THIN SECTION:	330-U1374A-3R-1-W 114_116-BILLET 114-SLIDE 114	Piece No:	Unit:I	OBSERVER:THIN SECTION:SLIDE 114
ROCK NAME:	moderately olivine-phyric basalt clast			
WHERE SAMPLED:	clast type 2			
GRAINSIZE:	fine grained			
TEXTURE:	moderately phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	10								
olivine	5	20		8	1.2	skeletal			incomplete dome face (iddingsite); "skeletal olivine" & "euhedral to subhedral"
MICROPHENOCRYST									
plagioclase	0.01			0.3	0.4	laths[330]			just 2 grains
olivine	4	40		0.9	0.4	skeletal			incomplete dome face (iddingsite); "skeletal olivine" & "euhedral to subhedral"
augite	1			0.3	0.3	subhedral			sector-zoning titanaugite
VESICLES	3		0.1	1.8	0.6		low[330]	100	filled by calcite
GROUNDMASS	87								
opaque mineral	5								
olivine	4	95		0.09	0.06	subhedral to anhedral[330]			replaced by iddingsite (hematite?)
glass	68	100							palagonite
augite	1					anhedral			
plagioclase	9			0.2	0.01	microlite[330]			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite				vesicle	

STRUCTURE	no structure in groundmass
COMMENTS	

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-3R-2-W 7_9-BILLET 115-SLIDE 115	Piece No:	Unit:I	OBSERVER:THIN SECTION:SLIDE 115
ROCK NAME:	highly olivine-phyric basalt clast			
WHERE SAMPLED:	CLAST TYPE 1			
GRAINSIZE:	fine grained			
TEXTURE:	highly phyric & glomeroporphyritic			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	17								
olivine	11	50		6	2	skeletal			altered by iddingsite & clay; "olivine; euhedral to subhedral"
MICROPHENOCRYST									
olivine	3	80		0.9	0.6	subhedral			
augite	1			0.3	0.2	subhedral to anhedral[330]			
plagioclase	2			0.4	0.3	laths[330]			
VESICLES	4		0.02	1	0.3		low[330]	100	filled by calcite ("very angular; round")
GROUNDMASS	79								
augite	1			0.1	0.05	anhedral			
olivine	3	100		0.06	0.05	subhedral to anhedral[330]			altered by iddingsite
opaque mineral	4								
plagioclase	7			0.3	0.2	laths[330]			
glass	64	100							altered to clay

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite				vesicle	

STRUCTURE COMMENTS	weak trachytic texture in groundmass
SUMMARY DESCRIPTION	fresh olivine phenocryst

THIN SECTION:	330-U1374A-3R-2-W 53_55-BILLET 116-SLIDE 116	Piece No:	Unit:4	OBSERVER:THIN SECTION:SLIDE 116
ROCK NAME:	highly olivine-plagiclase-phyric basalt clast			
WHERE SAMPLED:	CLAST TYPE 1 in sedimentary unit			
GRAINSIZE:	fine grained			
TEXTURE:	porphyritic			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	11								
olivine	5	40		6	2	subhedral			alteration along cracks. Green clay (chlorite?)
augite	0.5	0		1.5	0.2	euhedral			some are broken
plagioclase	5			6.4	1	euhedral			oscillatory zoning
MICROPHENOCRYST									
olivine	1	80		0.4	0.2	subhedral			some altered to iddingsite (carbonate and clay)
VESICLES	1		0.2	0.4	0.3		high[330]	100	brown clay and calcite
GROUNDMASS	88								
olivine	3	80		0.1	0.05	subhedral			some altered to iddingsite
plagioclase	42	10		0.3	0.1	laths[330]			
Fe-Ti oxides	1	0		0.3	0.04	euhedral			
glass	42	100							Altered to green clay.

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
brown clay				vesicle	
calcite				vesicle	

STRUCTURE	no structure in groundmass
COMMENTS	

SUMMARY DESCRIPTION	highly olivine-plagioclase-phyric basalt clast in sediment

THIN SECTION:	330-U1374A-3R-2-W 108_110-BILLET 118-SLIDE 118	Piece No:	Unit:1	OBSERVER:THIN SECTION:SLIDE 118
ROCK NAME:	highly olivine-plagioclase-augite-phyric basalt			
WHERE SAMPLED:	representative of unit 1			
GRAINSIZE:	fine grained			
TEXTURE:	highly phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	20								
olivine	9	10		8	2	subhedral			some strained; replaced by clays/chlorite + carbonate
Fe-Ti oxide	0.5			3	3	anhedral			
plagioclase	2			1.2	1	subhedral			zoned
augite	1	0		3		subhedral			one with horneblende inclusion
MICROPHENOCRYST									
Fe-Ti oxide	1			0.5	0.5	euhedral			
plagioclase	3			1	0.5	subhedral			
olivine	4.5	50		1	1	subhedral			
VESICLES	1		0.1	0.8	0.2		medium	100	filled with calcite & green clay.
GROUNDMASS	79								
olivine	5	50		0.3	0.05	anhedral			altered by clay
Fe-Ti oxides	14			0.3	0.02				
plagioclase	30			0.3	0.15	laths[330]			aligned flow around phenocrysts
glass	30	65							altered

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
clay				vesicle	
calcite				vesicle	

STRUCTURE	no structure in groundmass
COMMENTS	

SUMMARY DESCRIPTION: Laths flowing around phenocrysts; strained olivine phenocrysts

THIN SECTION:	330-U1374A-4R-2-W 38_41-BILLET 119-SLIDE 119	Piece No:	Unit:2
ROCK NAME:	aphyric basalt		
WHERE SAMPLED:	representative of UNIT 2		
GRAINSIZE:	fine grained		
TEXTURE:	aphyric		

OBSERVER:THIN SECTION:SLIDE 119

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	3								
MICROPHENOCRYST									
olivine	2	100		0.4	0.2	subhedral to anhedral[330]			altered by iddingsite
plagioclase	1			0.5	0.3	laths[330]			inclined
VESICLES	2		0.06	1.6			low and elongated[EXP330]	100	vesicles filled with zeolite and calcite (in the middle).
GROUNDMASS	95								
plagioclase	60			0.2	0.08	laths[330]			inclined
glass	27	100							
olivine	2	100		0.1	0.07	anhedral			altered by iddingsite.
opaque minerals	6								

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite				vesicle	
zeolite				vesicle	

STRUCTURE	Pl laths flowing around phenocrysts
COMMENTS	

SUMMARY DESCRIPTION Vesicles are only along alteration zone; carbonate-filled vein with botryoidal structures at the rim (brown clay).

THIN SECTION:	330-U1374A-5R-2-W 137_139-BILLET 120-SLIDE 120	Piece No:	Unit:2
ROCK NAME:	aphyric basalt		
WHERE SAMPLED:	representative of UNIT 2; one more vesicular patch		
GRAINSIZE:	fine grained		
TEXTURE:	aphyric		

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	2								
MICROPHENOCRYST									
olivine	2	100		0.6	0.3	subhedral to anhedral[330]			
VESICLES	1		0.1	0.2	0.1		low[330]	100	filled with carbonate and zeolite in the middle + fibrous clay at the rim.
GROUNDMASS	97								
opaque mineral	7			0.08	0.02	subhedral			
plagioclase	60			0.2	0.1	laths[330]			inclined
olivine	1	100		0.08	0.02	anhedral			altered by clay.
glass	29	100							palagonite

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
zeolite				vesicle	
calcite				vesicle	

STRUCTURE	bands of aligned Pl laths, weak trachytic texture
COMMENTS	

SUMMARY DESCRIPTION Just freshest part of the thinsection is described here.

THIN SECTION:	330-U1374A-6R-1-W 114_116-BILLET 123-SLIDE 123	Piece No:	Unit:3	OBSERVER:THIN SECTION:SLIDE 123
ROCK NAME:	aphyric basalt clast			
WHERE SAMPLED:	clast in volcanic breccia			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	10								
MICROPHENOCRYST									
plagioclase	6			0.6	0.2	laths[330]			inclined
olivine	4	100		0.5	0.3	subhedral to anhedral[330]			completely altered by iddingsite & hematite.
VESICLES	4		0.7	11			low and elongated[EXP330]	100	filled with calcite and a few well-crystallized zeolites.
GROUNDMASS	86								
glass	81	100							
olivine	2	100		0.09	0.01	subhedral to anhedral			replaced by iddingsite
plagioclase	3			0.08	0.04	laths[330]			inclined

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite				vesicle	

STRUCTURE	bands of aligned Pl laths, weak trachytic texture
COMMENTS	

SUMMARY DESCRIPTION Width of calcite vein: 0.8mm.

THIN SECTION:	330-U1374A-7R-1-W 136_138-BILLET 124-SLIDE 124	Piece No:	Unit:4	OBSERVER:THIN SECTION:SLIDE 124
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:				
GRAINSIZE:	fine grained			
TEXTURE:	aphyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	5.5								
plagioclase	0.5			1.4	1.2	laths[330]			inclined
MICROPHENOCRYST									
olivine	2	100		0.2	0.1	anhedral			
plagioclase	3			0.9	0.7	laths[330]			inclined
VESICLES	1		0.2	2	0.3		low[330]	100	filled with calcite & brown and green clay (nontronite)
GROUNDMASS	94.5								
glass	76	100							altered to brown & green clay.
olivine	0.5	100		0.01		anhedral			replaced by clay.
plagioclase	15			0.1	0.06	inclined microlites[330]			
opaque mineral	3			0.02	0.01				

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite				vesicle	

STRUCTURE	bands of aligned Pl laths, weak trachytic texture
COMMENTS	

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-7R-4-W 112_114-BILLET 126-SLIDE 126	Piece No:	Unit:7
ROCK NAME:	palagonitized vitric aphyric[EXP330] basalt sand		
WHERE SAMPLED:	representative of lithic-vitric volcanic sand		
GRAINSIZE:	fine grained		
TEXTURE:	aphyric		

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	0								
MICROPHENOCRYST									
VESICLES	5		0.2	2.4	0.4		low[330]	25	"void space in matrix" -- calcite filling
	5		0.3	2	0.5		low[330]	5	palagonite on rims
GROUNDMASS	20								
Fe-Ti oxide	1			0.1	0.1	anhedral			in groundmass of clasts
glass	39	50							in rock matrix; altered; palagonized sandy particles;
olivine	0.5	100		0.2	0.05	anhedral			in clasts; few in groundmass; altered to iddingsite;
plagioclase	20			0.4	0.1	laths[330]			laths in sandy groundmass and aphyric basalt clasts;
plagioclase	13			0.4	0.1	laths[330]			laths in sandy groundmass and aphyric basalt clasts;
glass	5	100							in groundmass of clasts; altered; palagonized sandy particles;
olivine	0.5	100		0.1	0.05	anhedral			few in groundmass of clasts; altered to iddingsite;
pyroxene	0.5			0.2	0.05	anhedral			in groundmass of clasts
Fe-Ti oxide	5			0.1	0.1	anhedral			in matrix

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	No structure in groundmass
COMMENTS	

