

GRID Anomaly E HOLE NO. CGGC-5 COORDINATES L11+800E 9+696.5N

BEARING 045° Az ANGLE -50° DEPTH 380'

FROM	TO	DESCRIPTION	SAMPLE NUMBER	ASSAY	
				Au	Ag
0'	10'	0074N		PPb	PPm
14'	31'	<u>HYDROTHERMAL BRECCIA H.B.</u>			
		14'-16': broken - light brown rusty clay rich material - calcareous.			
		16'-18.5': 50% recovery. Intensely limonite fractured block of prominently flow-banded QP - very siliceous - occasional pyrite blebs. latter portion of this section consists 50% of fragments within a dried, white granular clay			
		18.5-19" fine black matrix H.B. - clasts of intensely flow-banded QP - siliceous			
		19'-20': light brown rusty - dried clay			
		(17'-21.5')	053612	< 5	
		20'-31': fine black matrix H.B. clasts to 7cm. of essentially highly flow-banded QP. larger clasts fractural with limonite. flow foliation consist of banded milky white and gray Qtz. Very siliceous			
		(21.5'-26.75')	053613	< 5	
		25'-26' - thin veins + spotty replacement of amethyst in QP. clasts. Several larger clasts consist of milky Qtz. Veinlets. Only a few original Qtz. eyes remaining - no foliation.			
		(26.75'-31')	053614	< 5	
		27' - minor amethyst replacements			
		27.5'-31' - larger clasts of QP. foliation faint - very siliceous. Surface oxidation fades out at 31'			
31'	365'	<u>DIYCRITIC PYROCLASTIC - lapilli ash tuff</u>			

FROM	TO	DESCRIPTION	SAMPLE NUMBER	ASSAY	
				Au	Ag
31'	86.5	A dark gray matrix supports tuffaceous fragments of rather fine grained Qtz. Leds. rhyolite flows. Carbonaceous rich material and occasional gray Quartz. Lenticles. Fragments consist of altered QP - some of a pinkish hue (perhaps K. apm) and others blackish. Core is siliceous with occasional pyrite blebs.		1Ph	1Pm
		80'-86.5': Matrix abruptly darkens at 80'. Coincident with minor veinlets of amethyst. Q. Ind. similar veinlet at 91'. Occasional large lenticles of carbonaceous material. (80'-85')	053615	<5	
		81'-84.5' - Strong sericite act. of QP. Clasts.			
		86'-86.5' - Siliceous milky white. intensely flow-banded QP Lenticles			
		86.5' - a 3" section of greenish white clay (smectite).			
86.5'	91'	<u>HYDROTHERMAL BRECCIA - H.B.</u>			
		A large block of flow-banded pinkish quartz QP - cut by numerous thin Qtz. and Qtz. Carbonate H.B. veinlets (85'-91')	053616	<5	
		89' - an irregular contact with a carbonaceous rich section of H.B. Interestingly to note that the matrix of the above noted H.B. veinlets is of similar material.			
		Amethyst veinlets at 87½ and 89' - The entire section is somewhat calcareous.			
91'	99'	<u>CARBONACEOUS (CROSS BANNED UNIT) minor H.B.</u>			
		Irregular thin Qtz. Carbonate veinlets -			

FROM	TO	DESCRIPTION	SAMPLE NUMBER	ASSAY	
				A _u	A _g
		Below section of minor H.B. features - most prominent near 99' - where a 1 cm. band of H.B. cuts core at an acute angle. This same material is seen in ash to leucite zone within the hydrothermal breccias and at times as foreign fragments within WP lapilli. This unit may be a pure large - and therefore of juvenile and accessory origin.		0.06	0.00
		94' - a 5 cm. irregular patch of fine pyrite (5%) with scattered small white qtz.			
		(91'-95 1/2')	US3617	37	
99'	118 1/2'	<u>HYDROTHERMAL BRECCIA - H.B. (HETEROLITHOLOGIC)</u>			
		A well developed H.B. with fragment fine 4-6 cm. and larger, supported by a siliceous fine grained dark matrix. Fragments are made up disproportionately of strongly flow banded WP. Also present: gray qtz - lapilli ash tuffs - occasional calcareous chert and small fragments of the carbonaceous unit. No oxide speckles + hematite - none along thin fractures. Various calcareous - but consistent.			
		(95 1/2' - 100 1/2')	US3618	< 5	
		99' - 113' - many flow banded WP fragments have a light peach-pink hue - others a greenish cast.			
		(100 1/2' - 105')	US3619	< 5	
		102 1/2' - a 5 mm green fluorite vein - 70°C			
		104 1/2' - 106' - an intact lapilli ash tuff block - not breached by hydrofracture brecciation.			
		113' - 118 1/2' - foldings of greenish fine Amethyst - thin veins: 108' - 50°C / 109' - 60°C			
		112' - 60°C	(106 1/2' - 111 1/2')	US3620	> 5

