

ZEEHAN TIN DEPOSITS, WESTERN TASMANIA
PETROLOGICAL DESCRIPTIONS IN ABBREVIATED & TABULATED FORM

1984 - 1986

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1	Poverty Point
2	Williams & Queen N° 5 Dumps
3	Oonah/Comstock
4	Taylor's/Clarke's (adits & stopes)
5	Stormsdown
6	Queen Hill Bench/ZQ1 & Golf Course Opencut
	<u>DRILL HOLE SAMPLES</u>
	Holes, for which samples are described, are arranged sequentially for each deposit. Sample numbers are listed sequentially for each hole.
	<u>QUEEN HILL DRILL HOLES</u> (190 PTS, 49 TS, 16 PS)
8-64	Drill holes (prefix ZQ) 3, 4, 5, 6, 13, 18, 45, 46, 47, 48, 49, 50, 51, 52, 53, 55, 57, 58, 60, 62, 63, 66, 71.
	<u>MONTANA DRILL HOLES</u> (51 PTS, 44 TS)
65-85	Drill holes (prefix ZM) 20, 27, 37, 67, 78, 86, 88.
	<u>SEVERN DRILL HOLES</u> (217 PTS, 69 TS, 8 PS)
86-143	Drill holes (prefix ZS) 39, 40, 41, 43, 65, 69, 72, 73, 74, 75, 77, 80, 82, 87.

EXPLANATORY EXAMPLE SHEET

PETROGRAPHIC SUMMARIES - ZEEHAN DEPOSITS		a) 'ZQ-- or HOLE No. ZS--Page (for particular drill hole) or ZM--'																FI	PA	PH									
SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTL.	OTHERS	FI	PA	PH			
'251689(034)' polished thin section or polished/thin section pair; n. in bracket corresponding UNE n.° (R60-prefix)	*downhole depth	**routine XRF analyses done for Aberfoyle; ppm unless stated in%; NB:- analysed intervals usually much larger (20cm-2m) than that represented by the petrographic specimen		QUARTZ	CARBONATE	SIDERITE	MUSCOVITE	CHLORITE	PHLOGOPITE	TOURMALINE	FLUORITE	SELLAITE	TOPAZ	PYRRHOTITE	PYRITE	MARCASITE	ARSENOPYRITE	CASSITERITE	STANNITE	TETRAHEDRITE	BASE METAL SULPHIDES	OTHERS							
'251690 TS' thin section only		- no analysis -4 less than detection																											
'251691 PS' polished section only																													
d) paragenetic sequence				relative mineralogical content																									
e.g. '1) ... → (followed closely by).... 2) ... 3) ...'				C- constituent (> 5% areally) A- accessory (1-5% " T- trace (< 1% ")																									
				a) diamond drill hole prefix																									
				ZQ-- Queen Hill } ZS-- Severn } - respective ore position ZM-- Montana }																									
				b) cassiterite description																									
				-- size -- shape -- colour -- association																									
				c) preliminary fluid inclusion description																									
				-- host mineral -- size																									
				e) qualitative assessment																									
				blank- not observed ? - questionable * - probably reliable & useful ** - important &/or useful																									
NB. :- OTHER ABBREVIATIONS USED IN DESCRIPTIVE PASSAGES ARE LISTED ON THE NEXT PAGE																													

is corresponding UNE n.° (R60-prefix)

c) FLUID INCLUSIONS
d) PARAGENETIC EVIDENCE
e) OTHER ('PHOTO') FEATURES

ABBREVIATIONS continued

prob. probable	St stannite	vn. vein	NB. Grainsize approximations
prox. proximal	stalact. stalactitic	volc. volcanic	
Py pyrite	stockw. stockwork	vs vesuvianite	fg. (fine-grained) = <100microns
Py. pyritic	subang. subangular	vs. versus	mg. (medium-grained) = 100u-1mm
Py' pyrite after pyrrhotite	subeq. subequant		cg. (coarse-grained) = >1mm
	subeq. "	wh. white	
qz quartz	subh. subhedral	wk. weak	
qzite. quartzite	subrd. subrounded	wkly. weakly	
qzose. quartzose	syn. syngenetic		
	T trace	x twinning	
rd. rounded	t'out throughout	x-cut. cross-cuts	
reg. regular	tab. tabular	xd. crossed	
repl. replaces	tc talc	xstal. crystal	
rexst. recrystallised	Te tetrahedrite	xstall. crystallised	
rt rutile	text. texture	yell. yellow	
	tp topaz		
	tp. topazised		
s/w stockwork	tr tourmaline	zr zircon	
scatt. scattered	tr. tourmalinised	ADDENDUM	
sd siderite	TS thin section	adj. adjacent	
sd. sideritised	tuff. tuffaceous	acc. accessory	
se sellaite		ca calcite	
sed. sedimentary		exsol. exsolution	
sh. shale	u microns		
shr. sheared	U+ uniaxial		
silic. silicified	positive		
sim. similar	U- uniaxial	gen. generally	
slt. siltstone	negative		
sm. small	ui. unidentified	pseudo. pseudomorph	
Sp sphalerite			
spher. spheroidal	var. variable		
sr sericite	vfg. very fine-grained	sde. sulphide	
sr. sericitised	vi vivianite	ser sericite	
sst. sandstone	vlt. veinlet		

ABBREVIATIONS

→ indicates, altered to, followed by	brecc. brecciated	dom. dominant	Jm jamesonite
x twinning	bt magnetite		
̄ with	C common	ellip. elliptical	l+ length slow
̄in within	'C' kerogen	equ. equant	l- " fast
// parallels	C carbonaceous material	espec. especially	lam. laminated
# cleavage	C. carbonaceous	evap. evaporitic	lge. large
= equal amounts	C.A. core axis		lc leucoxene
=. equivalent	cb carbonate	fd feldspar	lent. lenticular
b perpendicular to	CCF Crimson Creek Formation	feld. "	leuc. leucocratic
.. up to .. (grainsize)	cent. central	fg. fine-grained	lith. lithological
	cg. coarse-grained	FI fluid inclusions	lx leucoxene
	ch chert	fl fluorite	mass. massive
	chalc. chalcedonic	fol. foliated	mat. material
	cl chlorite	fract. fractured	Mc marcasite
	cless. colourless	frag. fragment	med. medium
	clr. clear	fram. framoid(al)	mg. medium-grained
[A] abundant	coalesc. coalescing	glom. glomerophytic	min. mineralisation, -ed
abt. "	conc. concentrate	gm. groundmass	ms muscovite
acic. acicular	cong. conglomeratic	Gn galena	mt magnetite
alt. altered	congl. "	gr. green	
amt. amount	cont. continuous	gran. granular	o'grown overgrown
amyg. amygduloidal	Cp chalcopyrite	granobl. granoblastic	o'print overprinted
ang. angular	corrod. corroded	EY. grey	occ. occasional
anh. anhedral	cren. crenulated	EYP. gypsumiferous	oct. octahedral
anis. anisotropic	cs cassiterite		oth. other
ank. ankeritic	cub. cubic	hm hematite	PA paragenesis
arg. argillic		hyd. hydrothermal	pl phlogopite
ap apatite			plag plagioclase
As arsenopyrite			pleo. pleochroic
assoc. associated			PH (photographic) feature
	det. detrital	incl. inclusions	pheno(s). phenocryst(s)
	detr. "	interbdd. interbedded	Po pyrrhotite (Poh- hexagonal;
B+ biaxial positive	diag. diagenetic	interlam. interlaminated	Poik. poikilitic (Pom- monoclinic)
B- " negative	discont. discontinuous	interstit. interstitial	poss. possible
biog. biogenic	diss. disseminated	ir ilmenorutile	pref. preferably
biref. bireflectance	dissem. "	IR internal	princ. principle
birefl. bireflectance	dk. dark	reflections	prism. prismatic (continued)
Bl boulangierite	do dolomite	irreg. irregular	
BM base metal	do dolomitic	isotr. isotropic	
br. brown			

