

311

TAM O'SHANTER CORE LOGS

HOLES #79-1 to 79-3

By B.P.Selco
Russ Wong

October 1986

824143

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November 18, 1986

Mr. George Stewart
Kettle River Resources Ltd.,
330 Copper Street
Box 130
Greenwood, B.C.
VOH 1J0

Dear George:

Enclosed are the results for the samples collected by Warren and myself during our review of the **TAM O'SHANTER** core and property. Also included are cross-sections, drill logs, and the reports you loaned us.

Our general conclusions from close inspection of drill core samples and the cross-sections are:

- **hole 79-1** may have intersected the Bengal Zone. From approx. 100-260 ft. are six veins of material similar to the Bengal Zone. Core angles are generally high suggesting that if these veins are downward digitations of the surface zone, then the Bengal Zone is essentially a vertical structure.
- **hole 79-1** ends in arkose with little silicification. If **79-1** was lost in the hypothesized fault, then the Bengal silicification does not appear to be spatially related to this fault.
- dacite in **hole 79-2** probably represents a volcanic flow of the Kettle River Formation and it appears to be the source for much of the detritus in the overlying arkose.
- massive silica zones in **holes 79-2** and **79-3** are probably Knob Hill chert which has been metamorphosed and perhaps partially remobilized. The unconformity between the Knob Hill and Kettle River Formations is present in both holes but is more distinct in **79-3** where a regolith is preserved below a thin zone of Kettle River sediments (<50 feet thick). The regolith is pyritiferous well-silicified, and might represent a favourable replacement horizon, however, precious metal values are low (samples 100462-463).

continued .../2

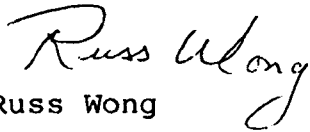
BP Canada

- the porphyry type alteration and mineralization in the dacite in hole 79-2 predates vuggy, epithermal white quartz veining.
- very little banding is seen in the silica veins suggesting that the epithermal event was not long-lived.
- core analysis suggests several superimposed, or extremely telescoped, metal associations: Mo-Ag, Cu-Ag-Au, F, Au-As (?)

Based on these factors, I cannot recommend that BP option the property at this time. However, the geologic environment is intriguing and we will undoubtedly be conducting more reconnaissance in the general area next year.

Thank you for allowing us to review the data.

Yours truly,


Russ Wong

RW:ad

Encls:

TAM O' SHANTER - SAMPLE SUMMARY

<u>Sample No.</u>	<u>D.H. No.</u>	<u>Footage/Box No.</u>	<u>Description</u>
100413	79-1	30'	Clay altered arkosic wacke.
100414	"	70'	Vuggy white quartz veined arkose.
100415	"	90'	Dark grey, non-banded silica 'vein'.
100416	"	110'	Dark grey silica breccia.
100417	"	130'	Clay/sericite altered arkosic wacke.
100418	"	170'	Clay/silica altered arkosic wacke.
100419	"	210'	Clay altered arkosic wacke.
100420	"	230'	White quartz breccia.
100421	"	270'	Finely bedded silicified siltstone.
100422	"	290'	Bedded, medium to dark grey siltstone.
100423	"	310'	Fine-grained, dark silica veined arkose.
100424	"	330'	Finely bedded pyritic argillite (silicified).
100425	"	350'	Clay altered, weakly silicified feldspathic wacke.
100426	"	370'	Clay altered arkosic to lithic wacke.
100427	"	390'	Clay altered feldspathic wacke.
100428	"	450'	Arkosic arenite, minimal argillic alteration.
100432	79-2	11	Arkosic wacke cut by complex quartz vein/breccia.
100433	"	12	Dark grey siltstone/mudstone interbed.
100434	"	15	Clay/sericite altered arkosic wacke.
435	"	16	Siltstone/tuff with dacite porphyry clasts.
100458	79-3	~ 30'	Coarse-grained lithic wacke, wk. argillic alt.
100459	"	~ 50'	Arkosic wacke. Darker, carbonaceous? matrix.
100460	"	~ 55'	Bedded sst./slst. Weakly calcareous.
100461	"	~ 75'	Sedimentary breccia, intense silicification.
100462	"	~ 98'	As above, locally with large py. clots.
100463	"	120-123'	Pervasive chalcedonic silicification within breccia.
100464	"	143-149'	Massive white silica (chert?).
100465	"	268-290'	As above.
100466	"	290-330'	As above; brecciated.
100467	"	331'	Altered quartz breccia (polymictic).

