

Leg 193 Igneous Log - Hole 1188A

Identifiers									Phenocrysts										Gms	Vesicles				
Unit	Core	Sec	Pc #	Inter.		meas. length (cm)	Depth core top	Depth Piece Top	Olivine				Plagioclase				Ti-Mt					Type		
				top	bot	(cm)	top	Top	%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max			(%)	Comments
1	2R	1	1	0	4	3	9.6	9.6					2	none	0.1	2					Microcrystalline glass	10	Plagioclase phenocrysts are lath-shaped and thin.	
1	2R	1	2	4	9	3		9.63					5	none	0.1	2.5					Microcrystalline glass	6	Do.	
1	2R	1	3	9	18	7		9.7					6	none	0.1	10					Microcrystalline glass	3	Do.	
1	2R	1	4	18	25	5		9.75					2	none	0.1	2					Microcrystalline glass	10	Do. Euhedral spinel included in plagioclase phenocryst.	
1	3R	1	1	0	4	3	19.2	19.2	tr				5	none	0.1	2					Microcrystalline glass	10	Do. Fine tube vesicles, 0.5 mm x 5-7 mm.	
1	3R	1	2	4	9	4		19.24	tr		1	3	2	none	0.1	1	1	FeOx	<0.1	0.1	Microcrystalline glass	5	Do. Pieces are magnetic, magnetite in groundmass. Olivine xenocryst aggregates with altered magnetite inclusions. Epidote aggregate on a surface (10 mm x 5 mm).	
1	3R	1	3	9	18	6.5		19.31	1		1	4	2	none	0.1	1	1	FeOx	<0.1	0.1	Microcrystalline glass	10	Do. As above, but not epidote.	
1	4R	1	1	0	9	3	28.9	28.9					2	none	0.1	1					Microcrystalline glass	8	Vesicles may be lenticular to fibrous, diameters 1 to < 1 mm x 5-10 mm.	
1	4R	1	2	8.5	13	3		28.93					3	none	0.1	1					Microcrystalline glass	10	Vesicles: Round to lenticular, diameters 1-2 mm x 1-5 mm.	
1	5R	1	1	0	7	3	33.6	33.6					<1	none	0.1	1					Microcrystalline glass	15	Flow structures on surface.	
1	5R	1	2	7	12	3		33.63					2	none	0.1	0.5					Microcrystalline glass	10	Mainly round vesicles 1 to 2 mm.	
1	5R	1	3	12	17	3		33.66					1	none	0.1	0.5					Microcrystalline glass	5	Mainly round vesicles 1 to 3 mm.	
1	5R	1	4	17	22	4		33.7													Microcrystalline glass	10	Minor sulfates on surface.	
1	5R	1	5	22	28	3		33.73					<1	altered?	0.1	0.3					Microcrystalline glass.	10	Moderately pervasive alteration (bleaching) and cavity fills of sulfate (trace clay and sulfides).	
1	5R	1	6	28	35	5		33.78														10	Vesicles partially filled with sulfate; bleached; 20% feldspar microlites (visible under binocular).	
2	5R	1	7	35	41	4		33.82													Perlite.	--	Bleached perlite with anastomosing dark gray clay alteration giving rise to a pseudoclastic texture.	
2	5R	1	8	41	49	5		33.87													Perlite.			
3	6R	1	1	0	7	4	38.6	38.6													Microlitic.	10	Anhydrite(?) lining inner surfaces of vesicles. Vesicles are lenticular 1-2 mm to 2-10 mm. Highly clay-altered (bleaching).	
1	6R	1	2	7	14	4		38.64					2	none	0.1	2					Glassy, microlitic.	10	Vesicles: Lenticular to fibrous 1 to <1 mm x 2 -7 mm. Plagioclase in euhedral laths. Could be pieces of unit 1 from above fallen down the pipe.	
3	6R	1	3	14	19	4		38.68													Microlitic.	5	Pervasive alteration. Anhydrite(?) lining inner surface of vesicles. Vesicles are round to lenticular 1-3 x 1-5 mm.	
1	7R	1	1	0	5	2	48.2	48.2					<1		0.1	1					Microlitic.	2		
1	7R	1	2	5	11	5		48.25					5		0.1	1					Microlitic.	10	Vesicles: round to lenticular; 0 to 1mm x 3mm to 2mm x 4mm.	
1	7R	1	3	11	15	2		48.27					3		0.1	1					Microlitic.	7	Vesicles; lenticular, max 2mm x 10mm.	
3	7R	1	4	15	18	2		48.29													Do.	2	Slightly altered.	
3	7R	1	5	18	23	2		48.31													Do.	5	Round vesicles, 1-2 mm.	
4	7R	1	6	23	27	2		48.33													Very fine grained.	3	Light gray: bleached, very high alteration intensity, no primary phenocrysts.	
4	7R	1	7	27	31	3		48.36													Do.	5	Light gray-light green, do.	
4	7R	1	8	31	42	4		48.4													Do.	3	Light gray: in-situ hydrothermal breccia with barite void fill.	

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				top	bot				%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max			
																					(%)	Comments	
4	7R	1	9	42	48	4		48.44													5	Round to angular vesicles and vugs 1-3 mm; inner walls lined with anhydrite crystals. Bleached ground mass (light gray).	
4	7R	1	10	48	54	5		48.49													5	Do.	
4	7R	1	11	54	62	4		48.53													5	Do. Vesicles almost completely filled in most cases.	
4	7R	1	12	62	80	16		48.69													5	Gray; vesicles round, lenticular to angular, mainly unfilled, 1 to 2 mm x 5 to 15 mm. Groundmass pervasively gray clay(?) -altered, anhydrite +/- pyrite veins.	
4	7R	1	13	80	87	6		48.75													5	As above.	
4	7R	1	14	87	95	6		48.81													7	As above; remnant flow banding.	
4	7R	1	15	95	102	4		48.85													5	As above.	
4	7R	1	16A	102	106	4		48.89													3	As above.	
5	7R	1	16B	106	109	2		48.91															Remanent flow banding.
5	7R	1	17	109	119	8		48.99															Coherent facies with jigsaw-fit texture; pseudoclastic texture. Rare remanent perlitic texture.
5	7R	1	18	119	128	8		49.07															Pseudoclastic texture as described in pc. 17. White fragments, speckled with fine sulfide, are porous (original vesicles?). Fragments are <= 1 cm, rounded.
5	7R	1	19	128	138	7		49.14															No igneous features.
5	7R	1	20	138	149	9		49.23															Do.
6	7R	2	1	0	26	25		49.48															Very little apparent igneous texture.
6	7R	2	2	26	43	16		49.64															Relict igneous clasts exhibit fine banding (flow banding?)
6	7R	2	3	43	54	10		49.74															Do.
6	7R	2	4	54	67	11		49.85															Do.
6	7R	2	5	67	73	3		49.88															Do.
6	7R	2	6	73	85	11		49.99															Clastic rock with <= 2cm clasts with flow banded texture.
6	8R	1	1	0	9	6	57.9	57.9												Glass.	30		Similar to , and probably part of, unit 1. Aphyric lava.
6	8R	1	2	9	13	3		57.93															No igneous texture.
6	8R	1	3	13	20	5		57.98															Pseudoclastic as in previous units.
6	8R	1	4	20	28	7		58.05															Do.
6	8R	1	5	28	42	11		58.16															Same as 7R-02, pc. 6 - abundant clasts with flow banding. Some kind of contact at base.
6	8R	1	6	42	46	2		58.18															No igneous texture.
6	8R	1	7	46	65	18		58.36															Flow-banded autobrecciated volcanic rock with extreme brecciation at top in contact with alteration zone.
6	8R	1	8	65	74	7		58.43															Flow-banded brecciated volcanic rock as in Pc. 7.
6	8R	1	9	74	97	23		58.66															Vuggy clay-anhydrite-pyrite material; no igneous textures remain unless vugs began as vesicles.
6	8R	1	10	97	107	9		58.75															Flow-banded brecciated volcanic rock as in Pc. 7.
6	8R	1	11	107	140	32		59.07															Clasts exhibit relict flow banding.
7	8R	1	12	140	144	4		59.11															Similar to Pc. 9.
7	8R	1	13	144	149	5		59.16													5		Bleached volcanic rock.
7	8R	2	1	0	7	5		59.21													5		Bleached volcanic, vesicles round to oblong, <= 4mm, average 1 mm.
7	8R	2	2	7	18	9		59.3													5		Bleached volcanic, vugs/vesicles range from <=1mm to 1 cm, round to oblong to irregular.
7	8R	2	3	18	22	3		59.33															Rubble, seems to be the same.

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				%	2nd minl				Size min	Size max	%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max				
				top	bot															(%)		
7	8R	2	4	22	33	7		59.4												Tr.	Bleached volcanic, trace of irregular small (<1mm) vesicles.	
7	8R	2	5	33	40	5		59.45													Rubble.	
7	8R	2	6	40	51	10		59.55												Tr.	As pc. 4.	
7	8R	2	7	51	60	9		59.64												Tr.	Rubble, as pc. 4.	
7	8R	2	8	60	69	9		59.73													Rubble.	
7	8R	2	9	69	73	4		59.77												Tr.	As pc. 4.	
7	9R	1	1	0	4	3	67.6	67.6													No igneous features.	
7	9R	1	2	4	11	5		67.65												5	Bleached volcanic rock. Average 1-mm vesicles.	
7	9R	1	3	11	16	4		67.69												5	Do.	
7	9R	1	4	16	29	12		67.81												5	Vesicles tube-shaped, up to 3 mm across and 1 cm long.	
7	9R	1	5	29	39	6		67.87												5	Cm-scale (maximum) vesicles or vugs.	
7	9R	1	6	39	54	13		68												5	Vesicles typically 1 mm across, tube-shaped up to 1 cm long.	
8	9R	1	7	54	88	32		68.32													Vuggy and perlitic volcanic rock, vugs to 5 mm, < 5%.	
8	9R	1	8	88	110	18		68.5													Do.	
8	9R	1	9	110	130	16		68.66													Do.	
8	9R	1	10	130	148	17		68.83													Do.	
8	9R	2	1	0	37	33		69.16													Do, except for a few vugs.	
8	9R	2	2	37	48	7		69.23												1	Perlitic pseudobreccia, vesicles <1 mm.	
8	9R	2	3	48	58	8		69.31												1	Do.	
8	9R	2	4	58	66	5		69.36												2	Vesicles up to 2 mm. Flow banding.	
8	9R	2	5	66	76	10		69.46												Tr.	Original(?) swirly flow banding preserved.	
8	9R	2	6	76	90	14		69.6													Do.	
8	9R	2	7	90	104	11		69.71													Perlitic texture preserved.	
8	9R	2	8	104	128	20		69.91												Tr.	Massive gray rock, vesicles <1 mm.	
8	9R	2	9	128	141	10		70.01												2	Vesicles <1 mm.	
8	9R	3	1	0	16	13		70.14													Bleached perlitic textured rock.	
8	9R	3	2	16	33	15		70.29													Perlitic texture, highly bleached at one end.	
	10R	1	1	0	5	4	77.3	77.3													Perlitic.	
8	10R	1	2	5	11	5		77.35													Do.	
8	10R	1	3	11	20	8		77.43												5	Do. Vesicles <1 mm.	
8	10R	1	4	20	34	12		77.55												2	Do. Vesicles <1 mm.	
8	10R	1	5	34	50	14		77.69												2	Do.	
8	10R	1	6	50	61	10		77.79												5	Do.	
8	10R	1	7	61	74	12		77.91												2	Do.	
8	10R	1	8	74	85	10		78.01												2	Do.	
9	10R	1	9	85	95	8		78.09												5	Aphyric sparsely vesicular. Vesicles elongate, about 1 mm across, <1 cm long.	
9	10R	1	10	95	110	15		78.24													Perlitic or brecciated pebbles.	
9	10R	1	11	110	122	11		78.35												5	Aphyric sparsely vesicular. Vesicles elongate, about 1 mm across, <1 cm long.	
9	10R	1	12	122	131	9		78.44												5	Aphyric, vesicles spherical to slightly ovoid, up to 4 mm across.	
9	10R	1	13	131	140	8		78.52												2	Do.	
9	10R	1	14	140	147	5		78.57												Tr.	Vesicles <1 mm across.	
9	10R	2	1	0	6	5		78.62												3	Spherical vesicles <=2 mm across.	
9	10R	2	2	6	13	6		78.68												1	Ovoid vesicles <=4 mm across.	
9	10R	2	3	13	19	4		78.72												1	Vesicles <=1 mm across.	
9	10R	2	4	19	26	5		78.77												3	Vesicles <=1 mm across.	
9	10R	2	5	26	31	3		78.8												Tr.	Do.	
9	10R	2	6	31	42	10		78.9												1	Do.	
9	10R	2	7	42	46	3		78.93												1	Do.	
9	10R	2	8	46	51	3		78.96												Tr.	Do.	

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Unit	Core	Sec	Pc #	Inter.		meas. length (cm)	Depth core top	Depth Piece Top	Olivine				Plagioclase				Ti-Mt				Size	Size	Gms Type	Vesicles (%)	Comments
				%	2nd minl				Size min	Size max	%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max							
9	10R	2	9	51	57	3		78.99														Tr.	Do.		
9	10R	2	10	57	66	8		79.07														Tr.	Do.		
9	10R	2	11	66	73	6		79.13																Weakly perlitic or banded.	
9	10R	2	12	73	79	5		79.18														Tr.	Do.		
9	10R	2	13	79	87	4		79.22																Massive.	
9	11R	1	1	0	15	7	86.9	86.9																Massive, vfg, bleached, completely altered gray clay-rich groundmass. Anhydrite +/- pyrite veins.	
9	11R	1	2	15	30	14		87.04																As above; 2 med alter holes around anhydrite veins, inc. bleaching.	
9	11R	1	3	30	44	10		87.14																As above; bleaching; alteration along vein traces with clay, anhydrite, pyrite.	
9	11R	1	4	44	56	9		87.23														<1		Massive, as above, bleaching; high degree of alteration with discontinuous py/sulfides, relic vesicles with py fill.	
9	11R	1	5	56	75	11		87.34																As above, relict perlitic texture, disc. sulfides, anhydrite+clay veins with alteration rinds along veins.	
9	11R	1	6	75	83	7		87.41														<1		As above, less relict perlitic texture, relict vesicles round to elongate.	
9	11R	1	7	83	101	9		87.5																As above, bleaching, alteration rinds along fractures and veins.	
9	11R	1	8	101	108	4		87.54																As above.	
9	11R	1	9	108	124	9		87.63																As above; dis. sulfides; anhydrite and clays +/- pyrite in veins, and sulfide fracture fill.	
9	11R	1	10	124	138	6		87.69																Relict(?) perlitic texture; bleaching, alteration rims as above.	
9	11R	2	1	0	13	10	88.28	88.28																Gray, completely altered with holes; relict(?) perlitic texture near center.	
9	11R	2	2	13	40	11		88.39																As above, crumbled material.	
9	11R	2	3	40	54	10		88.49														5		As above, with open and partially or completely anhydrite-filled vesicles.	
9	11R	2	4	54	67	5		88.54																Gray, completely clay-altered.	
9	11R	2	5	67	74	4		88.58																Do.	
9	11R	2	6	74	86	8		88.66																do with faint ?flow banding	
9	11R	2	7	86	93	5		88.71																Do.	
9	12R	1	1	0	4	2	96.6	96.6																Completely altered, gray clay-rich groundmass.	
9	12R	1	2	4	11	6		96.66																As above; anhydrite veins with halos (bleaching).	
9	12R	1	3	11	39	18		96.84																As above.	
								96.94																Multiphase alteration; remnant flow banding, wavy texture, white (sulfate?) and dark gray (clay-silica) discontinuous bands (mm-scale) => selective replacement of glassy and devitrified bands.	
10	12R	1	4	39	50	10		97.01																Pseudoclastic texture; apparent clasts, white (?sulfate); apparent matrix: dark gray (clay-silica), remnant perlitic.	
10	12R	1	6	58	71	12		97.13																Pseudoclastic texture; apparent clasts: chlorite-rich; apparent matrix: silica-clay.	
10	12R	1	7	71	78	5		97.18																As above; + anhydrite veins with bleached selvage.	
10	12R	1	8	78	91	12		97.3																As piece 7.	
10	12R	1	9	91	95	2		97.32																As piece 6.	
10	12R	1	10	95	103	7		97.39																As above.	
10	12R	1	11	103	117	13		97.52																As above.	
10	12R	1	12	117	128	10		97.62																As above.	
10	12R	1	13	128	140	8		97.7																As above.	

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				top	bot				%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max			
																					(%)	Comments	
10	12R	1	14	140	149	6		97.76														As above.	
10	12R	2	1	0	10	4	98.08	98.08														As piece 6 in 12R-1.	
10	12R	2	2	10	27	15		98.23														As above.	
10	12R	2	3	27	36	6		98.29														As above.	
10	12R	2	4	36	53	15		98.44														Spectacular folded flow banding: clay-altered bands with isolated spherulites + light gray clay-rich bands; band thickness: 1-5 mm.	
9	13R	1	1	0	7	6	106.3	106.3														Bleached, remnant(?) filled vesicles, dislodged unit 9.	
10	13R	1	2	7	12	4		106.34														Flow banded; gray clay-silica rich divitrified bands; dark green chlorite-rich vesicular bands, vesicles filled partially with anhydrite, chalcopyrite.	
11	13R	1	3	12	19	3		106.37														Completely altered, bleached, gray groundmass and stockwork veins.	
11	13R	1	4	19	27	6		106.43												3		As above, with remnant vesicles d=1-2 mm, spherical jigsaw breccia.	
11	13R	1	5	27	34	4		106.47														Bleached white, completely altered.	
11	13R	1	6	34	42	5		106.52														Gray, bleached, relict(?) perlite.	
11	13R	1	7	42	52	8		106.6														Irregular anhydrite-pyrite vein; gray, bleached aphyric groundmass.	
11	13R	1	8	52	59	6		106.66														As above.	
11	13R	1	9	59	73	11		106.77														Bleached, anhydrite veins; jigsaw breccia, pseudoclastic texture.	
11	13R	1	10	73	81	6		106.83														As above.	
11	13R	1	11	81	92	10		106.93														As above.	
11	13R	1	12	92	98	4		106.97														As above.	
11	13R	1	13	98	110	9		107.06														As above.	
11	13R	1	14	110	118	4		107.1														Completely altered white bleached gravel.	
11	13R	1	15	118	127	4		107.14														Completely altered gray, beached gravel.	
11	13R	1	16	127	139	11		107.25														Gray bleached, jigsaw breccia, black hairline fractures with white holes; irregular orientation of hairline features => pseudoclastic texture.	
11	14R	1	1	0	3	2	116	116												3		White to gray, completely altered vesicles <1mm, spherical, could be vugs generated by alteration.	
12	14R	1	2	3	10	5		116.05														Aphyric, non-vesicular clasts; white clasts: clay, gray clasts: clay-sulfate(?), bleaching, silicification; groundmass; gray brown clay-silica.	
13	14R	1	3	10	14	2		116.07														Bleached completely altered.	
13	14R	1	4	14	25	11		116.18														Jigsaw breccia, complete alteration, apparent clasts: bleached, gray, clay altered, locally remnant perlite; apparent matrix: sulfate (probably barite), white, with silica +/- pyrite selvages.	
13	14R	1	5	25	33	6		116.24														As above.	
13	14R	1	6	33	43	8		116.32														As above.	
13	14R	1	7	43	51	8		116.4														As above; but apparent clasts contain concentric rings (barite-silica) which resembles liesegang textures (photo taken).	
13	14R	1	8	51	56	3		116.43														As above.	
13	14R	1	9	56	64	8		116.51														As above.	
13	14R	1	10	64	72	7		116.58														As above, with preserved flow banding.	
13	14R	1	11	72	82	8		116.66														As above.	
13	14R	1	12	82	94	10		116.76														As above.	
14	14R	1	13	94	98	3		116.79														Altered volcanoclastic pebble breccia; white and gray aphyric clasts, d=2-10mm.	