SUMMARY DESCRIPTION	Photo: Palagonized glass & aphyric basalt clast

THIN SECTION:	330-U1374A-9R-1-W 24_28-BILLET 132-SLIDE 132	Piece No:	Unit:8	OBSERVER:THIN SECTION:SLIDE 132
ROCK NAME:	moderately olivine-phyric basalt clast			
WHERE SAMPLED:	Volcanic breccia clast			
GRAINSIZE:	fine grained			
TEXTURE:	sparsely phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	5.5								
olivine	2	100		2.8	2.6	subhedral			altered by iddingsite and clay
plagioclase	0.5	70		4.2	2.1	laths[330]			
MICROPHENOCRYST									
plagioclase	2	50		0.9	0.7	laths[330]			
olivine	1	100		0.9	0.4	subhedral			altered by iddingsite and clay
VESICLES	25		0.04	10	0.4		low to moderate[EXP330]	100	Mainly filled by calcite and clay
GROUNDMASS	69.5								
olivine	2	100		0.05	0.02	subhedral to anhedral			Altered by iddingsite
glass	62	100							Altered glass.
plagioclase	5.5			0.2	0.1	laths[330]			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite				vesicle	

STRUCTURE	No structure in groundmass
COMMENTS	

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-9R-4-W 25_29-BILLET 133-SLIDE 133	Piece No:	Unit:8	OBSERVER:THIN SECTION:SLIDE 133
ROCK NAME:	moderately olivine-phyric basalt clast			
WHERE SAMPLED:	Volcanic breccia clast			
GRAINSIZE:	fine grained			
TEXTURE:	moderately phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	8								
olivine	3	100		3.6	2	subhedral			altered by iddingsite and brown clay
plagioclase	0.5	30		1.3	1.2	laths[330]			
MICROPHENOCRYST									
olivine	3	100		0.9	0.6	subhedral			altered by iddingsite ("brown clay")
plagioclase	1.5	20		0.9	0.4	laths[330]			subhedral to anhedral
VESICLES	3		0.06	10	0.4		low and elongated[EXP330]	100	Filled by calcite
GROUNDMASS	89								
glass	78	100							
plagioclase	8			0.1	0.05	laths[330]			
olivine	3	100		0.1	0.04	subhedral to anhedral			Iddingsite.

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite				vesicle	

STRUCTURE COMMENTS: No structure in groundmass; irregular arbonate-filled vein.

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-12R-4-W 115_119-BILLET 135-SLIDE 135	Piece No:	Unit:IX
ROCK NAME:	aphyric basalt		
WHERE SAMPLED:	Sedimentary breccia; CLAST TYPE 3		
GRAINSIZE:	fine grained		
TEXTURE:	aphyric & poorly glomeroporphyritic		

OBSERVER:THIN SECTION:SLIDE 135

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	3.1								
olivine	0.05	100		1.6		subhedral			altered by carbonate and brown clay
MICROPHENOCRYST									
plagioclase	1	0		0.7	0.5	laths[330]			
augite	2	0		0.8	0.5	subhedral			
olivine	0.05	100		0.3	0.3	subhedral			altered by brown clay
VESICLES	0.9		0.3	0.6	0.4		high[330]	100	filled by carbonate and brown clay
GROUNDMASS	96								
glass	53	100							
plagioclase	30	0		0.3	0.2	laths[330]			
olivine	6	100		0.1	0.08	anhedral			altered by iddingsite
augite	3	0		0.04	0.02	anhedral			
opaque minerals	4			0.1	0.05	usually needle shaped			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite				vesicle	also contains brown clay

STRUCTURE No structure in groundmass
COMMENTS

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-13R-1-W 3_5-BILLET 136-SLIDE 136	Piece No:	Unit:IX
ROCK NAME:	aphyric basalt		
WHERE SAMPLED:	Sedimentary breccia CLAST TYPE 3		
GRAINSIZE:	fine grained		
TEXTURE:	aphyric		

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	7								
MICROPHENOCRYST									
plagioclase	3	10		0.9	0.5	laths[330]			
olivine	3	95		0.9	0.2	skeletal, prismatic			altered by iddingsite
augite	1	0		0.4	0.3	subhedral to anhedral[330]			
VESICLES	7		0.1	0.8	0.4		low[330]	100	
GROUNDMASS	86								
glass	60	100							
augite	1	0		0.08	0.05	subhedral to anhedral			
olivine	5	100		0.1	0.06	subhedral to anhedral			
plagioclase	20	5		0.4	0.2	laths[330]			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite				vesicle	

STRUCTURE COMMENTS	No structure in groundmass

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-16R-1-W 125_127-BILLET 141-SLIDE 141	Piece No:	Unit:9	OBSERVER:THIN SECTION:SLIDE 141
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:	representative of unit 9			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	1.5								
MICROPHENOCRYST									
olivine	0.5	85		0.5	0.5	anhedral			skeletal; altered to iddingsite;
plagioclase	1	0		0.7	0.7	laths[330]			
VESICLES	0.5		0.16	0.26	0.2		moderate[330]	0	
GROUNDMASS	98								
glass	13	100							
plagioclase	50	0		0.4	0.1	laths[330]			alignment of laths
Fe-Ti oxide	10	0		0.1	0.05	subhedral			
olivine	10	90		0.4	0.1	anhedral			skeletal; altered to iddingsite;
augite	15								

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	calcite vein, bands of aligned pl laths, weak trachytic texture
COMMENTS	

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-17R-1-W 65_67-BILLET 143-SLIDE 143	Piece No:	Unit:10	OBSERVER:THIN SECTION:SLIDE 143
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:	Volcanic breccia clast			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric & sometimes subophitic			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	0								
MICROPHENOCRYST									
VESICLES	0.5		0.1	0.6	0.2		high[330]	30	smectite & calcite
GROUNDMASS	99.5								
olivine	6	90		0.9	0.2	subhedral to anhedral			altered by iddingsite. skeletal shaped
opaque minerals	4	0		0.1	0.02				
plagioclase	60	0		0.6	0.2	laths[330]			inclined
glass	29.5	100							

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	Weak trachytic texture defined by aligned plagioclase laths. Flow direction towards ~110-120 degrees (with 0 degrees being the top of the section)
COMMENTS	

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-18R-1-W 31_33-BILLET 145-SLIDE 145	Piece No:	Unit:10	OBSERVER:THIN SECTION:SLIDE 145
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:	Volcanic breccia clast			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	0								
MICROPHENOCRYST									
VESICLES	0.5		0.1	4.5	0.2		high[330]	100	zeolite
GROUNDMASS	99.5								
plagioclase	13	0		0.6	0.2	laths[330]			inclined
olivine	7	100		0.6	0.1	subhedral to anhedral			skeletal; completely altered by iddingsite.
glass	72.5	99							
opaque minerals	5	0		0.1	0.02				

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
zeolite				vesicle	

STRUCTURE: No structure in groundmass; conjugate, sigmoidal vein/fracture; partly carbonate filling.

COMMENTS:

SUMMARY DESCRIPTION: Carbonate vein.

THIN SECTION:	330-U1374A-18R-3-W 23_25-BILLET 146-SLIDE 146	Piece No:	Unit:11	OBSERVER:THIN SECTION:SLIDE 146
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:	Lava lobe			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	0								
MICROPHENOCRYST									
GROUNDMASS	100								
plagioclase	35	0		0.3	0.1	laths[330]			trachytic
opaque minerals	4	0							
olivine	2	100		0.1	0.01	anhedral			
glass	59	100							

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	Trachytic texture
COMMENTS	

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-19R-1-W 50_53-BILLET 147-SLIDE 147	Piece No:	Unit:12	OBSERVER:THIN SECTION:SLIDE 147
ROCK NAME:	basalt			
WHERE SAMPLED:	Altered part of volcanic clast			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	0								
MICROPHENOCRYST									
VESICLES	9								no vesicle
	9		0.1	2	0.7		low and	100	vesicles only in altered glassy part of volcanic clast
GROUNDMASS	91: vesicles (only in altered glassy part of volcanic clast) | 100: no vesicle (in fresh part of volcanic clast)								
plagioclase	25	0		0.4	0.2	laths[330]			
glass	55	90							altered part of thin section
olivine	9	70		0.3	0.02	skeletal			altered by iddingsite
opaque minerals	2			0.2	0.04	subhedral			
glass	63	5							fresh part of thin section

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite				vesicle	

STRUCTURE	Trachytic texture in clast, no structure in groundmass
COMMENTS	

SUMMARY DESCRIPTION 1/5th of the slide has a clast with fresh glass; fossils in matrix.

THIN SECTION:	330-U1374A-19R-2-W 41_43-BILLET 148-SLIDE 148	Piece No:	Unit:12
ROCK NAME:	aphyric basalt		
WHERE SAMPLED:	volcanic breccia clast		
GRAINSIZE:	fine grained		
TEXTURE:	aphyric		

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	0								
MICROPHENOCRYST									
GROUNDMASS	100								
olivine	5	80		0.9	0.1	skeletal			altered by iddingsite
glass	65	100							
plagioclase	30	0		0.9	0.1	laths[330]			trachytic texture

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	weak trachytic texture in groundmass
COMMENTS	

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-21R-2-W 23_25-BILLET 149-SLIDE 149	Piece No:	Unit:13	OBSERVER:THIN SECTION:SLIDE 149
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:	lava lobe			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	0								
MICROPHENOCRYST									
GROUNDMASS	100								
plagioclase	45	0		0.9	0.3	laths[330]			inclined
glass	49	95							some of the freshest parts observed in left bottom of the thin section.
olivine	6	100		1.2	0.2	skeletal			inclined

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	trachytic flow texture; sigmoidal carbonate vein.
COMMENTS	

SUMMARY DESCRIPTION	Carbonate-filled vein (3 mm in width/size)

THIN SECTION:	330-U1374A-21R-3-W 19_21-BILLET 150-SLIDE 150	Piece No:	Unit:14	OBSERVER:THIN SECTION:SLIDE 150
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:	volcanic breccia clast; glassy; aphyric basalt clasts are cemented by carbonate.			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	0								
MICROPHENOCRYST									
VESICLES	1		0.2	0.5	0.4		high[330]	100	Carbonate, minor zeolite;
GROUNDMASS	99								
plagioclase	20	0		0.6	0.3	laths[330]			
olivine	5	100		0.4	0.1	skeletal			altered by iddingsite
glass	74	100							palagonized clast and some fresh clast occurs; minor fresh glass in lower-left part of TS.

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
carbonate				vesicle	minor zeolite

STRUCTURE	No structure in groundmass
COMMENTS	

SUMMARY DESCRIPTION	Palagonized parts & rims. Some fresh glass occurs as a clast.