<u>Location</u>	<u>Description</u>
101462	Southern exposure of Bengal vein. White massive quartz vein (chalcedonic?).
101463	Pit 40 m S.E. of 101462. Silicified, pyritic & sheared sedimentary breccia.
101464	First pit area off northern access road. Brecciated chert? horizon.

ACME ANALYTICAL LABORATORIES LTD.

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PHONE 253-3158

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GEOCHEMICAL ICP ANALYSIS

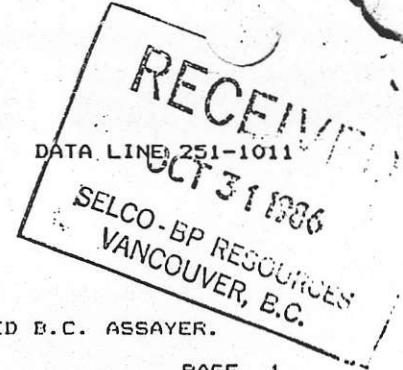
.500 GRAM SAMPLE IS DIGESTED WITH JML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER. THIS LEACH IS PARTIAL FOR MN,FE,CA,P,CR,MG,BA,TI,B,AL,NA,K,W,Sr,ZR,CE,SN,Y,NB AND TA. AU DETECTION LIMIT BY ICP IS 3 PPM. - SAMPLE TYPE: CORE/ROCK AU ANALYSIS BY AA FROM 10 GRAM SAMPLE. FI - NAOH FUSION - SPECIFIC ION ELECTRODE ANALYSIS

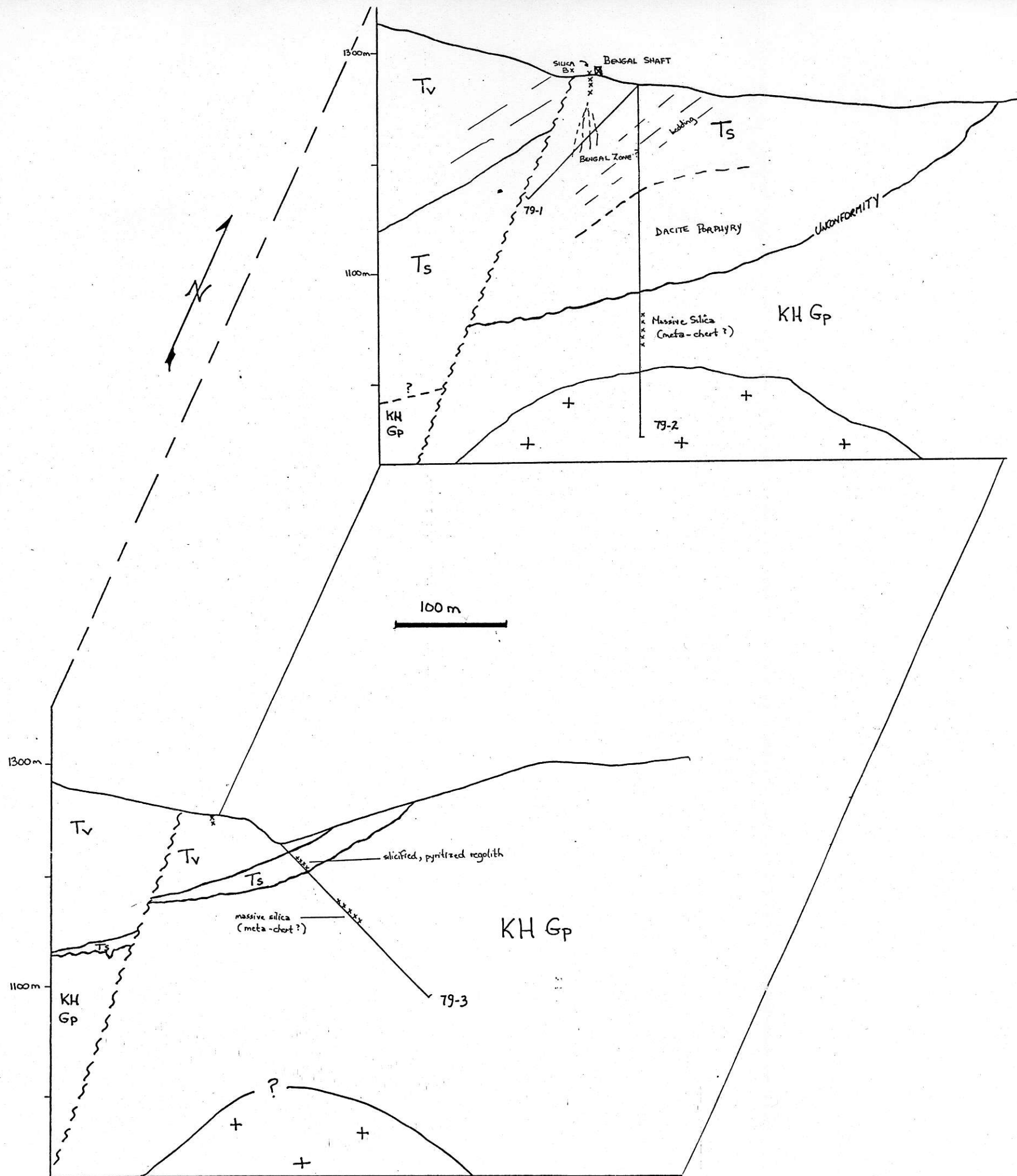
DATE RECEIVED: OCT 22 1986 DATE REPORT MAILED: Oct 30/86 ASSAYER: D. Toy: DEAN TOYE. CERTIFIED B.C. ASSAYER.