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Unit	Core	Sec	Pc #	Inter.		meas. length (cm)	Depth core top	Depth Piece Top	Olivine		Plagioclase			Ti-Mt			Type					
				top	bot				%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max						
14	14R	1	14	98	104	6		116.85														
14	14R	1	15	104	113	8		116.93										3	As above, gray clasts 60%, locally vesicular (1mm spherical) white clasts 40%; groundmass <10%; void fill barite, pyrite.			
14	14R	1	16	113	119	4		116.97										none	As above.			
14	14R	1	17	119	125	5		117.02										3	As above; d=20mm gray clast.			
14	14R	1	18	125	130	5		117.07										none	As above; 4% disseminated pyrite.			
15	15R	1	1	0	5	2	125.7	125.7												Medium to coarse-grained anhydrite +/- pyrite vein.		
15	15R	1	2	5	10	4		125.74												As above.		
15	15R	1	3	10	14	3		125.77												Medium to coarse-grained anhydrite		
15	15R	1	4	40	22	5		125.82												As above.		
15	15R	1	5	22	24	2		125.84												As above.		
16	15R	1	6	24	28	4		125.88											2	Completely altered , vesicular-vuggy, bleached, white.		
16	15R	1	7	28	33	3		125.91											none	Completely altered, white, bleached, no primary texture.		
16	15R	1	8	33	36	3		125.94											none	As above.		
16	15R	1	9	36	40	2		125.96											none	As above.		
16	15R	1	10	40	42	2		125.98											none	As above.		
16	15R	1	11	42	46	2		126											none	As above.		
16	15R	1	12	46	50	2		126.02											none	As above (gravel).		
16	15R	1	13	50	55	3		126.05											none	Completely altered, bleached, gray, relict(?) chlorite-filled vesicles (1-2 mm).		
16	15R	1	14	55	60	4		126.09											2	Completely altered, bleached gray-green.		
16	15R	1	15	60	64	2		126.11											none	As above.		
16	15R	1	16	64	68	2		126.13											none	As above.		
16	15R	1	17	68	71	3		126.16											none	As above.		
16	15R	1	18	71	76	2		126.18											none	As above.		
16	15R	1	19	76	81	5		126.23											none	As above.		
								126.34													Completely altered, round to lenticular vesicles: 1 to 2 mm x 2-7 mm, generally lined/filled by anhydrite+/-pyrite, also angular, vuggy cavities lined by anhydrite +/- anhydrite, 5mm X10mm.	
16	15R	1	20	81	93	11													5		As above, with pseudoclastic texture: apparent clast containing spherical vesicles 1-2mm, vuggy cavities in the apparent matrix (at fracture intersections).	
16	15R	1	21	93	106	11		126.45											5		As above.	
16	15R	1	22	106	111	4		126.49											5		Anhydrite-pyrite vein, coarse-grained--dislodged piece of unit 15.	
15	16R	1	1	0	3	3	135.4	135.4													White bleached, completely altered--dislodged piece from unit 16.	
16	16R	1	2	3	7	3		135.43											none		Gray, bleached, completely altered vesicles <= 1mm, spherical, +irregular vugs, chlorite+pyrite lining and fills.	
17	16R	1	3	7	12	5		135.48											3		Completely altered, bleached, vesicles round to elongated 1mm x 1mm to 6mm, pyrite lining.	
17	16R	1	4	12	25	11		135.59											3		Completely altered as above, and minor pyrite.	
17	16R	1	5	25	30	4		135.63											none		Dark gray-gray-green to light gray vesicles, round to elongate 1mm x 1mm to 7mm, pyrite lining.	
17	16R	1	6	30	40	8		135.71											3		As above.	
17	16R	1	7	40	47	6		135.77											3		Vesicles; round 1 to 2 mm, chlorite + pyrite lining; jigsaw breccia.	
17	16R	1	8	47	59	11		135.88											5			

Leg 193 Igneous Log - Hole 1188A																							
Identifiers									Phenocrysts										Gms	Vesicles			
Unit	Core	Sec	Pc #	Inter.		meas. length	Depth core top	Depth Piece Top	Olivine		Plagioclase				Ti-Mt								
				top	bot	(cm)			%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max	Type	(%)	Comments
17	16R	1	9	59	69	9		135.97														3	Dark gray, light gray; round vesicles 1 to 2 mm, completely altered.
17	16R	1	10	69	79	9		136.06														3	As above.
17	16R	1	11	79	84	3		136.09														none	Completely altered light gray to gray-green
17	16R	1	12	84	88	3		136.12														none	As above.
17	16R	1	13	88	94	5		136.17														none	As above.
17	16R	1	14	94	103	6		136.23														none	Completely altered, light gray and light green banded; boudin-like textures => flow banding(?) deformed around competent, divitrified domain during flow?.
17	16R	1	15	103	107	3		136.26														3	Completely altered, light gray and light green; vesicles round to elongate 1mm x 1 to 6 mm.
17	16R	1	16	107	111	2		136.28														none	As above.
17	16R	1	17	111	116	5		136.33														none	As above.
17	16R	1	18	116	122	1		136.34														none	Pieces of gravel, as above.
17	16R	1	19	122	140	10		136.44														none	As above.
17	16R	1	20	140	146	3		136.47														none	As above.
17	16R	2	1	0	5	4	136.86	136.86														none	No obvious igneous features.
18	16R	2	2	5	16	10		136.96														Tr.	Trace vesicles are in igneous clasts(?) embedded in laminated volcanic rock that resembles a sediment.
18	16R	2	3	16	20	3																	Altered, finely-laminated volcanic rock - no other igneous features except possibly gray igneous clasts in some pieces.
18	16R	2	4	20	24	2																	Do.
18	16R	2	5	24	31	5																	Do.
18	16R	2	6	31	39	7																	Do.
18	16R	2	7	39	53	12																	Do.
18	16R	2	8	53	59	6																	Do.
18	16R	2	9	59	70	10																	Do.
18	16R	2	10	70	77	4																	Do.
18	16R	2	11	77	86	4																	Do.
18	16R	2	12	86	94	6																	folded lamination (flow banding?)
19	16R	2	13	94	101	6																	no planar structures
19	16R	2	14	101	109	7																	Do.
19	16R	2	15	109	119	9																	Do.
19	17R	1	1	0	5	3	145.1	145.1															No igneous texture.
19	17R	1	2	5	10	4		145.14															Do.
19	17R	1	3	10	12	1		145.15															Do.
19	17R	1	4	12	20	7		145.22															Mottled alteration may reflect original perlitic texture.
19	17R	1	5	20	24	3		145.25															No igneous texture.
19	17R	1	6	24	33	8		145.33															Mottled alteration may reflect original perlitic texture.
19	17R	1	7	33	38	4		145.37															Do.
19	17R	1	8	38	44	3		145.4															Do.
19	17R	1	9	44																			No igneous texture recognized.
19	17R	1	10																				No igneous texture recognized.
19	17R	1	11		56			145.52															No igneous texture recognized.
19	17R	1	12	56	60	2		145.54														Tr.	Bleached, trac of flattened ovoid vugs are possibly original vesicles.
19	17R	1	13	60																			No igneous texture.
19	17R	1	14																				No igneous texture.
19	17R	1	15		73			145.67															No igneous texture.
19	17R	1	16	73	77	3		145.7														Tr.	The least altered rock cores appear to be massive volcanic rock with a trace of <1 mm vesicles or secondary vugs.

Leg 193 Igneous Log - Hole 1188A

Identifiers				Phenocrysts																Gms	Vesicles		
Unit	Core	Sec	Pc #	Inter.	meas.	Depth	Depth	Olivine					Plagioclase				Ti-Mt				Type		
				top	bot	(cm)	top	Piece	%	2nd	Size	Size	%	2nd	Size	Size	%	2nd	Size	Size		(%)	Comments
19	17R	1	17	77																			Do.
19	17R	1	18																				Do.
19	17R	1	19																				Do.
19	17R	1	20																				Do.
19	17R	1	21																				Do.
19	17R	1	22		130			146.27															Do.
19	17R	1	23	130																			Mottled alteration may reflect original perlitic texture.
19	17R	1	24																				Do.
19	17R	1	25		150			146.47															Do.
19	17R	2	1	0	5	4	146.6	146.6															Mottled alteration possibly reflects original perlitic texture. Tiny vugs appear to be secondary rather than vesicles.
19	17R	2	2	5	12	6		146.66															Do.
19	17R	2	3	12	19	7		146.73															Do.
19	17R	2	4	19	23	3		146.76															Do.
19	17R	2	5	23	28	2		146.78															Do.
19	17R	2	6	28	36	7		146.85															Jigsaw breccia, possibly after perlitic texture.
19	18R	1	1-17	0	71		154.7	154.7															Bleached rubble. Trace to 2-3% vesicles, up to 2 mm across, especially in pcs. 9-15.
20	18R	1	18	71	79	7		154.77															Perlitic texture originally.
20	18R	1	19	79	86	6		154.83													10		Ovoid vugs (vesicles?) filled by anhydrite [RI(min) = 1.570].
20	18R	1	20	86	98	10		154.93															Rubble.
20	18R	1	21	98	105	6		154.99													10		Perlitic texture, ovoid vesicles up to 1 cm long filled and partially filled with anhydrite.
20	18R	1	22	105	112	6		155.05													5		Do.
20	18R	1	23	112	115	2		155.07															Rubble.
20	19R	1	1	0	5	3	164.3	164.3													10		1-4 mm spherical vesicles. Aphyric.
20	19R	1	2	5	9	3		164.33														5	Do.
20	19R	1	3	9	15	5		164.38														5	Do.
20	19R	1	4	15	22	6		164.44													10		Do.
21	19R	1	5	22	28	5		164.49														Tr.	Mottled texture.
21	19R	1	6	28	33	4		164.53														Tr.	Mottled texture.
21	19R	1	7	33	37	2		164.55														Tr.	Mottled texture.
21	19R	1	8	37	40	3		164.58														Tr.	Mottled texture.
21	19R	1	9	40	47	5		164.63														Tr.	Mottled texture. Vugs or vesicles?
21	19R	1	10	47	52	4		164.67														Tr.	Do.
21	19R	1	11	52	58	5		164.72															Mottled texture resembles altered perlitic texture.
21	19R	1	12	58	62	3		164.75															Rubble.
21	19R	1	13	62	65	2		164.77															Rubble.
22	19R	1	14	65	72	5		164.82														5	Flattened ovoid vesicles, only partly filled by anhydrite. Vesicles mostly <1 mm, varying up to 1 cm (long dimension).
22	19R	1	15	72	82	9		164.91														5	Do.
22	19R	1	16	82	93	10		165.01														5	Do.
22	19R	1	17	93	97	3		165.04															Rubble.
23-25	20R	1	1-15	0	121		173.9	175.11															No apparent igneous texture.
25	21R	1	1-18	0	149		183.1	184.6															No apparent igneous texture.
26	22R	1	1	0	15	8	192.7	192.86															No apparent igneous texture.
26	23R	1	1	0	19	18	202.1	202.29															No apparent igneous texture.

Leg 193 Igneous Log - Hole 1188F																						
Identifiers							Phenocrysts												Gms	Vesicles		
Unit	Core	Sec	Pc #	Inter.		meas. length (cm)	Depth core top	Depth Piece Top	Olivine				Plagioclase				Clinopyroxene				Type	Comments
				top	bot				%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max		
27	1Z	1	1	0	22	10															None.	Completely altered massive volcanic(?) rock; silicified and SSC-altered. Refer to alteration log for detailed mineralogical description.
27	1Z	1	2	22	38	13															None.	Do. Note one piece of rubble has a distinct texture containing 0.25-0.5 mm diameter greenish spherical balls set in a gray fine-grained matrix. Are these spheroids? Vesicles?
27	1Z	1	3	38	60	18															None.	Light colored, fine grained, with crystalline anhydrite in a soft white matrix. Trace disseminated pyrite.
27	1Z	1	4	60	79	18															None.	Rubble, some pieces light and some darker. The dark pieces have greenish balls as in Pc. 2.
27	1Z	1	5	79	120	35															None.	Light-colored fine-grained; texture includes ghostly white spots, 0.5 to 1 mm diameter, about 2-3%, that could represent altered phenocrysts, vesicles, etc.
27	1Z	2	1	0	9	9															None.	Light-colored fine-grained; texture includes 5-10 mm kernels of altered rock (a la perlitic kernels) in an anhydrite-rich matrix. On the cut surface, the pore space is filled by spectacular radiating acicular clear crystal clusters. In oil, these have inclined extinction and RI << 1.57.
27	1Z	2	2	9	60	50															None.	Light fine-grained pieces, some with faint reaction front halos. Large piece has relict, altered spherulitic texture (radiating crystal aggregates can be observed under the binocular microscope), with tightly-packed, sub-mm spherulites. Two pieces are anhydrite-pyrite vein matter.
27	1Z	2	3	60	92	30															None.	Light gray-white, with halo-like reaction zones. Textures include whitish spots and possible greenish spheroids.
27	1Z	2	4	92	121	28															None.	Light-whitish, ditto. One piece has an anhydrite vein with gray mineral, maybe galena.
27	1Z	3	1	0	24	24															None.	Ditto. Some reaction halos. Some white spots, which are concentrated at rock edge near anhydrite-rich coating.
27	1Z	3	2	24	62	36															None.	Ditto.
28	1Z	3	3	62	110	48															None.	Rocks in this piece are dominated by greenish-gray rocks with halos, green spots as in section 2Z, Pc. 3 and others. Definition of new unit based on alteration.
28	1Z	4	1	0	62	60															None.	Greenish-gray alteration, common anhydrite-pyrite veins; common halos - with greenish interior, white and gray bands, and whitish exteriors, bounded by external anhydrite-pyrite veins.
29	1Z	4	2	62	124	60															None.	Whitish-gray alteration, no green; halos. Definition of new unit base on alteration. Unit 29 is similar to unit 27.
29	2Z	1	1a	0	7	5															None.	Ditto. White-gray alteration, banded halo, fractures.
29	2Z	1	1b	7	15	3															None.	White-gray, with complex white-gray alternation in compound halo. White spots in outer 10 mm near white margin.
29	2Z	1	1c	15	25	10															None.	Tan-white rollers, lots of iron oxide (contamination?) on outer surface.
29	2Z	1	2a	25	31	4															None.	Similar to Pcs. 1a and 1b.

Leg 193 Igneous Log - Hole 1188F																								
Identifiers									Phenocrysts												Gms		Vesicles	
Unit	Core	Sec	Pc #	Inter.		meas. length (cm)	Depth core top	Depth Piece Top	Olivine				Plagioclase				Clinopyroxene				Type		Comments	
				top	bot				%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max				
29	2Z	1	2b	31	35	3															None.	Similar to Pcs. 1a, 1b and 2a.		
29	2Z	1	2c	35	48	12															None.	Similar to Pcs. 1, 2a, and 2b.		
29	2Z	1	2d	48	56	5															None.	Rust-contaminated(?) rubble.		
29	2Z	1	2e	56	66	8															None.	Similar to Pcs. 1, 2.		
29	2Z	1	2f	66	80	10															None.	Same material. It's unbroken so it's rust-stained, but halos are evident.		
29	2Z	1	2g	80	92	10															None.	Cut surface shows beautiful compound white-gray halos, nearly symmetric about a <1-mm anhydrite-pyrite vein. Rough surface is iron-stained like the previous piece.		
29	2Z	1	2h	92	111	13															None.	Similar material, has a darker gray rim that is like the dark gray parts of complex halos. In oil, can identify quartz, anhydrite, clay(?), and pyrite.		
29	2Z	1	3a	111	126	13															None.	Rubble.		
29	2Z	1	3b	126	141	13															None.	Similar to Pc. 1a - whitish rock with banded edge of white and gray. The gray (silica-rich) material follows fractures into the whitish interior.		
29	2Z	1	3c	141	150	8															None.	Rubble.		
29	3Z	1	1a	0	16	15															None.	Whitish-gray rubble; halos.		
29	3Z	1	1b	16	22	5															None.	Do.		
29	3Z	1	1c	22	70	48															None.	Do.		
29	3Z	1	2a	70	78	7															None.	Do.		
29	3Z	1	2b	78	94	16															None.	Rubble.		
29	3Z	1	3a	94	100	5															None.	White sulfate-clay rock.		
29	3Z	1	3b	100	144	40															None.	Rubble.		
30	3Z	2	1a	0	52	52															None.	Rubble of whitish-gray rock with substantial clay. Definition of new unit based on alteration style.		
30	3Z	2	1b	52	63	11															None.	Do.		
30	3Z	2	1c	63	74	11															None.	Do.		
30	3Z	2	1d	74	86	10															None.	Do.		
30	3Z	2	1e	86	95	9															None.	Do.		
30	3Z	2	2a	95	107	9															None.	Rounded clast of very hard (> steel) silicified rock in soft wet anhydrite-rich(?) mud.		
30	3Z	2	2b	107	116	7															None.	Halos in whitish-gray rock.		
30	3Z	2	2c	116	130	12															None.	Possible ex-spheroidal texture with green spots.		
30	3Z	2	2d	130	142	10															None.			
30	3Z	2	3a	142	149	6															None.			
30	3Z	2	3b	149	155	6															None.			
30	6Z	1	1a	0	5	3															None.	NO RECOVERY FROM CORES 4Z and 5Z.		
30	6Z	1	1b	5	15	7															None.	White-gray silica-clay alteration. Laminar textures in individual pieces of rubble are due to cyclic alteration along veins (see alteration and structure log).		
30	6Z	1	1c	15	26	10															None.	Puggy clay rich material, light gray.		
30	6Z	1	1d	26	34	5															None.	Gray. Cyclic alteration along hairline anhydrite vein.		
30	6Z	1	1e	34	40	4															None.	As piece 1a.		
30	6Z	1	1f	40	45	5															None.	As above. Well-preserved cyclic banding along veins.		
30	6Z	1	1f	40	45	5															None.	As above.		