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PETROGRAPHIC SUMMARIES - ZEEHAN DEPOSITS HOLE No. 2Q3 Page 2/2

SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH
95006 TS	3/57.0	1,700	relict vfg. arg. chert/argillic patches; subh. qz \bar{c} interstit. skeletal Py in sd; apatite anh. in sd; irreg. clay patches o'prints qz sd; cs anh. in clay patches & sd;	C-hyd.		A-hyd. clay																	A-ap	*? ?	
95007 TS	3/56.9	1,700	breccia-qz qzose arg./tc frag. in dark C.g.m.; relict C silty arg. sed. areas C bedding & Py fram?; disrupted qz & ank. vn.; anh. Py in brecc. areas; cs in qz in brecc.	C-hyd.		A-arg.																		A-tc? C-C	
95008 TS	3/56.7	1,700	fg. qz C cherty relicts \bar{c} qz vn. o'printed by qz (\bar{c} tr? incl.) sd cs mosaic cut by subsequent qz vn; weak bedding in chert slightly mimicked by sd cs qz;	C-hyd.		A-hyd.				T? incl.														A-C	* cs
138964 TS	3/78.7	4.05%	mg. sd euh. qz \bar{c} cg. fl & sr patch -sd repl. fl; cs in fl prox. to sd	A-hyd.		C C A?					C														* fl

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PETROGRAPHIC SUMMARIES - ZEEHAN DEPOSITS HOLE No. 2Q4 Page 1/1

SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH
230514	4/58.5	1,500	mass. sheathed sd \bar{c} euh. qz incl.; skeletal Py in sd; lc blades; qz o'printed by sd; relict? qz infilled vesicles	A-hyd.		C																			* vesicles
138965 TS	4/75.2	1.60%	arg. gm. \bar{c} irreg. sd clots \bar{c} subh. Py cores; sr flow-ers in sd; subrd det? qz (det?); qz vn. cut by fl cut by cloudy irreg. fl patches	A-hyd.		C-hyd.					A														* (rare colorless prism.)

PETROGRAPHIC SUMMARIES - ZEEHAN DEPOSITS										HOLE No. ZQ5		Page 1/2		page 11												
SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH	
95019	TS 5/57.91	2.5%	qzite- strained Py Sp Gn replaced quartzite (CLARKES)	C- fine qz c rare sd in interstices of rexst.areas; silt bed c rdd.syn.Py; band of Sp Gn in interstices of sed qz grains; sub// irreg.band of qz Py;C films in qzite;		A- hyd.									C- hyd. A- syn.			T- 50 subeq. anh. br. Gn	A?		C- Sp Gn	A-C		?	cs in Gn	
95020	TS 5/58.8	3.15%	qz sd Py Gn St min.strained quartzite/arg.siltstone (CLARKES)	C- c relict areas of fg.arg.silt c abt.diss.euh.Py (syn?)predating		A- hyd.	T- sd?								A- vn.				A		C- Gn			?	St	
95021	TS 5/59.4	3,800	qz sd Py cs vn. vitric ash-flow tuff/ fg.spilitic basic volcanic 1)Py→qz →sd cs	fg.fol.sr gm.c flow & vesicle text. defined by C outlines & arg.infill;qz/ap clasts/phenos in gm.;in contact c anh.clotty Py c		A- vn.	A- vn.	C- vn.							C- hyd.			T? 20 anh. subeq. sd		T- Sp	A-ap A-C/ Fe-oxide			*		
95022	TS 5/59.74	1.63%	sd sr Py ap?vn. qz vn. deformed sr.arg.C.silty shale 1)qz 2)brecc. 3)sr sd Py cs	frat.sr qz silty frag.& disrupted qz vn. in C.arg. c crenulated lam. irreg.sd sr ui. assoc.ap anh.clots		T- vn.	C- arg.								T- vn.			T- 5-40 eq. anh. br. sd			A-ap?		?			
95023	TS 5/60.65	500	qz sd Py vn. arg.fg.spilitic basalt	fg.arg.fd lath mesh c interstit C & qz/sd infill ed rdd.-ellipt. vesicles;sd clots		C- vn.	C- arg.	C- arg.							T- vn.							C-C				
95024	TS 5/61.1	600	diag?sd qz Py alt.sr. amygdaloidal volcanic	vfg.fol.sr gm.c diffuse C lam.; fract.c sd infill; ellipt.spheroids		A- diag?	A- vn.	C- sr							A- diag?							A- Fe-oxide				

PETROGRAPHIC SUMMARIES - ZEEHAN DEPOSITS										HOLE No. ZQ5		Page 2/2		page 12												
SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH	
95025	TS 5/61.3	500	sd alt.qz vn.arg.welded ash-flow tuff	flow-aligned sr/ clay gm. c minor subang.qz & qzose clasts;shard & amygdale outlines by Fe-oxide;infill c irreg.mg.qz vn.masses		C- hyd.	C- sd	C- arg.														A-Fe- oxide				
95026	TS 5/62.9	5,500	Py qz sd sr cs min. C.Py.shale/silty shale 1)qz→sd sr cs Py	relict lam.C fram Py arg. & sr qz sed.frag.in irreg. sd masses c euh.		A- hyd.	C- hyd.	C- sr							C- hyd. A- fram.			T- ? 10-40 anh. subeq. sd qz sr br.		A- Sp	A-C			?		
95027	TS 5/63.3	2,700	Py qz sd alt.interbedded C/Py.shale/arg.fg.(lava) volcanic	Py C-rich bands in fg.felted arg.gm.;disrupt- ed qz sd Py vn.		A- hyd.	C- hyd.	C- arg.							C- vn. A- syn?							C-C				
95028	TS 5/63.7	1.83%	sd cs qz vn. sr.metasomatic? chert	qz sd (sr)vn. fg.anh.qx mosaic c sr patches; 2 generations of cs-a)clrless,prism b)br.,anh.subeq.		C- hyd.	C- hyd.	T- clay							A- hyd.				A- 5-20 1.br.clrless sd,chert in anh.-subh. stubby prism.						*	cs
95029	TS 5/63.9	1.83%	tr sd Py arg.ap vn. ash flow tuff 1)sd Py ap tr cs arg.vn.	fol.arg.sr.fg. gm.c flow-aligned vesicular text.; diss.euh.Py; tr ap sd Py vn.-tr needles in ap;		A- vn.	A- vn.	C- arg.			A- vn.				C- hyd.				T- 5 br. anh. eq. tr,clay		A-ap		*	?	tr	

PETROGRAPHIC SUMMARIES - ZEEHAN DEPOSITS HOLE No. ZQ18 Page 1/1 page 15

SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH	
138472 sd fl ap qz sd C rock 1)sd ap 2)sd (Cp Pd 3)fl cl 4)cb	18/300 Po Py Cp	1,100 min.	sieve-like mesh of vfg.gran.C in mg.mass.sd; band of cg.sd c minor cl patches vfg.tr? incl.c vfg.qz repl.sd & in fl; minor qz vn. in ap o'printed by sd then cb.vlt.; mt at Po Py contacts (retrogression product); fl poss.repl.sd; Clarkes to dolomite-hosted min.	A-	T-	C-		A		T?	A			A	A							A-	A-ap Cp A-C A-mt	*		