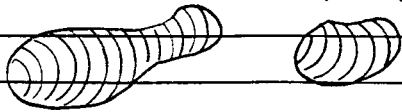
FROM	TO	DESCRIPTION	SAMPLE NUMBER	ASSAY	
				A _u	A _g
			(111 1/2 - 117 1/2)	053621	> 5
118 1/2'	123 1/2'	RHYOLITIC PYROCLASTIC - lapilli ash Tuff			
		lapilli consist essentially of lightly flow banded QP, which appears somewhat flattened in a preferred direction giving the rock a foliated appearance. The matrix in general and in particular the lapilli lithics have a greenish hue. Some separate fractures at 60° CA are clay rich. Scattered thru-out are carbonaceous lithics not exceeding 5mm. Color is relatively siliceous.			
123 1/2'	128'	H.B. HYDROTHERMAL BRECCIA (Heterolithologic)			
		Section begins with a hydrofractured tuff to a 6" carbonaceous fragment at 124 1/2' - displaying thin Qtz. plus Qtz. carb. veinlets			
		125 1/2' - Significant fine pyrite along fracture. The remaining section to 128' is of flow banded QP - cut by irregular & ductile matrix hydrothermal breccia veinlets.			
		126 1/2' - Clay seam at 60° CA. Co no. of larger QP lapilli appear to be collectively silicified - obliterating the flow-banded texture.			
		Flow banding within QP lapilli varies between a greenish to light peach-pink hue. The section is significantly calcareous - plus pericitinck.			
		Amethystine replacement section at 126 1/2'	(123 1/2 - 128')	053622	< 5

FROM	TO	DESCRIPTION	SAMPLE NUMBER	ASSAY	
128'	142'	<u>RHYOLITIC PYROCLASTIC - lapilli ash Tuff</u>			
		Essentially as 118 1/2' - 123 1/2' - The WP lithics are particularly coarse notable in their Olive-Green coloration. During drilling this section produced a distinct green tinted water return - strong devicic alt. - noted also coarse cells of QP lapilli of a white-gray color - very distinct but thin & few in number - also spherulites.			
		133 1/2' - General well rounded carbonaceous lithics.			
142'	158 1/2'	<u>HYDROTHERMAL BRECCIA (Heterolithic)</u>			
		Irregular anastomosing bodies plus small veins and veinlets of dark matrix H.P. penetrate large blocks of intensely flow banded QP. Other small fragments include gray Qtz., what may be a fine grained tuff and a strange foliated block at 152 1/2'. QP generally has a peach-pink hue - although some smaller fragments within the breccia are slightly green. Calcareous throughout. Very siliceous generally. Strong clay alteration from 142' - 143' and 154 1/2' - 158' - with a pyrite increase at the latter interval.			
		143' - Amethyst - clay hemat 60° CA			
		144' - " " " "			
		144 1/2' - " " " "			
		145' - Amethyst vein - 65° CA			
		146' - Amethyst " - 65° CA - outer edges			