Leg 193 Igneous Log - Hole 1188F																							
Identifiers							Phenocrysts												Gms		Vesicles		
Unit	Core	Sec	Pc #	Inter.		meas. length (cm)	Depth core top	Depth Piece Top	Olivine				Plagioclase				Clinopyroxene				Type		
				%	2nd minl				Size min	Size max	%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max					
31	6Z	1	2	45	47	1															(%)	Comments	
																					None.	50% isolated, white, up to 1mm diameter, round, silica-clay altered spherulites. Radiating crystal aggregates. Often with central vug locally filled with pyrite. Spherulites surrounded by gray-green (chlorite-rich?) groundmass.	
32	6Z	1	3a	47	61	10															None.	White-gray silica-clay alteration. Laminar textures in individual pieces of rubble are due to cyclic alteration along veins (see alteration and structure log).	
32	6Z	1	3b	61	66	3															None.	Ditto.	
32	6Z	1	3c	66	86	20															None.	Ditto. Rubble.	
32	6Z	1	3d	86	89	2															None.	Ditto.	
32	6Z	1	4a	89	93	2															None.	Ditto.	
32	6Z	1	4b	93	125	20															None.	Ditto. Rubble.	
32	6Z	2	1a	0	16	15															None.	Light gray, silicified, clay-bearing rock. No igneous textures.	
32	6Z	2	1b	16	23	8															None.	Light gray finger-shaped siliceous domain (1 cm wide) surrounded by white clay-silica, spotty domain. Sharp margins. Origin of this texture is uncertain.	
33	6Z	2	1c	23	39	5															None.	Gray, dark gray, rubbly, completely altered, clay-rich rock. No igneous features preserved except for 'microvesicles'? Filled with silica. Refer to alteration log for detailed mineralogical description.	
33	6Z	2	2a	39	54	11															None.	Ditto.	
33	6Z	2	2b	54	69	15															None.	Ditto. Rubble.	
33	6Z	2	3a	69	80	8															None.	Ditto.	
33	6Z	2	3b	80	87	5															None.	Ditto.	
33	6Z	2	3c	87	101	15															None.	Ditto. Rubble.	
34	7Z	1	1a	0	22	20															None.	White silicified massive rock, no igneous textures; see alteration log for mineralogical description.	
34	7Z	1	1b	22	28	5															None.	Ditto.	
34	7Z	1	1c	28	49	20															None.	Ditto.	
34	7Z	1	1d	49	56	5															None.	Ditto.	
34	7Z	1	1e	56	85	25															None.	Ditto.	
34	7Z	1	1f	85	89	3															None.	Ditto. Anhydrite-pyrite assemblages define linear or lensoidal, parallel aligned structures. These might reflect primary flow structures such as elongated vesicles.	
34	7Z	1	1g	89	102	12															None.	Ditto.	
35	7Z	1	2a	102	107	4							2	clay?	0.1	3					vfg.	None.	Groundmass: light gray, silica-clay. <1% diss. Pyrite. One blue-gray domain (1 cm diameter, irregular outline) with 5% py. Vug fill?
35	7Z	1	2b	107	120	10							2	clay, vugs	0.1	3					vfg.	None.	Rubble, 1 to cm fragments. Light gray siliceous groundmass. Some silica-pyrite-anhydrite veins with cyclic silicified halos. Some laminar features due to scratching during drilling.
35	7Z	1	2c	120	127	5							<1	clay?	0.1	1					vfg.	None.	Gray groundmass with folded laminar gray-light gray domains => flow banding?
35	7Z	1	2d	127	151	20							tr	clay?		0.5					vfg.	None.	Rubble, blocky fragments. Gray silica-clay groundmass.
35	7Z	2	1a	0	35	25							tr	clay?		0.5					vfg.	None.	Rubble, mainly <1 cm fragments.
35	7Z	2	1b	35	43	5							1	clay?	0.1	2					vfg.	None.	Aligned phenocrysts.
35	7Z	2	1c	43	51	4															None.	Rubble, light gray, silica-clay, trace pyrite.	

Leg 193 Igneous Log - Hole 1188F																							
Identifiers							Phenocrysts												Gms	Vesicles			
Unit	Core	Sec	Pc #	Inter.		meas. length (cm)	Depth core top	Depth Piece Top	Olivine				Plagioclase				Clinopyroxene				Type		
				top	bot	%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max						
35	7Z	2	2	51	60	5															None.	Subrounded siliceous fragments (mainly <1 cm) in a light gray/green gray, clay-rich groundmass.	
35	7Z	2	3	60	63	1															None.	Light gray, silica-clay fragments.	
36	8Z	1	1a	0	9	8															None.	Light gray groundmass has numerous elongate, oriented pyrite aggregates, all <0.5 mm, that resemble oriented flattened vesicles (possibly).	
36	8Z	1	1b	9	33	20															None.	Coarse uncut rubble. Similar.	
36	8Z	1	1c	33	40	5															None.	Similar to Pc. 1a, the oriented pyrite aggregates reach 3 mm long, 0.2 mm thick.	
36	8Z	1	1d	40	60	20															None.	Similar material. The two cut pieces both exhibit zoned interiors with spherulitic (or variolitic) centers, mantles with no spherulites but with oriented vesicles, and featureless halos.	
36	8Z	1	1e	60	67	6															None.	Light gray groundmass, with oriented pyrite in possible flattened vesicles.	
36	8Z	1	1f	67	74	6															None.	Ditto.	
36	8Z	1	1g	74	90	15						tr	clay		1					vfg.	None.	Rubble. One piece has altered white plagioclase phenocrysts.	
36	8Z	1	2a	90	111	20						tr	clay		1					vfg.	None.	Rubble.	
36	8Z	1	2b	111	120	8						tr	clay		1					vfg.	None.		
36	8Z	1	2c	120	127	3															None.	Gravel.	
36	8Z	1	2d	127	133	6						tr	clay		2					vfg.	None.		
36	9Z	1	1a	0	10	8															None.	Gray and white, no igneous features. Convoluted layers like disturbed halos (or disturbed flow bands?). Late pyrite veins.	
37	9Z	1	1b	10	16	5															None.	Irregular cm-scale light clay "clasts" in a tan-gray fine-grained matrix. Some quartz-rich spots, 2-3 mm.	
38	9Z	1	1c	16	23	5						tr	clay		1						None.	Gray, fine-grained matrix.	
38	9Z	1	1d	23	47	20															None.	Uncut coarse rubble. Looks similar.	
38	9Z	1	1e	47	55	5															None.	Gray, fine-grained.	
38	9Z	1	1f	55	60	2															None.	Rubble.	
																						NO RECOVERY FROM CORES 10Z.	
38	11G	1	1	0	13	12															None.	Two uncut cobbles.	
38	11G	1	2	13	23	9															None.	Gry fine-grained groundmass with oriented elongate pyrite aggregates, similar to stretched flattened vesicles.	
38	11G	1	3	23	30	4															None.	Rubble.	
38	11G	1	4	30	39	8															None.	Fine light gray, massive.	
38	11G	1	5	39	57	17						tr			1						None.	Rubble.	
38	11G	1	6	57	66	8						tr			1								
39	11G	1	7	66	89	23						1			2						2	Round-ovoid vesicles, pyrite-sulfate lined. Up to several mm across, but most are <1 mm. Phenocrysts are lath-shaped and locally aligned. One piece is cut and the rest are coarse rubble.	
39	11G	1	8	89	106	15						1		0.5	3						3	Basically ditto. Note: Here and in several former pieces there are scant (1 or 2 per piece) ovoid quartz patches, with pyrite, up to about 5 mm across. They begin as shallow as Unit 36 (Core 8Z). Origin??	
39	11G	1	9	106	114	7						tr			1							1-cm quartz-pyrite patch, rounded. Clast?	
39	11G	1	10	114	126	11						1		0.5	4						2	Several rounded quartz-pyrite "clasts", to about 1 cm.	
39	11G	1	11	126	135	9						1		0.5	3						2	Ditto.	

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Identifiers				Phenocrysts														Gms	Vesicles			
Unit	Core	Sec	Pc #	Inter.		meas. length (cm)	Depth core top	Depth Piece Top	Olivine		Size min	Size max	Plagioclase			Size max	Clinopyroxene			Type		
				%	2nd minl				%	2nd minl			Size min	%	2nd minl		Size min	Size max				
				top	bot																(%)	Comments
39	11G	1	12	135	140	5							1			1					3	Ditto. There may be two phenocrysts - plagioclase laths that are now soft white material, and somewhat more blocky phenocrysts that are now soft milky blue material.
39	11G	1	13	140	154	14							tr			2						Ditto.
39	13Z	1	1	0	22	15							tr			1					3	NO RECOVERY FROM CORES 12Z. Pyrite-anhydrite lined vesicles, up to 2 mm across, ovoid. Lath-shaped phenocrysts have both white and milky blue fillings.
39	13Z	1	2	22	37	13							tr			3						Vesicles may be filled to give the spotted distribution of fine pyrite aggregates.
39	13Z	1	3a	37	47	6							1		0.1	2					4	Vesicles are pyrite-filled, rounded, 0.5-2 mm across.
39	13Z	1	3b	47	64	10							tr			2						Flow banding and autoclastic breccia developed parallel to plagioclase phenocryst alignment. Ovoid vesicles aligned obliquely.
39	13Z	1	3c	64	80	15							tr			2						Rubble.
40	13Z	1	4	80	83	2																Concentrically-laminated, 1-mm() spherical white spherulites set in a greenish chloritic (+ silica + pyrite) matrix. Similar to Unit 35.
41	13Z	1	5a	83	104	20							1		0.1	2					2	Rubble. Some pieces are more vesicular (up to 2%) than others.
41	13Z	1	5b	104	122	16							1		0.1	2						
41	13Z	1	5c	122	136	12							1		0.1	2						
41	13Z	2	1	0	40	40							1		0.1	2						Rubble.
41	13Z	2	2	40	52	12																Rubble.
41	13Z	2	3	52	65	13							1		0.1	4						Rubble.
41	13Z	2	4	65	80	15							1		0.1	3						Rubble.
41	14Z	1	1a	0	18	10							2	clay	0.1	4					None.	Skeletal texture of plagioclase phenocrysts are common.
41	14Z	1	1b	18	24	5							1	clay	0.1	5					None.	Phenocryst cut by vein. Clastic zone (1-2 cm wide) with <0.5 cm fragments in light gray siliceous matrix. Sharp margin to gray coherent part. Pieces 1b, 1c, 1d together probably represent a clastic zone representing an autoclastic unit.
41	14Z	1	1c	24	30	4							2	clay	0.1	2					None.	Clastic zone: 2 cm wide with <0.5 cm gray clasts in a light gray matrix. Sharp contact to gray coherent part.
41	14Z	1	1d	30	37	4							tr	clay		1					None.	Clastic zone on margin of the piece as above.
41	14Z	1	1e	37	49	10															None.	Rubble.
41	14Z	1	2a	49	60	8							tr	clay		0.5					None.	
41	14Z	1	3a	60	69	9							tr	clay		0.5					None.	Round, 15 mm diamter siliceous dark gray patch.
41	14Z	1	4a	69	81	3															None.	Rubble.
41	14Z	1	5a	81	96	10							tr	clay		0.5					3	vesicles filled with dark gray siliceous material, size range:<1 mm to 10 mm.
41	14Z	1	6a	96	108	10							1	clay	0.1	2					1	As above.
41	14Z	1	7a	108	115	7							1	clay	0.1	2					None.	
41	14Z	1	8a	115	124	9							1	clay	0.1	1					None.	
41	14Z	1	9a	124	140	8							1	clay	0.1	2					None.	Rubble. Cut surface: well-preserved phenocrysts and round dark ray siliceous patch (1 cm diameter)
41	14Z	1	9b	140	146	3							1	clay	0.1	1					None.	
41	14Z	1	9c	146	152	3							1	clay	0.1	1					None.	Rubble.
41	14Z	2	1a	0	6	5							1	clay	0.1	1					1	Gray siliceous groundmass with some round, lensoidal dark siliceous patches (<1 cm diameter). Vesicels <1mm to 3 mm lines or fills by silica-pyrite-anhydrite.

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Identifiers							Phenocrysts												Gms		Vesicles		
Unit	Core	Sec	Pc #	Inter.		meas. length (cm)	Depth core top	Depth Piece Top	Olivine				Plagioclase				Clinopyroxene				Type		
				%	2nd minl				Size min	Size max	%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max					
				top	bot															(%)	Comments		
41	14Z	2	1b	6	13	3							1	clay	0.1	1					Rubble.		
41	14Z	2	1c	13	19	3							1	clay	0.1	2				1	Vesicles: up to 1 mm in diameter.		
41	15Z	1	1	0	6	5							1	clay	0.1	1				None.	Rubble.		
41	15Z	1	2	6	13	3							1			1				None.	Rubble.		
41	15Z	1	3	13	21	4							2		0.2	5				1	Aligned plagioclase laths. Vesicles up to 1 mm, lined/filled by pyrite.		
41	15Z	1	4	21	26	4							2		0.1	3				1	As Above. One dark gray siliceous patch.		
41	15Z	1	5	26	38	7							1		0.2	2				1	Rubble.		
41	15Z	1	6	38	44	5							1		0.1	4				1	Aligned plagioclase laths. Elongate vesicles: 1 to 2 mm x 2 to 5 m. Lined by pyrite.		
42	15Z	1	7	44	56	10															Rubble.		
42	15Z	1	8	56	61	5														None.	No phenocrysts. Remnant perlitic texture?		
42	15Z	1	9	61	90	30														?	Rubble. Some fragments with up to 1 mm round, dark gray siliceous patches => amygdalae?		
42	15Z	1	10	90	96	5														2	vesicles up to 1 mm diameter, lined/filled with silica +/- pyrite.		
42	15Z	1	11	96	109	12														1	Rubble.		
42	15Z	1	12	109	117	7							tr	clay		<1				1	Vesicles up to 1 mm diameter, lined/filled with silica +/- pyrite. Pseudoclastic texture due to alteration along veins.		
42	15Z	1	13	117	129	12							tr	clay		<1				None.	Rubble.		
42	15Z	1	14	129	134	3							tr	clay		<1				2	Elongate vesicles (up to 1 mm x 3 to 6 mm), filled/lines by silica +/- pyrite.		
42	15Z	1	15	134	139	3							tr	clay		<1				1	Two, round (7 mm x 5 mm) vugs lined by silica = pyrite. Remnant perlitic texture? In less altered domains.		
43	15Z	1	16	139	150	11							1	silica	0.2	3				1	Elongate vesicles 1 mm x 2 to 3 mm; lined/filled by silica and pyrite.		
43	15Z	2	1	0	12	11							1			1				None.	Rubble.		
43	15Z	2	2	12	20	6							tr	clay	0.1	1				1	Vesicles maximum dimensions: 1 to 2 mm x 2 to 10 mm, lined or filled with silica and pyrite.		
43	16Z	1	1a	0	5	4							1	clay		1				<1	elongate vesicles maximum dimensions: 1 mm x 1 to 3 mm.		
43	16Z	1	1b	5	18	15							2		0.2	1				1	elongate vesicles: 1 to 2 mm x 2 to 10 mm; lined or filled by anhydrite and pyrite. One dark gray silica-pyrite(-abhydrite) patch with irregular, bulbous margins (2 cm x 3 cm).		
44	16Z	1	1c	18	79	25															Rubble. Extremely rare pieces with feldspar phenocryst in working half. One piece with abundant elongated vesicles with anhydrite fill in top part of the bay. Overall: pieces are, non-vesicular, aphyric and show a clastic tecture on cut surfaces. Light gray siliceous clasts with fibrous, laminar internal texture (flow banding, tube vesicles ?) , densely packed in a (dark)gray siliceous matrix.		
44	16Z	1	2	79	93	8															Rubble. General features as above.		
44	16Z	1	3a	93	99	4															As above. One domain with faint, fibrous wavy tube vesicles?		
44	16Z	1	3b	99	103	3															Folded, light gray-gray, mm-scale wavy flow bands.		
44	16Z	1	3c	103	110	4															Folded flow bands, one plagioclase phenocrystal, spotty silica-clay matrix.		
44	16Z	1	3d	110	137	20															Rubble.		

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Identifiers										Phenocrysts										Gms	Vesicles				
Unit	Core	Sec	Pc #	Inter.		meas. length (cm)	Depth core top	Depth Piece Top	Olivine		Plagioclase				Clinopyroxene				Type						
				top	bot				%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max	%	2nd minl				Size min	Size max		
44	16Z	1	3e	137	148	10																		Clastic texture: White to light gray fragments (some with laminar fibrous internal texture) in dark gray siliceous groundmass. This envelopes a 2 cm wide and 6 cm long gray, coherent 'finger-like' aphyric domain. Contacts are gradational. => 'Interfingering' of coherent andclastic facies on flow margin?	
45	17Z	1	1	0	12	12						1	clay	0.1	1							4		Vesicles, <1mm, are mostly filled by pyrite-anhydrite. Plagioclase laths are replaced by clay; some have blueish clay along the eges and white clay interiors. Gray siliceous patches are hard, oval, 0.5-1 cm, and have a lighter (but still hard) ring around them. Light-colored clast(?), 1.5 x 3 cm, is doft, crudely layered material (intraclast of a banded rock?).	
45	18Z	1	1a	0	13	11							tr	clay	0.1	3							3		
45	18Z	1	1b	13	31	16							tr	clay	0.1	1									Plag is in one piece. The other pieces are aphyric and have vague spheroidal texture (after spherulites?).
45	18Z	1	1c	31	40	8							tr	clay	0.1	2							2		Somewhat vuggy vesicles, to 0.5 cm, lined by pyrite-anhydrite.
45	19Z	1	1a	0	6	5							1	clay									3		Vesicles are pyrite-filled. Alternatively, these could be pyrite in some sort of secondary porosity.
45	19Z	1	1b	6	16	9							1	clay									1		Ditto.
45	19Z	1	1c	16	24	7							tr	clay									5		Ditto.
45	19Z	1	1d	24	33	7							2	clay									1		Ditto.
45	19Z	1	1e	33	41	7							1	clay									1		Ditto.
46	22Z	1	1	0	7	7																			Dark, chloritic(?) at one end. Vague spheroidal texture.
46	22Z	1	2a	7	13	3																			Irregular nodular silicification; large pyrite-snhydrite vug.
46	22Z	1	2b	13	17	2																	1		Pyrite aggregates may be filled vesicles.
46	22Z	1	3	17	22	2																			
46	22Z	1	4	22	29	6																			Mottled light-dark gray texture in a halo.
46	22Z	1	5	29	33	2																			
46	22Z	1	6	33	40	6							tr	clay	0.1	1									
46	22Z	1	7	40	55	12																			Rubble. Nodular silcification.
46	22Z	1	8a	55	62	3																			Autoclastic breccia.
46	22Z	1	8b	62	67	2																			Ditto.
46	22Z	1	9	67	73	5																			Rubble. Massive. Rollers - out of place?
46	22Z	1	10	73	80	4																			Gray massive volcanic rock with zone of brecciation.
46	22Z	1	11	80	89	6																			Rubble.
47	22Z	1	12	89	97	8																			Massive gray. Flattened vesicles with pyrite fills?
47	22Z	1	13	97	106	5																			Massive. Quartz patches. Fine spotted texture, 0.2-mm diameter dark spots in a lighter fine-grained matrix.
47	22Z	1	14	106	117	10																			Rubble.
47	22Z	1	15	117	126	8																			Similar to Pc. 13.
48	23Z	1	1	0	9	7							1	clay	0.1	2									Phyric. Quartz patches. Light green clast or altered xenocryst, 4 mm long.
48	23Z	1	2	9	14	4							1	clay	0.1	2									Rubble.
48	23Z	1	3	14	25	10							2	clay	0.5	7									Anhydrite-veined.
48	23Z	1	4	25	32	6																			Light gray-green, massive.
48	23Z	1	5	32	38	4																			Ditto.
48	23Z	1	6	38	44	5																			Dark gray laminated volcanic rock.