PETROGRAPHIC SUMMARIES - ZEEHAN DEPOSITS HOLE No. ZQ45 Page 1/5 page 16

SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH	
138466 qz sd Py vn. diagenetically sd. & silicified chert/ sed. carbonate mud 1)sd qz(diag.?) 2)qz→sd(Py?) 3)glomerophytic sd Py	TS 45/197.9	80	mg.mass.sd mosaic C minor anh.diag qz, in contact C lam. anh.qz mosaic; o'printed by clotty sd; qz sd Py vn. o'printed by vn. & glomerophytic sd; arg./sr C diag.qz; rare lc grains in sr;	C-		C-	T-								A-								A-C T-lc	?		
138467 sd or sd.do. fram. Py (evap?) diagenetically alt. C carbonate sediment mud	TS 45/202.2	120	mass.mg.sd mosaic minor anh.qz & lent.of C/fram. Py, in contact C mg.sd rhombs C interstit. fram.Py -15u & q; areas of euh.qz after chert?; sd Py vn. weakly repl.rhombs; Py C sr lam.fram.Py zone at contact; 'towers' of non-rhombic fram.Py lam, sd preserved; Py fram; impinge on rhomb margins;	A-		C									A-								A-C	** diag. text.		
138468 Py sd qz rexst.vn. diag.sd rexst.(evap?) gypsumiferous Py. dolomicrite	TS 45/205.2	200	weakly-strongly rexst.sd rhombs & rarer sd.gyp-sum splits o'-printing lam.fram. Py sd; Py lam. impinge or dissect rhombs; rdd,qz C interstit.fram.Py in clots after chert; sd(qz Py)vn.	A-		C	syn?								A-								T-C	** gypsum pseudo.		
138469 qz do Py vn. lam.fram.Py dolo-intramicrosparite	TS 45/211.0	4	weakly bedded 10u dolomite C sparse pref.beds C 10u rdd.Py(syn?); C.Py. contact C finer grained lam.fram.Py, -C rdd.chert & do nodules; Sp? core in do nodule cut by later, do/vn.; irreg.qz do Py sr vn.	A-	C-		A-								A-								T- Sp			
138465 Sp Py qz sd (CLARKES) 1)Py As qz→sd St 2)sd Sp→Gn Cp	PS 45/198.9	2,000	euh.cg.qz in mass C sd repl.by Sp mass & equ.clots; anh. St C Cp rims & sd? in Sp; St also in qz C in gran.Py clusters; Gn interstit. to early sd qz; Gn veinlets in Sp & sd			C									C		T		A				C- Sp, T- Cp A- Gn	*?		

PETROGRAPHIC SUMMARIES - ZEEHAN DEPOSITS HOLE No. ZQ46 Page 1/2 10021

SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH
230504	TS 46/236.4	-	spherulitic arg. fd;arg./cb,mg. fd;irreg.qz arg. sr-filled amygdules→scoriaceous top;in contact qz(arg.)alt.300u irreg.sd qz Py vn.	C-A		C-C									A-hyd.							A-C		?	
230505	TS 46/249.7	-4	micro-sparry do rhombs c fram. Py in finer grained do bed; 1)dolomite 2)qz Py C 3)ank.vn. 4)qz sr	A-C		A-									A-fram A-vn.							A-C		* diag.	
230506	TS 46/273.8	95	lam.finely silty shale (arg.); qz sandy sr.fol. lithic tuff;both & partially rext. fram.Py;	A-		C-									A-syn?										
230511	46/269.0	85	euh.qz o'grown by mg.sd mosaic; fg.C & lesser ap? needle incl.in qz; stalactitic mg. Py euh.o'prints qz & sd; fg.-40u Cp & Po anh.in sd; rare sr/clay interstit.to qz euh.	C-		C-T								T	C-hyd.							T-Cp		?	
138885	46/249.1	18	ang.frag.-1mm of chert c Py.lam. & vice versa.& denser Py frag. in chalc./fg.qz(sd)gm.; area of contorted sr.shale	C-		A-									C-fram.									* diag. brecc.	

PETROGRAPHIC SUMMARIES - ZEEHAN DEPOSITS HOLE No. ZQ46 Page 2/2 page 22

SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH	
236617	46/250.8	10	disrupted masses of coalescing fg. rdd.(ex-fram.)Py; sd?vn. c minor vfg.Sp & Gn;												C-syn.							T-Sp, Gn				
251989 (098)	46/270.7	95	200u gran.clear do c turbid relict do rhomb areas c C outlines & needle incl.(spherulitic); fg.Po Cp Te? in clear do; o'grown by f-cg.sub-anh.Py;			C-								A	C							T? gy. isotr.	T-Cp	T-uh. biref. anisotr. tabular	** **	do

PETROGRAPHIC SUMMARIES - ZEEHAN DEPOSITS				HOLE No. ZQ47 Page 1 / 1														Page 23								
SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH	
138891	47/400.9	3.50%	fg.mesh of tr needles & incl. in dull sd & sr; brecc.areas of layered C fg.qz (ex-sed?)stressed pattern C tr/sd; rare euh.qz absorbed by sd;vfg,C incl. in sd & tr;bands of subh.Py C prox.Cp appear to cut As trails; late qz cl vn.cut Py;sd tr cs islands left in Py	A-hyd.	C-hyd.	A-sr	A-vn.	A-hyd.							C-hyd.		A	A-20			A-Cp			**	*	cs As
251686 (031)	47/79.3	-	volcanic- cloudy arg.gm.C relict fg.fid lath text. conc.amygdules sd qz cl clay cs Py;cut by euh.mg sd bladed;qz rims & cl cores in undisturbed amygdules;	C-vn.	C-vn.	A-diag?									C-vn.		T?	10-40			T-ap			??	*	cs? in amygdule
251687 (032)	47/372.6	20	fract./slumped partly rotated fram.Py.turbid lam.do? as lent. beds in sand-granule congl.of rdd.qz,micrite, arg.sltstone & lent.chert,micrite frag. in gm.df fg.anh.Py/C,arg.; mg.ank.subh.Py qz irreg.vn.;	A-det.	C-do?syn.										C-frag.						A-C			?	*	sed. brecc.
251688 (033)	47/400.8	3.50%	anh.f-mg.do?mosaic C diss.cs espec.prox.to subh. qz & tc patches; vn.-like zones of skeletal As in do scattered anh.Cp fg.anh.St cores	A-hyd.	C-hyd.			T		T					A-hyd.	A	C-T	10-50(-100)			A-tc			?	**	qz sm.

PETROGRAPHIC SUMMARIES - ZEEHAN DEPOSITS				HOLE No. ZQ48 Page 1 / 3														page 24									
SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH		
230507 TS	48/181.4	-	20u gran.mass.do in in-situ brecc.vn.syn. frag.-1cm.;inter -frag.areas fill ed C abraded do & diag? qz & C;sr qz do? vn.cut diffuse (diag.?)do vn.& brecc.text.;stressed ank.qz vn. cut qz do sr vn.;	A-vn.	C-sr										T-diag?							A-C			?		
236616 PS	48/148.0	14	bedded fram.Py -10u;anh.clear Py rext.interstit.to fram.Py; anh.Py -400u in qz? vn.												C-frag.							T-gy opaque A-C					
264385 (155)	48/102.3	-	mg.mosaic of do rhombs C interstit.C fram.-anh.vfg.Py ui.opaque; irreg.fract.infilled C firstly incl.-rich qz then C anh.-oct.Py 'C';qz vn.have seriate margin C do;diss.Sp & wispy Gn in do ->? diag?;dusty areas of do alt.;later qz Sp vn.cut C 'C'Py vn.	C-vn.	C-syn.										A-syn? /diag.							A-T- Sp-gy.b.ref. (diag?) T-anis. Gn opaque, A-'C' A-C			??	*	Sp Gn in do qz sm.
264386 (156)	48/104.2	12	mass.-weakly lam do-micrite C micrite sr/clay & qzose & qz clasts(siltet. -4.0 mm);irreg.do,qz do,C vn.produce weak brecc.; diss.fram.Py coalescing to clusters of oct.Py; anh.'C' in C vlt.;Sp in do clast o'grown by oct.Py; do lined vug filled C '(circled);	A-vn.	C-sr/ clay										A-syn?							T-T-'C' Sp A-C			*	?	Sp in clast 'C' in vug
264387 (157)	48/104.9	-4	breccia of C. siltst.,chert, C.shale o'print ed by fg.diag? chert cb;cg.Sp Gn(Py C) in cg ank.qz vn.	A-vn.	C-sr/ clay										A-syn? A-vn.							C- Sp Gn T- Cp			*		