THIN SECTION:	330-U1374A-22R-4-W 49_51-BILLET 156-SLIDE 156	Piece No:	Unit:XI	OBSERVER:THIN SECTION:SLIDE 156
ROCK NAME:	moderately plagioclase-augite-phyric[EXP330] basalt			
WHERE SAMPLED:	Sedimentary UNIT XI, CLAST TYPE 1			
GRAINSIZE:	fine grained			
TEXTURE:	moderately phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	12								
clinopyroxene	0.5	0		2.6	1.5	euhedral to subhedral[330]			
plagioclase	3	0		2.9	1.5	euhedral to subhedral[330]			
olivine	1	98		3.6	2	subhedral			altered to iddingsite and carbonate/calcite
MICROPHENOCRYST									
opaque minerals	2	0		0.3	0.1	subhedral to anhedral[330]			
plagioclase	3	0		0.8	0.4	euhedral to subhedral[330]			
olivine	3	98		0.9	0.5	euhedral to subhedral[330]			altered to iddingsite and clay
clinopyroxene	0.1	0		0.8	0.4	euhedral to subhedral[330]			
VESICLES	7		0.05	1.2	0.5		moderate[330]	100	
GROUNDMASS	80								
clinopyroxene	5			0.06	0.03	subhedral			
olivine	1	100		0.05	0.02	subhedral			iddingsite
opaque minerals	15			0.05	0.02	subhedral			
glass	30	100							
plagioclase	30			0.2	0.08	laths[330]			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	No structure in groundmass
COMMENTS	

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-24R-1-W 27_29-BILLET 157-SLIDE 157	Piece No:	Unit:16	OBSERVER:THIN SECTION:SLIDE 157
ROCK NAME:	highly olivine-plagioclase-pyroxene-phyric basalt			
WHERE SAMPLED:	volcanic breccia			
GRAINSIZE:	fine grained			
TEXTURE:	highly phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	25								
plagioclase	4	5		5	1.4	tabular			sometimes sieve texture; (c-zoning)
augite	2	0		3	1.3	subhedral			
olivine	7	30		6.5	2	euhedral to subhedral[330]			moderately fresh
MICROPHENOCRYST									
olivine	6	50		0.9	0.4	euhedral to subhedral[330]			iddingsite
augite	1	0		0.9	0.3	subhedral			
plagioclase	5	5		0.9	0.6	tabular			clots, sieve texture
GROUNDMASS	75								
glass	51	100							
olivine	1	100				anhedral			
plagioclase	23	0		0.2	0.1	microlites			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	No structure in groundmass
COMMENTS	

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-24R-1-W 77_80-BILLET 158-SLIDE 158	Piece No:	Unit:18	OBSERVER:THIN SECTION:SLIDE 158
ROCK NAME:	highly olivine-plagioclase-pyroxene-phyric[EXP330] basalt			
WHERE SAMPLED:	Lava flow fragment			
GRAINSIZE:	fine grained			
TEXTURE:	highly phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	21								
plagioclase	4	5		5	1.2	sieve texture			
olivine	5	95		3	2	subhedral to euhedral[330]			altered to iddingsite and minor carbonate
augite	3	0		5.2	2.5	subhedral			
MICROPHENOCRYST									
olivine	4	95		0.9	0.4	subhedral to euhedral[330]			altered to iddingsite
augite	2	0		0.9	0.7	subhedral			
plagioclase	3	5		0.9	0.6	sieve texture			
GROUNDMASS	79								
plagioclase	20	0				laths[330]			
opaque minerals	15	0		0.05	0.01				
olivine	0.5	100				anhedral			
glass	43.5	100							

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	No structure in groundmass; small carbonate vein (0.2 mm).
COMMENTS	

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-24R-4-W 34_36-BILLET 159-SLIDE 159	Piece No:	Unit:20	OBSERVER:THIN SECTION:SLIDE 159
ROCK NAME:	highly olivine-plagioclase-augite phyric basalt			
WHERE SAMPLED:	Lave flow fragment			
GRAINSIZE:	fine grained			
TEXTURE:	highly phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	24								
augite	2	0		3	2.2	subhedral			
olivine	8	50		6	1.2	euhedral to subhedral[330]			altered to iddingsite, green clay and some carbonate
plagioclase	6	5		4	1.6	sieve texture[330]			tabular; microcline;
MICROPHENOCRYST									
augite	1	0		0.9	0.6	subhedral			
olivine	3	100		0.9	0.5	euhedral to subhedral[330]			
plagioclase	4	5		0.9	0.6	sieve texture[330]			tabular; microcline;
GROUNDMASS	76								
glass	71	100							
olivine	1	100		0.04	0.01	anhedral			
plagioclase	4	0		0.1	0.01	small laths			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE No structure in groundmass
COMMENTS

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-24R-4-W 100_102-BILLET 160-SLIDE 160	Piece No:	Unit:22
ROCK NAME:	highly olivine-plagioclase-pyroxene-phyric[EXP330] basalt		
WHERE SAMPLED:	Lava flow fragment		
GRAINSIZE:	fine grained		
TEXTURE:	highly phyric		

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	24								
augite	3	0		2	1.4	subhedral			
plagioclase	4	5		6	1.6	sieve texture[330]			tabular; centered-zoning.
olivine	7	100		3	1.5	euhedral to subhedral[330]			altered to iddingsite
MICROPHENOCRYST									
plagioclase	5	5		0.9	0.6	sieve texture[330]			tabular; centered-zoning.
augite	1	0		0.9	0.6	subhedral			
olivine	4	100		0.9	0.6	euhedral to subhedral[330]			altered to iddingsite
VESICLES	1		0.2	1.2	0.8		low and elongated[EXP330]	100	filled with carbonate & green clay (saponite)
GROUNDMASS	75								
olivine	2	100				anhedral			
plagioclase	9	0				laths			laths are small
glass	64	100							

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
carbonate				vesicle	also filled with green clay (saponite?)

STRUCTURE: No structure in groundmass
COMMENTS:

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-25R-1-W 112_115-BILLET 161-SLIDE 161	Piece No:	Unit:24	OBSERVER:THIN SECTION:SLIDE 161
ROCK NAME:	highly plagioclase-olivine-augite phyric basalt			
WHERE SAMPLED:	representative of UNIT 24			
GRAINSIZE:	fine grained			
TEXTURE:	moderately phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	18.5								
olivine	5	80		3.2	1.5	subhedral			contain inclusions; crystallized; altered to iddingsite.
augite	1	0		2	1.1	subhedral			
plagioclase	5	0		2	1.2	laths[330]			contain inclusions, mostly crystallized
MICROPHENOCRYST									
augite	0.5	0		0.7	0.6				
olivine	3	100		0.9	0.6	anhedral			inclusions; altered to iddingsite.
plagioclase	4	0		0.9	0.6	laths[330]			contain inclusions; mostly crystallized
VESICLES	0.5		0.5	0.8	0.8		high[330]	100	filled by calcite
GROUNDMASS	81								
glass	55	100							altered
opaque minerals	1	0		0.2	0.1	anhedral			
olivine	5	100		0.1	0.05	anhedral			altered to iddingsite
feldspar	20	0		0.1	0.1	laths[330]			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE COMMENTS	No structure in groundmass; carbonate vein (0.12 mm)
SUMMARY DESCRIPTION	Photo: Inclusions in feldspar.

THIN SECTION:	330-U1374A-25R-2-W 84_86-BILLET 162-SLIDE 162	Piece No:	Unit:26	OBSERVER:THIN SECTION:SLIDE 162
ROCK NAME:	moderately olivine-plagioclase-augite basalt			
WHERE SAMPLED:	lava flow or fragment			
GRAINSIZE:	fine grained			
TEXTURE:	moderately phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	18								
olivine	3	100		3.8	1	subhedral to euhedral[330]			iddingsite
plagioclase	2	0		9	1.8	subhedral			Some crystals contain sieve texture, some zonation, or fresh melt inclusions
pyroxene	1	0		1.2	1	subhedral			
MICROPHENOCRYST									
olivine	5	90		0.8	0.4	subhedral to euhedral[330]			iddingsite
pyroxene	2	0		1	0.5	subhedral			
plagioclase	5	0		1	0.5	subhedral			melt inclusions; sieve texture; some zonation;
VESICLES	0.5		0.2	1.8	0.4		moderate[330]		
GROUNDMASS	80								
glass	50	100							altered
plagioclase	25	0		0.15	0.1	laths[330]			
Fe-Ti oxide	5	0		0.02	0.005	subhedral to anhedral			
olivine	20	100		0.1	0.05	subhedral			altered to iddingsite

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE COMMENTS	No structure in groundmass; irregular vein
SUMMARY DESCRIPTION	vein filled with calcite and zeolite (at the rim);

THIN SECTION:	330-U1374A-25R-2-W 128_131-BILLET 163-SLIDE 163	Piece No:	Unit:28	OBSERVER:THIN SECTION:SLIDE 163
ROCK NAME:	moderately plagioclase-olivine-augite-phyric basalt			
WHERE SAMPLED:	representative of UNIT 28			
GRAINSIZE:	fine grained			
TEXTURE:	moderately phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	16								
olivine	3	80		2.2	1.5	euhedral			replaced by iddingsite
plagioclase	4	0		2	1.5	laths[330]			contain inclusions; form glomerocrysts with augite. Oscillatory zonation. Some crystals have sieve texture and/or are resorbed.
augite	1.5	0		1.3	1.1	subhedral			form glomerocrysts with plagioclase
MICROPHENOCRYST									
augite	0.5	0		0.8	0.5	anhedral			form glomerocrysts with plagioclase
olivine	2	90		0.9	0.7	subhedral			replaced by iddingsite
plagioclase	3	0		0.9	0.6	laths[330]			contain inclusions; form glomerocrysts with augite
VESICLES	1		0.05	0.1	0.08		high and rounded[330]	75	calcite
GROUNDMASS	83								
opaque minerals	1	0		0.1	0.05	anhedral			
augite	0.5	0		0.2	0.05	anhedral			glomerocryst with plagioclase
plagioclase	25	0		0.1	0.07	laths[330]			
olivine	9.5	100		0.1	0.05	subhedral			altered to iddingsite
glass	47	100							altered

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite				vesicle	

STRUCTURE	No structure in groundmass; veins are straight to sigmoidal.
COMMENTS	

SUMMARY DESCRIPTION	Photos: PX + PLAG glomerocrysts; 3 carbonate veins

THIN SECTION:	330-U1374A-25R-3-W 104_107-BILLET 164-SLIDE 164	Piece No:	Unit:30	OBSERVER:THIN SECTION:SLIDE 164
ROCK NAME:	highly olivine-plagioclase-augite-phyric[EXP330] basalt			
WHERE SAMPLED:	Lava lobe/fragment			
GRAINSIZE:	fine grained			
TEXTURE:	highly phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	11								
augite	2	0		2	1	subhedral			
plagioclase	3	0		4	1	euhedral			Some with inclusions. Some crystals have sieve texture and/or edge resorption. Some faint oscillatory zoning.
olivine	5	80		2.4	1.5	subhedral			iddingsite
MICROPHENOCRYST									
olivine	1	80		0.4	0.2	subhedral			iddingsite
VESICLES	4		0.1	4	0.5		elongate[330]	100	Calcite fill. Some clay?
GROUNDMASS	85								
glass	49	100							
olivine	5	100		0.1	0.05	subhedral			iddingsite
Fe-Ti oxide	1	0		0.3	0.1				
plagioclase	30	0		0.5	0.1	laths[330]			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite				vesicle	
clay				vesicle	

STRUCTURE	Calcite vein, no structure in groundmass
COMMENTS	

SUMMARY DESCRIPTION	Highly olivine-plagioclase-augite-phyric basalt

THIN SECTION:	330-U1374A-27R-2-W 49_51-BILLET 166-SLIDE 166	Piece No:	Unit:31	OBSERVER:THIN SECTION:SLIDE 166
ROCK NAME:	highly olivine-plagioclase-augite-phyric[EXP330] basalt			
WHERE SAMPLED:	representative of unit (lava lobe or fragment) and feldspar crystal			
GRAINSIZE:	fine grained			
TEXTURE:	highly phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	26								
augite	2	0		4.5	1.3	subhedral			
plagioclase	7	0		11	2	sieve texture[330]			centered-zonning
olivine	8	90		5.6	3	euhedral to subhedral[330]			
MICROPHENOCRYST									
augite	1	0		0.9	0.7	subhedral			
olivine	4	100		0.9	0.7	euhedral to subhedral[330]			
opaque minerals	1	0		0.5	0.2	euhedral to subhedral[330]			
plagioclase	3	0		0.9	0.7	sieve texture[330]			centered-zonning
GROUNDMASS	74								
olivine	1	100		0.06	0.02	anhedral			
plagioclase	4	0		0.1	0.04	small laths			
glass	69	100							

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	No structure in groundmass. Straight veins (0.16 mm)
COMMENTS	

SUMMARY DESCRIPTION Plagioclase megacrystal with groundmass inclusion (11mm). Also augite euhedral crystal with groundmass. Vein filled with carbonate.