Leg 193 Igneous Log - Hole 1188F																								
Identifiers									Phenocrysts										Gms	Vesicles				
Unit	Core	Sec	Pc #	Inter.		meas.	Depth	Depth	Olivine				Plagioclase				Clinopyroxene				Type			
				length	core	Piece	%	2nd	Size	Size	%	2nd	Size	Size	%	2nd	Size	Size						
				top	bot	(cm)	top	Top		minl	min	max		minl	min	max		minl	min	max		(%)	Comments	
48	23Z	1	7a	44	50	5																	Light tan-gray massive volcanic rock, halo.	
48	23Z	1	7b	50	55	2							tr	clay		1						2	Pyrite-filled vesicles.	
48	23Z	1	8a	55	63	5																	Mottled texture, possibly after spherulites(?).	
48	23Z	1	8b	63	67	4																	Layered autoclastic breccia.	
48	23Z	1	9a	67	72	4																	Massive, light gray-tan.	
48	23Z	1	9b	72	78	5																	Rubble.	
48	23Z	1	9c	78	83	3																	Massive, white, fine-grained.	
48	23Z	1	10a	83	88	4																	Pyrite-filled vesicles, 0.5-2.5 mm, with chlorite-stained halos.	
48	23Z	1	10b	88	101	10																	Rubble.	
49	23Z	1	11a	101	112	10																	Chloritic alteration. Pyrites have chlorite-stained halos.	
49	23Z	1	11b	112	120	6																	Rubble. Green and orange-stained.	
49	23Z	1	12	120	130	9							tr	clay		1							Chloritic. Pyrite veinlets with chlorite-rich halos. Plagioclase lath is deeply etched, skeletal. 1-cm quartz patch/nodule.	
49	23Z	1	13	130	137	6							tr	clay		1							Chloritic. Quartz patches.	
49	23Z	1	14	137	149	10																	Stained rubble.	
49	23Z	2	1a	0	6	4							tr	clay		1							Massive chloritic volcanic rock. Quartz patches.	
49	23Z	2	1b	6	13	5							tr	clay		1							Rubble.	
49	23Z	2	2	13	22	6																	Gray massive.	
49	23Z	2	3a	22	29	5							tr	clay		1							Gray chloritic massive.	
49	23Z	2	3b	29	35	3							tr	clay		5							Massive. Pyrite has chloritic halos.	
49	23Z	2	3c	35	44	7							tr	clay		1							Massive. Quartz patch.	
49	23Z	2	4	44	52	6							1	clay		2							Massive. Chloritic. Pyrite with chlorite.	
49	23Z	2	5	52	57	3							tr	clay		1							Gray.	
49	23Z	2	6	57	63	5							tr	clay									Chloritic. Large quartz patches (up to 13 mm). Secondary layering defined by shades of green.	
49	23Z	2	7	63	70	6							tr	clay		1							Massive chloritic.	
49	23Z	2	8	70	84	12																	Rubble.	
49	23Z	2	9	84	92	6							tr	clay		1								
49	25Z	1	1	0	8	6																	Gray. Massive. Vague flattened pyrite aggregates after vesicles? Banding at one end may be flow banding or an alteration feature.	
49	25Z	1	2	8	18	8																3	Gray. Massive, with numerous quartz amygdalae after vesicles, probably; 0.5-5 mm.	
49	25Z	1	3	18	22	3																	Gray, massive.	
49	25Z	1	4	22	28	6																1	Similar to Pc. 2.	
49	25Z	1	5	28	42	12																	Gray-green massive volcanic rock. Sparse quartz patches.	
49	25Z	1	6	42	48	4																	Gray massive volcanic rock.	
49	26Z	1	1	0	18	11							tr	clay		1						tr	Gray-green (silica-chlorite) groundmass. Dark gray sub-mm silica-filled microvesicles	
49	26Z	1	2	18	26	7							tr	clay		1						tr	As above.	
50	26Z	1	3	26	31	3							1		0.1	2						tr	Light gray. (Flow) banded. Vesicles (<1 mm) filled with pyrite-anhydrite or dark gray silica. This is a new unit with less green clay (chlorite) alteration and somewhat more common plagioclase phenocrysts.	
50	26Z	1	4	31	94	25							2		0.1	3						1	Rubble. Light gray. Some pieces with green, sub-mm spots (microvesicles?)	
50	26Z	1	5	94	105	10							2		0.2	4						None.		
50	26Z	1	6	105	109	3							1			1						None.	Gray, siliceous groundmass with two extraneous patches (1 to 2 cm wide): 1) Silica-anhydrite (dark gray) with white sulfate halo. 2) Pyrite, anhydrite, chlorite. Sharp contacts.	
50	26Z	2	1	0	19	8							2	clay	0.2	5						None.	Rubble.	

Leg 193 Igneous Log - Hole 1188F																							
Identifiers							Phenocrysts												Gms		Vesicles		
Unit	Core	Sec	Pc #	Inter.		meas. length (cm)	Depth core top	Depth Piece Top	Olivine				Plagioclase				Clinopyroxene				Type	(%)	Comments
				%	2nd minl				Size min	Size max	%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max					
50	26Z	2	2	19	24	3							1	clay	0.1	2						None.	Gray siliceous groundmass and one 1 cm wide anhydrite vein on margin of the piece.
50	26Z	2	3	24	60	20							1	clay	0.1	2						tr	Rubble. On cut surfaces: spotty dark green dots (<1 mm, microvesicles?). Some pieces have white (<1 mm) spot resembling isolated and coalesced spherulites.
50	26Z	2	4	60	108	30							1	clay	0.1	2						tr	Rubble. Dark gray-green, sub-mm spots (round to aligned bulbous aggregates) may represent filled microvesicles.
50	27Z	1	1	0	22	16							2	clay, void	0.2	7						tr	Faint, folded flow banding. Remnant 'least altered' central part (kernel) surrounded by silicification halos extending out from veins. Here, skeletal plagioclase phenocrysts laths are preserved. Also there are traces of altered brown sub-mm remnant of another phenocryst phase. One part of the piece also contains abundant dark gray spots (silica-filled microvesicles?)
50	27Z	1	2	22	31	27							tr	clay	0.1	2						tr	In one area of the piece: Dark gray-green, sub-mm spots (round to coalesced aggregates) may represent microvesicles.
51	30Z	1	1	0	5	4																None.	Clastic, pseudoclastic, or mottled irregular texture. Hard pale gray-blue domains and soft pale gray-green domains. Some late anhydrite-pyrite crystals in pockets.
51	30Z	1	2	5	9	4																None.	Conglomerate. Sub-rounded fragments 1-15 mm are gray, greenish-gray, and very dark gray, moderately hard (quartz-bearing) to very hard (quartz-rich). Matrix is soft light gray. Some late anhydrite-pyrite crystals in pockets in matrix.
51	30Z	1	3	9	13	1																None.	Light gray, similar to the matrix of the previous piece. Lighter zone along one edge is enriched in anhydrite-pyrite, and has a gray halo.
51	30Z	1	4	13	19	5																None.	Conglomerate. Similar to Piece 2 except it is darker and harder. Nearly black clasts are reportedly magnetite-quartz. The origin of this sample/unit is a mystery.
52	31Z	1	1	0	9	8							1			2					Fine-grained.	None.	Plagioclase laths are perfectly fresh, unlike elsewhere in this hole. Magnetite phenocrysts (< 1%) are about 0.5 mm, euhedral to anhedral, and have trellis-intergrowths (ilmenite?). Rock is veined by two anhydrite-pyrite veins, yet their halos are only a few mm wide (as if the rock was fairly impermeable). Abundant disseminated sulfide, though.
53	31Z	1	2	9	20	10																None.	Mottled irregular rock very similar to 30Z-1, Pc. 1. Most domains are soft, colors varying from pale green-gray, light green, or slightly maroon-red. Pyrite patch has a distinct green halo.
53	31Z	1	3	20	26	2																None.	Light gray volcanic rock, spotted texture, marcasite along edge. Similar to rocks in 27Z-1 (Unit 50).
53	31Z	1	4	26	33	3																None.	Light gray volcanic rock. Sulfide could be filled vesicles.
53	31Z	1	5	33	42	6																None.	Mottled rock the same as Pc. 2.
54	34Z	1	1	0	9	8																None.	Light gray. Multiply-zoned halo. Completely altered volcanic rock.
54	34Z	1	2	9	13	3																None.	Ditto.

Leg 193 Igneous Log - Hole 1188F																								
Identifiers							Phenocrysts												Gms		Vesicles			
Unit	Core	Sec	Pc #	Inter.		meas.	Depth	Depth	Olivine				Plagioclase				Clinopyroxene				Type			
				length	core	Piece	%	2nd	Size	Size	%	2nd	Size	Size	%	2nd	Size	Size						
				top	bot	(cm)	top	Top		minl	min	max		minl	min	max		minl	min	max			Comments	
54	34Z	1	3	13	17	4																(%)		
54	34Z	1	4	17	24	6																None.	Rubble like Pc. 4.	
55	34Z	1	5	24	28	3																None.	Highly mottled or clastic rock, similar to Unit 53, Core 31Z, Pc. 5. Light gray.	
55	34Z	1	6	28	31	3																None.	Black matrix encloses pyrite (sub-mm blebs and veinlets) and wispy white patches (sub-mm, quartz?). Fairly hard, possibly magnetite + quartz. Magnetic.	
55	34Z	1	7	31	38	6																None.	Aphanitic black rock grades to spotted texture (similar to copetely altered samples, e.g. Pc. 1) along the edge and on the obverse side. Transition between these types is grdational. The black portion is quite hard. Like a basalt.	
55	34Z	1	8	38	40	2																None.	Rubble. Vuggy rock with areas of black rock (like Pc. 5), vugs contain pyrite and sulfate. Knobs of hard quartz-rich material.	
55	34Z	1	9	40	50	9																None.	Completely altered volcanic rock like Pcs. 1 and 2. Light gray. Out of place?	
55	34Z	1	10	50	58	7																None.	Vuggy rock with clasts, a black area, vugs filled with pyrite and rarely a new red mineral (wurtzite?).	
55	34Z	1	11	58	63	4																None.	Like Pc. 9. Some areas look like altered vesicular volcanic rock (pyrite and green quartz in vesicles). Pyrite veinlets. Vugs with drusy quartz and pyrite. Clastic/brecciated texture.	
55	34Z	1	12	63	71	7																None.	Rubble. Ditto.	
56	34Z	1	13a	71	88	17																None.	Clastic or banded rock with irregular zones of black rock (like Pc. 5).	
56	34Z	1	13b	88	92	4																None.	Silicified rubble.	
56	34Z	1	13c	92	96	3																None.	Silicified rock. Some spheroidal texture where 1-mm spheroids are white with greenish cores.	
56	34Z	1	13d	96	103	6																None.	Mottled texture, with some spotted areas. Light gray.	
56	34Z	1	14	103	111	8																None.	Rubble. Silicified.	
56	34Z	1	15	111	117	5																None.	Clastic/pseudoclastic breccia. Autoclastic volcanic rock? Light gray.	
56	34Z	1	16a	117	122	4																None.	Siliceous rubble.	
56	34Z	1	16b	122	130	7																None.	Similar to Pc. 14.	
56	34Z	1	17	130	133	2																None.	Granular breccia of silicified gravel.	
57	35Z	1	1	0	15	10																None.	Completely altered volcanic rock. Light gray.	
57	35Z	1	2a	15	22	6																None.	Rubble. Gray green massive volcanic material with black magnetic domains (veins?), minor pyrite.	
57	35Z	1	2b	22	31	5																1	Gray, massive, siliceous, dark gray silica amydgales up to 1 mm in diameter.	
57	35Z	1	2c	31	41	5																	Rubble. Gray massive fragments of volcanic rock and soft, black, magnetite-rich fragments.	
57	35Z	1	2d	41	54	13																2	Gray, massive, siliceous volcanic rock with dark gray silica amydgales up to 1 mm in diameter, anhydrite-pyrite veins on margin of piece.	
57	35Z	1	2e	54	75	15																3	As above.	
57	35Z	1	2f	75	83	6																	Rubble. Gray siliceous rock as above.	
57	35Z	1	2g	83	90	3																1	Light gray. Possilbe silica amydgales up to 1 mm in diameter. Banding along vein on margin of piece.	
57	35Z	1																						Light gray, massive, banding along anhydrite vein on margin of piece.

Leg 193 Igneous Log - Hole 1188F

Identifiers				Phenocrysts																Gms	Vesicles		
Unit	Core	Sec	Pc #	Inter.		meas. length	Depth core	Depth Piece	Olivine		Size	Size	Plagioclase		Size	Clinopyroxene			Size	Type			
				top	bot	(cm)	top	Top	%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max		(%)	Comments
57	35Z	1	2h	90	97	4																	As above.
57	35Z	1	2i	97	103	3																	As above.
57	35Z	1	2j	103	115	7																	Rubble. As above.
57	35Z	1	3a	115	136	20																	Rubble. As above.
57	35Z	1	3b	136	150	14																	Massive piece of light gray clay-rich rock with white and greenish bands, more siliceous domain (light gray, gray, banded) at lower part of piece.
57	35Z	2	1a	0	8	6																<1	Light gray massive. Dark gray, siliceous amygdals (<1%, <1 mm), one fragment of a crustiform vein.
57	35Z	2	1b	8	12	3																1	Gray, light gray flow banding. Silica-pyrite, gray-green amygdals <1 mm.
57	35Z	2	1c	12	16	3																1	Light gray. Round to angular silica-pyrite amygdals, <2 mm.
57	35Z	2	1d	16	28	6																	Rubble. Gray siliceous fragments.
57	35Z	2	2a	28	38	6																	Rubble. As above.
57	35Z	2	2b	38	49	10																3	Light gray, massive. Silica-pyrite amygdals, round to angular, up to 2 mm diameter.
57	36G	1	1	0	8	6																1	Light gray, massive, spotty, dark gray alteration halos/bands related to anhydrite vein on margin of piece.
57	36G	1	2	8	22	11																3	Gray, massive. Spotty silica-pyrite amygdals (up to 2 mm in diameter). Silicified, gray alteration halos around the pieces.
57	36G	1	3	22	25	3																	Magnetite-quartz vein (?) with clastic texture. Similar to some domains in pieces in 34Z.
57	37Z	1	1	0	16	12																2	Gray, massive, dark gray-green silica amygdals (up to 1 mm diameter), prominent banding/zoned alteration along margin of fragments (presumably along anhydrite veins).
57	37Z	1	2	16	65	25																Tr	Rubble. Gray, massive fragments. Some fragments with spotty texture (<1 mm silica amygdals), some with faint banding.
57	37Z	1	3	65	124	35																Tr	Rubble. As above.
57	37Z	1	4	124	132	3																	Gray (siliceous) and dark gray (fine, disseminated magnetite bearing) massive fragments.
57	37Z	2	1	0	16	10																2	Rubble. Massive fragments, some with gray-green silica-clay-pyrite (up to 1 mm in diameter). Larger vesicles (<1 %; up to 5 mm in diameter) lined with anhydrite.
57	37Z	2	2	16	29	7																1	Massive, gray. Dark gray-green spots (up to 1 mm); silica amygdals. Contains black, 2 mm wide quartz (+ magnetite?) vein with 2 cm wide light gray alteration halo.
58	37Z	2	3	29	35	6																Tr	Black, magnetite-rich rock with irregular, vein like silica-anhydrite domains. Rare (<0.5 mm in diameter) vugs/vesicles with pyrite +/- anhydrite filling. Pyrite (1%) disseminated throughout.
59	37Z	2	4	35	45	8																2	Gray, massive, spotty. Gray-green silica amygdals (up to 1 mm). Prominent light gray, gray banding.
59	37Z	2	5	45	58	10																1	Rubble. As above.
59	37Z	2	6	58	66	6							Tr.	clay	1	2						2	Gray, massive, spotty. Gray-green silica amygdals (up to 1 mm). Contains four, white clay-altered plagioclase phenocrysts (1-2 mm).

Leg 193 Igneous Log - Hole 1188F																									
Identifiers						Phenocrysts																	Gms	Vesicles	
Unit	Core	Sec	Pc #	Inter.		meas. length (cm)	Depth core top	Depth Piece Top	Olivine				Plagioclase				Clinopyroxene				Type				
				%	2nd minl				Size min	Size max	%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max							
				top	bot																(%)	Comments			
59	37Z	2	7	66	113	30																Rubble. Different types of fragments: 1) Light gray, siliceous, 8% elongated (1 mm x 2 to 4 mm), pyrite-silica filled vesicles, faint white spots (1-2 mm diameter, 20 %). 2) Flow banded, dark gray-green, gray, olive green locally with abundant (50%) amygdales (<1 mm); quartz vein cuts across this banding . 3) Massive, black-olive green, magnetite-bearing very fine grained groundmass. Gradational (gray brown, gray) alteration halos along anhydrite veins.			
59	37Z	2	8	113	124	7																Massive, black, very fine grained, magnetite-bearing kernel. Zoned alteration halo (2 cm) along anhydrite-pyrite veins (light gray, greenish gray, gray-brown, black).			
59	37Z	2	9	124	147	20																Rubble. Massive gray fragments. Banded margins are generally encrusted with anhydrite.			
60	38Z	1	1	0	12	10															2	Light gray, completely altered volcanic rubble.			
60	38Z	1	2	12	74	50							1	clay	0.5	2					3	Ditto. Open vesicles are up to 8mm, ovoid, and aligned with aligned plagioclase phenocrysts.			
60	38Z	1	3	74	130	54															3	Rubble. 80% of it is identical to Piece 2. 20% of it is darker (green-gray) and has distinctly spotted texture (greenish oval spots, 0.5-1 mm, which is material described previously as amygdales).			
61	38Z	2	1	0	45	45																Dark-colored rubble with spotted texture due to 0.5-1-mm round soft green ovoids (amygdales) in a dark gray silicified matrix. Chloritic.			
61	38Z	2	2	45	74	29																Ditto.			
61	38Z	2	3	74	80	5																Light gray completely altered rock.			
61	38Z	2	4	80	91	9																Dark green-gray massive rock with abundant spotted texture as in Pieces 1 and 2. Chloritic.			
62	39Z	1	1	0	7	3																Dark gray massive rock with a zone of spotted texture (= <1-mm amygdals(?)).			
62	39Z	1	2	7	13	4							Tr.	clay	0.5	1						Light gray completely altered volcanic rock with scant plagioclase phenocrysts (pseudomorphed by clay) and about 5% green pyrite-clay amygdals (< 2mm).			
62	39Z	1	3	13	17	4							Tr.	clay	0.5	1						Ditto.			
62	39Z	1	4	17	27	10							Tr.	clay	0.5	1						Ditto. Plagioclase phenocrysts are concentrated at one end of the piece. Cross-cutting veinlets.			
62	39Z	1	5a	27	30	2																Rubble.			
62	39Z	1	5b	30	34	3							Tr.	clay	0.5	1						Same as Piece 1.			
62	39Z	1	5c	34	37	2																Similar to Piece 1, but too tiny to show phenocrysts. Vein halo on one side.			
62	39Z	1	6a	37	45	6							1	clay	0.5	1					2	Gray, soft, vesicular. The vesicles are elongate, 1-10 mm, and lined by pyrite-anhydrite.			
62	39Z	1	6b	45	55	6																Uncut rubble.			
63	39Z	1	7a	55	63	8															2	Dark gray massive rock with spotted texture (<1-mm spots), microcrystalline groundmass (microlites?), disseminated pyrite, and pyrite-green silica-clay amygdals and vugs (1-7 mm). The rock is dense and probably contains magnetite.			
63	39Z	1	7b	63	66	2																Uncut rubble.			