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PETROGRAPHIC SUMMARIES - ZEEHAN DEPOSITS HOLE No. ZQ48 Page 2/3

SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH		
264388A (158)	48/110.9	6	C & fram. Py(5u) wavy lam. sr. shale c varying amt. of clotty do & subang.-subrdd. qz oct. Py vn.; overall brecc. appearance; fol. at angle to beds;	A-C				A-sr							C-fram.								T-mt? T-zr? C-C		?	qzose frag. in sed. brecc	
264388B (159)	48/110.9	6	weakly lam. fram. Py/do/clay gm.; Py rexst. to clots of subh. oct.-1mm; subang.-subrdd. qz, ms qzose, dolo-microsparite, lam. Py, dolomiticrite, arg. shale clasts;	C-C				A-det.							C-fram.												
264389 (160)	48/115.0	-4	mass. mosaic of 30u do? c diss. rd. vn. do 10u Py at do margins; mg. rexst. do c qz cores; 'C' c stressed qz (sr) C. vn.	A-C				T-vn.							A-syn.								A-'C'	?	*	'C'	
264390 (161)	48/124.3	-	fg. sr. chert c varying qz clast. /det? ooids, diss. fg. euh./fram. Py, do rhombs; subreg. cb. vn. cut by irreg. 'C' vn.; some lam. C; Sp in sd? in sr vn.; chalc. areas cut by qz 'C' vn.;	A-			A?	C-vn.		T-					A-fram. /syn.								T-A-'C' Sp, A-C Gn T-ir	*	*	'C' PA	
264391 (162)	48/131.9	-	cg. irreg. cb mos- aic c relict gran. vn. sed? text.; diffuse cb euh. qz oct. Py wispy Gn Sp rare dolomite altered to siderite.	A-			A	A-sr							A-hyd?								A-T-'C' Sp, T-Po Gn Cp			?	Po C BM
264392 (-)	48/135.7	-	massive dolomite altered to siderite (stained l. br -> some relict Mg?)																								

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SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH	
264393 (163)	48/153.3	8	300u subrdd. qz (tr do) clasts-well packed c qz do cement; also rare sr/clay clasts; abt. fuzzy fram. Py in clasts interstices; rexst. to oct. Py; minor poss. biogenic structures in fg. Py; 'C' in do; chalc. c mg. oct. Py;	C-A				A-det.		T-					C-syn.								T-'C'		*	Q in QH Beds
264394 (164)	48/155.9	60	wavy lam. micrite /fram. Py c ghost of intraclasts; Py. lam. micrite & sparite in more mass. ang. 'C' chalc. cb vn. cut by cb qz vn. cutting stressed cb qz Py vn.	A-				A-C							C-fram. A-vn.								A-'C'	?	*	abt. 'C'
264395 (165)	48/163.6	-	200u-4mm do rhomb c interstit. fram. Py c rare Sp cores; coarser Sp anh. also c interstit. diag? trails of qz do; Py fram. are embedded in Sp & Gn; interpret as diagenetically mesititised rhombic dolosparite	A-				C (stained; probing subsequently gave mesitite composition)							A-fram. A-vn.								A-A-'C' Gn, (diag.) Sp	**	**	Gn in dolomitic 'C' vn. diag. Sp in fram. cores

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SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH	
230508 TS	49/130.1	3.20%	sd mg.mosaic c areas of relict? smaller blades; anh.grains & partially absorbed qz vn.; zones of vfg.cs in sd; irreg.fl patches c qz vn.appear to cut fl & cs areas; Sp(Gn?) c vn.qz; early qz cut by cs & fl Py sd vn.; poss.latered repl.of fl	A- hyd.	C- hyd?	A- sr									A- vn.			C- 10-20(-40) fg.anh- coarser subh.3:1 prism. 1.br. sd,fl		T- Sp, Gn				*	?	Sp on cs/fl
230509 TS	49/134.5	2.10%	vfg.qz sr/clay mesh gm. c minor sed? subrdd.clastic qz; irreg.poik.fl patches c euh.qz & ap incl.; cut by Py vn.c sd borders & fl cores; cs diss.throughout; dusty fl sd/qz sr mottled gm.	C- hyd.sr/ clay	A- hyd.	C- clay				C					A- vn.			A- 5-40 anh.(rare prism.) subeq. br. fl,sr,sd		T- Sp A-ap prism.)				*		
230510 TS	49/138.4	7,850	fg.gm.of inter- locking anh.qz c fibrous sr & tr;euh.qz repl. ex-sed? by ap? then sd then Py Sp skeletal;cs embedded in all, except sde.; tr needles in euh.qz;early sd dusty after tr;	A- hyd.	C- hyd.	A- hyd.				A- hyd?					A- A- hyd.			A- -5-30 subh. equ. br. sd,qz(tr),ui.		A- Sp, Gn	A- A-ap (+ s.l.m. ui.)			**	*	ui. Sp repl. sd
138886	49/150.3	170	fg.anh.cherty qz gm.c abt.tr or chert ap incl. & cloud areas of vfg.tr? chalc. chalc.lined vugs c mg.qz infill; hyd. thin qz C? vlt.cut vugs; clots of subh.cg.Py;rare C' & globular C? outlines(circled-after biogenic?)	C- A- hyd.											C- hyd.							T-'C'			?	biogen ic?

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SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH		
264748 (186)	49/51.4	-	bladed crustiform sd o'printed by vn. subh.clear qz;Py cs trail across sd;tr?cs clots in qz; filagree Gn in rextst.ank? zone;Py subh.o'grow qz sd; trails & sm.clusters in qz c incl. prox.to BM St vlt. br.trails in sd	A- vn.	C- vn.										T C- A vn.			T T- T 5-20 euh. equ. 1.br. l.br.		T- CP, A- Gn, T- Sp	A-te /sr			**	**	cs c St. Po in vn.	
264751 (187)	49/106.3	-	amygdules & amyg. lithic shards out- lined by Fe-oxide & infilled c sd,qz,cl;ribbon-like gm.of cl/qz sr-clay alternations; subh.Py c cl lamellar vn.	C	A	A	C								A- hyd.							A-Fe- oxide					
264752 (188)	49/115.6	6,400	cl flow-aligned gm.of vfg.isotr. masses & acicular mesh;sr & Fe-oxide streaks;shards-2cm c Fe-ox.outlining conc.amygdules infilled c fg.qz cl sr, in cl, tuff, gm.;also spilitic lava frag.c irreg.qz-rich amyg.;anh.Py & fl mg.c sd sheathing vn.; fl incl.in Py;mg.cs as isolated xtals;vfg.10?trails in cl, gm.c relict amyg.outlines; Py is anh.-poss.after Po although clear;also vfg.-mg.Py euh.in inter-amyg.areas; vfg.filamentous Py vlt.;Py bands are in fact coalescing fg.euhedra;in some cases; fl o'grows corroded qz subh.(which predates poss.ap(circle #2).	C- hyd.	A- hyd.	A- sr	C					A			?-A- vn.			T- 20-120 euh.equ. single gr. 1.br. fl, sd, (cl)		A-Fe- oxide T-ap? T-lo?			*	?	cs trail in cl		
264753 (189)	49/122.9	120	fg.cl gm. c tab. qz after fd? & abt.diss.anh.rutile; qz euh.in large Po- ui.as tab.xtals in Po;qz Po repl.of amygdules; minor qz vn.cut by sd;minor As subh.fg.c Po-Py subh.	A- hyd.	C- hyd.	C									A- C- hyd.			T				A-ap A-lc (U+) #72 A-BL ir. weakly			**	ap amyg. repl. ui	
264755A (190)	49/129.3	1.17%	fg.matted sr gm. c fl subh.c mg. qz euh.->poik. text.;irreg.areas of sd.;cut by sd Sp Gn (cs?)	A- vn.	C- hyd?	A- sr									A- hyd.			A- euh. stubby pr. 5-30 clrless-l.br.		T- Gn, Sp				**	?	fl	