SELCO - A DIVISION OF BP PROJECT - 573-10113 FILE# 86-3333

PAGE 1

Table with columns for SAMPLE#, Mo, Cu, Pb, Zn, Ag, Ni, Co, Mn, Fe, As, U, Au, Th, Sr, Cd, Sb, Bi, V, Ca, P, La, Cr, Mg, Ba, Ti, B, Al, Na, K, W, Au, F and rows of numerical data representing concentrations in PPM.





INTERVAL		ROCK TYPE	DESCRIPTION						STRUCTURE	REMARKS
FROM	TO		COLOUR	GRAIN SIZE	TEXTURE	ALTERATION	ORE MINERALS	FRACTURES PER METRE	(FRACTURES, FAULTS, FOLDING, BEDDING, ETC):	MINERALIZATION, TYPE, AGE RELATIONS
									* No footage markers remaining	
Box 1	END Box 13	KRFm - buff to white, massive, feldspathic sandstone; Arkose							minor siltstone interbeds @ ~45° CA, up to 20 cm thick. Sst is well-sorted; contains ~3% black lithic clasts to .5 cm, clasts gen elongate (look like mudst or carbonaceous siltstone).	
									- ~ 1% vfg diss Py	
									- mod pervasive clay alteration	
									- 1-2mm wide vuggy white quartz veins at 60°+ to CA.; avg ~ 1 vein/30cm	
Similar to		BENSAL silica bx zone							- from Box 5-13 are 6 small (5-10cm wide) zones of fg silica/chalced; some zones are breccia with sst clasts in silica matrix; gen orientations of these zones at >60° to CA.; silica variable from white to dark grey (dark grey silica may contain vfg Py; clasts not esp silicified	
END Box 13	TOP Box 18 (~100')	Interbedded	arkose / dark grey mudstone (argillite)						(carbonaceous siltstone) - mudstone occurs beds and occasional fragments in arkose	
									- beds variable from 10-45° CA; overall mudstone comprises ~20% of this section; individual beds up to 2m thick, beds at 10-40° CA, non-calc	
									- diagenetic fg euhedral pyrite clusters; avg 1% Py	
									- small (10-15cm wide) zones of crackle qtz bx in mudstone; some silicif of mudstone clasts in these zones	
									- mod perv clay alt^n of arkose	
									- sporadic silicif (± ferromolybdate?) gen em at high angle to CA.	
									- rare clear Fluorite on fract.	

INTERVAL		ROCK TYPE	DESCRIPTION						STRUCTURE	REMARKS
FROM	TO		COLOUR	GRAIN SIZE	TEXTURE	ALTERATION	ORE MINERALS	FRACTURES PER METRE	(FRACTURES, FAULTS, FOLDING, BEDDING, ETC):	MINERALIZATION, TYPE, AGE RELATIONS
Box 19	Box 24	Arkose	-	gen massive	, no mudstone					
	END OF HOLE	-		mod perv clay alt						
		-		very weak silicification	(weak silicification ended by Box 18)					
<u>SAMPLES TAKEN</u>										
<u>SAMPLE #</u>	<u>BOX</u>									
100413	2	Arkose		30'						
414	4	"		70'						
415	5	Pyroph - alunite		? 90'						
416	6	Qtz bx		110'						
417	7	Arkose		130'						
418	9	"		170'						
419	11	"		210'						
420	12	Qtz bx		230'						
421	14	" " in mudst		270'						
422	15	Bedded mudst		290'						
423	16	Arkose within mudst section		310'						
424	17	Veined mudst		330'						
425	18	Arkose		350'						
426	19	"		370'						
427	20	"		390'						
428	23	"		450'						