Leg 193 Igneous Log - Hole 1188F																						
Identifiers									Phenocrysts											Gms	Vesicles	
Unit	Core	Sec	Pc #	Inter.		meas. length (cm)	Depth core top	Depth Piece Top	Olivine				Plagioclase				Clinopyroxene				Type	Comments
				top	bot				%	2nd	Size min	Size max	%	2nd	Size min	Size max	%	2nd	Size min	Size max		
63	39Z	1	7c	70	70	3																
63	39Z	1	8a	70	75	4																
63	39Z	1	8b	75	79	2																
63	39Z	1	9	79	83	3																
63	39Z	1	10a	83	87	3																
63	39Z	1	10b	87	92	2																
63	39Z	1	10c	92	95	2																
63	39Z	1	10d	95	98	2																
63	39Z	1	10e	98	104	4																
63	39Z	1	10f	104	108	2																
63	39Z	1	10g	108	115	5																
64	39Z	1	11	115	131	15																
64	39Z	1	12	131	142	10																
64	39Z	2	1	0	5	1																
64	39Z	2	2	5	17	12																
64	39Z	2	3	17	40	15							1	clay	0.2	1						
64	39Z	2	4	40	55	15																
65	40Z	1	1	0	16	14																
66	40Z	1	2	16	82	60							1	clay	0.2	1						
67	40Z	1	3	82	136	50																
67	40Z	2	1a	0	21	21																
67	40Z	2	1b	21	30	8																
67	40Z	2	1c	30	41	8																
67	40Z	2	1d	41	58	16																
67	40Z	2	2	58	83	25																
68	41Z	1	1	0	6	4																
68	41Z	1	2a	6	10	4																
68	41Z	1	2b	10	13	2							Tr.	fresh		2						
68	41Z	1	2c	13	17	2																
69	41Z	1	3	17	99	80																
69	41Z	1	4	99	110	6																
69	41Z	1	5	110	139	25																
69	41Z	2	1	0	4	4																
69	41Z	2	2a	4	11	6																
69	41Z	2	2b	11	32	20																

Leg 193 Igneous Log - Hole 1188F

Identifiers																						
										Phenocrysts								Gms				Vesicles
Unit	Core	Sec	Pc #	Inter.		meas. length (cm)	Depth core top	Depth Piece Top	Olivine		Plagioclase				Clinopyroxene				Type		(%)	Comments
				top	bot				%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max		
69	41Z	2	3	32	51	19																Rubble and mud.
69	41Z	2	4	51	56	5																Mud.
69	41Z	2	5	56	73	14																Rubble. Piece 5a contains aligned flattened microvugs or tiny vesicles filled by pyrite.
69	41Z	2	6	73	81	7																Rubble.
70	42Z	1	1	0	5	3															10	Gray with 10% white spots (<1 mm to 3 mm) which are interpreted as completely or partially anhydrite filled vesicles.
70	42Z	1	2a	5	16	8															5	Gray, 5% white anhydrite amygdaloids.
70	42Z	1	2b	16	22	3															3	Gray. Round to elongate (up to 1 mm x 5 mm) quartz amygdaloids, anhydrite-pyrite crust/vein.
70	42Z	1	2c	22	38	10															10	Gray. Round white anhydrite +/- pyrite amygdaloids, 1 to 3 mm diameter.
70	42Z	1	3a	38	43	3															2	Gray and white mottled texture.
70	42Z	1	3b	43	49	3															2	As above.
70	42Z	1	4a	49	53	2															5	Gray. Round amygdaloids (1 to 2 mm). Change in composition approaching anhydrite-pyrite vein: Clay-silica, silica, anhydrite.
70	42Z	1	4b	53	61	8															3	Gray-green. Elongate amygdaloids (up to 1 mm x 5 mm) of green clay and silica-pyrite.
70	42Z	1	4c	61	67	4															3	As above.
70	42Z	1	4d	67	71	2															3	Gray. Round to slightly elongate amygdaloids (<1 mm). Change in composition approaching anhydrite-pyrite vein on margin of piece (from silica-clay to anhydrite).
70	42Z	1	4e	71	74	2															5	amygdaloids are greenish clay-silica (+/- pyrite) with white, silicified halos. Round to elongate (up to 1 mm x 3 mm).
70	42Z	1	4f	74	98	15															2 to 8	Rubble. Most fragments have white spots (up to 1 mm). These are anhydrite +/- pyrite amygdaloids.
70	42Z	1	5a	98	103	12															1	Gray. Silica-clay-pyrite amygdaloids (up to 1 mm).
70	42Z	1	5b	103	123	13															1	Rubble. Gray. Abundance of anhydrite amygdaloids (<1 mm) varies. Common anhydrite +/- pyrite veins.
70	42Z	1	6a	123	127	2															1	Gray. Silica amygdaloids (<1 mm).
70	42Z	1	6b	127	133	5															1	Rubble. Gray. Locally some white anhydrite amygdaloids.
70	42Z	1	7	133	146	7															Tr	Rubble. Gray. Locally some fine (<0.5 mm) silica amygdaloids.
70	42Z	2	1a	0	7	2															Tr	Rubble. Siliceous and clayey fragments. Some with silica +/- pyrite amygdaloids.
70	42Z	2	2a	7	24	0						1 crystal replaced by white clay									1 to 10	Rubble. Some fragments contain abundant silica-pyrite and pyrite filled vesicles (<1 mm).
70	42Z	2	3a	24	29	2															None.	Gray-white mottled appearance.
71	43Z	1	1a	0	56	25															5	Bay contains 3 different types of fragments: 1) Gray, vesicular (5%) mainly elongate (1 to 3 mm x 2 to 10 mm) lined by green clay, silica, pyrite, minor anhydrite => Unit 71. 2) Gray with fine white amygdaloids (up to 2 mm, 2%). Similar to Unit 70. 3) Gray, massive with round black amygdaloids of silica, magnetite and pyrite (5%, up to 3 mm diameter).

Leg 193 Igneous Log - Hole 1188F																							
Identifiers								Phenocrysts												Gms	Vesicles		
Unit	Core	Sec	Pc #	Inter.		meas. length (cm)	Depth core top	Depth Piece Top	Olivine				Plagioclase				Clinopyroxene				Type		
				top	bot				%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max	%	2nd minl	Size min	Size max			
72	43Z	1	2a	56	65	5															5	Gray with dark gray amygdals. Mainly round (around 1 mm diameter) filled by silica, magnetite, pyrite. Anhydrite-pyrite vein (2 mm wide) with 5 mm wide silica-magnetite halos.	
72	43Z	1	3a	65	75	8															8	Gray, black. Round to elongate vesicles: 1 to 2 mm x 2 to 10 mm, lined and filled by blue silica, magnetite, pyrite; 5 mm wide anhydrite-pyrite vein with 5 m wide silica-magnetite halos cuts across the piece. There are several round, up to 3 cm wide silica patches with sharp margins to the groundmass.	
72	43Z	1	3b	75	82	5							Tr	clay		2					5	As above.	
72	43Z	1	3c	82	89	4															5	As above. No silica patches.	
72	43Z	1	4a	89	101	8															2	Gray groundmass with black magnetite amygdals (up to 2 mm) some vesicles with silica, pyrite, magnetite fill. Fine pyrite vein with 1 cm halo of silica and magnetite.	
72	43Z	1	4b	101	115	6															1	Gray. Faint (flow?) banding defined by light gray and dark gray bands. Black amygdals: magnetite +/- pyrite; (white anhydrite amygdals restricted to one domain), up to 1 mm diameter.	
72	44Z	1	1	0	41	21															1 to 3	Rubble. Range of fragments from light gray, silicified to dark gray, black magnetite bearing. Most fragments contain amygdals (generally sub-mm, some 2 to 3 mm) of pyrite, anhydrite, green lay (chlorite).	
72	44Z	1	2	41	56	6															Tr	Rubble. Light gray to white fragments. With rare, dark gray siliceous spots and <1mm vesicles. Locally, anhydrite-pyrite crusts on fragment margins and associated halos with disseminated magnetite.	
72	44Z	1	3	56	91	13															1	Rubble. Light gray. Abundant fragments with disseminated magnetite and anhydrite - pyrite crusts/veins. Vesicles and amygdals (sub-mm) contain pyrite, green clay, silica, anhydrite and magnetite (near veins).	

Leg 193 Alteration/Mineralization Log - Hole 1188A																													
Identifiers							Depth Curated Depth (mbsf)	Color		Alteration										Sulfide Mineralization									
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	Length (cm)		Dom.	Sec.	Inten- sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy						Comments	
														Domi- nant (%)		Second- ary (%)		Others (%)				Domi- nant (%)		Second- ary (%)		Others			
1	2R	1	1	0	4	3	9.6	Blk	GnGr	Fr	Vn	F	vfg	Cl	tr	FeOx	tr			DS	vfg	Py	tr						Py and FeOx on films.
1	2R	1	2	4	9	3	9.64	Blk	GnGr	Fr	Vn	F	vfg	Cl	tr	Si	tr	FeOx	tr	DS	vfg	Py	tr						Py and FeOx on films; sil veinlets.
1	2R	1	3	9	18	7	9.69	Blk	GnGr	Fr	Vn	F	vfg	Cl	tr					DS	vfg	Py	tr						Py on films.
1	2R	1	4	18	25	5	9.78	Blk	GnGr	Fr	Vn	F	vfg	Cl	tr	Si	tr			DS	vfg	Py	tr						Some alteration in vesicles; py on films; sil veinlets.
1	3R	1	1	0	4	4	19.2	Blk	GrBr	Fr	Vn	F	vfg	Cl	tr	Sf	tr	FeOx	tr										Sf-cl films; sf lined vesicles, FeOx after py (?).
1	3R	1	2	4	9	4	19.24	Blk	BrGr	Fr	Vn	F	vfg	Cl	tr	Sf	tr	FeOx	tr										Cl films; sf lined vesicles; FeOx after py (?).
1	3R	1	3	9	18	6.5	19.28	Blk	BrGr	Fr	Vn	F	vfg	Sf	tr	Cl	tr	FeOx	tr	DS	vfg	Py	tr						Brown clay (=hemipelagic ooze?); sf in vesicles & veinlets; FeOx after py (?).
1	4R	1	1	0	9	3	28.9	Blk	GrBr	Sl	Vn	F	vfg	Sf	tr	Cl	tr	FeOx	tr	DS	vfg	Py	tr						Sf films with FeOx and tr py.
1	4R	1	2	9	13	3	28.93	Blk	GrBr	Fr	Vn	F	vfg	Cl	tr	FeOx	tr	Sf	tr	DS	vfg	Py	tr						Cl-FeOx films with tr tarnished pyrite; tr sf veinlets.
1	5R	1	1	0	7	3	33.6	Blk	GrGn	Fr	Vn	F	vfg	Cl	1	FeOx	tr	Sf	tr	DS	vfg	Py	tr						Py in clay film.
1	5R	1	2	7	12	3	33.63	Blk	GrGn	Fr	Vn	F	vfg	Sf	tr	FeOx	tr												
1	5R	1	3	12	17	3	33.66	Blk	GrGn	Fr	Vn	F	vfg	Cl	tr	FeOx	tr	Sf	tr	DS	vfg	Py	tr						FeOx after py.
1	5R	1	4	17	22	4	33.69	Blk	Wht	Fr	Pa	F	vfg	Sf	tr					DS	vfg	Py	tr						Py dissem. in groundmass.
1	5R	1	5	22	28	3	33.73	Gr		Md	Pa	Bl	vfg	Sf	3	Cl	tr	S	tr	DS	vfg	Py	tr						Sf cavity fill and veinlets; pervasive bleaching; native S in vesicle.
1	5R	1	6	28	35	5	33.76	Gr		Sl	Pa	Bl	vfg	Sf	3	Cl	tr			DS	vfg	Py	tr						Py dissem. in groundmass.
2	5R	1	7	35	41	4	33.81	Gr	Olv	Hi	Pa	Bl	vfg	Cl	40	Si	5	Sf	5	DS	vfg	Py	1						Altered perlite; TS and XRD requested for mineralogy.
2	5R	1	8	41	49	5	33.85	Gr	Olv	Hi	Pa	Bl	vfg	Cl	40	Si	5	Sf	5	DS	vfg	Py	1						Altered perlite; FeOx spotting.
3	6R	1	1	0	7	4	38.6	Gr		Hi	Pv	Bl	vfg	Si	30	Cl	20	Sf	5										Sf in vesicles; mineralogy otherwise unknown.
1	6R	1	2	7	13	4	38.64	Blk	GrBr	Fr	Vn	F	vfg	Cl	tr	Sf	tr			DS	vfg	Py	tr						Probable fall-back into hole of unit 1.
3	6R	1	3	13	19	5	38.68	Gr		Hi	Pv	Bl	vfg	Si	30	Cl	20	Sf	5	DS	vfg	Py	1						Sf in vesicles; mineralogy otherwise unknown.
1	7R	1	1	0	5	2	48.2	Blk		Fr	Vn	F	vfg	Cl	tr	Sf	tr			DS	vfg	Py	tr						Sf-cl film; probable fall back.
1	7R	1	2	5	11	5	48.22	Blk		Fr			vfg																Unaltered; probable fall back.
1	7R	1	3	11	15	2	48.27	Blk	Wht	Fr	Vn	F	vfg	Sf	tr														Patchy sf film; probable fall back.
3	7R	1	4	15	18	2	48.29	Blk	Wht	Fr	Vf		vfg	Sf	1	Cl	tr												Sf vesicle fill; cl film; probable fall back
3	7R	1	5	18	23	2	48.31	Blk	Wht	Fr	Vf		vfg	Sf	1					DS	vfg	Py	1						Py with sf as vesicle fill; probable fall back.
4	7R	1	6	23	27	2	48.33	LtGr		VH	Pv	Bl	vfg	Si	40	Sf	30	Cl	25	DS	vfg	Py	5						Laminated bleached volcanic.
4	7R	1	7	27	31	3	48.35	LtGrGn	Wht	Cm	Pv	Bl	vfg	Si	50	Sf	40	Cl	5	DS	vfg	Py	5						Massive bleached volcanic.
4	7R	1	8	31	42	4	48.38	Gr	Wht	Cm	Pv	Bl	vfg	Si	50	Sf	40	Cl	5	VS/DS	vfg	Py	1						Cg bladed anhydrite vein; disseminated and vein py.
4	7R	1	9	42	48	4	48.42	Gr		Cm	Pv	Bl	vfg	Si	50	Sf	40	Cl	8	DS	vfg	Py	2						Mg anhy as vesicle fill
4	7R	1	10	48	54	5	48.46	Gr		Cm	Pv	Bl	vfg	Si	50	Sf	40	Cl	9	DS	vfg	Py	1						Mg anhy veining.
4	7R	1	11	54	62	4	48.51	Gr		Cm	Pv	Bl	vfg	Si	50	Sf	40	Cl	9	DS	vfg	Py	1	Sp	tr				Mg ba as vesicle fill
4	7R	1	12	62	80	16	48.55	Gr	Wht	Cm	Pv	Bl	vfg	Si	50	Sf	40	Cl	8	VS	vfg	Py	2						Mg-cg bladed anhy - fg py veins with zoned halos.
4	7R	1	13	80	87	6	48.71	Gr	Wht	Cm	Pv	Bl	vfg	Si	50	Sf	40	Cl	8	VS	vfg	Py	2						Mg-cg bladed anhy - fg py veins with zoned halos.
4	7R	1	14	87	95	6	48.77	Gr	LtGn	Cm	Pv	Bl	vfg	Si	50	Sf	40	Cl	5	VS	vfg	Py	5						Flow banded; mg-cg anhy - fg py veins.
4	7R	1	15	95	102	4	48.83	Gr	Wht	Cm	Pv	Bl	vfg	Si	50	Sf	40	Cl	10	VS	vfg	Py	3	Sp	tr				Mg-cg anhy - fg py veins.
4	7R	1	16A	102	106	4	48.87	Gr	Wht	Cm	Pv	Bl	vfg	Si	50	Sf	40	Cl	10	VS	vfg	Py	3						Mg-cg anhy - fg py veins

Leg 193 Alteration/Mineralization Log - Hole 1188A																													
Identifiers							Depth Curated Depth (mbsf)	Color			Alteration										Sulfide Mineralization								
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	Length (cm)		Dom.	Sec.	Inten- sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy							
														Domi- nant (%)		Second- ary (%)		Others (%)					Domi- nant (%)		Second- ary (%)		Others	Comments	
5	7R	1	16B	106	109	3	48.91	Gn	LtGr	Cm	Pv	Sil/ GSC	vfg	Si	40	Sf	30	Cl	20	DS	vfg	Py	tr						Laminated sf-si altered rock
5	7R	1	17	109	119	8	48.94	LtGn	Br	Cm	Pv	Sil/ GSC	vfg	Si	40	Sf	20	Cl	10	DS	vfg	Py	25					Jigsaw breccia; remnant volcanic textures replaced by anhy and rimmed by chloritic clay; fragments hosted in si-cl-py matrix.	
5	7R	1	18	119	128	7	49.02	LtGn	Br	Cm	Pv	Sil/ GSC	vfg	Si	40	Sf	30	Cl	15	DS	vfg	Py	10					Jigsaw breccia; remnant volcanic textures replaced by anhy and rimmed by chloritic clay; fragments hosted in si-cl-py matrix.	
5	7R	1	19	128	138	9	49.09	BlGr	Wht	Cm	Pv	Sil/ GSC	vfg	Si	65	Sf	20	Cl	10	DS	vfg	Py	5					Distinctively blue, pseudoclasts are either bluish or white, as above. Vugs (<3mm make up ~ 5% of piece). Pseudoclastic.	
5	7R	1	20	138	149	10	49.18	BlGr	Wht	Cm	Pv	Sil/ GSC	vfg	Si	80	Sf	10	Cl	5	DS	vfg	Py	5					Pseudoclastic.	
5	7R	2	1	0	26	24	49.28	DrkGr	LtGr	Cm	Pv	Sil/ GSC	vfg	Si	70	Sf	18	Cl	10	DS	vfg	Py	2						
5	7R	2	2	26	43	16	49.52	DrkGr	LtGr	Cm	Pv	Sil/ GSC	vfg	Si	60	Sf	25	Cl	13	DS	vfg	Py	2						
5	7R	2	3	43	54	10	49.68	DrkGr	LtGr	Cm	Pv	Sil/ GSC	vfg	Si	60	Sf	10	Cl	8	DS	vfg	Py	2						
5	7R	2	4	54	67	12	49.78	DrkGr	LtGr	Cm	Pv	Sil/ GSC	vfg	Si	50	Sf	34	Cl	10	DS	vfg	Py	1						
5	7R	2	5	67	73	4	49.9	DrkGr	LtGr	Cm	Pv	Sil/ GSC	vfg	Si	60	Sf	10	Cl	8	DS	vfg	Py	2						
5	7R	2	6	73	85	10	49.94	LtGn	Wht	Cm	Pv	GSC	vfg	Si	70	Sf	20	Cl	9	DS	vfg	Py	1						
6	8R	1	1	0	9	8	57.9	Blk		Fr																			
6	8R	1	2	9	13	3	57.98	Gr	Wht	Cm	Pv	GSC	vfg	Si	65	Sf	20	Cl	10	DS	vfg	Py	tr					Part of unit 1?	
6	8R	1	3	13	20	5	58.01	Gr	Wht	Cm	Pv	GSC	vfg	Si	65	Sf	20	Cl	10	DS	vfg	Py	5					Part of unit 4? With late stage pyrite veins.	
6	8R	1	4	20	28	6	58.06	Gr	LtGn	Cm	Pv	GSC	vfg	Si	65	Sf	20	Cl	10	DS	vfg	Py	5					Part of unit 4?	
6	8R	1	5	28	42	14	58.12	LtGn	Wht	Cm	Pv	GSC	vfg	Si	55	Sf	20	Cl	14	DS	vfg	Py	1					Base of piece like piece 6.	
6	8R	1	6	42	45	2	58.26	LtGr	Gr	Cm	Pv	Bl	vfg	Si	50	Sf	40	Cl	5	DS	vfg	Py	5					No clasts, looks like flow contact, but could also be alteration halo.	
6	8R	1	7	45	65	18	58.28	LtGn	Gr	Cm	Pv	GSC	vfg	Si	50	Sf	30	Cl	15	DS	vfg	Py	5					Upper 4 cm look like pc. 6.	
6	8R	1	8	65	74	7	58.46	LtGn	Gr	Cm	Pv	GSC	vfg	Si	50	Sf	30	Cl	15	DS	vfg	Py	5					Rubble.	
6	8R	1	9	74	97	21	58.53	Wht	Gr	Cm	Pv	Bl	vfg	Si	55	Sf	35	Cl	4	DS	vfg	Py	6						
6	8R	1	10	97	108	10	58.74	LtGn	Gr	Cm	Pv	GSC	vfg	Si	50	Sf	30	Cl	15	DS	vfg	Py	5						
6	8R	1	11	108	140	31	58.84	Gr	LtGn	Cm	Pv	GSC/ Bl	vfg	Si	55	Sf	35	Cl	18	DS	vfg	Py	3					Patch of late anhydrite-silica-sulfide impregnation.	
7	8R	1	12	140	144	3	59.15	Gr	LtGn	Cm	Pv	GSC	vfg	Si	55	Sf	35	Cl	18	DS	vfg	Py	2						
7	8R	1	13	144	150	5	59.18	Gr	LtGn	Cm	Pv	GSC	vfg	Si	55	Sf	35	Cl	18	DS	vfg	Py	2						
7	8R	2	1	0	7	5	59.23	Gr	Wht	Cm	Pv	GSC	vfg	Si	40	Sf	40	Cl	18	DS	vfg	Py	2					Vugs lined with anhydrite and pyrite.	
7	8R	2	2	7	18	9	59.28	Gr	Wht	Cm	Pv	GSC	vfg	Si	40	Sf	40	Cl	20	DS	vfg	Py	tr					Vugs lined with anhydrite and pyrite.	
7	8R	2	3	18	22	3	59.37	Gr	Wht	Cm	Pv	GSC	vfg	Si	40	Sf	40	Cl	20	DS	vfg	Py	tr		Sp	tr		Vugs lined with anhydrite and pyrite.	
7	8R	2	4	22	32	8	59.4	Gr	Wht	Cm	Pv	GSC	vfg	Si	40	Sf	40	Cl	20	DS	vfg	Py	tr					White clay obvious.	
7	8R	2	5	32	40	7	59.48	Gr	Wht	Cm	Pv	GSC	vfg	Si	50	Sf	40	Cl	10	DS	vfg	Py	tr						
7	8R	2	6	40	51	10	59.55	Wht	Gr	Cm	Pv	GSC	vfg	Si	50	Sf	40	Cl	8	DS	vfg	Py	2						
7	8R	2	7	51	60	8	59.65	Gr	Wht	Cm	Pv	GSC	vfg	Si	50	Sf	40	Cl	10	DS	vfg	Py	tr						
7	8R	2	8	60	69	8	59.73	Gr	Wht	Cm	Pv	GSC	vfg	Si	40	Sf	40	Cl	19	DS	vfg	Py	1						
7	8R	2	9	69	73	3	59.81	Gr	Wht	Cm	Pv	GSC	vfg	Si	40	Sf	40	Cl	20	DS	vfg	Py	tr						
7	9R	1	1	0	4	3	67.6	Wht	Gr	Cm	Pv	Bl	vfg	Si	40	Sf	30	Cl	30	DS	vfg	Py	1						
7	9R	1	2	4	11	6	67.63	Wht	Gr	Cm	Pv	Bl	vfg	Si	50	Sf	40	Cl	7	DS	vfg	Py	1						
7	9R	1	3	11	16	4	67.69	Wht	Gr	Cm	Pv	Bl	vfg	Si	50	Sf	40	Cl	9	DS	vfg	Py	1						
7	9R	1	4	16	29	12	67.73	Gr	Wht	Cm	Pv	Bl	vfg	Si	50	Sf	40	Cl	5	DS	vfg	Py	5						