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SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH	
264755B (191)	49/129.3	1.17%	fg.sd wispy Gn c anh.Sp c Po incl.;chalc.qz vn. cut by ank? cl vn.;Sp repl.qz vn.pref.; fg.tab.qz subh.in sd gm.;anh.Py clots; e.g. St near Clarkes.	A	C-			A						A	A	A					T	C-Sp A-Gn T-Cp		?	*	Po in Sp
264756A (192)	49/133.7	2.75%	vfg.cl gm.c fg.anh.qz & diss.lc grains;T- irreg.patches & hyd? entrolitic vn.of granular fl;o'printed by stalact. vn.of euh.Py repl.lamellae of fg.As & sd rims;fl o'grows earlier diffuse anh. sd clots;				A	C		C					C-		A	A-				T-A-lc Sp, Gn, Cp	fl	?		
264756B (193)	49/133.7	2.75%	subang.qz laths in fg.sr/clay vfg.gm.;clotty sd o'growth; minor anh.mg.qz clots; Py sd(qz)vn.;Sp vn.& mg.clots c vfg.spicular Po & Cp incl.; anh.wispy Gn clots c sd rims;Sp o'grows Py subh.c sd rims (also Po cores);	A-	C-	C-								A	A						T	A-T-lc Gn, Sp T-Cp		?	*	Po incl. in Sp
264757 (194)	49/135.3	1.70%	mottled fg.qz, vfg.tr?,clotty sd cut by irreg. sd fl Py vn.& clots; broader irreg.lam.tr? Py ank? euh.fl(Po)vn.; abt.ap incl.in fl;anh.Sp clots c Po? Gn incl.;	A-	A					A?	C			T	C							A-A-tc/? Sp sr fl T-T-C Gn A-ap				
264758 (195)	49/137.6	1.05%	fg.do?tr?sr & cherty qz:gm. stockworked by qz vn.,Sp(c Po? Cp Gn incl.)vn., sd Py vn.& Gn an.	C-	A-	A-	A-			A?				T? A- inclvn. in Sp		A-						A-T-C? T-ap Gn, Sp sm	qz sm	?	*	

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PETROGRAPHIC SUMMARIES - ZEEHAN DEPOSITS HOLE No. ZQ49 Page 4/6

SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH		
264760 (196)	49/142.7	1,450	fg.cherty qz gm. c sd rhombs,sd oct.Py Mc?lamel. vn.,Sp clots, vn.mbs early(diag?)& late qz vn.;late sd vn. cut Sp & Py;Py o'grows Sp;blades of Mo? lamellae in sd & irreg. growths in subh.Py;Py & Mc o'print Sp;Cp Gn(Po)incl.in Sp;later Gn anh.cut sd vn.; late rexst.of cubic Py;					C-	A-	A-				T	C-	A-						A-A-C Sp, Gn T-Cp		*	*	C'PA Mc text	
264761 (197)	49/144.7	6,700	chert relict patches in f-mg. anh.qz mesh;oct. Py in St ui. anh. c Cp incl.& Sp rims c eg.subh.qz trails; minor discrete clots of sr & sd in qz gm.;needles of ui.in qz;	C-	T-	T-										A						A-A- Cp wh., T-c St Sp anis.		*	?	* ui.	
264762 (198)	49/152.4	9,200	cherty qz c mg. rexst. anh.qz; mass.subh.mg.Py c minor interstit. As & minor sd incl.;sl fract.& brecc. c sd areas; anh.St c Cp incl.c minor ui. rare prox.cs to St c fl?; minor intergrowth of ui. c St; minor spherulites of sr; (prox.fl St) St Cp ui.interstit.to qz oct.Py;St c Sp rims cut small Py euhedra.	C-	A-	T-										C		A	T-A			T	T-T-Bl Cp,as above Sp			*	cs/ St
264765 (199)	49/171.5	90	relict vfg.C.lam. qz sr in brecc. C-bordered frag. fg.euh.Py in pref.beds, but also o'grows disrupted qz vn.;relict beds & frag.of do?-microsparite & irreg. fg.patches of sd/do in pelitic gm.;some cl areas in gm.; discont.subh.qz sd vn.& clots c oct.Py;	C-	A-	C	A-	A								C-							A-C A-C				
264766 (200)	49/175.3	-	subh.mg.Py in weak banded dist // relict lent. lam.of qz clay c Py fram.(5-10u);mg.Py encased in chalc.	C-												C-							A-C			*	Py c relict fram.

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SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH	
251656 (005)	50/117.6	-	fg.qz sr c relic amygd. text.; patches of sd alt. preserving amygd. text. cut by later subreg. sd vn.; diss. vfg.	A		C-C-hyd.									A										? diag. Py	
251658 (006)	50/141.5	<4	gran. mass. dolomicrosparite c irreg. network chert alt.; diss. subh. oct. fg. Py & vfg. atoll Py rare anh. anis. 'C' in chert; Py. chert frags. -1mm	A-C	A-vn.	A-vn.									A-semi-fram.											T-'C' T-C *
251660A (007)	50/168.6	-	vein-bladed sd c cl then Sp on margins, & cg. Py Sp in core; vein cuts sd vn. & qz vn. chert; Sp surrounds & penetrates subh. Py	C		C		A-vn.							C-hyd.											A-10-70 subequ.-anh. l.br. cl/sr in sd * cs in vn.
251660B (008)	50/168.6	-	vfg. sr & chert sed. gm. c irreg. disc. qz & sd cl vn.; diss. euh. Py Cp; ui. in sm. circular clusters & radial intergrowths of sd & c chalcedony rims	A		A-C-vn.		A-vn.							A											T- Cp ui.- gy. br. opaque c Cp
251661 (009)	50/173.9	-	flaser lam. sr c vfg. det. qz & lenses of fg. dolomitic; diss. subh. semi-fram. & atoll Py-5u & radial spheroids-15u	A		A		C-sr							A											? diag. Py
251662 (010)	50/188.9	-	vfg. faintly lam. 500u thick lam. of diss. subh.-anh. equ. Py 5-100u c chalc. shadows & some qz cores; sd Sp (c. Cp incl.) vn.	A		C		A-chalc.							A											T- Sp Cp

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SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH		
264469 (498)	51/108.5	3,800 (55Ag)	mg. subh. As c mass C Py-fract. infilled c fg. anh. qz; St intergrowths c Py & As; variable Cp incl. in St (also some Py incl. in St)												C												A-Cp
251996 (101)	51/226.9	4,850	roughly banded anh. fg. qz, mg. sd; anh. m-cg Py & Gm; Gm poik. c qz incl.; St atolls c Sp? (c Cp incl.) cores. c in Gm;			C									C												A-Cp C-Gn A-Sp * Te; St atolls
251998 (102)	51/236.3	1,050	br. mass. chert c fg. qz & qzose grains; cg. amygd. text. (scoria) now infilled c subh. qz, vfg. sr & ap; diss. cs in ap & qz; Py rims amygd. c in scoriateous patches; Py is fg. subh. or lacey-poss. o'prints cs			A-hyd.		A-sr/ clay (hyd.)							C												A-10-120 euh. equ gy. br. ap, qz A-ap ** repl. amyg.; cs in ap
251999 (103)	51/250.7	3.72%	fg. sr mg. anh. qz c relic amygd. text.; minor fl repl. of amygd.; Py evenly diss. anh. mg. masses & concentric repl. of amygd.; ang. 'C' in sr qz			C		C-sr							C												A-5-50 (ave. 20) subh.-5:1 prism. l. br. sr T-'C'
252000 (104)	51/253.9	1.65%	corrod. subh. qz ap in sd; relict sr patches c diss. os; clear subh. Py in clots & c sd vn.; qz sd Py pseudo. amygd.; lam. Mc after cg. Py euh.; rare anh. Po blebs; qz vn. o'prints by subh. Py; trail of diss. Sp Cp (graphic Cp incl. in Sp) pref. in sd; trail of anh. ang. clear isotropic 'C'			A		C-C-hyd. sr							T C A												A-30 subequ. anh. Sp? diss. in sr A-A-ap Cp ?
230516	51/230.3	940	fg. gran. qz c vfg. cherty relicts & tr mesh patches; relict amygd. text. outlined by br. incl.-rich qz; scattered mg. rt needles penetrate Py; anh. clusters of subh. poik. Py intergrown c f-mg. clustered euh. tab. ui. c zoned sr. cores; Py as mg. subh. clusters			C-hyd.		A-sr							A? (see ui.) C 30u tab. subh. intergrown c Py												T-A-rt. Cp-A- u-i. class B+ l+ 1 good # zoisite?