INTERVAL		ROCK TYPE	DESCRIPTION						STRUCTURE	REMARKS
FROM	TO		COLOUR	GRAIN SIZE	TEXTURE	ALTERATION	ORE MINERALS	FRACTURES PER METRE	(FRACTURES, FAULTS, FOLDING, BEDDING, ETC.)	MINERALIZATION, TYPE, AGE RELATIONS
										* Hole split and analyzed from middle box 16 - middle box 46
Box 1	Box 10	Arkose - (KRFm)	wk argillic alt ⁿ (clay alt ⁿ decreasing downhole away from 79-1 ?)							- wk - mod silicification (same as 79-1)
Box 11	Box 14	Arkose / mudstone								- local carbonaceous ash in mudstone; beds @ 40-80° CA., some beds @ 10° (disrupted?)
Box 14	Box 16	Arkose								- sst locally maroon; local beds of pale green siltstone also locally maroon, beds @ 60-80° CA.
Box 16	Box 32 ^{MID}	Dacite porphyry								- trachytic texture, feld phenos 1-2mm, rare fine qtz eyes
										- contact with overlying arkose irregular over ~10', could be conformable/erosional as clasts of dacite evident in sed and possible flow bx near contact suggest conformable volc-sed package
										- variable wk to strong patchy and sporadic clay alt ⁿ ; alteration appears to be fracture-controlled as large envelopes up to 25' wide; mod veining by qtz-py ± mo occurs internal to clay alt ⁿ zones (porphyry-type alteration with internal stkwk veining). Qtz-py ± mo veins cut and slightly offset by apparently barren (vuggy white + clear quartz veins
										- rocks becomes coarser-gr near box 26; resembles qtz diorite at bottom of hole

INTERVAL		ROCK TYPE	DESCRIPTION							STRUCTURE	REMARKS
FROM	TO		COLOUR	GRAIN SIZE	TEXTURE	ALTERATION	ORE MINERALS	FRACTURES PER METRE	(FRACTURES, FAULTS, FOLDING, BEDDING, ETC):	MINERALIZATION, TYPE, AGE RELATIONS	
MID											
Box 32	Box 41	Mid Box 32	marks start of massive white silica and apparent change of rock type from dacite porphyry to fg pale green andesite or tuff?								
			- strongest silica zone from box 33-38 (ends ~ 790')								
			- 3 dykes (?) ~ 5' each from Box 33-39, brown-weathering diabase?								
			- silica zones are massive fg qtz, locally cracked and with fr-fill fg Py; locally x-cut by vuggy clear qtz veins and cavities.								
Box 41	Box 50	Qtz Diorite	- fg-mg, chloritized mafics ~ 25-30%								
~ 851'	END OF HOLE		- shear-controlled contact clay alt ⁿ decreases downhole (strongest alt ⁿ from Box 42-47)								
			- Py 2-3% diss throughout								
			- rare qtz veining								
[Box 28 = ~ 540']											
[40 = 827']											
		<u>SAMPLES TAKEN</u>									
SAMPLE #	BOX or footage										
100429	~ 25'	Clay - all	of sst								25'
30	4	"									
131	8	"									with qtz vein
432	11	Silica	bx zone								in sst/mudst section
433	12	Mudst									with py beds