FROM	TO	DESCRIPTION	SAMPLE NUMBER	ASSAY	
				A ₂	A ₃
		White Qtz. with pilitz interior (banded). Flow banding within WP is normal to the above veinlet - appears pilitized by milky white Qtz. up to 5 cm. thick.		PPb	PPm
		147' - Amethyst veinlets - 65° CA (142' - 147 1/2')	053673	6	
		148' - Thin H. brecciation along a flow banding plane - also a section of a jig-saw pattern H. breccia.			
		148' - Amethyst - 70° CA			
		148 1/2' - " - 45° CA - also thin-dark matrix H. breccia veinlets			
		150' - Amethyst - definite replacements of previous Qtz. Phenocryst in RP.			
		152 1/2' - 153 1/2' - Intermittently (147 1/2' - 152 1/2')	053674	< 5	
		Carbonaceous and gray micaceous - foliated unit - itself permeated and surrounded by H. breccia.			
		154 1/2' - Amethyst			
		156 1/2' - Milky-white Qtz. veinlets			
		157' - Short section of intense white Qtz. replacement of WP - flow banding obliterated. Upon splitting - malachite noted along fractures - microscope shows a fine gray mineral			
		157 1/2' - Ben 8 cm. section of intense brecciation (gravelly) - clay rich. (152 1/2' - 158')	053675	9	0.13
		157 1/2' - 158' - Grains of hematite material in H. breccia.			
158 1/2'	173 1/2'	RHYOLITIC PYROCLASTIC - lapilli: Pumice Ash to SS			
		Lapilli: pumice and WP fragments set in a dark crystal matrix. WP lapilli are very glassy with no foliation evident. Only minor randomly scattered ash			

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		to small lapilli of the carbonaceous unit are present. Not actually siliceous except for fine lapilli - Non-calcareous other than for a few thin rock fragments			
172'h	317'	H.B. - HYDROTHERMAL BRECCIA (BRECCIA continuum)			
		<u>BRECCIA 1A:</u> Initial hydrofracture of Q.P. forming an intense micro-fractured crackle breccia. Many of the fragments are rounded - perhaps due to minor attrition and/or hydrothermal processes. Fractures are healed by a clear gl. This breccia type is a minor component of this section.			
		<u>BRECCIA 1B:</u> Complete silicification of 1A type - obliterating the individual fragments, but leaving a discrete pattern of a gray micaceous appearing mineral.			
		<u>BRECCIA 1C:</u> Silicification of 1A and possibly 1B to create a very fine grained matrix supported monolithologic hydrothermal breccia			
		<u>BRECCIA 1D:</u> ACCRETIONARY lapilli H.Y. BRECCIA? - Formed from a late stage channelled fluidization vent (Cindy L. Williams of Mount Ex.). Round to oval shapes			

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		Not exceeding 3mm. in diameter - set in a tray to clear Qtz. Carbonate matrix.		
		<u>BRECCIA #2 : MOUND TO HETEROLITHOLOGIC</u>		
		This appears to be the final breccia event - cutting all of the above breccias in the form of minor veins and veinlets to irregular fractonous lines.		
		the above temporal sequence of hydrothermal brecciation is very complex and is simply my initial attempt to understand this section. In many instances the fragments consist of thin veining - evidence for fluid flow.		
		Pyrite and hematite are present from 173 1/2' - 245'.		
		<u>173 1/2 - 245'</u>		
		A section of hydrothermal brecciation and ubiquitous pyrite - varying locally, but overall at about 1%. Hematite consistently present, calcareous thin-cut and moderately siliceous.		
		173' - 120' - 1B and #2 type breccias - a block of strongly foliated QP at at 174 1/2'. At 178' - a 6cm. section of brecciated carbonaceous unit in a #2 type breccia. At 178 1/2' type 1B breccia displaying irregular to circular replacements by Qtz. to Qtz. Carbonate - at times rimmed by pyrite. Minor		

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				A _u	A _g
		instance, a thin pyrite band was included in the sequence.		PPb	PPm
			(194'-199') US3630	17	0.08
		199 1/2 - Strong fluid flowage textures - dark carbonaceous material thru-out - to 3mm. Hematite very noticeable in matrix.			
		201' - Nice breccia flowage textures - carbonaceous material.			
		202' - Strong micaceous in pyrite.			
		202 1/2 - Minor white qtz. inlets.			
		The irregular to rounded nodules no longer present - more hematite sparsely in the matrix - increase in carbonaceous material.	(199'-204') US3631	92	0.29
		<u>206' - 245' :</u>			
		Previous 1B type hydrothermal breccia disrupted by a mass to heterolithic #2 type. The monolithic breccia is simply a matrix rich fluid disruption of the 1B type breccia. The latter breccia has well disseminated hematite - but is difficult to see because of a darker matrix.			
		209' - Clay rich crushed section - good pyrite + hematite fragments.	(204'-209') US3632	65	0.25
		210' - 8 cm. disrupted blocks of carbonaceous unit in #2/1B breccias.			
		212' - 10 cm. section of white clay	(209'-214') US3633	9	0.11
		219' - Monolithic #2 type disrupting a 12" block of carbonaceous unit.	(214'-219') US3634	8	0.13