THIN SECTION:	330-U1374A-27R-2-W 82_86-BILLET 167-SLIDE 167	Piece No:	Unit:31	OBSERVER:THIN SECTION:SLIDE 167
ROCK NAME:	highly olivine-plagioclase-pyroxene-phyric[EXP330] basalt			
WHERE SAMPLED:	feldspar crystal in unit 31			
GRAINSIZE:	fine grained			
TEXTURE:	highly phyric & plagioclase-augite glomeroporphyritic			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	22								
augite	2	0		2.6	1.2	euhedral to subhedral[330]			
olivine									
plagioclase	6	0		19	1.2	sieve texture[330]			
olivine	6	100		2.4	1.4	euhedral to subhedral[330]			
MICROPHENOCRYST									
olivine	4	100		0.9	0.6	euhedral to subhedral[330]			iddingsite
olivine									iddingsite
plagioclase	3	0		0.9	0.7	sieve texture[330]			oscillatory zonation or melt inclusions in some crystals
augite	1	0		0.9	0.7	euhedral to subhedral[330]			
GROUNDMASS	78								
olivine	1	100				anhedral			
plagioclase	3	0		0.1	0.01	small laths			
glass	73	100							
opaque minerals	1	0		0.1	0.1	subhedral			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE: No structure in groundmass

COMMENTS:

SUMMARY DESCRIPTION: Plagioclase megacrystal (19 mm) with sieve texture. Vein filled with carbonate & clay.

THIN SECTION:	330-U1374A-29R-4-W 17_19-BILLET 169-SLIDE 169	Piece No:	Unit:36
ROCK NAME:	aphyric basalt		
WHERE SAMPLED:	Lave flow fragment		
GRAINSIZE:	fine grained		
TEXTURE:	aphyric		

OBSERVER:THIN SECTION:SLIDE 169

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	1.5								
opaque minerals	0.01	0		1.2		only 1 anhedral crystal			
olivine	0.5	100		1.8	1	euhedral			altered by iddingsite and brown clay
MICROPHENOCRYST									
olivine	0.5	100		0.7	0.7	euhedral to subhedral[330]			altered by iddingsite and brown clay
plagioclase	0.5	0		0.8	0.4	laths[330]			
VESICLES	50		0.04	1.5	0.1		high[330]	95	Vesicles only in the upper part of thin section
GROUNDMASS	98.5								
plagioclase	40	0		0.2	0.1	small laths			
glass	52.5	100							
olivine	6	100		0.1	0.01	subhedral to euhedral[330]			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite				vesicle	also filled with clay (saponite?); calcite

STRUCTURE: No structure in groundmass

COMMENTS:

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-29R-4-W 107_110-BILLET 170-SLIDE 170	Piece No:	Unit:38
ROCK NAME:	moderately plagioclase-phyric[EXP330] basalt with glassy margin		
WHERE SAMPLED:	representative of unit 38		
GRAINSIZE:	aphanitic		
TEXTURE:	porphyritic, moderately phyric & few phenocrysts, but one very large		

OBSERVER:THIN SECTION:SLIDE 170

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	12.1								
olivine	0.5	100		1	1	subhedral			altered to iddingsite & green clays.
plagioclase	8	0		10	10	lath being resorbed			no inclusions in large phenocryst
MICROPHENOCRYST									
plagioclase	1	0		0.9	0.2	subhedral			host inclusions and being resorbed
opaque minerals	0.1	0		0.1	0.1	subhedral			inside olivine phenocryst
olivine	2.5	75		0.9	0.5	anhedral			altered to iddingsite & green clays.
VESICLES	0								calcite & quartz filling veins & voids
GROUNDMASS	87.9								
glass	78	66							glassy margin fresh in places, also palagonitized
opaques	1	0		0.1	0.05	subhedral			
plagioclase	9	0		0.05	0.03	laths[330]			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	No structure in groundmass
COMMENTS	

SUMMARY DESCRIPTION Photos: Large feldspar crystals without inclusions; glassy margin; resorbed feldspar microphenocrysts with inclusions.

THIN SECTION:	330-U1374A-29R-7-W 80_82-BILLET 171-SLIDE 171	Piece No:	Unit:39	OBSERVER:THIN SECTION:SLIDE 171
ROCK NAME:	moderately olivine-phyric basalt pillow/lobe			
WHERE SAMPLED:	Edge of pillow/lava lobe in breccia			
GRAINSIZE:	fine grained			
TEXTURE:	moderately			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	4.5								
olivine	1.5	100		2	1.5	euhedral			completely altered
plagioclase	0.5	0		1.5	1	subhedral			fresh. contains fresh melt inclusions
MICROPHENOCRYST									
olivine	2	90		0.6	0.5	subhedral			completely altered
plagioclase	0.5	0		0.6	0.5	euhedral to laths			fresh
VESICLES	1		0.1	1	0.8		low[330]	50	Some filled with clay (?). Vesicles in 'breccia matrix' filled with calcite
GROUNDMASS	94								
glass	50	100							
olivine	3	90		0.05	0.05	subhedral			
Fe-Ti Oxides	1	0		0.05	0.05				
plagioclase	40	0		0.15	0.1	laths[330]			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite				vesicle	some filled with clay

STRUCTURE COMMENTS: No structure in groundmass. Small straight veins (0.7 mm).

SUMMARY DESCRIPTION: Moderately olivine-phyric basalt clast in breccia of same composition. Continuous glassy margin (completely altered) with spalling shards. Transition to matrix breccia. Globules of glassy areas with plagioclase laths & spalling shards.

THIN SECTION:	330-U1374A-30R-1-W 50_52-BILLET 172-SLIDE 172	Piece No:	Unit:40	OBSERVER:THIN SECTION:SLIDE 172
ROCK NAME:	sparsely olivine-phyric basalt			
WHERE SAMPLED:	Lava fragment			
GRAINSIZE:	fine grained			
TEXTURE:	sparsely phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	6.5								
olivine	1	80		1.9	1.4	euhedral			altered by brown clay
plagioclase	0.01	0		1.2		sieve texture			1 crystal
MICROPHENOCRYST									
olivine	5	90		0.9	0.3	subhedral to euhedral[330]			altered by brown clay
plagioclase	0.5	0		0.9	0.8	anhedral			
GROUNDMASS	93.5								
plagioclase	10	0		0.1	0.08	small laths			
glass	79.5	100							
olivine	5	95		0.1	0.04	subhedral to anhedral			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	No structure in groundmass. Conjugate veins (0.12 mm)
COMMENTS	

SUMMARY DESCRIPTION There is some carbonate veins (1-2 mm width in size).

THIN SECTION:	330-U1374A-30R-5-W 12_15-BILLET173-SLIDE 173	Piece No:	Unit:49	OBSERVER:THIN SECTION:SLIDE 173
ROCK NAME:	moderately olivine-plagioclase-phyric basalt			
WHERE SAMPLED:	Lava fragment			
GRAINSIZE:	fine grained			
TEXTURE:	moderately phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	11								
plagioclase	1	0		2.3	1.4	tabular			sieve texture, centered-zonning, dissolved rims
olivine	2	20		3.2	1.6	euhedral			Brown clay and iddingsite alteration in fracture and rim
augite	0.01	0		2.2		subhedral			
MICROPHENOCRYST									
plagioclase	2	0		0.9	0.5	tabular			sieve texture, centered-zonning, dissolved rims
olivine	6	20		0.9	0.3	subhedral			Brown clay and iddingsite alteration in fracture and rim
GROUNDMASS	89								
opaque minerals	0.01	0		0.2	0.05	subhedral			
glass	79	100							
plagioclase	10	0		0.2	0.08	laths[330]			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	Moderate subvertical (~010-020 degrees) trachytic texture
COMMENTS	

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-31R-6-W 20_22-BILLET175-SLIDE 175	Piece No:	Unit:56	OBSERVER:THIN SECTION:SLIDE 175
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:	lava lobe fragment			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	1.5								
olivine	0.5	100		1.2	1.1	euhedral to subhedral[330]			altered to iddingsite and brown clay
MICROPHENOCRYST									
olivine	0.5	100		0.8	0.7	euhedral to subhedral[330]			altered to iddingsite
plagioclase	0.5	0		0.7	0.4	laths[330]			
GROUNDMASS	98.5								
plagioclase	10	0		0.2	0.1	small laths			
olivine	6	100		0.1	0.01	anhedral			iddingsite
glass	78.5	100							
opaque minerals	4	0		0.02	0.01	subhedral			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	No structure in groundmass
COMMENTS	

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-32R-4-W 3_5-BILLET176-SLIDE 176	Piece No:	Unit:58	OBSERVER:THIN SECTION:SLIDE 176
ROCK NAME:	sparsely olivine-phyric basalt			
WHERE SAMPLED:	lave lobe fragment			
GRAINSIZE:	fine grained			
TEXTURE:	sparsely phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	2								
hornblende	0.1	0		1	1	euhedral			single crystal
plagioclase	0.01	0		1.2		anhedral			single crystal
olivine	1	10		2.8	1.6	subhedral to euhedral[330]			gray clay along fractures
MICROPHENOCRYST									
olivine	1	10		0.8	0.6	subhedral to anhedral[330]			
GROUNDMASS	98								
plagioclase	15	0		0.5	0.2	laths[330]			
olivine	4	90		0.1	0.01	anhedral			
opaque minerals	5	0							
glass	74	100							

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	trachytic texture towards ~280 degrees (0 degrees being the up-arrow)
COMMENTS	

SUMMARY DESCRIPTION Single crystal of hornblende, replaced by magentite & pyroxene (0.9 mm in size).

THIN SECTION:	330-U1374A-33R-1-W 82_84-BILLET177-SLIDE 177	Piece No:	Unit:59	OBSERVER:THIN SECTION:SLIDE 177
ROCK NAME:	moderately olivine-phyric basalt			
WHERE SAMPLED:	volcanic breccia clast			
GRAINSIZE:	fine grained			
TEXTURE:	moderately phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	3								
olivine	2	99		2.4	1.8	euhedral to subhedral[330]			
MICROPHENOCRYST									
olivine	1	100		0.9	0.6	subhedral to anhedral[330]			
GROUNDMASS	97								
olivine	4	100		0.1	0.02	subhedral to euhedral[330]			
plagioclase	11	0		0.4	0.1	small laths			
magnetite	2	0		0.1	0.05				
glass	80	100							

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE COMMENTS: Strong trachytic texture defined by aligned plagioclase laths. But no orientation/way up arrow on thin section. Veins sigmoidal.

SUMMARY DESCRIPTION: Carbonate vein (1.5 mm thick).