INTERVAL		ROCK TYPE	DESCRIPTION							STRUCTURE	REMARKS
FROM	TO		COLOUR	GRAIN SIZE	TEXTURE	ALTERATION	ORE MINERALS	FRACTURES PER METRE	(FRACTURES, FAULTS, FOLDING, BEDDING, ETC):	MINERALIZATION, TYPE, AGE RELATIONS	
100434	15 15	Clay-alt ^d	ss ^t	with	subparallel	vuggy	qtz vein	± Fl			
435	16	Sltst	with	clasts (?) of	'underlying'	dacite	porph				
436	16	Flow bx/top	of	dacite	porph?						
437	17	Alt ^d , veined	dacite	porph;	white	barren	vuggy	qtz veins	cut	grey qtz-py-mo(?) veins	
438	19	Perv alt ^d	dacite	rep							
439	21	Rep of	local	qtz	veining	in	clay-alt ^d	dacite	porph		
440	22	" "	"	"	"	"	"	"	"		
441	23	Less alt ^d	dacite,	increased	Py	(few	qtz-py	veins,	wk	day alt ⁿ	
442	24	Local	vuggy	qtz	vein	stuck	in	dacite			
443	25	Sporadic zone	of	st	perv	clay	alt ⁿ	with	qtz-py	± mo	
444	26	Qtz-bx	of	alt ^d	min ²	dacite	porph	(very	local	zone.)	
445	28 (560')	Qtz-py-mo	vein	within	envelope	of	argillie	alt ⁿ			
446	31	St	argillie	alt ⁿ	envelope	with	waxy	talc	(pyrophyllite?)		
447	32	Near	start	of	massive	silica	cracked	with	py	fr-fill	
448	33	Basic	dyke								
449	33	Fg	green	sst(?)	host	for	mass	silica	;	vuggy	
450	35 (713')	Rep	of	mass	silica						
451	36 (740')	Clasts	of	host	in	silica	zone				
452	37 (773')	Green	sst(?)	host							
453	40 (827')	Rep	fg	green	andes(?)						
454	41 (848')	"	"	"	"	adj	to	qtz	dior.		
455	42 (868')	Rep	qtz	dior							
456	50 (2' from EOH)	"	"	"							

INTERVAL		ROCK TYPE	DESCRIPTION							STRUCTURE	REMARKS
FROM	TO		COLOUR	GRAIN SIZE	TEXTURE	ALTERATION	ORE MINERALS	FRACTURES PER METRE	(FRACTURES, FAULTS, FOLDING, BEDDING, ETC):	MINERALIZATION, TYPE, AGE RELATIONS	
			* Most of hole <u>not</u> split (only top 20' of massive silica of split and analyzed)								
0	~20'	Marrow (?) flow									
20	~63'	KRFm: coarse sediment with abundant volc clasts; start in coarse grit, pass into carbonaceous sst, then into tan sst/slst; beds @ 50-75° CA. - no silicification or clay alt ⁿ									
63	~123'	Sharp contact at 63' with possible regolith; hematitic near contact, could be sed bx / conglom									
			- silicification begins at ~70'								
			- angular fragment-rich hematitic rock from 83-93' grades downward into pale yellow-green coarse sst (sed bx), fine gr veins cement clasts								
123	151'	Mottled lg, med green andesite, locally hematitic									
			- massive silica alt ⁿ from 143-149'								
151	162'	Porphyritic andesite dyke, fresh									
162	204'	Sharp contact at 162' with massive white silica; silica grades back into lg locally hematitic andesite at ~170'; andesite grades sharply into lg-mg diorite at ~204'									
204	250'	Diorite - wk propylitic alt ⁿ but local seams of heavy Py									

INTERVAL		ROCK TYPE	DESCRIPTION						STRUCTURE	REMARKS
FROM	TO		COLOUR	GRAIN SIZE	TEXTURE	ALTERATION	ORE MINERALS	FRACTURES PER METRE	(FRACTURES, FAULTS, FOLDING, BEDDING, ETC):	MINERALIZATION, TYPE, AGE RELATIONS
250	330'	Predom	massive	white	fg	silica	cut locally	by barren white to clear-wuggy	qtz veins ± Fl ; host is pervasively silicified fg siltstone (?)	
330	333'	Sharp contact	between	silica zone	and	sed bx (?)	;	3' of rock of	fg grey-green matrix and maroon and pale green angular clasts ;	
			grades	downward	sharply	in	fg	pale green sed (siltstone?)		
333	639'	Interfingued	pale green	massive	siltstone	and	finely porphyritic	andesite.		
	EOH		-	seeds	are	locally	mod	perv	silicified (eg 413-430')	
			-	silicification	decreases	downhole	;	no	argillie	alt ⁿ
<u>Sample #</u>	<u>Footage</u>	<u>SAMPLES TAKEN</u>								
100457	18'	Maroon?	Flow							
458	30'	Rep	coarse	sed						
459	50'	Carbonac	sst							
460	55'	Tan	bedded	ss-/s/st						
461	70-80'	4 pieces	of	silicified	rock	with	large	clots	of	P _y
462	93-111'	4 pieces	of	wk-mod	silicified	rock				
463	120-123'	3 pieces	of	grey to	white	perv	chalced	within	sed/bx	
464	143-149	3 pieces	of	split	silica					
465	268-290	4 pieces	of	white	mass	silica				
466	290-330'	" "	" "	" "	" "	" "				
467	331'	Sed	bx	zone						
468	354'	Rep	of	fg	Flow					
469	378'	Rep	of	pale	green	siltstone				