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		220'-223 1/2' - Intense pyrite plus hematite - minor white Qtz. veins -		PPb	PPm
		Carbonaceous material in breccia (219'-224')	US3635	6	0.11
		223 1/2'-226' - disrupted black carbonaceous unit - siliceous - white Qtz. veins plus breccia veins (224'-229')	US3636	34	0.16
		227'-229' - Strong hematite - pyrite in #2 heterolithic hydrothermal breccia			
		228' - clay fracture - 60°C			
		229'-238' - Monolithic #2 H.B. fragmenting and disintegrating than type 1B breccia. Hematite plus pyrite in both breccia types - within matrix.			
		Carbonaceous material in #2 type H.B. (229'-234')	US3637	12	0.08
		238'-245' - #2 type heterolithic H.B. -			
		239'-240' - QD block - moderately micro-fractured - type 1A breccia - minor pyrite hematite. (234'-239')	US3638	<5	0.06
		241 1/2' - prominent fluid flow texture - minor pyrite or hematite. From 241 1/2' to end of this section at 245' - has a granular surface texture - indicating a red clay matrix to the core. (239'-245')	US3639	<5	0.06
		245'-317':			
		Strongly clay plus peroxide cat. H. Breccia interval - at Times core has a porous outer surface - porous gravel size fragments supported by a clay matrix. This may be reflecting tectonic brecciation of a pre-existing hydrothermal breccia. Very minor hematite or pyrite.			

FROM	TO	DESCRIPTION	SAMPLE NUMBER	ASSAY	
				Ag	Ag
		246'-247' - Strong pericitic alteration of H.B. Type no. 2		PPb	PPm
		249' - Green Fluorite - Sem. circular replacement			
		251'-255' - Intensely crushed appearance of the Parhuacense unit - remnants of type no. 2 breccia occurs within this crushed material.			
		255'-256' - A block of non-brecciated lapilli pumice ash tuff. This suggests that this tuff unit must have a high resistance to hydrofracture.			
		256'-263' - Strong pericitic clay alteration - bleached appearance.			
		263'-279' : Sericitic alteration of breccia types 1B and 1C (not crushed). Again present are the irregular to circular replacements of type no. 2 carb. There is minor pyrite associated with these features.			
		2729"-2756" - white gray to gray quartz - banding visible (2729"-2756")	056235	7	0.11
		279'-284' - black to white qtz. veining - crush zones (279'-284')	056236	6	0.14
		284'-289' - tan gray crushed qtz. none - clay rich (284'-289')	056237	10	0.08
		289'-294' - white qtz. veining visible when not crushed - dark gray to tan qtz. fragments - some appears as almost veining in the crushed zone - again a clay matrix (289'-294')	056238	11	0.13
		294'-299' - A predominant tan crushed qtz in a clay matrix (294'-299')	056239	5	0.08

Logged by

A. Cervin

Hole Number

CGGC-5

Sheet Number

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FROM	TO	DESCRIPTION	SAMPLE NUMBER	ASSAY	
				Au	Ag
		299'-304' - Qs 294'-299' - Lep to 50% milky-white quartz fragments		PPb	PPM
		(299'-304')	056240	<5	0.07
		304'-309' - a predominant term crushed Qtz. in clay matrix	(304'-309')	7	0.09
		309'-317' - Predominant Term Crushed Qtz. - Some milky white Qtz. Veining. At 310' occurs a 1/4 in. wide			
		crushed hematite rich veinlet (309'-317')	056242	<5	0.07
317'	322'	<u>CARBONACEOUS UNIT</u>			
		Micaceous - Non brecciated - no bedding features			
322'	330'	<u>RHYOLITIC PYROCLASTIC - lapilli Pumice Ash tuff</u>			
		Core Surface is granular - Clay cgl.			
330'	334'	<u>QUARTZ PORPHYRY - QP</u>			
		Intensely fractured as per term 1A breccia previously noted - strongly relictified - It has a foliated appearance due to a flattening and preferred alignment of fractured matrix material.			
334'	338 1/2'	<u>RHYOLITIC PYROCLASTIC - lapilli Pumice Ash tuff</u>			
		As 322' - 330'.			
338 1/2'	347'	<u>IC + ID TYPE HYDROTHERMAL BRECCIA</u>			
		Very clay rich.			