THIN SECTION:	330-U1374A-34R-1-W 12_14-BILLET178-SLIDE 178	Piece No:	Unit:63	OBSERVER:THIN SECTION:SLIDE 178
ROCK NAME:	sparsely olivine-phyric basalt			
WHERE SAMPLED:	lava fragment			
GRAINSIZE:	fine grained			
TEXTURE:	sparsely phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	3								
plagioclase	0.5	0		2.3	1.2	anhedral			dissolved rims. Melt inclusions
olivine	1	80		2	1.6	euhedral to subhedral[330]			altered to iddingsite and brown clay in interior and rim
MICROPHENOCRYST									
olivine	1	70		0.8	0.4	euhedral to subhedral[330]			altered to iddingsite
plagioclase	0.5	0		0.4	0.4	anhedral			dissolved rims
GROUNDMASS	97								
glass	78	100							
olivine	6	100		0.1	0.01	subhedral to anhedral			
plagioclase	13	0		0.2	0.1	laths[330]			inclined

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE COMMENTS: trachytic flow texture defined by aligned plagioclase laths. But no way up arrow on thin section.

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-34R-2-W 63_65-BILLET179-SLIDE 179	Piece No:	Unit:64	OBSERVER:THIN SECTION:SLIDE 179
ROCK NAME:	moderately olivine-phyric basalt			
WHERE SAMPLED:	volcanic breccia clast			
GRAINSIZE:	fine grained			
TEXTURE:	moderately phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	3								
olivine	2	90		4	1.5	euhedral to subhedral[330]			altered to iddingsite
MICROPHENOCRYST									
olivine	1	90		0.9	0.8	euhedral to subhedral[330]			sometimes shows dissolved rims
VESICLES	2		0.1	4	0.4		moderate[330]	90	
GROUNDMASS	95								
olivine	5	100		0.1	0.01	subhedral to anhedral			
plagioclase	22	0		0.3	0.08	small laths			
glass	68	90							
magnetite	1	0		0.3	0.01				bimodal size distribution; large crystals are irregular, small crystals are euhedral

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite				vesicle	

STRUCTURE COMMENTS: some fresh glass. Weak horizontal trachytic texture in places in the lower part of the thin section.

SUMMARY DESCRIPTION: Some fresh glass in the lower part of the thin section.

THIN SECTION:	330-U1374A-35R-3-W 61_63-BILLET180-SLIDE 180	Piece No:	Unit:65
ROCK NAME:	sparsely olivine-phyric basalt		
WHERE SAMPLED:	Lava lobe		
GRAINSIZE:	fine grained		
TEXTURE:	sparsely phyric		

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	2.7								
olivine	1	50		2.2	1	euhedral to subhedral[330]			
MICROPHENOCRYST									
olivine	0.5	40		0.8	0.4	subhedral			devitrified melt inclusions
augite	0.2	0		0.8	0.4	anhedral			resorbed rims
plagioclase	0.5	0		0.6	0.5	anhedral			resorbed rims
opaque minerals	0.5	0		0.8	0.4	anhedral			resorbed rims
VESICLES	0.3		0.2	0.8	0.4		moderate[330]	100	calcite
GROUNDMASS	97								
olivine	6	100		0.2	0.05	anhedral			completely altered to iddingsite.
glass	52	100							
plagioclase	35	0		0.2	0.1	laths[330]			inclined
opaque minerals	4	0		0.2	0.02	subhedral			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite				vesicle	

STRUCTURE	Trachytic texture in groundmass (Pl). Non-oriented thin section
COMMENTS	

SUMMARY DESCRIPTION carbonate veins!

THIN SECTION:	330-U1374A-36R-1-W 98_100-BILLET181-SLIDE 181	Piece No:	Unit:67	OBSERVER:THIN SECTION:SLIDE 181
ROCK NAME:	sparsely olivine-phyric basalt			
WHERE SAMPLED:	lava lobe			
GRAINSIZE:	fine grained			
TEXTURE:	sparsely phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	2.2								
olivine	1	90		2.3	1.6	euhedral			partly altered to iddingsite and brown clay
augite	0.1	0		1.3		anhedral			resorbed rims
MICROPHENOCRYST									
plagioclase	0.1	0		0.8	0.3	anhedral			resorbed rims
olivine	1	95		0.9	0.6	subhedral			partly altered to iddingsite and brown clay
VESICLES	0.3		0.7	0.9	0.7		moderate[330]	100	calcite
GROUNDMASS	97.5								
plagioclase	7	0		0.2	0.1	laths[330]			
opaque minerals	0.5	0		0.5	0.2	anhedral			
olivine	8	100		0.1	0.02	anhedral			
glass	82	100							

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite				vesicle	

STRUCTURE: Trachytic texture in zones. Non-oriented thin section. Cross-cutting carbonate veins (0.12 mm)

COMMENTS:

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-36R-4-W 76_78-BILLET182-SLIDE 182	Piece No:	Unit:71	OBSERVER:THIN SECTION:SLIDE 182
ROCK NAME:	sparsely olivine-phyric basalt			
WHERE SAMPLED:	lava lobe			
GRAINSIZE:	fine grained			
TEXTURE:	sparsely phyric & rarely aug-pl glomeroporphyritic			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	3								
olivine	1.3	60		2.4	1.4	euhedral			altered to brown clay and iddingsite
MICROPHENOCRYST									
opaque minerals	0.5	0		0.9	0.5	subhedral			
olivine	1	30		0.8	0.4	euhedral to subhedral[330]			altered to brown clay and iddingsite
augite	0.1	0		1.6		anhedral			resorbed rims
plagioclase	0.1	0		0.8	0.6	anhedral			resorbed rims
GROUNDMASS	97								
glass	59	100							
plagioclase	30	0		0.3	0.1	laths[330]			
olivine	8	100		0.1	0.01	anhedral			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	Trachytic texture towards ~110 degrees. Straight carbonate veins (0.3 mm)
COMMENTS	

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-37R-3-W 20_22-BILLET183-SLIDE 183	Piece No:	Unit:74	OBSERVER:THIN SECTION:SLIDE 183
ROCK NAME:	sparsely olivine phyric basalt			
WHERE SAMPLED:	lava lobe (autobrecciated)			
GRAINSIZE:	fine grained			
TEXTURE:	sparsely phyric & sometimes aug-pl glomeroporphyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	2								
olivine	1.2	40		2.8	1.2	euhedral to subhedral[330]			moderately fresh, brown clay and iddingsite alteration in some part
opaque minerals	0.01	0		0.6	1.2	anhedral			
augite	0.1	0		2		anhedral			
MICROPHENOCRYST									
olivine	0.5	5		0.6	0.4	subhedral			moderately fresh, brown clay and iddingsite alteration in some part
plagioclase	0.2	0		0.6	0.4	anhedral			
GROUNDMASS	98								
glass	87.5	100							
opaque minerals	0.5	0		0.4	0.3	subhedral			
olivine	3	10		0.1	0.01	subhedral to euhedral[330]			
plagioclase	7	0		0.2	0.1	laths[330]			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	Trachytic texture towards ~260 degrees.
COMMENTS	

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-38R-3-W 86_88-BILLET184-SLIDE 184	Piece No:	Unit:78	OBSERVER:THIN SECTION:SLIDE 184
ROCK NAME:	sparsely olivine-phyric basalt			
WHERE SAMPLED:	lava lobe			
GRAINSIZE:	fine grained			
TEXTURE:	sparsely phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	2.5								
olivine	1	30		2	1.2	euhedral to subhedral[330]			sometimes resorbed rim, brown clay alteration. Melt inclusions
MICROPHENOCRYST									
olivine	1	30		0.9	0.4	euhedral to subhedral[330]			sometimes resorbed rim, brown clay alteration
plagioclase	0.2	0		0.8	0.6	anhedral			resorbed rim. Melt inclusions
opaque minerals	0.3	0		0.4	0.3	subhedral			
GROUNDMASS	97.5								
plagioclase	9	0		0.2	0.1	laths[330]			
magnetite	2.5	0		0.1	0.05				late stage
olivine	6	100		0.1	0.01	anhedral			iddingsite
glass	80	100							

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE COMMENTS: moderate trachytic texture towards ~110 degrees.

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-39R-2-W 66_68-BILLET185-SLIDE 185	Piece No:	Unit:79	OBSERVER:THIN SECTION:SLIDE 185
ROCK NAME:	sparsely olivine-phyric basalt			
WHERE SAMPLED:	volcanic breccia clast			
GRAINSIZE:	fine grained			
TEXTURE:	sparsely phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	4								
olivine	1.5	99		2.3	1.4	subhedral			
MICROPHENOCRYST									
opaque minerals	0.5	0		0.9	0.4	subhedral to anhedral[330]			
olivine	2	100		0.9	0.5	subhedral			
VESICLES	0.5		0.04	0.8	0.5		moderate[330]	100	
GROUNDMASS	95.5								
olivine	7	100		0.2	0.02	subhedral to anhedral			
plagioclase	2	0		0.2	0.1	laths[330]			inclined
glass	86.5	0							

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite				vesicle	filled with clay and calcite

STRUCTURE	Plagioclase microlites follow the outline of the phenocrysts; no structure in groundmass
COMMENTS	

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-39R-5-W 86_88-BILLET186-SLIDE 186	Piece No:	Unit:80	OBSERVER:THIN SECTION:SLIDE 186
ROCK NAME:	sparsely olivine-phyric basalt			
WHERE SAMPLED:	lava lobe or fragment			
GRAINSIZE:	fine grained			
TEXTURE:	sparsely phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	2.3								
plagioclase	0.3	0		1.2		anhedral			melt inclusions
olivine	1	60		5.4	1.2	euhedral to subhedral[330]			melt inclusions
MICROPHENOCRYST									
olivine	0.5	60		0.7	0.4	euhedral to subhedral[330]			
augite	0.1	0		0.6		anhedral			
plagioclase	0.2	0		0.4	0.4	anhedral			
opaque minerals	0.2	0		0.4		anhedral			
GROUNDMASS	97.7								
glass	82.7	100							
plagioclase	10	0		0.3	0.1	laths[330]			inclined
olivine	6	100		0.1	0.01	subhedral to anhedral			some skeletal crystals

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE COMMENTS: Moderate trachytic texture towards ~020 degrees.

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-40R-4-W 129_131-BILLET187-SLIDE 187	Piece No:	Unit:81	OBSERVER:THIN SECTION:SLIDE 187
ROCK NAME:	sparsely olivine-phyric basalt			
WHERE SAMPLED:	volcanic breccia clast			
GRAINSIZE:	fine grained			
TEXTURE:	sparsely phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	2.5								
plagioclase	0.3	0		1.4	1	anhedral			
olivine	1	80		2.4	1.2	subhedral			
augite	0.2	0		1.4		anhedral			
MICROPHENOCRYST									
olivine	0.5	30		0.8	0.4	subhedral			
plagioclase	0.5	0		0.6	0.6	anhedral			
GROUNDMASS	97.5								
plagioclase	20	0		0.4	0.1	laths[330]			inclined
glass	72.5	100							
olivine	5	100		0.2	0.01	subhedral to anhedral			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	sub vertical trachytic texture (towards (~0-010 degrees) NB in clast
COMMENTS	

SUMMARY DESCRIPTION Palagonized part in the right edge of the thin section.

