above. †394.8 – 397.2† intermittant weak to moderate, <FLT Bx, Gou>	0-20° 65°	argillite is moderately graphitic. Between 386.9–387.06 m and 389.3 – 391.4 m argillite is moderately silicified. Coarser silts are weakly, sericitically altered. Minor dol. alt'n and talc.	Pyrite is fine to med. grained and occurs as coarse disem. patches, and bands. Concentrations to 5%, overall content 3%	
				END OF HOLE				

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ASSAY SHEET

Sample Number	From ( )	To ( )	Estimate Cu	Estimate Zn	Length ( )	% Cu	% Zn	% Pb	gm/T Ag	gm/T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	As ppm	Ba ppm	Sb ppm	Ag ppm	Au ppb
31370	118.4	119.9			1.5	.007	.01	.01	5.2	.24					*	69	128	120	536	25	37	5.2	240
31371	124.4	125.8			1.4	.014	.01	.14	12.7	.39					*	140	63	141	1945	38	66	12.7	391
31373	201.35	201.47			.12	.023	.08	3.74	87.5	.87					*	229	762	37440	936	30	165	87.5	870
31374	204.5	206			1.5	.004	.01	.02	1.4	.02						35	47	199	50	61	3	1.4	16
31375	212.0	213.3			1.3	.084	.41	.24	5.5	.03					*	841	4141	2388	206	52	16	5.5	28
31376	213.3	214.8			1.5	.014	.05	.04	1.4	.03						144	519	397	71	76	1	1.4	28
31377	224.8	226.4			1.6	.008	.16	.07	2.5	.02						79	1615	652	88	33	15	2.5	19
31378	226.4	227.9			1.5	.004	.09	.03	1.8	.02						35	941	330	23	34	1	1.8	15
37379	222.6	222.9			0.3	.107	.19	.14	11.5	.04					*	1066	1905	1448	168	28	588	11.5	38
31380	222.9	224.1			1.2	.052	.09	.09	6.0	.01					*	519	863	926	78	40	274	6.0	14
31381	245.3	246.3			1.0	.003	.01	.01	0.8	.01						29	77	80	42	68	6	0.8	4
31382	246.3	247.6			1.3											18	55	74	48	58	1	0.8	7
31383	255.1	256.6			1.5											228	391	228	72	48	14	1.7	21
31384	256.6	258.2			1.6											38	106	192	45	53	1	0.9	4
31385	328.8	330.3			1.5											97	212	235	311	54	3	1.0	36
31386	330.3	331.63			1	.028	.09	.11	2.4	.09					*	284	943	1092	647	54	12	2.4	86
31387	331.63	331.88			.25	.129	1.52	.74	21.8	.58					*	1291	15158	7449	6692	48	160	21.8	584
31388	331.88	335.0			1.5	.005	.03	.02	1.0	.02						51	329	204	172	64	5	1.0	18
31389	333.5	335.0			1.5											59	135	116	95	71	2	0.5	24
31390	355.7	357.5			1.5											21	97	151	70	98	4	0.5	2

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ASSAY SHEET

Sample Number	From ( )	To ( )	Estimate Cu	Estimate Zn	Length ( )	% Cu	% Zn	% Pb	gm/T Ag	gm/T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	As ppm	Ba ppm	Sb ppm	Ag ppm	Au ppb
31391	357.2	358.9			1.7											31	47	131	123	78	3	0.1	19
31392	358.9	360.2			1.3											152	269	243	782	72	9	0.9	58
31393	360.2	361.7			1.5											63	37	89	345	83	7	0.1	29
31394	361.7	363.2			1.5											28	55	95	73	105	3	0.7	10
31395	363.2	364.7			1.5											311	464	288	388	101	3	1.7	16
31396	368.6	370.1			1.5											101	127	117	742	121	6	1.1	44
31397	377.0	378.5			1.5											333	602	583	793	65	32	2.8	73
31398	378.5	380.0			1.5											124	367	75	117	130	28	1.5	12
31399	380.0	381.5			1.5											147	3022	190	853	54	108	2.1	127
31400	381.5	382.9			1.4											83	221	79	426	105	50	2.3	44
31401	382.9	384.4			1.5											87	103	136	207	179	19	1.5	40
31402	384.4	385.9			1.5											175	231	159	178	216	16	1.8	24

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LITHOGEOCHEMISTRY

Column:				1	2	3	4	5	6	7	8	9	12	13	16	17	18	19	20	22	23	24	25
SAMPLE NUMBER	From	To	Length	SiO_2	Al_2O_3	CaO	MgO	Na_2O	K_2O	Fe_2O_3	MnO_2	TiO_2	Cu ppm	Zn ppm	Au ppb	Ba ppm	Ag ppm	Pb ppm	P_2O_5	S %	Total %	As ppm	Sb ppm
31372	121.0	124	3.0	80.79	7.97	.27	.47	.11	1.84	4.35	.01	.63	139	165	310	30	13.5	114	.01	.19	96.67	1264	83

Hole No. C-91-10 Entered by _____ Logged by _____ Page No. 1