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PETROGRAPHIC SUMMARIES - ZEEHAN DEPOSITS HOLE No. ZQ53 Page 1/8

SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH
138887	53/257.0	2.40%	mod. banded anh. dull sd mosaic pervasive gran. fl repl. & cl lent.; fl Py vn. cut disc. some Py in gm. ap needles in fl. faint sd vn. cut by fl; sd poss. repl. cl except late cl vn.	A-	C-	T-	A			T-	C			T	C-							A-'C		*	
138888	53/258	1.84%	ang. frag. mg. sd C vn. (ex-diag?) in f-mg. sd o'printing tp? porphyroblasts; mg. qz & euh. partially absorbed by sd; late o'grow sd; irreg. fg. tr patches thin bands of minor subh. As at margins of Py(Po)vn.	C-	C-	A				A-			A? A	C	T	A-						T-'C		*	*
138889	53/260.5	1.83%	relict chert diss. sd rhombs; fg. subh. qz cl ap patches espec. centred on radiating tr; ing anh. Py after late sd vn. cut by qz.	C-	C-	A				A-			C->C			A						A-ap		*?	
296974 (465)	53/59.3	-	banded vn. in sr qz sd alt. amyg. tuff; mg. partially absorbed mg. qz euh. in m-cg. bladed sd/ank. qz (sr) bands alt. to interlam. discrete Gn grains in sd vn. & repl. in Py/Mc; Sp vn. & clots c Po St Py incl.;	A-	C-	A-								A->A->A	A-	T?						A-	?	*	*
296976 (466)	53/122.8	-	mottled qz cl after altered amygduloidal vitric tuff	C	A-	C-	C															A-'C		?	
296977 (467)	53/148.6	-	flattened amyg. text. defined by fg. qz cl vfg. Py euh. lent.; wispy sr vlt.; irreg. cb o'growths of do? rhombs;	C	C-	A-	C								A-								A-Fe-		?
296978 (468)	53/182.3	-	as above c cl anh. Py vn. cutting cb; some scoriaceous patches	C	C-	A-	C																A-Fe-		?
296979 (469)	53/212.3	-	amyg. qz cl sr relicts stock-worked by cl o'printed by fibrous sd; vn. of qz euh. o'printed by sd blades/fibres grading to cl anh. qz- Sp Gn anh. c sd attached to qz; Py anh. in gm.	C-	G-	A-	C-								A								A-	A-Fe-	
296980 (470)	53/237.1	-	1-5mm welded shards of vesic. tuff & minor spilitic lava; gm. & frag. qz sr cl Fe-oxide altered; some ank? ragged rhombs c O'growths; fig. subh. oct. Py in gm. as small clusters;	A	A	A	C	C							A								A-		
296981A (471)	53/239.1	1.32%	vfg. tr mesh gm. c spicular fg. wh. opaque/silty. subrd. qz tr gr. & cherty clasts in vfg. arg. qz gm.; discont. qz vn. cut by sd Py vn.; irreg. gm. & vn. c lent. t. abt. hairy tr/ap?	A-	A-	A-				C-					A-A-	A-							A-	A-to	incl. **

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SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH
296976 (466)	53/122.8	-	mottled qz cl after altered amygduloidal vitric tuff	C	A-	C-	C																A-'C		?
296977 (467)	53/148.6	-	flattened amyg. text. defined by fg. qz cl vfg. Py euh. lent.; wispy sr vlt.; irreg. cb o'growths of do? rhombs;	C	C-	A-	C								A-								A-Fe-		?
296978 (468)	53/182.3	-	as above c cl anh. Py vn. cutting cb; some scoriaceous patches	C	C-	A-	C																A-Fe-		?
296979 (469)	53/212.3	-	amyg. qz cl sr relicts stock-worked by cl o'printed by fibrous sd; vn. of qz euh. o'printed by sd blades/fibres grading to cl anh. qz- Sp Gn anh. c sd attached to qz; Py anh. in gm.	C-	G-	A-	C-								A								A-	A-Fe-	
296980 (470)	53/237.1	-	1-5mm welded shards of vesic. tuff & minor spilitic lava; gm. & frag. qz sr cl Fe-oxide altered; some ank? ragged rhombs c O'growths; fig. subh. oct. Py in gm. as small clusters;	A	A	A	C	C							A								A-		
296981A (471)	53/239.1	1.32%	vfg. tr mesh gm. c spicular fg. wh. opaque/silty. subrd. qz tr gr. & cherty clasts in vfg. arg. qz gm.; discont. qz vn. cut by sd Py vn.; irreg. gm. & vn. c lent. t. abt. hairy tr/ap?	A-	A-	A-				C-					A-A-	A-							A-	A-to	incl. **

SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	EM	OTH.	FI	PA	PH	
296998 (491)	53/301.2	-	dolo-micrite \bar{c} wavy lam. of qz 'C' lenticles & coarser dolo-intraclasts; ank.vn. \bar{c} qz cores; domain of subh.mg.Py as spheroids in minor fram.Py in dolomite	A-C-vn.do											A-subh. A-fram.							A-Sp T-Gn	A-'C'	?	*	diag. C; Sp \bar{c} Py, diag? Sp
264741 (181)	53/331.5	-	cl Fe-oxide gm. \bar{c} relict feathery spillitic text.; clots of anh.qz	C				C														A-Sp T-Gn	A-'C'			red oxide
264742 (182)	53/338.0	-	cl qz flow-text. amygduloidal tuff 1) cl qz alt. of volcanic 2) qz cb \rightarrow Py.vn. 3) cl \rightarrow cs oct. Py	C-C-hyd.				C							C-hyd.			A-1.br. euh.				T-Cp		?	** **	qz cs \bar{c} sm. - cl, med. PA
264743 (183)	53/352.1	-	relict plag xst-als & qzose. clas- ts in sd.gm. of Fe-oxide & cl.amygdules; irreg.diss.subh.Py & Cp	A-A-hyd.				A-C							A							T-Cp	A-'C'			A-Fe-oxide C-plag
264745 (184)	53/405.8	-	30u gran.do \bar{c} diss.subh.mg.Py/silty subang.qz ms in fg.qz cb C wavy lam.gm. \bar{c} diss.fram.Py & subang.frag.of arg.fig.sst.to 4mm.; fram.in frag.also;qz'C' vn.in both sed.types \bar{c} mg. subh.Py impinging on qz vn.;anh.Cp Sp Gn (fg.) in do rexst.vn.	A-C-vn.do (sed.)											A-fram. C-rexst.							T-Sp Gn Cp	A-C	?		

SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	EM	OTH.	FI	PA	PH	
264746 (185)	53/418.9	-	weakly cren.arg. siltstone/sst. cut by sd(Py Gn Cp) vn. & earlier 'C' in C vit. cut	C-det.				A-C-vn.sr.															T-Gn Cp Sp	A-'C'	?	