THIN SECTION:	330-U1374A-41R-4-W 36_38-BILLET188-SLIDE 188	Piece No:	Unit:82	OBSERVER:THIN SECTION:SLIDE 188
ROCK NAME:	sparsely olivine-phyric basalt			
WHERE SAMPLED:	lava lobe			
GRAINSIZE:	fine grained			
TEXTURE:	sparsely phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	2								
plagioclase	0.2	0		1.2	1	anhedral			
olivine	1	10		3.2	2	euhedral to subhedral[330]			brown clay alteration in cracks
MICROPHENOCRYST									
plagioclase	0.1	0		0.4	0.3	anhedral			
augite	0.2	0		0.9	0.6	anhedral			
olivine	0.5	20		0.6	0.4	euhedral to subhedral[330]			brown clay alteration in cracks
GROUNDMASS	98								
glass	89	100							
olivine	5	80		0.2	0.01	subhedral to anhedral			
plagioclase	4	0		0.2	0.1	laths[330]			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE COMMENTS: No structure in groundmass; weak trachytic texture in bands.

SUMMARY DESCRIPTION: carbonate veins, 0.8 mm in size.

THIN SECTION:	330-U1374A-41R-6-W 103_105-BILLET189-SLIDE 189	Piece No:	Unit:83	OBSERVER:THIN SECTION:SLIDE 189
ROCK NAME:	moderately olivine-phyric basalt			
WHERE SAMPLED:	volcanic breccia clast			
GRAINSIZE:	fine grained			
TEXTURE:	moderately phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	3.4								
augite	0.1	0		1		anhedral			
plagioclase	0.3	0		1.4	1.2	anhedral			
olivine	2	60		3.2	2.2	subhedral			
MICROPHENOCRYST									
olivine	1	30		0.8	0.6	euhedral to subhedral[330]			
VESICLES	0.1		0.1	0.8	0.3		high[330]	100	
GROUNDMASS	96.5								
opaque minerals	0.5			0.2	0.2	subhedral			
plagioclase	10	0		0.3	0.1	laths[330]			inclined; trachytic texture
olivine	6	90		0.2	0.05	euhedral to anhedral			
glass	80	100							

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
zeolite				vesicle	green clay along vesicle walls, zeolite interiors

STRUCTURE COMMENTS: strong trachytic texture towards ~030 degrees (NB: this piece is from clast); carbonate vein (0.08 mm), irregular.

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-42R-5-W 117_119-BILLET190-SLIDE 190	Piece No:	Unit:84	OBSERVER:THIN SECTION:SLIDE 190
ROCK NAME:	moderately plagioclase-augite-phyric basalt			
WHERE SAMPLED:	lava lobe or fragment			
GRAINSIZE:	fine grained			
TEXTURE:	moderately phyric & plagioclase-augite glomeroporphyritic			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	7								
plagioclase	1.5	0		1.2	1	tabular			
augite	0.5	0		1.3		euhedral			
MICROPHENOCRYST									
plagioclase	4	0		0.9	0.8	tabular			
augite	1	0		0.8	0.5	subhedral			centered and hour-glass zonning
GROUNDMASS	93								
augite	4	0		0.3	0.1	subhedral to euhedral[330]			
glass	80	100							
plagioclase	9	0		0.4	0.2	laths[330]			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	moderate trachytic texture (but non-oriented thin section)
COMMENTS	

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-42R-6-W 119_121-BILLET191-SLIDE 191	Piece No:	Unit:86	OBSERVER:THIN SECTION:SLIDE 191
ROCK NAME:	moderately olivine-plagioclase-phyric basalt			
WHERE SAMPLED:	lava lobe or fragment			
GRAINSIZE:	fine grained			
TEXTURE:	moderately phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	9								
plagioclase	1	0		1.8	1	anhedral			
olivine	5	98		3.5	1.4	euhedral			
MICROPHENOCRYST									
plagioclase	1	0		0.9	0.5	anhedral			
olivine	2	100		0.9	0.6	subhedral			
GROUNDMASS	91								
plagioclase	3	0		0.3	0.1	laths[330]			
glass	87	100							
olivine	1	100		0.1	0.05	anhedral			iddingsite

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE COMMENTS: zones of weak sub-vertical trachytic texture; carbonate vein (0.2 mm); irregular.

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-43R-2-W 74_76-BILLET192-SLIDE 192	Piece No:	Unit:87	OBSERVER:THIN SECTION:SLIDE 192
ROCK NAME:	sparsely olivine-phyric[330] basalt			
WHERE SAMPLED:	volcanic breccia clast			
GRAINSIZE:	fine grained			
TEXTURE:	sparsely phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	2.5								
plagioclase	0.2	0		1.6	1.2	anhedral			
olivine	1	10		2.8	1.3	euhedral			fresh
MICROPHENOCRYST									
olivine	1	5		0.8	0.5	subhedral			
plagioclase	0.3	0		0.8	0.5	anhedral			
GROUNDMASS	97.5								
plagioclase	3	0		0.3	0.1	laths[330]			trachytic.
glass	89	100							
olivine	5	90		0.2	0.08	anhedral			skeletal. Altered by iddingsite.
opaque minerals	0.5			0.2	0.05	anhedral			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	moderate trachytic texture towards ~010 degrees (NB in clast)
COMMENTS	

SUMMARY DESCRIPTION Skeletal olivine in the groundmasss.

THIN SECTION:	330-U1374A-43R-7-W 83_85-BILLET195-SLIDE 195	Piece No:	Unit:88	OBSERVER:THIN SECTION:SLIDE 195
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:	volcanic breccia clast			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	5.5								
plagioclase	0.4	0		1.3	1	tabular			
MICROPHENOCRYST									
plagioclase	3	0		0.9	0.5	tabular			
augite	2	0		0.9	0.4	euhedral to subhedral[330]			
olivine	0.1	100		0.5		euhedral			iddingsite
GROUNDMASS	94.5								
augite	1.5	0		0.1	0.08	euhedral to subhedral[330]			
glass	83	100							
olivine	3	100		0.2	0.06	anhedral			iddingsite
plagioclase	7	0		0.2	0.1	laths[330]			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE COMMENTS	moderate trachytic texture towards ~130 degrees (NB in breccia clast)

SUMMARY DESCRIPTION The top part of the Thin Section is carbonate and zeolite-cemented breccia. 2 veins filled with calcite, zeolite + clay.

THIN SECTION:	330-U1374A-44R-2-W 121_125-BILLET196-SLIDE 196	Piece No:	Unit:88	OBSERVER:THIN SECTION:SLIDE 196
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:	volcanic breccia clasts with matrix			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	0								
MICROPHENOCRYST									
olivine	1	100		0.5					replaced by iddingsite on rims, green clay interiors
augite	2	0		0.5	0.4	euhedral			
plagioclase	3	0		0.8	0.4	subhedral			
VESICLES	5			1	0.4		high[330]		Green clay + calcite + celadonite (Vesicle modal abundance shows that matrix material comprises 40% of total)
GROUNDMASS	60								
olivine	1	100		0.2					iddingsite
plagioclase	6	0		0.5		laths[330]			
augite	2	0							
glass	45	75							Two small clasts w/ fresh glass

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite				vesicle	

STRUCTURE
COMMENTS

SUMMARY DESCRIPTION The matrix is dominantly carbonate. One 2 mm patch of celadonite is present in matrix

THIN SECTION:	330-U1374A-44R-3-W 18_20-BILLET197-SLIDE 197	Piece No:	Unit:88	OBSERVER:THIN SECTION:SLIDE 197
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:	volcanic breccia clast			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric & augite-plagioclase glomeroporphyritic			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	3.7								
plagioclase	0.5	0		1.5	1.2	tabular			centered-zoning and polysynthetic twinning
MICROPHENOCRYST									
olivine	0.2	100		0.5	0.3	subhedral			iddingsite
augite	1	0		0.7	0.4	subhedral			(sometimes) centered-zoning
plagioclase	2	0		0.9	0.5	tabular			centered-zoning and polysynthetic twinning
GROUNDMASS	96.3								
olivine	2.5	100		0.2	0.1	anhedral			iddingsite, skeletal
glass	89	100							
augite	0.5	0		0.15	0.02	anhedral			
plagioclase	4.3	0		0.2	0.1	laths[330]			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	No structure in groundmass
COMMENTS	

SUMMARY DESCRIPTION voids are filled with carbonate, celadonite and goethite

THIN SECTION:	330-U1374A-45R-7-W 22_24-BILLET198-SLIDE 198	Piece No:	Unit:88	OBSERVER:THIN SECTION:SLIDE 198
ROCK NAME:	moderately plagioclase-phyric[EXP330] basalt			
WHERE SAMPLED:	volcanic breccia clast			
GRAINSIZE:	fine grained			
TEXTURE:	moderately phyric & plagioclase-augite glomeroporphyritic			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	6.7								
plagioclase	2	0		1.6	1.2	tabular			
MICROPHENOCRYST									
augite	1.5	0		0.8	0.4	subhedral			
plagioclase	3	0		0.8	0.6	tabular			
olivine	0.2	100		0.8	0.5	subhedral			iddingsite
GROUNDMASS	93.3								
glass	85.8	100							
augite	0.5	0		0.08	0.03	subhedral to anhedral[330]			
olivine	2	100		0.2	0.1	anhedral			iddingsite
plagioclase	5	0		0.2	0.1	laths[330]			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE COMMENTS: Veins are sigmoidal (0.16 mm in size); no structure in groundmass.

SUMMARY DESCRIPTION: Small veins are filled with carbonate + green clay.

THIN SECTION:	330-U1374A-46R-6-W 140_142-BILLET199-SLIDE 199	Piece No:	Unit:89		OBSERVER:THIN SECTION:SLIDE 199
ROCK NAME:	aphyric basalt				
WHERE SAMPLED:	volcanic breccia				
GRAINSIZE:	fine grained				
TEXTURE:	aphyric				

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	0								
MICROPHENOCRYST									
VESICLES								99.1	Vesicles filled with zeolite & green clay.
GROUNDMASS	100								
augite	0.5	0		0.2	0.05	anhedral			
olivine	2	100		0.4	0.1	euhedral to subhedral[330]			replaced by iddingsite, skeletal texture
plagioclase	9	0		0.4	0.2	laths[330]			inclined
glass	88.5	100							

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
zeolite				vesicle	also filled with green clay

STRUCTURE	moderate trachytic texture towards ~250 degrees (note: in volcanic breccia; clay inside smectite rim); small amounts of celadonite & goethite. Moderate trachytic texture towards 260 degrees; irregular
COMMENTS	carbonate networks (0.4 mm in size).

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-47R-1-W 133_135-BILLET200-SLIDE 200	Piece No:	Unit:91	OBSERVER:THIN SECTION:SLIDE 200
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:	volcanic beccia			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	0								
MICROPHENOCRYST									
VESICLES	0.5		0.08	0.4	0.2		low[330]	100	rim of zeolite & filled with green clay.
GROUNDMASS	99.5								
plagioclase	10	0		0.4	0.1	laths[330]			
augite	0.5	0		0.3	0.05	anhedral			
olivine	3	100		0.4	0.1	anhedral			iddingsite, skeletal
glass	86	100							palagonite

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
green clay				vesicle	zeolite rim

STRUCTURE	No structure in groundmass
COMMENTS	

SUMMARY DESCRIPTION carbonate cemented volcanic breccia. Carbonate, celadonite, small amounts of goethite. Small zeolite veins in clast.