Leg 193 Alteration/Mineralization Log - Hole 1188A																											
Identifiers							Depth Curated Depth (mbsf)	Color		Alteration										Sulfide Mineralization							Comments
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	Length (cm)		Dom.	Sec.	Inten - sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy					
														Domi- nant (%)		Second- ary (%)		Others (%)				Domi- nant (%)		Second- ary (%)		Others	
7	9R	1	5	29	39	8	67.85	Wht	Gr	Cm	Pv	Bl	vfg	Si	60	Sf	55	Cl	5	DS	vfg	Py	5	Sp	3		
7	9R	1	6	39	54	13	67.93	Gr	Wht	Cm	Pv	Bl	vfg	Si	60	Sf	30	Cl	10	DS	vfg	Py	tr				
8	9R	1	7	54	88	32	68.06	Wht	Gr	Cm	Pv	Bl	vfg	Si	55	Sf	30	Cl	8	DS	vfg	Py	2				
8	9R	1	8	88	110	19	68.38	Wht	Gr	Cm	Pv	Bl	vfg	Si	50	Sf	30	Cl	8	DS	vfg	Py	2				
8	9R	1	9	110	130	17	68.57	Wht	Gr	Cm	Pv	Bl	vfg	Si	50	Sf	30	Cl	8	DS	vfg	Py	2				Bluish clay present.
8	9R	1	10	130	148	17	68.74	Wht	Gr	Cm	Pv	Bl	vfg	Si	50	Sf	30	Cl	8	DS	vfg	Py	2				
8	9R	2	1	0	34	33	68.91	Wht	Gr	Cm	Pv	Bl	vfg	Si	40	Sf	40	Cl	19	DS	vfg	Py	1				
8	9R	2	2	34	47	8	69.24	Gr	Wht	Cm	Pv	GSC	vfg	Si	50	Sf	35	Cl	13	DS	vfg	Py	2				
8	9R	2	3	47	58	8	69.32	Gr	Wht	Cm	Pv	GSC	vfg	Si	50	Sf	35	Cl	13	DS	vfg	Py	2				
8	9R	2	4	58	65	6	69.4	DrkGr	Wht	Cm	Pv	GSC	vfg	Si	60	Sf	30	Cl	6	DS	vfg	Py	4				More sulfide?
8	9R	2	5	65	76	10	69.46	DrkGr	Wht	Cm	Pv	GSC	vfg	Si	60	Sf	30	Cl	6	DS	vfg	Py	4				
8	9R	2	6	76	90	12	69.56	Bl	Gr	Cm	Pv	GSC	vfg	Si	60	Sf	32	Cl	8	DS	vfg	Py	tr				Distinctively blue clay.
8	9R	2	7	90	103	11	69.68	Bl	Gr	Cm	Pv	GSC	vfg	Si	60	Sf	32	Cl	10	DS	vfg	Py	tr				
8	9R	2	8	103	127	22	69.79	Bl	Gr	Cm	Pv	GSC	vfg	Si	60	Sf	32	Cl	10	DS	vfg	Py	tr				
8	9R	2	9	127	141	10	70.01	Gr	Gn	Cm	Pv	GSC	vfg	Si	50	Sf	30	Cl	19	DS	vfg	Py	1				
8	9R	3	1	0	17	16	70.11	Wht	Gr	Cm	Pv	Bl	vfg	Si	60	Sf	30	Cl	10	DS	vfg	Py	tr				
8	9R	3	2	17	33	15	70.27	Bl	Wht	Cm	Pv	GSC	vfg	Si	60	Sf	30	Cl	7	DS	vfg	Py	3				
8	10R	1	1	0	5	4	77.3	Gn	Gr	Cm	Pv	GSC	vfg	Si	55	Sf	30	Cl	10	DS	vfg	Py	5				
8	10R	1	2	5	11	5	77.34	Gn	Gr	Cm	Pv	GSC	vfg	Si	55	Sf	30	Cl	10	DS	vfg	Py	5				
8	10R	1	3	11	19	7	77.39	Gn	Gr	Cm	Pv	GSC	vfg	Si	50	Sf	35	Cl	13	DS	vfg	Py	2				
8	10R	1	4	19	34	13	77.46	Gn	Wht	Cm	Pv	GSC	vfg	Si	70	Sf	20	Cl	7	DS	vfg	Py	3				
8	10R	1	5	34	50	14	77.59	Gn	Wht	Cm	Pv	GSC	vfg	Si	50	Sf	40	Cl	10	DS	vfg	Py	tr				
8	10R	1	6	50	61	10	77.73	Gn	Wht	Cm	Pv	GSC	vfg	Si	50	Sf	30	Cl	10	DS	vfg	Py	tr				
8	10R	1	7	61	74	11	77.83	Wht	Gr	Cm	Pv	Bl	vfg	Si	46	Sf	40	Cl	15	DS	vfg	Py	3				
8	10R	1	8	74	85	10	77.94	Wht	Gr	Cm	Pv	Bl	vfg	Si	55	Sf	32	Cl	10	DS	vfg	Py	3				
9	10R	1	9	85	95	8	78.04	Gr	Wht	Cm	Pv	GSC	vfg	Si	65	Sf	30	Cl	5	DS	vfg	Py	tr				
9	10R	1	10	95	110	13	78.12	Wht	Gr	Cm	Pv	Bl	vfg	Si	45	Sf	45	Cl	5	DS	vfg	Py	tr				
9	10R	1	11	110	122	10	78.25	Gr	Wht	Cm	Pv	GSC	vfg	Si	70	Sf	25	Cl	5	DS	vfg	Py	tr				
9	10R	1	12	122	131	8	78.35	Gr	Wht	Cm	Pv	GSC	vfg	Si	70	Sf	25	Cl	5	DS	vfg	Py	tr				Degree of replcement estimated based on hardness.
9	10R	1	13	131	141	8	78.43	Gr	Wht	Cm	Pv	GSC	vfg	Si	85	Sf	10	Cl	5	DS	vfg	Py	tr				Alteration halo along anhydrite veins.
9	10R	1	14	141	147	5	78.51	Gr	Wht	Cm	Pv	GSC	vfg	Si	70	Sf	25	Cl	5	DS	vfg	Py	tr				
9	10R	2	1	0	6	5	78.56	LtGr	Gr	Cm	Pv	GSC	vfg	Si	60	Sf	30	Cl	9	DS	vfg	Py	1				
9	10R	2	2	6	14	7	78.61	Gr	Wht	Cm	Pv	Bl	vfg	Si	60	Sf	30	Cl	9	DS	vfg	Py	1				Alteration halos along anhydrite vein, ranging from white (anhydrite, sulf, white clay) through dark gray, gray, greenish gray. Vugs near bottom of piece are lined w/ anhydrite and sulfide.
9	10R	2	3	14	19	4	78.68	LtGr	Gr	Cm	Pv	GSC	vfg	Si	70	Sf	25	Si	9	DS	vfg	Py	1				
9	10R	2	4	19	26	6	78.72	LtGr	Gr	Cm	Pv	GSC	vfg	Si	70	Sf	25	Si	9	DS	vfg	Py	1				Anhydrite/pyrite vein at top of piece
9	10R	2	5	26	31	4	78.78	LtGr	Gr	Cm	Pv	GSC	vfg	Si	70	Sf	25	Si	9	DS	vfg	Py	1				
9	10R	2	6	31	42	9	78.82	Gn	Gr	Cm	Pv	GSC	vfg	Si	70	Sf	25	Si	7	DS	vfg	Py	3				
9	10R	2	7	42	46	3	78.91	Gn	Gr	Cm	Pv	GSC	vfg	Si	70	Sf	25	Si	9	DS	vfg	Py	1				
9	10R	2	8	46	51	4	78.94	Gn	Gr	Cm	Pv	GSC	vfg	Si	70	Sf	25	Si	9	DS	vfg	Py	1				
9	10R	2	9	51	57	5	78.98	Gr	Gn	Cm	Pv	GSC	vfg	Si	70	Sf	25	Si	9	DS	vfg	Py	1				
9	10R	2	10	57	66	8	79.03	Gr	Gn	Cm	Pv	GSC	vfg	Si	85	Sf	12	Si	10	DS	vfg	Py	tr				
9	10R	2	11	66	73	6	79.11	LtGr	Gr	Cm	Pv	GSC	vfg	Si	70	Sf	25	Si	9	DS	vfg	Py	1				
9	10R	2	12	73	79	5	79.17	LtGr	Gr	Cm	Pv	GSC	vfg	Si	70	Sf	25	Si	9	DS	vfg	Py	1				
9	10R	2	13	79	87	6	79.22	LtGr	Gr	Cm	Pv	GSC	vfg	Si	70	Sf	25	Si	9	DS	vfg	Py	1				
9	11R	1	1	0	15	7	86.9	Gr	Wht	Cm	Pv	Bl	vfg	Si	55	Sf	35	Cl	9	DS	vf	Py	1				Sf veins with distinctly zoned halos (ka?). Py disseminated throughout the rock.
9	11R	1	2	15	30	14	86.97	Gr	Wht	Cm	Pv	Bl	vfg	Si	55	Sf	35	Cl	8	DS	vf	Py	2				Sf veins with distinctly zoned halos (ka?). Py disseminated throughout the rock.

Leg 193 Alteration/Mineralization Log - Hole 1188A																											
Identifiers							Depth Curated Depth (mbsf)	Color		Alteration							Sulfide Mineralization										
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	Length (cm)		Dom.	Sec.	Inten- sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy					
													Domin- ant (%)		Second- ary (%)		Others (%)				Domin- ant (%)		Second- ary (%)		Others		Comments
9	11R	1	3	30	44	10	87.11	Gr	Wht	Cm	Pv	Bl	vfg	Si	55	Sf	35	Cl	9	DS	vf	Py	1				Sf veins with distinctly zoned halos (ka?). Py occurs in veins and disseminated throughout the rock.
9	11R	1	4	44	56	9	87.21	Gr	Wht	Cm	Pv	Bl	vfg	Si	55	Sf	35	Cl	9	DS	vf	Py	1				Sf veins with distinctly zoned halos (ka?). Py occurs in veins and disseminated throughout the rock.
9	11R	1	5	56	75	11	87.3	Gr	Wht	Cm	Pv	Bl	vfg	Si	55	Sf	35	Cl	7	DS	vf	Py	3				Strongly cl altered fragments in a darker si-cl-py matrix, giving a brecciated appearance.
9	11R	1	6	75	83	7	87.41	Gr	Wht	Cm	Pv	Bl	vfg	Si	55	Sf	35	Cl	7	DS	vf	Py	3				Py disseminated throughout the rock.
9	11R	1	7	83	101	9	87.48	Gr	Wht	Cm	Pv	Bl	vfg	Si	55	Sf	35	Cl	8	DS	vf	Py	2				Py disseminated throughout the rock.
9	11R	1	8	101	108	4	87.57	Gr	Wht	Cm	Pv	Bl	vfg	Si	45	Sf	45	Cl	7	DS	vf	Py	3				Py in late sf veins and disseminated throughout the rock.
9	11R	1	9	108	124	9	87.61	Gr	Wht	Cm	Pv	Bl	vfg	Si	50	Sf	40	Cl	8	DS	vf	Py	2				Py in late sf veins and disseminated throughout the rock.
9	11R	1	10	124	138	6	87.7	Gr	Wht	Cm	Pv	Bl	vfg	Si	70	Sf	20	Cl	9	DS	vf	Py	1				Py in late sf veins and disseminated throughout the rock.
9	11R	2	1	0	13	10	87.76	Gr	Wht	Cm	Pv	Bl	vfg	Si	60	Sf	30	Cl	10	DS	vf	Py	tr				Remnant perlitic texture preserved. Sf veins with zoned alteration halos.
9	11R	2	2	13	40	11	87.86	Gr	Wht	Cm	Pv	Bl	vfg	Si	50	Sf	25	Cl	14	DS	vf	Py	1				Rubbly, vuggy core with py disseminated throughout.
9	11R	2	3	40	55	10	87.97	Gr	Wht	Cm	Pv	Bl	vfg	Si	65	Sf	25	Cl	9	DS	vf	Py	1				Sf crystals in vugs. Anhy vein with zoned alteration halo.
9	11R	2	4	55	67	5	88.07	Gr	Wht	Cm	Pv	Bl	vfg	Si	60	Sf	30	Cl	9	DS	vf	Py	1				
9	11R	2	5	67	74	4	88.12	Gr	Wht	Cm	Pv	Bl	vfg	Si	60	Sf	30	Cl	10	DS	vf	Py	tr				
9	11R	2	6	74	86	8	88.16	Gr	Wht	Cm	Pv	Bl	vfg	Si	60	Sf	30	Cl	10	DS	vf	Py	tr				Flow-banded protolith.
9	11R	2	7	86	93	5	88.24	Gr	Wht	Cm	Pv	Bl	vfg	Si	60	Sf	30	Cl	10	DS	vf	Py	tr				Pale brown irregular veinlets, unknown mineralogy.
9	12R	1	1	0	4	2	96.6	Gr	Wht	Cm	Pv	Bl	vfg	Si	50	Sf	40	Cl	9	DS/ VS	vfg	Py	1				Py disseminated in body of rock and hosted in anhy vein.
9	12R	1	2	4	11	6	96.62	Gr	Wht	Cm	Pv	Bl	vfg	Si	50	Sf	40	Cl	9	DS/ VS	vfg	Py	1				Py disseminated in body of rock and hosted in anhy vein.
9	12R	1	3	11	39	18	96.68	Gr	Wht	Cm	Pv	Bl	vfg	Sf	50	Si	40	Cl	9	DS/ VS	vfg	Py	1				Py disseminated in body of rock and hosted in anhy vein.
10	12R	1	4	39	50	10	96.86	Gr	Wht	Cm	Pv	Bl	vfg	Sf	50	Si	30	Cl(Chl)	18	DS	vfg	Py	2				Pv alteration along flow banding cut by x-cutting sf veining (fracture controlled).
10	12R	1	5	50	57	7	96.96	Gr	Wht	Cm	Pv	Bl	vfg	Sf	50	Si	30	Cl(Chl)	18	DS	vfg	Py	2				As above. Soft pk-br vitreous unknown mineral intimately intergrown with sulfate.
10	12R	1	6	57	71	12	97.03	Gn	Br	Cm	Pv	GSC	vfg	Sf	50	Si	30	Cl(Chl)	19	DS	vfg	Py	1	Cp	tr		Remant perlitic texture. Early Green (due to chl ?) - sf alteration of perlitic texture. Hosted in pervasive si-cl alteration of apparent matrix. Late soft white sulfate is intergrown with pk-br qtz (??).
10	12R	1	7	71	78	5	97.15	Gr	Gn	Cm	Pv	GSC/ Bl	vfg	Sf	40	Si	30	Cl(Chl)	29	DS	vfg	Py	1				Similar to above interval, but cut by late anhy-py vein with associated bleached zoned halo.
10	12R	1	8	78	91	12	97.2	GrGn	Br	Cm	Pv	GSC/ Bl	vfg	Sf	40	Si	30	Cl(Chl)	30	DS	vfg	Py	tr				Similar to above interval.
10	12R	1	9	91	95	2	97.32	Gn	Gr	Cm	Pv	GSC	vfg	Si	50	Chl	10	Cl(Chl)	30	DS	vfg	Py	tr	Cp	tr		Early pervasive chl-sf alteration of volcanic fabric, with later si-cl flooding in apparent matrix, with associated sulfide (py-cp). Scattered late sf veins with associated bleaching.
10	12R	1	10	95	103	7	97.34	Gn	Gr	Cm	Pv	GSC	vfg	Si	50	Chl	10	Cl(Chl)	30	DS	vfg	Py	tr	Cp	tr		Similar to above interval.
10	12R	1	11	103	117	13	97.41	Gn	Gr	Cm	Pv	GSC	vfg	Si	50	Chl	10	Cl(Chl)	30	DS	vfg	Py	tr	Cp	tr		Similar to above interval.