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SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH
251679 (024)	55/457.9	70	interlam. silty sr. shale, lam. C. dolomitic & silty clastic doloparite; sd & sd qz Sp vn.; Py chalc. clot	A-	A-	C-									A- fram.						A- Sp T- Cp	A- A-C			
251680 (025)	55/461.6	5,600	vein- f-mg. sd gm. c diss. prism. mg. qz & anh. mg. 'C'; Py subh. & vn. c Sp/Gn borders; patches of fibrous sr; wallrock frag. of some rext. oct. Py to sed. frag.	A-	A-	C-	A-								A- syn. A- hyd.		A- 10-60 subh. stubby				A- Gn, A-C Sp T-ap prisms	A- A-'C' Gn, A-C	?	*	cs prei in sed. frag. c oct Py & 'C'
251681 (026)	55/463.8	5,050	mg. do mosaic c diss. euh. mg. qz & oct. subh. Py; cs masses sl. embay Py; late qz vn. cut cs in do; incl. -rich	C-	C-	A-									T C- hyd.		A- -5-15 subh. subeq. br				T- Cp A- Gn		??	*	do, cs relict masses
251682 (027)	55/466.1	38	interbedded -20u gran. do- sl. brec. by diag. qz sr C, bedded Py, C. sandy shale; anh. mg. Sp in sd vn. &	A-	C-	A-	A-								A- fram./ rext.						A- Sp	A- A-C			
251683 (028)	55/468.0	4	lam. fram. Py c lesser sr. lam. Py c det. qz; subh. rext. oct. Py c relicts in sed. & cb	A-	A-		A-								C- fram./ rext.						T- Sp			*	cb Py vn. c relict Py fram.
251684 (029)	55/470.6	-	sr (cl)-infilled flattened amyg. in flow-text. sr cl qz gm.; irreg. 'C' sd qz patches	A		C	C-	A							T							A-'C'			

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SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH	
251685 (030)	55/490.7	-	weakly fol. br. vfg. sr/clay gm. det. c sand-silt-size det. subang.-subrd. & shale intraclasts	A-				C-	A													T- Gn, Cp	A-Fe oxide			

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SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH	
251967 (083)	62/220.1	650	200u subh.qz mos-aic c o'printing bands of network subh.mg.Py; qz has abt. C.incl.→diag?; vfg. trails of cs? in qz												C											
251968 (084)	62/221.1	8,600	euh.m-cg.qz c interstit.sd & fl; o'printed by sl.corrod. mg.opt.Py (partially qz interstit.); fg.anh.qz domains												A											
251969 (085)	62/223.6	3.85%	mass.anh.gran.Py (100u+) c interstit. anh.fg.qz; fl cs domains c relict do rhombs; do Py fl vn.cuts cs trail												C											* * relie do rhombs
251970 (086)	62/226.8	5.35%	mass.corrod.Po; also Po incl.in Py; euh.qz anh.sd fl c sd in sde.; 'C' c cs in qz																							* cs in Po, 'C'
251971 (087)	62/227.4	3.7%	corrod.Po, anh.Po anh.-subh.f-mg. qz hosting cs; mg.sd c skeletal by Fe-oxide & Py in qz																							* * cs & Po rim amyg.
251972 (088)	62/228.9	1.9%	f-mg.anh.qz, dusty ultrafg.fibrous tr o'printed by corrod.Po subh.Py in irreg.stockwork; cut by qz vn. then sd; Po cs rimmed qz-filled concentric amyg.; minor sd rims Py; cg.ap clots o'print? qz & o'printed by sd																							* * cs & Po rim amyg.

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SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH	
251973 (089)	62/230.7	1.04%	stressed fg.qz, vfg.fibrous tr c cs; o'printed by & sd rims; Py' colloform; 'C' in tr trail c minor cs; rare fg.anh.Po blebs preserved in sd; subh.mg.qz in sde.; fl sd vn.																							** ** cs in tr, Py c sd border
251974 (090)	62/231.4	1.42%	sr Fe-oxides qz show relict amyg. volc.text.; irreg. sd vn. c anh.fl patches 'C' trails in sr in, sd																							* * cs
251975 (091)	62/233.6	4,650	qz sr shows relict amyg.text.; irreg.sd network c cg.ap, subh.qz, rare anh.fl & diss.cs; anh.Sp Gn Po Mc in sd; Po→skeletal Mc; zoned vn.-Sp(Gn)→Py inner; cs shows no spatial assoc. c sde.																							* diss. cs in sd
251976 (092)	62/239.5	70	sr cl alt.amyg. volc.; irreg.sd patches & lesser vn.; Po Sp anh.corrod.clots (fg.& randomly dissem.; Po→Mc; cl euh.qz vn.																							* ? Po Sp repl.
251977 (093)	62/241.5	1.14%	sr qz alt.amyg. volcanic; subh.fl sd Po cs irreg.network; ap fl (Po) vn.; anh.'C' trail in sr & sd																							* * ap fl cs vn.

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SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH	
264774 (210)	63/87.2	-	subrdd.50-400u well-packed qz clasts & interstit.clay & lesser sr; minor tr clasts of 100u; trails of euh.Py -200u-also tight clusters	C-det.				A-sed. clay		T-det.					A-hyd.								T-sp?		?	rel. undeformed
264775 (211)	63/112.4	-	rdd.qzose & arg. qzose frag.in sr det. C fol.gm.c diss. /lent.of fram.Py; vn. disrupted qz vn.; pervasive rdd.frag.-4mm but finer frag.more ang.; fram.Py in both gm.& frag. pre-lith.brecciation although vn.qz is also brecc.;	C-det.				C-C-hyd. (sed.)		T-det.					A-fram.								A-C		?	timing of brecc.?
264777 (212)	63/118.2	-	mesh & sheath do blades & interstit.opaque C rare subh.Py & Gn; do Gn vn.; areas of anh.'C' qz ank? Gn Sp Py-Gn cuts 'C' & Py; 'C' also in C stylolite & rare repl? of do blades; good facing downhole by branching sheaths	A-vn./diag?				C-vn.															A-A-'C' Gn, A-C Sp		**	evap. facing diag! C
264778 (213)	63/125.4	-	bedded qz sr (cb) C & frag.blocks of chert 'C' fram. Py; qz 'C' vn.; qz vn. cut by sd vn. clots; widely-scattered columnar euh.Py in chert frag.may replace bedding;	A-vn.				A-C-A-vn. sr vn.							A-hyd.								A-'C' C-C		?	* C'surr-ounding fra m.ly
264779 (214)	63/143.7	-	interbedded arg. sst,qz sandy sr. shale; abt.fram. Py in qz-rich beds; C lam.in shale; Py spheroids in shale-crushed by compaction, some 'C' or cores generally to Py spheroids; qz sd vn.	C-det.				T-C-vn. sr vn.		T-det.					A-fram.								T-A-'C' diag?		** **	diag. St & cs? (probe)