THIN SECTION:	330-U1374A-47R-3-W 80_82-BILLET202-SLIDE 202	Piece No:	Unit:92
ROCK NAME:	moderately plagioclase-augite-phyric basalt		
WHERE SAMPLED:	volcanic breccia with sandy matrix		
GRAINSIZE:	fine grained		
TEXTURE:	moderately phyric & aphanitic[330] & plagioclase-augite glomeroporphyritic		

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	9								
plagioclase	2	0		3.2	1.2	tabular			
augite	1	0		1.6	1.3	euhedral			
olivine	0.5	100		2.4	1.5	euhedral to subhedral[330]			replaced by iddingsite and smectite, carbonite
MICROPHENOCRYST									
augite	2	0		0.8	0.5	euhedral			Sometimes equigranular
olivine	0.5	100		0.8	0.5	euhedral to subhedral[330]			replaced by iddingsite and smectite, carbonite
plagioclase	3	0		0.8	0.4	tabular			
VESICLES								0	green clay in only a few tiny vesicles and in groundmass.
GROUNDMASS	91								
glass	86	100							
olivine	2	100		0.1	0.01	anhedral			iddingsite
plagioclase	3	0		0.1	0.05	small laths			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
green clay				vesicle	very small and only a few vesicles

STRUCTURE	No structure in groundmass; irregular veins (0.08 mm in size).
COMMENTS	

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-47R-7-W 102_104-BILLET203-SLIDE 203	Piece No:	Unit:93	OBSERVER:THIN SECTION:SLIDE 203
ROCK NAME:	moderately plagioclase-augite-phyric basalt			
WHERE SAMPLED:	volcanic breccia			
GRAINSIZE:	fine grained			
TEXTURE:	moderately phyric & plagioclase-augite glomeroporphyritic			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	12								
augite	2	0		2.4	1.5	euhedral to subhedral[330]			
olivine	0.8	100		1.3	1.2	euhedral to subhedral[330]			smectite, iddingsite
plagioclase	3	0		2.8	1.3	tabular			
MICROPHENOCRYST									
augite	1	0		0.8	0.5	euhedral to subhedral[330]			
olivine	0.2	100		0.9	0.4	euhedral to subhedral[330]			smectite, iddingsite
plagioclase	4	0		0.8	0.5	tabular			numerous fresh melt inclusions
VESICLES								100	vesicles filled with carbonate & zeolite.
GROUNDMASS	88								
plagioclase	1	0		0.1	0.1	laths[330]			
olivine	2	100		0.2	0.02	anhedral			iddingsite
glass	85	100							

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
carbonate				vesicle	also filled with zeolite

STRUCTURE	No structure in groundmass
COMMENTS	

SUMMARY DESCRIPTION veins filled with zeolite, clay & carbonate; widening from 0.08 to 2 m; no structure in groundmass.

THIN SECTION:	330-U1374A-48R-8-W 20_23-BILLET 205-SLIDE 205	Piece No:	Unit:94	OBSERVER:THIN SECTION:SLIDE 205
ROCK NAME:	moderately plagioclase-phyric[EXP330] basalt			
WHERE SAMPLED:	lava fragment			
GRAINSIZE:	fine grained			
TEXTURE:	moderately phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	9.5								
augite	0.5	0		2	1.2	euhedral			zoned
plagioclase	3	0		4.5	1.2	tabular			Sometimes "Sieve Texture", glomerocrysts, and/or oscillatory zonation
olivine	0.5	100		1.7	1.2	subangular			iddingsite + green clay + carbonate
MICROPHENOCRYST									
olivine	0.5	100		0.9	0.6	subangular			iddingsite + green clay + carbonate
plagioclase	4	0		0.9	0.4	tabular			Sometimes "Sieve Texture"
augite	1	0		0.8	0.4	euhedral to subhedral[330]			sometimes oscillatory zonation
VESICLES	0.5			3.2			elongate[330]	100	
GROUNDMASS	90								
plagioclase	2	0		0.1	0.01	laths[330]			
glass	87	100							
olivine	1	100		0.1	0.01	anhedral			iddingsite

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE COMMENTS	No structure in groundmass; vein is sigmoidal.

SUMMARY DESCRIPTION	carbonate veins (1mm in size); goethite

THIN SECTION:	330-U1374A-49R-1-W 92_94-BILLET206-SLIDE 206	Piece No:	Unit:95	OBSERVER:THIN SECTION:SLIDE 206
ROCK NAME:	moderately plagioclase-phyric[EXP330] basalt			
WHERE SAMPLED:	volcanic breccia clasts cemented by zeolite			
GRAINSIZE:	fine grained			
TEXTURE:	moderately phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	9								
augite	0.8	0		1.2	1.1	euhedral to subhedral[330]			crystals sometimes have zonation
plagioclase	1	0		1.4	1.2	tabular clots[330]			clots
olivine	0.2	100		1.1	1.1	euhedral to subhedral[330]			smectite and brown clay
MICROPHENOCRYST									
olivine	3	100		0.8	0.4	euhedral to subhedral[330]			smectite and brown clay
plagioclase	3	0		0.7	0.3	tabular clots[330]			
augite	1	0		0.8	0.4	euhedral to subhedral[330]			
GROUNDMASS	91								
plagioclase	1	0		0.1	0.01	small laths			
glass	89.5	100							
olivine	0.5	100		0.1	0.01	anhedral			iddingsite

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	No structure in groundmass
COMMENTS	

SUMMARY DESCRIPTION Altered glass clasts with palagonatized rims & smectites.

THIN SECTION:	330-U1374A-51R-6-W 43_45-BILLET208-SLIDE 208	Piece No:	Unit:101	OBSERVER:THIN SECTION:SLIDE 208
ROCK NAME:	moderately plagioclase-phyric[EXP330] basalt			
WHERE SAMPLED:	pillow or lava lobe?			
GRAINSIZE:	fine grained			
TEXTURE:	moderately phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	8								
augite	0.2			1.3		euhedral			some small melt inclusions
plagioclase	2	0		4.5	1.1	tabular clots[330]			some crystals have melt inclusions, oscillatory zonation
olivine	0.4	100		2.8	2	euhedral to subhedral[330]			iddingsite
MICROPHENOCRYST									
plagioclase	4			0.9	0.3	tabular clots[330]			oscillatory zonation, some small melt inclusions
olivine	0.1	100		0.8	0.8	euhedral to subhedral[330]			
augite	1.3			0.9	0.4	subhedral to euhedral[330]			
GROUNDMASS	92								
glass	89	0							green clay in groundmass
plagioclase	2	0		0.1	0.02	small laths			
olivine	1	100		0.2	0.01	anhedral			iddingsite

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE COMMENTS: No structure in groundmass; vein is irregular (0.2 m in size & width), filled with carbonate & clay; green clay in the matrix.

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-51R-6-W 78_82-BILLET207-SLIDE 207	Piece No:	Unit:102	OBSERVER:THIN SECTION:SLIDE 207
ROCK NAME:	sparsely phyric basalt			
WHERE SAMPLED:	volcanic breccia, clasts cemented by zeolite			
GRAINSIZE:	fine grained			
TEXTURE:	sparsely phyric & aphanitic[330] & sometimes glomeroporphyritic			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	4								
olivine	0.6	100		1.7	1.2	euhedral to subhedral[330]			altered to smectite and iddingsite
augite	0.4	0		2	1.2	euhedral to subhedral[330]			
MICROPHENOCRYST									
augite	0.5	0		0.9	0.5	euhedral to subhedral[330]			
plagioclase	0.5	10		0.8	0.3	subhedral			centered zoning
olivine	2	100		0.8	0.4	euhedral to subhedral[330]			altered to smectite and iddingsite
VESICLES	0.1		0.5	1.2	1		moderate[330]	100	in clast filled with carbonate and clay
GROUNDMASS	96								
glass	91	90							partly fresh, altered to palagonite
olivine	3	100		0.1	0.01	subhedral to anhedral[330]			altered to iddingsite
plagioclase	2	0		0.2	0.02	small laths			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
carbonate				vesicle	also filled with clay

STRUCTURE COMMENTS: Palagonatized clasts also.

SUMMARY DESCRIPTION: voids are filled with zeolite and some patches of carbonate, some geothite

THIN SECTION:	330-U1374A-52R-2-W 33_35-BILLET 209-SLIDE 209	Piece No:	Unit:103
ROCK NAME:	aphyric basalt		
WHERE SAMPLED:	vesicular basalt		
GRAINSIZE:	fine grained		
TEXTURE:	aphyric		

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	0								
MICROPHENOCRYST									
VESICLES	40		0.02	0.8	0.2		low to elongated[EXP330]	100	filled with celadonite & small amounts of goethite
GROUNDMASS	60								
glass	56.3	100							
olivine	0.5	100		0.1	0.05	anhedral			iddingsite
plagioclase	3	0		0.3	0.2	laths[330]			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
celadonite				vesicle	small amounts of goethite

STRUCTURE	No structure in groundmass
COMMENTS	

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-54R-4-W 38_40-BILLET 210-SLIDE 210	Piece No:	Unit:105	OBSERVER:THIN SECTION:SLIDE 210
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:	volcaniclastic breccia			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric & plagioclase + augite + olivine bunched clots in groundmass			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	0.5								
augite	0.3	0		1.7		subhedral			
MICROPHENOCRYST									
augite	0.2	0		0.8	0.5	subhedral			
VESICLES									some filled with green clay and celadonite
GROUNDMASS	99.5								
plagioclase	5	0		0.8	0.4	laths[330]			poorly aligned
augite	2	0		0.4	0.1	subhedral to anhedral[330]			
olivine	3	100		0.5	0.1	euhedral to anhedral			iddingsite
glass	89.5	100							

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
green clay				vesicle	celadonite

STRUCTURE	No structure in groundmass. Vertical trachytic texture (toward 000 degrees); veins are straight to irregular.
COMMENTS	

SUMMARY DESCRIPTION	veins filled with zeolite, goethite (?) & carbonate

THIN SECTION:	330-U1374A-55R-2-W 4_6-BILLET 211-SLIDE 211	Piece No:	Unit:106	OBSERVER:THIN SECTION:SLIDE 211
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:	intrusive sheet			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric & intersertal			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	0								
MICROPHENOCRYST									
VESICLES	3		0.2	5	0.3		low[330]	100	filled with carbonate
GROUNDMASS	97								
plagioclase	50	20		0.7	0.5	laths[330]			
pyrite	2			0.02	0.01	subhedral			
augite	1	0		0.04	0.01	anhedral			
glass	43	100							

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
carbonate				vesicle	

STRUCTURE COMMENTS: Vesicle bands strike 056-236 degrees, and contain different sizes and perccentage of vesicles; no structure in groundmass

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-55R-3-W 130_133-BILLET 212-SLIDE 212	Piece No:	Unit:107	OBSERVER:THIN SECTION:SLIDE 212
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:	volcaniclastic breccia			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric & sometimes glomeroporphyritic			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	0.5								
augite	0.1	0		1.1	1	anhedral			
MICROPHENOCRYST									
augite	0.4	0		0.4	0.4	subhedral			
VESICLES	5		0.3	7	6		low[330]	10	
GROUNDMASS	94.5								
augite	0.5	0		0.3	0.1	subhedral to anhedral[330]			
olivine	2	100		0.5	0.2	anhedral			green clay
glass	86	100							
plagioclase	6	15		0.8	0.3	laths[330]			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
clay				vesicle	zeolite (?)