Leg 193 Alteration/Mineralization Log - Hole 1188A																												
Identifiers							Depth Curated Depth (mbsf)	Color		Alteration							Sulfide Mineralization											
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	Length (cm)		Dom.	Sec.	Inten- sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy						
													Domi- nant (%)	Si	50	Chl	10	Cl(Chl)	30			Domi- nant (%)	Py	tr	Cp	tr	Others	Comments
10	12R	1	12	117	128	10	97.54	Gn	Gr	Cm	Pv	GSC	vfg	Si	50	Chl	10	Cl(Chl)	30	DS	vfg	Py	tr	Cp	tr			Similar to above interval.
10	12R	1	13	128	140	8	97.64	Gn	Gr	Cm	Pv	GSC	vfg	Si	50	Chl	10	Cl(Chl)	30	DS	vfg	Py	tr	Cp	tr			Similar to above interval. More strongly bleached due to increased abundance of sf veins.
10	12R	1	14	140	149	6	97.72	Gn	Gr	Cm	Pv	GSC	vfg	Si	50	Chl	10	Cl(Chl)	30	DS	vfg	Py	tr	Cp	tr			Similar to above interval.
10	12R	2	1	0	10	4	97.78	GrGn	Wht	Cm	Pv	GSC/ Bl	vfg	Si	40	Sf	30	Cl(Chl)	30	DS	vfg	Py	tr					Bleached zone in GSC alteration with anastomosing sf veins.
10	12R	2	2	10	27	15	97.82	GrGn	Wht	Cm	Pv	GSC/ Bl	vfg	Si	50	Sf	20	Cl(Chl)	20	DS	vfg	Py	tr					Similar to above unit, with an anastomosing sf vein network, grading into harder, strongly siliceous material.
10	12R	2	3	27	36	6	97.97	GrGn	Wht	Cm	Pv	GSC/ Bl	vfg	Si	50	Sf	30	Cl(Chl)	30	DS	vfg	Py	tr					Strongly siliceous GSC alteration.
10	12R	2	4	36	53	15	98.03	GrGn	Wht	Cm	Pv	GSC	vfg	Si	50	Sf	30	Cl(Chl)	30	DS	vfg	Py	tr					Strongly siliceous GSC alteration.
9	13R	1	1	0	7	6	106.3	Gr	Wht	Cm	Pv/ Vn	Bl	vfg	Si	50	Sf	50	Cl		DS	vfg	Py	tr					Py in Ba-vein and disseminated in the rock. Dislodged Unit 9 fragment
10	13R	1	2	7	12	4	106.36	GrGn		Cm	Pv	GSC	vfg	Si	70	Sf	20	Cl	10	DS	vfg	Py	tr	cpy	tr			Similar to 12R2-4, but with distinct medium-grained glassier layers.
11	13R	1	3	12	19	3	106.4	Wht		Cm	Pv/ SW	Bl	vfg	Si	70	Sf	20	Cl	8	DS/ VS	vfg	Py	2					Pervasive bleaching (sf-cl) cut by Si-Cl stockwork with minor Py. Disseminated py in bleached material.
11	13R	1	4	19	27	6	106.43	Wht	Gr	Cm	Pv/ SW	Bl	vfg	Si	60	Sf	25	Cl	14	DS	vfg	Py	1					Similar to above. Large lithoclast with Si-Cl alteration, Py vesicle infill (2% vesicles).
11	13R	1	5	27	34	4	106.49	Wht		Cm	Pv	Bl	vfg	Si	50	Sf	50	Cl	tr	DS	vfg	Py	tr					Massive bleached material.
11	13R	1	6	34	42	5	106.53	Gr	Wht	Cm	Pv	Bl	vfg	Si	70	Sf	25	Cl	4	VS	vfg	Py	1					Py in sf veins.
11	13R	1	7	42	52	8	106.58	Gr	Wht	Cm	Pv	Bl	vfg	Si	60	Sf	35	Cl	10	DS	vfg	Py	tr					Irregular Ba vein. Py in vein and disseminated in rock.
11	13R	1	8	52	59	6	106.66	Gr	Wht	Cm	Pv	Bl	vfg	Si	60	Sf	30	Cl	10	DS	vfg	Py	tr					Py disseminated through rock and drusy Py in Ba vein.
11	13R	1	9	59	73	11	106.72	Gr	Wht	Cm	Pv	Bl	vfg	Si	60	Sf	30	Cl	10	DS	vfg	Py	tr					Vuggy, irregular sf-si veins, with trace drusy pyrite, hosted in bleached (si-cl altered) weakly vesicular volcanic
11	13R	1	10	73	81	6	106.83	Gr	Wht	Cm	Pv	Bl	vfg	Si	60	Sf	30	Cl	10	DS	vfg	Py	tr					Vuggy, irregular sf-si veins, with trace drusy pyrite, hosted in bleached (si-cl altered) weakly vesicular volcanic
11	13R	1	11	81	92	10	106.89	Gr	Wht	Cm	Pv	Bl	vfg	Si	60	Sf	30	Cl	10	DS	vfg	Py	tr					Vuggy, irregular sf-si veins, with trace drusy pyrite, hosted in bleached (si-cl altered) weakly vesicular volcanic
11	13R	1	12	92	98	5	106.99	Gr	Wht	Cm	Pv	Bl	vfg	Si	50	Sf	40	Cl	10	DS	vfg	Py	tr					Vuggy, irregular sf-si veins, with trace drusy pyrite, hosted in bleached (si-cl altered) weakly vesicular volcanic
11	13R	1	13	98	109	10	107.04	Gr	Wht	Cm	Pv	Bl	vfg	Si	50	Sf	40	Cl	10	DS	vfg	Py	tr					Vuggy, irregular sf-si veins, with trace drusy pyrite, hosted in bleached (si-cl altered) weakly vesicular volcanic
11	13R	1	14	109	118	5	107.14	Wht	Gr	Cm	Pv	Bl	vfg	Si	50	Sf	40	Cl	10	DS	vfg	Py	tr					Vuggy sf-cl zone in same unit as above.
11	13R	1	15	118	127	5	107.19	Wht	Gr	Cm	Pv	Bl	vfg	Si	50	Sf	40	Cl	10	DS	vfg	Py	tr					Vuggy, irregular sf-si veins, with trace drusy pyrite, hosted in bleached (si-cl altered) weakly vesicular volcanic
11	13R	1	16	127	138	10	107.24	Gr	Wht	Cm	Pv	Bl	vfg	Si	60	Sf	30	Cl	10	DS	vfg	Py	tr					Tr disseminated py and minor py vug fill
11	14R	1	1	0	3	2	116	Wht		Cm	Vn	Sil	vfg	Si	60	Sf	40			DS	vfg	Py	tr					Vuggy si-anhy vein
12	14R	1	2	3	10	5	116.02	Gr	Wht	Cm	Pv	Bl/Sil	vfg	Si	50	Si	30	Cl	20	DS	vfg	Py	tr					Bleached, silicified volcanoclastic. Py disseminated in si matrix which cements cl-sf replaced volcanic clasts

Leg 193 Alteration/Mineralization Log - Hole 1188A																												
Identifiers							Depth Curated Depth (mbsf)	Color		Alteration							Sulfide Mineralization											
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	Length (cm)		Dom.	Sec.	Inten- sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy						
														Domi- nant (%)		Second- ary (%)		Others (%)				Domi- nant (%)		Second- ary (%)		Others	Comments	
13	14R	1	3	10	14	2	116.07	Wht	Gr	Cm	Pv/ SW	Bl/Sil	vfg	Si	40	Sf	40	Cl	20	DS	vfg	Py	tr				Bleached fragments cemented in si	
13	14R	1	4	14	25	11	116.09	Gr	Wht	Cm	Pv/ SW	Bl/Sil	vfg	Si	60	Sf	20	Cl	20	DS	vfg	Py	tr				Bleached fragments (cl-sf altered) with sf-si stockwork. Evidence for cyclic alteration events (concentric banding). Sf veins have distinct si selvages. Py mostly occurs in stockwork.	
13	14R	1	5	25	33	6	116.2	Gr	Wht	Cm	Pv/ SW	Bl/Sil	vfg	Si	60	Sf	20	Cl	20	DS	vfg	Py	tr				Similar to above.	
13	14R	1	6	33	43	8	116.26	Gr	Wht	Cm	Pv/ SW	Bl/Sil	vfg	Si	60	Sf	20	Cl	20	DS	vfg	Py	tr				Similar to above with distinct soft (cl-rich?) strongly bleached zone.	
13	14R	1	7	43	51	7	116.34	Gr	Wht	Cm	Pv/ SW	Bl/Sil	vfg	Si	60	Sf	20	Cl	19	DS	vfg	Py	1				Similar to above, but py disseminated throughout the rock. Unusual Ba rings on some pieces of the bleached volcanic. The rings overprint primary layering. Py occurs along primary layers as vfg crystals.	
13	14R	1	8	51	55	2	116.41	Gr	Wht	Cm	Pv/ SW	Bl/Sil	vfg	Si	60	Sf	20	Cl	17	DS	vfg	Py	3				Py disseminated throughout rock, similar to above.	
13	14R	1	9	55	64	8	116.43	Gr	Wht	Cm	Pv/ SW	Bl/Sil	vfg	Si	60	Sf	20	Cl	20	DS	vfg	Py	tr				Bleached fragments (cl-sf altered) with sf-si stockwork. Evidence for cyclic alteration events (concentric banding). Sf veins have distinct si selvages. Py mostly occurs in stockwork.	
13	14R	1	10	64	72	7	116.51	Gr	Wht	Cm	Pv/ SW	Bl/Sil	vfg	Si	60	Sf	20	Cl	20	DS	vfg	Py	tr				Similar to above with preserved flowbanding	
13	14R	1	11	72	82	8	116.58	Gr	Wht	Cm	Pv/ SW	Bl/Sil	vfg	Si	60	Sf	20	Cl	20	DS	vfg	Py	tr				Similar to above, with distinct vuggy anhy zone (0.5 x 2 cm) at vein intersection.	
13	14R	1	12	82	94	10	116.66	Gr	Wht	Cm	Pv/ SW	Bl/Sil	vfg	Si	60	Sf	20	Cl	20	DS	vfg	Py	tr				Similar to above	
14	14R	1	13	94	98	3	116.76	Gr	Wht	Cm	Pv	Bl/Sil	vfg	Si	50	Sf	30	Cl	20	DS	vfg	Py	tr				Bleached, silicified volcaniclastic. Py disseminated in si matrix which cements cl-sf replaced volcanic clasts	
14	14R	1	14	98	104	6	116.79	Gr	Wht	Cm	Pv	Bl/Sil	vfg	Si	50	Sf	30	Cl	20	DS	vfg	Py	tr				Bleached, silicified volcaniclastic. Py disseminated in si matrix which cements cl-sf replaced volcanic clasts	
14	14R	1	15	104	113	8	116.85	Gr	Wht	Cm	Pv	Bl/Sil	vfg	Si	50	Sf	30	Cl	20	DS	vfg	Py	tr				Bleached, silicified volcaniclastic. Py disseminated in si matrix which cements cl-sf replaced volcanic clasts	
14	14R	1	16	113	119	4	116.93	Gr	Wht	Cm	Pv	Bl/Sil	vfg	Si	50	Sf	30	Cl	20	DS	vfg	Py	tr				Bleached, silicified volcaniclastic. Py disseminated in si matrix which cements cl-sf replaced volcanic clasts	
14	14R	1	17	119	125	5	116.97	Gr	Wht	Cm	Pv	Bl/Sil	vfg	Si	50	Sf	30	Cl	20	DS	vfg	Py	tr				Bleached, silicified volcaniclastic. Py disseminated in si matrix which cements cl-sf replaced volcanic clasts	
14	14R	1	18	125	130	5	117.02	Gr	Wht	Cm	Pv	Bl/Sil	vfg	Si	50	Sf	30	Cl	20	DS	vfg	Py	tr				Bleached, silicified volcaniclastic. Py disseminated in si matrix which cements cl-sf replaced volcanic clasts	
15	15R	1	1	0	5	4	125.7	Wht		Cm	Vn	Sv	cg	Sf	98	Sf	1	Py	1	DS	mg	Py	1				Anhydrite vein	
15	15R	1	2	5	10	4	125.74	Wht		Cm	Vn	Sv	cg	Sf	97	Sf	2	Py	1	DS	mg	Py	1				Anhydrite vein	
15	15R	1	3	10	14	2.5	125.78	Wht		Cm	Vn	Sv	cg	Sf	99			Py	1	DS	mg	Py	1				Anhydrite vein with trace pyrite	
15	15R	1	4	14	22	5	125.81	Wht		Cm	Vn	Sv	cg	Sf	98	Sf	1	Py	1	DS	mg	Py	1				Anhydrite vein with trace pyrite	
15	15R	1	5	22	24	2	125.86	Wht		Cm	Vn	Sv	cg	Sf	96	Sf	2	Py	2	DS	mg	Py	2				Anhydrite vein with trace pyrite	
16	15R	1	6	24	28	4	125.88	Wht		Cm	Pv	Bl	vfg	Sf	85	Sf	10	Py	5	DS	vfg	Py	5				Porous sulfate rock	
16	15R	1	7	28	33	3	125.92	Wht	Gr	Cm	Pv	Bl	vfg	Sf	80	Sf	20	Py	tr	DS	vfg	Py	tr					
16	15R	1	8	33	36	3	125.95	Wht	Gr	Cm	Pv	Bl	vfg	Sf	90	Cl	10	Py	tr	DS	vfg	Py	tr					

Leg 193 Alteration/Mineralization Log - Hole 1188A																											
Identifiers							Depth	Color		Alteration										Sulfide Mineralization							Comments
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	Length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten - sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy					
														Domi- nant (%)	Second- ary (%)	Others (%)					Domi- nant (%)	Second- ary (%)	Others				
16	15R	1	9	36	40	2	125.98	Wht	Gr	Cm	Pv	Bl	vfg	Sf	90	Cl	10	Py	tr	DS	vfg	Py	tr				
16	15R	1	10	40	42	2	126	Wht	Gr	Cm	Pv	Bl	vfg	Sf	90	Cl	10	Py	tr	DS	vfg	Py	tr				
16	15R	1	11	42	46	2	126.02	Wht	Gr	Cm	Pv	Bl	vfg	Sf	70	Sf	30	Py	tr	DS	vfg	Py	tr				Anhydrite
16	15R	1	12	46	50	2	126.04	Wht	Gr	Cm	Pv	Bl	vfg	Sf	70	Sf	30	Py	tr	DS	vfg	Py	tr				
16	15R	1	13	50	55	3	126.06	Gr	Wht	Cm	Pv	Bl	vfg	Si	50	Cl	30	Sf	20	DS	vfg	Py	tr				
16	15R	1	14	55	60	4	126.09	Gr	Wht	Cm	Pv	Bl	vfg	Si	50	Cl	30	Sf	20	DS	vfg	Py	tr				
16	15R	1	15	60	64	2	126.13	Gr	Wht	Cm	Pv	Bl	vfg	Si	50	Cl	30	Sf	20	DS	vfg	Py	tr				
16	15R	1	16	64	68	2	126.15	Gr	Wht	Cm	Pv	Bl	vfg	Si	50	Cl	30	Sf	20	DS	vfg	Py	tr				
16	15R	1	17	68	71	3	126.17	Gr	Wht	Cm	Pv	Bl	vfg	Si	50	Cl	30	Sf	20	DS	vfg	Py	tr				
16	15R	1	18	71	76	2	126.2	Gr	Wht	Cm	Pv	Bl	vfg	Si	50	Cl	30	Sf	20	DS	vfg	Py	tr				
16	15R	1	19	76	81	5	126.22	Gr	Wht	Cm	Pv	Bl	vfg	Si	50	Cl	30	Sf	20	DS	vfg	Py	tr				
16	15R	1	20	81	93	11	126.27	Gr	Wht	Cm	Pv	Sil	vfg	Si	70	Sf	30	Py	tr	DS	vfg	Py	tr				Vug fill pyrite/anhydrite intergrown with Si
16	15R	1	21	93	106	11	126.38	Gr	Wht	Cm	Pv	Sil	vfg	Si	90	Sf	10	Py	tr	DS	vfg	Py	tr				Vug fill pyrite/anhydrite intergrown with Si
16	15R	1	22	106	111	4	126.49	Gr	Wht	Cm	Pv	Sil	vfg	Si	90	Sf	10	Py	tr	DS	vfg	Py	tr				Vug fill pyrite/anhydrite intergrown with Si
15	16R	1	1	0	3	3	135.4	Wht	Gd	Cm	Vn	Sv	cg	Sf	85					VS	mg	Py	15				Drusy anhy-py open space fill. Fall back from 15R.
16	16R	1	2	3	7	3	135.43	Wht		Cm	Pv	Bl	vfg	Sf	99					DS	vfg	Py	1				Fall back from 15R.
17	16R	1	3	7	12	5	135.46	Gr	GnGr	Cm	Pv	Sil	vfg	Si	80	Sf	10	Cl (7), Chl (2)		DS	vfg	Py	1				Disseminated and vug fill py, scattered volcanic vesicles
17	16R	1	4	12	25	11	135.51	Gr	GnGr	Cm	Pv	Sil	vfg	Si	80	Sf	10	Cl (7), Chl (2)		DS	vfg	Py	1				As above, with irregular diffuse si vein.
17	16R	1	5	25	30	4	135.62	Gr	GnGr	Cm	Pv	Sil	vfg	Si	80	Sf	10	Cl (7), Chl (2)		DS	vfg	Py	1				As above, with irregular diffuse si vein.
17	16R	1	6	30	40	8	135.66	LtGr	GnGr	Cm	Pv	Sil	vfg	Si	80	Sf	10	Cl (7), Chl (2)		DS	vfg	Py	1				As above, with anhy-py vug fill.
17	16R	1	7	40	47	6	135.74	LtGrGn	Gr	Cm	Pv	Sil	vfg	Si	70	Sf	15	Cl (12), Chl (3)		DS	vfg	Py	1				Similar material, less sulfidic. Bleached at base.
17	16R	1	8	47	59	11	135.8	LtGr	Lt-GnGr	Cm	Pv	Sil	vfg	Si	80	Sf	10	Sf (5), Cl (4), Chl (1)		DS	vfg	Py	tr				Similar material with distinct late qtz-anhy-py vein
17	16R	1	9	59	69	9	135.91	LtGr	Lt-GnGr	Cm	Pv	Sil	vfg	Si	80	Sf	10	Sf (3), Cl (5), Chl (2)		DS	vfg	Py	tr				Traces of a green mineral - appears pale green, sugary and soft under binocular microscope. Similar properties to intergrown sulfate. Chl? Possibly Fe, Cu or Cr contaminated sulfate? Needs XRD. Termed Chl? from here.
17	16R	1	10	69	79	9	136	LtGr	Lt-GnGr	Cm	Pv	Sil	vfg	Si	80	Sf	10	Cl (8), Chl (1), Sf (1)		DS	vfg	Py	tr				Bleached, relatively sulfate rich zone.
17	16R	1	11	79	84	4	136.09	LtGrGn	Wht	Cm	Pv	Bl	vfg	Si	60	Sf	30	Cl (8), Chl (2)		DS	vfg	Py	tr				
17	16R	1	12	84	88	4	136.13	LtGrGn	Wht	Cm	Pv	Bl	vfg	Si	40	Sf	30	Cl (20), Chl? (10)		DS	vfg	Py	tr				Py in vugs and disseminations.
17	16R	1	13	88	94	5	136.17	LtGrGn	Gr	Cm	Pv	Sil	vfg	Si	80	Sf	10	Cl (5), Chl? (5)		DS	vfg	Py	tr				Py in vugs and disseminations.
17	16R	1	14	94	103	6	136.22	LtGn	Gr	Cm	Pv	Sil	vfg	Si	75	Sf	15	Cl (5), Chl? (5)		DS	vfg	Py	tr				Irregular, apparently boudinaged qtz-sf vein is cut by rock fabric. Gel vein?
17	16R	1	15	103	107	2	136.28	Wht	Lt-GnGr	Cm	Pv	Bl	vfg	Sf	75	Si	15	Cl (15), Chl? (5)		DS	vfg	Py	tr				Probable si-sf vein with associated halo.
17	16R	1	16	107	111	4	136.3	GrGn	Wht	Cm	Pv	Sil	vfg	Si	50	Sf	35	Cl (13), Chl? (2)		DS	vfg	Py	tr				Disseminated and vug fill py.
17	16R	1	17	111	116	3	136.34	GrGn	Wht	Cm	Pv	GSC	vfg	Si	40	Sf	25	Cl (25), Chl? (10)		DS	vfg	Py	tr				Disseminated and vug fill py.