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SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH	
264780 (215)	63/149.1	3,900	mass.fract.Py in filled by qz; St & Cp incl.in Py as clots at qz vn. intersections, Cp in qz-filled fract. cutting St blebs are 30-500u; sr/tr? clots in broader qz areas; (vfg.fibrous l+ & l-); oot.Py o'print mg.qz;	C-hyd.				A-sr		A? sr					C-hyd.								T-Cp T-Gn		*	* St in Py
264781 (216)	63/170.0	220	irreg. anh. stress. qz vn. inter-fol. sed. less rext. sed. qz/sr. C. shale relicts; irreg. fol. // vfg. tr & embedded cs & subh. mg. Py & qz tc infilled fract. B to fol. direction; minor tc alt. of tr; minor St Cp in sd patch in stressed qz vn.; some euh. qz is corroded by tr;	C-hyd.				T-C-hyd. sed.		C-hyd.					C-hyd.								T-A-tc Cp A-C T-Sp		*	? cs in tr, St
264782A (217)	63/172.1	1,350 (625Ag)	mosaic of anh. f-mg. qz & mg. sd diss. grains; anh. Gn Cp Te St o'grows sd qz; Cp exsolving from & repl. Gn; Te & Gn; all sde. repl. by subh. Py (& As); 50u blebs of Te also in Gn; overall frag. text. & sde. anh. frag. 2-4000u; twin lamellae in largest St plot; trails of euh. prism. As in qz; Gn & Cp infilled fract. in St; minor cren. sr. sed. frag.; disrupted sr vn. sr frag.	C-hyd.				A-ank? sed. hyd. A-vn.							A								A-T-ap Cp Gn		?	** * qz sm. Te
264782B (218)	63/172.4	3.40% (250Ag)	banded mass. sde. qz incl.; anh. St in subh. Py As intergrowth; Cp blebs in St & in qz vn. cutting Py;	A-hyd.											C								A-A-bl. gy Cp biref. anis. sde. qz (boulang?)		** **	cs c St
264784 (219)	63/207.6	-	subrdd. elong. qz silt. frag. in fol. C sr sed. gm.; cut by irreg. banded vn. Py qz sd vn.; Py fract. filled & As qz (sr?); qz band & sd core, inner vug is qz fl fille. clots of clear rext. Py o'prints Py;	C-det.				C-A-vn. sr vn.							C-vn.								A-C		*	qz

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SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH	
264465 (167)	66/274.2	-	mottled do repl. of vfg.mass.clay qz sd euh.Py in contact C con-torted lam.C.fram. Py sed. C mg.rrd. sd vn.// contact;	A-	C-	A-	C-	sed. vn. clay								A-hyd.							C-C			
264468 (168)	66/305.9	930	repl.amyg.-coll- of form sd & cl rim qz C subh.Py in core; in spherulitic C & rutile; irreg. incl.) in fract.; late irreg.'C' pl? qz ; sd qz Py	A-	A-	A-	C	A?								A-hyd.	A-5-20 l.br. equ.subh. qz in amyg.		A-A-'C'?	Sp	A-C	qz C cs repl. (v. sm.) of anyg.			*	
264464 (166)	66/229.5	-	mg.ave.600u gran- wkly bladed sd rhombs; diag? dis- ruption -> corrosion of rhombs by interstit. rhomb interstices; rare wh.-gy.anh. sde. 1)sd 2)'C' -> qz -> Py wh.-gy. sde.	A-	C-			diag. syn./diag. (stained)								A-bct. diag.			A-'C'?	T- qz ui. sm. wh.gy.sde.			**	*	diag. PA diag. FI	

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SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH
296947 (449)	71/89.3	-	subang.-subrdd. qz sand C inter-stit. argillite C erratic zones of silty-sandy ms. argillite; sr red oxid.vlt.					C-															T-zr (det.)		
296948 (450)	71/121.6	-	flaser-style dis- cont.bands of f- mg.mosaic qz in fol.C.sr gm.; sd -> fibrous sd -> sr C rare mg.Py & ap + fl	C-	det	A-	C-	vn.sr (sed.) A-? sr vn.								A-hyd?							A-C T-ap		
296950 (451)	71/158.2	-	contorted inter- beds of arg. siltstone, sr. shale & sd.cb; irreg. rexst. qz vn.; banded sd cl vn.					C-								A-vn.							T-zr (det.)		7 ch in QS
296951 (452)	71/181.7	9,550	fract.mg.Py C interstit.subh. mg.qz; St anh.& As subh.in qz; St has accidental Py & Cp exsolution incl.					A								C	A	A					A-Cp		?
296952 (453)	71/187.0	-	elliptical qzose frags.& disrupt. beds in fol.C.sr. vfg.qz gm.; ap sd Py vn.alt.->spherulitic sd/ms; clusters of fg.subh.Py in pref. frags.	C-		A	A-	sr vn.	A?							C-vn							A-ap (vn.) C-C		? ap in vn.
296957 (454)	71/259.6	-	bedded eg.& she- ath do, C sr qz; diag? do o'printed by cloudy euh.diag? qz then subh.mg. Py; interstit.fg.qz P 'C' to do grains	C-	A-	C	A-	sr vn. (stained)								C-	diag?						A-'C' A-C		* * evap?

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SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH
296958 (455)	71/264.9	-	frag. of interbedded qz sr siltstone/sd. carbonate in irreg. subh. qz mg. sd Py gm. c tr Py vn. & sd fl ap Py patches; cs in sed. sr.	A-	C-					A-	A				C-			A-				A-ap		?	
296960 (456)	71/295.5	-	lent. ol. shale frags. in fram. Py C sr lam. gm.; truncated lam. facing uphole; irreg. discont. qz Py vn. truncated by stylolitic C vlt.; cut by sd vn.													A-						T-C		*	facings
296962 (457)	71/299.0	-	bedded sr silt. bedding// sd qz det. Py Po Gn sd(qz)vn.; tab. blades of Po c Py Cp Gn alt. rims; Gn Py have mutual exsol.;	C-		C-	A-			T-					A-							A-		*	**
296964 (458)	71/302.6	-	euh. qz sd Sp Po Py infilled coarse vesicles & cl qz sr filled smaller vesicles; in cl sr qz Fe-oxide gm. c relict spherulitic text.; Py repl. corrod. Po; Sp in both qz & sd			C	C								A-							T-	A-Fe	*	*
296965 (459)	71/314.6	400	fg. cl anh. qz gm. cut by irreg. sd vn. c cs Cp or Py cores; broad banded lamellar Mc; anh. spicular	A-		C	C							A	C-A			A-				T-		?	?
296966	71/326.4	-	arg. silty qzose frags. in silty sr gm. in contact c fol. cl sr qz Fe-oxide diffuse qz Sp Py	C		A	C-A			T-												T-	A-tc?		

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SAMPLE No.	HOLE/DEPTH	Sn	TEXTURE	QZ	CB	SD	MS	CL	PL	TR	FL	SE	TP	PO	PY	MC	AS	CS	ST	TE	BM	OTH.	FI	PA	PH
296969 (461)	71/341.6	-	bladed vn. sd c skeletal Py -> Mc & scattered anh. Cp; minor anh. Po -> Py; subh. qz o'grown by Py; irreg. vfg. tr trails c cs; some Py rimming cs; vn. in contact c euh. qz sd Py-filled, qz-lined amyg. in qz cl gm.; cl alt. of sd at vn. margins; colloform sd vn. in volcanic	A		C									A->C->A			A						*	*
296970 (462)	71/346.5	4,050	sd gm. c minor subh. qz; blocks of colloform lamellar fibrous vfg. Mc, Py c Po Mc Cp incl. fine splintery As; As Cp Gn Sp infilling Py; Cp incl. in Sp; rare St c Sp	A-		C-									A	A	C	A				A-		*	text.
296972 (463)	71/355.8	-	sand-silt qzose frags. -5mm in fol. C. sr qz gm.; irreg. fibrous sd vn. c subh. Py o'growth; subh. -anh. f-mg. Py pref. in qzose frag.	C-		A-	C-															C-C			
296973 (464)	71/345.2	1,050	fg. gran. sd c mg. subh. qz o'grown by anh. mg. Py c dull vfg. fibrous anh. fg. Cp in sd; rare fg. Po incl. in Py; Po needles in sd	A-		C-									T	C-<-<->A						A-		?	*
296961 (-)	71/298.3	-	lode vein with cl. brecc. qzose silt/C matrix; cl cuts Py & sd; late sd cuts Sp	A-		C-	C-															A-			
296954 (-)	71/212.4	-	mylonitised & selectively Py sd alt. qzose silt/sst clasts in carbonaceous g/m.	C-		A-	C-															A-			