STRUCTURE
COMMENTS

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-56R-4-W 13_15-BILLET213-SLIDE 213	Piece No:	Unit:107	OBSERVER:THIN SECTION:SLIDE 213
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:	volcaniclastic breccia			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric & sometimes glomeroporphyritic			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	0.5								
augite	0.1	0		1.1	0	anhedral			
MICROPHENOCRYST									
augite	0.4	0		0.4	0.4	subhedral			
VESICLES	5		0.3	7	6		low[330]	10	carbonate
GROUNDMASS	94.5								
augite	0.5	0		0.3	0.1	subhedral to anhedral[330]			
plagioclase	6	15		0.8	0.3	laths[330]			
glass	86	100							
olivine	2	100		0.5	0.2	anhedral			green clay

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite				vesicle	

STRUCTURE COMMENTS	weak trachytic texture towards 090 degrees
SUMMARY DESCRIPTION	celadonite around some (altered) phenocrysts

THIN SECTION:	330-U1374A-58R-4-W 28_32-BILLET214-SLIDE 214	Piece No:	Unit:116	OBSERVER:THIN SECTION:SLIDE 214
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:	intrusive sheet			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	0.5								
MICROPHENOCRYST									
plagioclase	0.1	0		0.4	0.4	tabular			
augite	0.4	0		0.6	0.5	anhedral			
VESICLES	15		0.04	1.6	0.2		low and elongated[EXP330]	100	zeolite; some pyrite
GROUNDMASS	84.5								
plagioclase	30	0		0.4	0.2	laths[330]			
glass	50.5	100							
pyrite	2				0.1	subhedral			
augite	2	0		0.2	0.1	subhedral to anhedral[330]			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
zeolite				vesicle	also filled with pyrite

STRUCTURE COMMENTS: Vesicle bands contain different sizes and percentage abundance of vesicles. Non-oriented thin section.

SUMMARY DESCRIPTION: Irregular vein filled with pyrite + zeolite (0.4 mm).

THIN SECTION:	330-U1374A-58R-4-W 70_72-BILLET215-SLIDE 215	Piece No:	Unit:116	OBSERVER:THIN SECTION:SLIDE 215
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:	massive lava (intrusive sheet)			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric & glomerocrystic			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	0.5								
plagioclase	0.2	30		2	1.2	subhedral			glomerocryst
MICROPHENOCRYST									
clinopyroxene	0.1	0		0.5	0.3	subhedral to euhedral[330]			some occur as glomerocryst with plagioclase
plagioclase	0.2	0		0.9	0.4	subhedral			some occur as glomerocryst
VESICLES	30		0.02	1.2	0.15		low[330]	50	filled with zeolite + carbonate
GROUNDMASS	69								
plagioclase	10			0.2	0.03	subhedral			
glass	30	50							
pyrite	1			0.03	0.01	subhedral to anhedral[330]			
clinopyroxene	10			0.15	0.03	subhedral			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
zeolite				vesicle	
carbonate				vesicle	

STRUCTURE COMMENTS: Intrusive sheet has glass-rich quenched rim along contact with country rock. the contact is curved, but strikes approximately 270-090 degrees. Vesicle bands are parallel to the contact.

SUMMARY DESCRIPTION: No structure in groundmass.

THIN SECTION:	330-U1374A-61R-1-W 3_5-BILLET216-SLIDE 216	Piece No:	Unit:129	OBSERVER:THIN SECTION:SLIDE 216
ROCK NAME:	moderately plagioclase-phyric[EXP330] basalt			
WHERE SAMPLED:	volcaniclastic breccia (clast)			
GRAINSIZE:	fine grained			
TEXTURE:	moderately phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	5.2								
plagioclase	2	0		2.4	1.2	tabular			
MICROPHENOCRYST									
plagioclase	3	0		0.9	0.5	tabular			
augite	0.2	0		0.5	0.4	subhedral to anhedral[330]			
GROUNDMASS	94.8								
glass	92.5	100							
augite	0.3	0		0.1	0.04	subhedral to anhedral[330]			
plagioclase	2	10		0.2	0.09	laths[330]			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	no structure in groundmass.
COMMENTS	

SUMMARY DESCRIPTION Altered glassy clasts with smectite rims (celadonite). Cemented by zeolite

THIN SECTION:	330-U1374A-62R-3-W 9_12-BILLET217-SLIDE 217	Piece No:	Unit:131	OBSERVER:THIN SECTION:SLIDE 217
ROCK NAME:	moderately plagioclase-phyric[EXP330] basalt			
WHERE SAMPLED:	volcaniclastic breccia			
GRAINSIZE:	fine grained			
TEXTURE:	moderately phyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	13								
plagioclase	9	10		3.2	2.5	tabular			fractured!
MICROPHENOCRYST									
augite	1	0		0.6	0.3	subhedral			
plagioclase	2	10		0.9	0.5	tabular			fractured!
VESICLES	50		0.06	3	0.4		low to moderate[EXP330]	100	Vesicular lower part of the thin section filled by/with zeolite & carbonate.
GROUNDMASS	87								
augite	0.5	0		0.1	0.05	anhedral			
plagioclase	2	0		0.2	0.1	laths[330]			laths are small
glass	84.5	100							

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
zeolite				vesicle	only in the lower part of this TS

STRUCTURE	No structure in groundmass.
COMMENTS	

SUMMARY DESCRIPTION: Green clay in small/tiny vesicles.

THIN SECTION:	330-U1374A-64R-2-W 38_40-BILLET218-SLIDE 218	Piece No:	Unit:136	OBSERVER:THIN SECTION:SLIDE 218
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:	intrusive sheet			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	1.6								
plagioclase	0.1	0		1.3		tabular			
MICROPHENOCRYST									
augite	0.5	0		0.8	0.4	subhedral			
plagioclase	1	0		0.9	0.7	tabular			
VESICLES	10		0.1	3	0.4		low and elongated[EXP330]	40	filled by zeolite and carbonate (smectite rim)
GROUNDMASS	88.4								
glass	54.4	100							
augite	5	0		0.3	0.1	subhedral to anhedral[330]			
plagioclase	30	80		0.3	0.2	laths[330]			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
zeolite				vesicle	also filled with carbonate and a smectite rim

STRUCTURE	no structure in groundmass.
COMMENTS	

SUMMARY DESCRIPTION Abundant augite in groundmass.

THIN SECTION:	330-U1374A-64R-6-W 129_132-BILLET219-SLIDE 219	Piece No:	Unit:137
ROCK NAME:	aphyric basalt		
WHERE SAMPLED:	volcaniclastic breccia (clast)		
GRAINSIZE:	fine grained		
TEXTURE:	aphyric		

OBSERVER:THIN SECTION:SLIDE 219

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	0								
MICROPHENOCRYST									
GROUNDMASS	100								
plagioclase	25	0		1	0.3	laths[330]			aligned
glass	74.5	100							
olivine	0.5	0		0.2	0.1	euhedral to subhedral[330]			skeletal, fresh

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	strong trachytic texture (but non-oriented piece)
COMMENTS	

SUMMARY DESCRIPTION

THIN SECTION:	330-U1374A-66R-4-W 29_31-BILLET220-SLIDE 220	Piece No:	Unit:136	OBSERVER:THIN SECTION:SLIDE 220
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:	volcanic breccia			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	3								
MICROPHENOCRYST									
opaque minerals	0.5			0.8	0.2	subhedral to anhedral[330]			
plagioclase	2.5	0		0.8	0.3	laths[330]			
VESICLES	50		0.03	1.2	0.06		high to low	100	filled with zeolite + palagonite + clay and some calcite
GROUNDMASS	47								
glass	44	100							altered to clay
plagioclase	3			0.1	0.05	laths[330]			small laths

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
zeolite				vesicle	also filled with zeolite, palagonite, clay and some calcite

STRUCTURE
COMMENTS

SUMMARY DESCRIPTION voids are filled with zeolite

THIN SECTION:	330-U1374A-69R-3-W 81_83-BILLET221-SLIDE 221	Piece No:	Unit:142	OBSERVER:THIN SECTION:SLIDE 221
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:	vitric-lithic volcanic sand and gravel			
GRAINSIZE:	fine grained			
TEXTURE:	glomerophyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	7								
MICROPHENOCRYST									
olivine	1			0.15	0.1	subhedral			
plagioclase	4			1.8	0.4	subhedral			glomerocryst
clinopyroxene	2			0.5	0.25	subhedral			sector zoning, glomerocryst
VESICLES	70		0.1	5.5	1		moderate[330]	50	rim of green clay (sapolite) + minor zeolite
GROUNDMASS	23								
olivine	0.5			0.06	0.04	subhedral			
clinopyroxene	0.5			0.06	0.03	subhedral			
glass	20	100							palagonite
plagioclase	1			0.1	0.05	laths[330]			
opaque minerals	0.5			0.03	0.01	subhedral			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS
green clay				vesicle	minor zeolite

STRUCTURE	No structure in groundmass
COMMENTS	

SUMMARY DESCRIPTION	voids are filled with zeolite

THIN SECTION:	330-U1374A-72R-1-W 53_55-BILLET222-SLIDE 222	Piece No:	Unit:147 & 148	OBSERVER:THIN SECTION:SLIDE 222
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:	boundary of Unit 147 (vitric-lithic volcanic gravel) and Unit 148 (intrusive sheet)			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	2								
MICROPHENOCRYST									
clinopyroxene	1			0.4	0.2	subhedral			only in Unit 147
plagioclase	1			0.5	0.3	subhedral			only in Unit 147
VESICLES	0								
GROUNDMASS	98								
olivine	10	100		0.15	0.08	subhedral			skeletal crystals
glass	43	90							Altered in the volcanic Unit 148, but some fresh glass in the vitric-lithic volcanic gravel (Unit 147)
opaque minerals	1	0		0.17	0.03	subhedral to anhedral[330]			
plagioclase	45	0		0.4	0.1	laths[330]			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE	
COMMENTS	Trachytic texture towards ~250 degrees. Interstitial material becomes blacker towards the contact with sediments - quenched flow top, or top of chilled intrusion?

SUMMARY DESCRIPTION: voids are filled with zeolite; veins are straight (0.6 mm); 2 veins filled with zeolite (clay at the rim)

THIN SECTION:	330-U1374A-72R-2-W 32_35-BILLET223-SLIDE 223	Piece No:	Unit:148	OBSERVER:THIN SECTION:SLIDE 223
ROCK NAME:	aphyric basalt			
WHERE SAMPLED:	massive basalt			
GRAINSIZE:	fine grained			
TEXTURE:	aphyric			

PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY	VESICLE SPHERICITY	VESICLE Infilling [%]	COMMENTS
PHENOCRYSTS	0								
MICROPHENOCRYST									
VESICLES	0								
GROUNDMASS	100								
clinopyroxene	25	0		0.1	0.05	subhedral to anhedral[330]			subophitic
glass	13	100							altered to green clay
opaque minerals	10	0		0.03	0.02	subhedral to anhedral[330]			
plagioclase	45	0		0.4	0.1	laths[330]			
olivine	7	0		0.1	0.08	subhedral			

SECONDARY MINERALOGY	SIZE(mm) min.	max.	mode.	REPLACING/FILLING	COMMENTS

STRUCTURE: zones of weak-moderate trachytic texture towards ~020 to 040 degrees.

COMMENTS

SUMMARY DESCRIPTION