Leg 193 Alteration/Mineralization Log - Hole 1188A																													
Identifiers							Depth	Color		Alteration											Sulfide Mineralization								
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	Length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten-sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy							
														Dominant (%)		Second-ary (%)		Others (%)				Dominant (%)		Second-ary (%)		Others		Comments	
17	16R	1	18	116	122	4	136.37	GrGn	Wht	Cm	Pv	GSC	vfg	Si	40	Sf	25	Cl (25), Chl? (10)		DS	vfg	Py	tr					Disseminated and vug fill py.	
17	16R	1	19	122	140	12	136.41	GrGn	Wht	Cm	Pv	GSC	vfg	Si	40	Sf	25	Cl (25), Chl? (10)		DS	vfg	Py	tr					Disseminated and vug fill py.	
17	16R	1	20	140	146	3	136.53	GrGn	Wht	Cm	Pv	GSC	vfg	Si	40	Sf	25	Cl (25), Chl? (10)		DS	vfg	Py	tr					Disseminated and vug fill py.	
17	16R	2	1	0	5	4	136.56	LtGn	Wht	Cm	Pv	Bl	vfg	Sf	40	Si	30	Cl	29	DS	vfg	Py	1						
18	16R	2	2	5	16	10	136.6	LtGn	DrkGn	Cm	Pv	GSC	vfg	Cl	30	Si	30	Sf	29	DS	vfg	Py	1						
18	16R	2	3	16	20	3	136.7	Gn	Gr	Cm	Pv	GSC	vfg	Cl	50	Sf	28	Si	20	DS	vfg	Py	2						
18	16R	2	4	20	24	2	136.73	Gn	Gr	Cm	Pv	GSC	vfg	Cl	50	Sf	28	Si	20	DS	vfg	Py	2						
18	16R	2	5	24	31	5	136.75	Gn	Gr	Cm	Pv	GSC	vfg	Cl	50	Sf	28	Si	20	DS	vfg	Py	2						
18	16R	2	6	31	39	7	136.8	Gn	Gr	Cm	Pv	GSC	vfg	Cl	50	Sf	28	Si	20	DS	vfg	Py	2					Obvious lamination.	
18	16R	2	7	39	53	12	136.87	DrkGn	DrkGr	Cm	Pv	GSC	vfg	Cl	55	Si	28	Sf	14	DS	vfg	Py	1					Obvious lamination.	
18	16R	2	8	53	59	6	136.99	Gn	Wht	Cm	Pv	GSC/Sil	vfg	Cl	49	Si	30	Sf	20	DS	vfg	Py	1						
18	16R	2	9	59	70	10	137.05	Gn	Wht	Cm	Pv	GSC/Sil	vfg	Cl	49	Si	30	Sf	20	DS	vfg	Py	1					Sulfate-rich halo near bottom of piece.	
19	16R	2	10	70	77	4	137.15	Wht	LtGn	Cm	Pv	GSC/Sil	vfg	Si	50	Cl	30	Sf	20	DS	vfg	Py	tr					Sulfate-rich halo near bottom of piece.	
19	16R	2	11	77	86	4	137.19	Wht	LtGn	Cm	Pv	GSC/Sil	vfg	Si	50	Cl	30	Sf	20	DS	vfg	Py	tr						
19	16R	2	12	86	94	6	137.23	LtGn	Wht	Cm	Pv	GSC/Sil	vfg	Si	45	Cl	35	Sf	20	DS	vfg	Py	tr						
19	16R	2	13	94	101	6	137.29	LtGn	Wht	Cm	Pv	GSC/Sil	vfg	Si	50	Cl	25	Sf	25	DS	vfg	Py	tr						
19	16R	2	14	101	109	7	137.35	LtGn	Wht	Cm	Pv	GSC/Sil	vfg	Si	50	Cl	25	Sf	25	DS	vfg	Py	tr						
19	16R	2	15	109	119	9	137.42	LtGn	Wht	Cm	Pv	GSC/Sil	vfg	Si	50	Cl	25	Sf	25	DS	vfg	Py	tr						
19	17R	1	1	0	5	3	145.1	Wht	Gr	Cm	Pv	Bl/Sil	vfg	Cl	50	Sf	40	Si	10	DS	vfg	Py	tr					Noticably softer rock than previous core, less silicified.	
19	17R	1	2	5	10	4	145.13	Wht	Gr	Cm	Pv	Bl/Sil	vfg	Cl	50	Sf	40	Si	10	DS	vfg	Py	tr					Noticably softer rock than previous core, less silicified.	
19	17R	1	3	10	13	2	145.17	Wht	Gr	Cm	Pv	Bl/Sil	vfg	Cl	50	Sf	40	Si	10	DS	vfg	Py	tr					Noticably softer rock than previous core, less silicified.	
19	17R	1	4	13	20	6	145.19	Gr	Wht	Cm	Pv	GSC/Sil	vfg	Cl	40	Sf	35	Si	25	DS	vfg	Py	tr					Noticably softer rock than previous core, less silicified.	
19	17R	1	5	20	24	4	145.25	Gr	Wht	Cm	Pv	GSC/Sil	vfg	Cl	40	Sf	35	Si	25	DS	vfg	Py	tr					Noticably softer rock than previous core, less silicified.	
19	17R	1	6	24	33	8	145.29	LtGr	Wht	Cm	Pv	GSC	vfg	Cl	60	Sf	35	Si	5	DS	vfg	Py	tr					Noticably softer rock than previous core, less silicified.	
19	17R	1	7	33	38	4	145.37	Gr	LtGn	Cm	Pv	GSC/Sil	vfg	Cl	35	Sf	35	Si	30	DS	vfg	Py	tr					Significantly silicified.	
19	17R	1	8	38	44	4	145.41	Gr	LtGn	Cm	Pv	GSC/Sil	vfg	Sf	50	Cl	40	Si	10	DS	vfg	Py	tr					Significantly silicified.	
19	17R	1	9	44	49	4	145.45	Gr	LtGn	Cm	Pv	GSC/Sil	vfg	Sf	50	Cl	40	Si	10	DS	vfg	Py	tr					Significantly silicified.	
19	17R	1	10	49	53	3	145.49	Wht	LtGn	Cm	Pv	Bl/Sil	vfg	Sf	80	Si	20	Cl	tr	DS	vfg	Py	tr					Bleached, silica content inferred from hardness of pieces.	
19	17R	1	11	53	57	3	145.52	Wht	LtGn	Cm	Pv	Bl/Sil	vfg	Sf	80	Si	20	Cl	tr	DS	vfg	Py	tr					Bleached, silica content inferred from hardness of pieces.	
19	17R	1	12	57	61	3	145.55	Wht	LtGn	Cm	Pv	Bl/Sil	vfg	Sf	80	Si	20	Cl	tr	DS	vfg	Py	tr					Bleached, silica content inferred from hardness of pieces.	
19	17R	1	13	61	64	2	145.58	Wht	LtGn	Cm	Pv	Bl/Sil	vfg	Sf	80	Si	20	Cl	tr	DS	vfg	Py	tr					Bleached, silica content inferred from hardness of pieces.	

Leg 193 Alteration/Mineralization Log - Hole 1188A																												
Identifiers							Depth Curated Depth (mbsf)	Color		Alteration							Sulfide Mineralization							Comments				
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	Length (cm)		Dom.	Sec.	Inten - sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy						
							Domin- ant (%)							Sf	80	Si	20	Others (%)	Cl			tr	Domin- ant (%)		Py	tr	Second- ary (%)	Others
19	17R	1	14	64	70	4	145.6	Wht	LtGn	Cm	Pv	Bl/Sil	vfg	Sf	80	Si	20	Cl	tr	DS	vfg	Py	tr					Bleached, silica content inferred from hardness of pieces.
19	17R	1	15	70	73	2	145.64	Gr	Wht	Cm	Pv	GSC/ Sil	vfg	Sf	40	Si	30	Cl	30	DS	vfg	Py	tr					
19	17R	1	16	73	77	3	145.66	Gr	Wht	Cm	Pv	GSC/ Sil	vfg	Sf	40	Si	30	Cl	30	DS	vfg	Py	tr					
19	17R	1	17	77	80	2	145.69	Gr	Wht	Cm	Pv	GSC/ Sil	vfg	Sf	80	Si	20	Cl	tr	DS	vfg	Py	tr					Bleached, silica content inferred from hardness of pieces.
19	17R	1	18	80	87	6	145.71	Gr	LtGr	Cm	Pv	GSC/ Sil	vfg	Cl	50	Sf	30	Si (20), Mt (tr)		DS	vfg	Py	tr					
19	17R	1	19	87	94	6	145.77	Gr	LtGr	Cm	Pv	GSC/ Sil/Mt	vfg	Cl	50	Sf	30	Si (20), Mt (5)		DS	vfg	Py	tr					Piece is greenish-gray and clay-rcih in center, while exhibiting light-green sulfate-rich alteration halos.
19	17R	1	20	94	100	5	145.83	Gr	LtGr	Cm	Pv	GSC/ Sil/Mt	vfg	Cl	50	Sf	30	Si (20), Mt (5)		DS	vfg	Py	tr					Anhydrite veinlet.
19	17R	1	21	100	106	5	145.88	Gr	LtGr	Cm	Pv	GSC/ Sil/Mt	vfg	Cl	50	Sf	30	Si (20), Mt (5)		DS	vfg	Py	tr					Anhydrite veinlet.
19	17R	1	22	106	130	23	145.93	Gr	LtGn	Cm	Vn	GSC/ Sil/Mt	vfg	Cl	40	Sf	40	Si (19), Mt (3)		VS	vfg	Py	tr					Vertical anhydrite-sulfide vein with cm wide alteration halo. Piece is completely altered near base, where the vertical vein is cross cut by a subhorizo+AB301ntal sulfate/sulfide vein. Rock incompletely altered away from sulfate vein.
19	17R	1	23	130	133	1	146.16	Gr	LtGn	Cm	Vn	GSC/ Sil/Mt	vfg	Sf	40	Sf	40	Si (19), Mt (3)		VS	vfg	Py	1					
19	17R	1	24	133	140	6	146.17	Gn	LtGn	Cm	Vn/ SW	GSC/ Sil/Mt	vfg	Sf	45	Cl	35	Si (18), Mt (3)		VS	vfg	Py	1					Vein network with sulfate/pyrite mineralization.
19	17R	1	25	140	150	8	146.23	Gn	LtGn	Cm	Vn/ SW	GSC/ Sil/Mt	vfg	Sf	45	Cl	35	Si (18), Mt (3)		VS	vfg	Py	1					Blocky anhydrite in vein.
19	17R	2	1	0	5	4	146.31	Gr	LtGr	Cm	Sw	GSC/ Sil/Mt	vfg	Sf	50	Cl	39	Si (20), Mt (3)		VS	vfg	Py	tr					Network of anhydrite veins with magnetite and pyrite.
19	17R	2	2	5	11	5	146.35	Gr	LtGr	Cm	Sw	GSC/ Sil/Mt	vfg	Sf	50	Cl	40	Si (20), Mt (3)		VS	vfg	Py	tr					Network of anhydrite veins with magnetite and pyrite.
19	17R	2	3	11	18	6	146.4	Gr	LtGr	Cm	Sw	GSC/ Sil/Mt	vfg	Sf	60	Cl	28	Si (12), Mt (3)		VS	vfg	Py	tr					More sulfate, less sulfide in veins than in pieces 1 and 2.
19	17R	2	4	18	23	4	146.46	Gr	LtGr	Cm	Sw	GSC/ Sil/Mt	vfg	Sf	60	Cl	28	Si (12), Mt (3)		VS	vfg	Py	tr					More sulfate, less sulfide in veins than in pieces 1 and 2.
19	17R	2	5	23	28	3	146.5	Gr	LtGr	Cm	Pv	GSC/ Sil/Mt	vfg	Sf	60	Cl	28	Si (12), Mt (3)		VS	vfg	Py	tr					More sulfate, less sulfide in veins than in pieces 1 and 2.
19	17R	2	6	28	36	7	146.53	Gr	LtGr	Cm	Pv	GSC	vfg	Cl	50	Sf	25	Si	25	DS	vfg	Py	tr					Pseudoclastic texture.
19	18R	1	1-17	0	71	30	154.7	LtGn	Wht	Cm	Pv	Sil	vfg	Sf	50	Si	35	Cl (15), Mt(1)		VS	vfg	Py	tr					Locally high magnetite.
20	18R	1	18	71	79	7	155	Gn	Gr	Cm	Pv	GSC/ Sil	vfg	Cl	80	Sf	15	Si	5	DS	vfg	Py	tr					Pseudoclastic texture.
20	18R	1	19	79	87	7	155.07	Gr	LtGr	Cm	Pv	GSC/ Sil	vfg	Sf	50	Si	25	Cl	25	DS	vfg	Py	tr					Anhydrite filling void space, in part drusy.
20	18R	1	20	87	97	8	155.14	Gr	LtGr	Cm	Pv	GSC/ Sil	vfg	Sf	50	Si	25	Cl	25	DS	vfg	Py	tr					Anhydrite filling void space, in part drusy.
20	18R	1	21	97	104	6	155.22	Gr	LtGr	Cm	Pv	GSC/ Sil	vfg	Sf	50	Si	25	Cl	25	DS	vfg	Py	tr					Anhydrite filling void space, in part drusy.
20	18R	1	22	104	112	6	155.28	Gr	LtGr	Cm	Pv	GSC/ Sil	vfg	Sf	50	Si	25	Cl	25	DS	vfg	Py	tr					Anhydrite filling void space, in part drusy.
20	18R	1	23	112	115	2	155.34	Gr	LtGr	Cm	Pv	GSC/ Sil	vfg	Sf	50	Si	25	Cl	25	DS	vfg	Py	tr					Anhydrite filling void space, in part drusy.
20	19R	1	1	0	5	3	164.3	DrkGr		Md	Pa	GSC/ Sil	vfg	Si	8	Cl	8	Sf	1	DS	vfg	Py	tr					Vesicles lined with anhydrite and pyrite.
20	19R	1	2	5	9	3	164.33	DrkGr		Md	Pa	GSC/ Sil	vfg	Si	8	Cl	8	Sf	1	DS	vfg	Py	tr					Vesicles lined with anhydrite and pyrite.

Leg 193 Alteration/Mineralization Log - Hole 1188A																												
Identifiers							Depth	Color		Alteration											Sulfide Mineralization							
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	Length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten - sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy						
														Domi - nant (%)		Second - ary (%)		Others (%)				Domi - nant (%)		Second - ary (%)		Others		Comments
20	19R	1	3	9	15	4	164.36	DrkGr		Md	Pa	GSC/ Sil	vfg	Si	8	Cl	8	Sf	1	DS	vfg	Py	tr					Vesicles lined with anhydrite and pyrite.
20	19R	1	4	15	22	6	164.4	DrkGr		Md	Pa	GSC/ Sil	vfg	Si	8	Cl	8	Sf	1	DS	vfg	Py	tr					Vesicles lined with anhydrite and pyrite.
21	19R	1	5	22	28	5	164.46	DrkGr		Md	Pa	GSC/ Sil	vfg	Si	8	Cl	8	Sf	1	DS	vfg	Py	tr					
21	19R	1	6	28	33	4	164.51	DrkGr		Md	Pa	GSC/ Sil	vfg	Si	8	Cl	8	Sf	1	DS	vfg	Py	tr					
21	19R	1	7	33	36	2	164.55	DrkGr		Md	Pa	GSC/ Sil	vfg	Si	8	Cl	8	Sf	1	DS	vfg	Py	tr					
21	19R	1	8	36	40	3	164.57	DrkGr		Md	Pa	GSC/ Sil	vfg	Si	8	Cl	8	Sf	1	DS	vfg	Py	tr					
21	19R	1	9	40	47	5	164.6	Gr		Hi	Pv	GSC/ Sil	vfg	Cl	50	Si	10			DS	vfg	Py	tr				Appears chloritized.	
21	19R	1	10	47	51	3	164.65	Gr		Hi	Pv	GSC/ Sil	vfg	Cl	50	Si	10			DS	vfg	Py	tr					
21	19R	1	11	51	58	6	164.68	LtGr	Gr	Hi	Pv	GSC/ Sil	vfg	Cl	25	Si	25	Sf	2	DS	vfg	Py	tr					
21	19R	1	12	58	62	3	164.74	LtGr	Gr	Hi	Pv	GSC/ Sil	vfg	Cl	25	Si	25	Sf	2	DS	vfg	Py	tr					
21	19R	1	13	62	65	2	164.77	LtGr	Gr	Hi	Pv	GSC/ Sil	vfg	Cl	25	Si	25	Sf	2	DS	vfg	Py	tr					
22	19R	1	14	65	72	5	164.79	DrkGr		Sl	Pa	GSC/ Sil	vfg	Cl	2	Si	2	Sf	1	DS	vfg	Py	tr					Vesicles lined with anhydrite and pyrite.
22	19R	1	15	72	81	8	164.84	DrkGr		Sl	Pa	GSC/ Sil	vfg	Cl	2	Si	2	Sf	1	DS	vfg	Py	tr					Alteration patch.
22	19R	1	16	81	92	8	164.92	DrkGr		Sl	Pa	GSC/ Sil	vfg	Cl	2	Si	2	Sf	1	DS	vfg	Py	tr					
23	19R	1	17	92	97	4	165	LtGr	Wht	Cm	Pv	GSC/ Sil	vfg	Cl	50	Sf	30	Si	20	DS	vfg	Py	tr					Rubble.
19	20R	1	1	0	8	6	173.9	LtGn	Wht	Cm	Pv/ Sw	Sil	vfg	Cl	55	Si	25	Sf	10	VS	vfg	Py	10					Greenish clay altered volcanic cut by silica-anhy-pyrite stockwork. Probable fall from unit 19.
23	20R	1	2	8	18	9	173.96	GrGn		Cm	Pv	Sil/Mt	vfg	Si	50	Sf	27	Cl (20), Mt (3)		DS	vfg	Py	tr					Pervasive alteration with faintly defined si-sf stockwork, giving the rock a slightly blotchy appearance.
23	20R	1	3	18	22	2	174.05	Gr		Cm	Pv	Sil/Mt	vfg	Si	70	Sf	13	Cl (10), Mt (2)		DS	vfg	Py	5					
23	20R	1	4	22	32	9	174.07	GrGn		Cm	Pv	Sil/Mt	vfg	Si	60	Sf	25	Cl (10), Mt (5)		DS	vfg	Py	tr					Pervasive alteration with faintly defined si-sf stockwork, and a greenish tinge (=chlorite?).
23	20R	1	5	32	39	6	174.16	GrGn		Cm	Pv	Sil/Mt	vfg	Si	60	Sf	25	Cl (10), Mt (5)		DS	vfg	Py	tr					Pervasive alteration with faintly defined si-sf stockwork, and a greenish tinge (=chlorite?).
23	20R	1	6	39	50	10	174.22	GrGn	Gr	Cm	Pv/ Vn	Sil/Mt	vfg	Si	70	Sf	16	Cl (10), Mt (2)		DS	vfg	Py	2					As above, but cut by slightly diffuse si-anhy-py vein.
23	20R	1	7	50	53	2	174.32	Gr		Cm	Vn	Sil/Mt	vfg	Si	70	Sf	28	Mt	tr	DS	vfg	Py	2					Si-anhy-py material similar to vein in above piece.
23	20R	1	8	53	67	13	174.34	DkGn		Cm	Pv	GSC/ Sil/Mt	vfg	Si	70	Sf	10	Cl (10), Chl (5) Mt (tr)		DS	vfg	Py	5					Dark green chloritic unit.
23	20R	1	9	67	77	9	174.47	DkGn		Cm	Pv	GSC/ Sil/Mt	vfg	Si	70	Sf	10	Cl (10), Chl (5) Mt (tr)		DS	vfg	Py	5					Dark green chloritic unit.
23	20R	1	10	77	81	3	174.56	Gr	Wht	Cm	Pv/ Vn	Sil/Mt	vfg	Si	70	Sf	23	Cl (5), Mt (2)		DS	vfg	Py	tr					Si-(slightly chloritic)-mt bearing rock cut by si-anhy-py vein.
23	20R	1	11	81	91	7	174.59	Gr	Wht	Cm	Pv/ Vn	Sil/Mt	vfg	Si	80	Sf	15	Cl (4), Mt (1)		DS	vfg	Py	tr					Similar material to the vein in the above unit.

Leg 193 Alteration/Mineralization Log - Hole 1188A

Log 175 Alteration/Mineralization Log - Hole 1806A																												
Identifiers							Depth	Color			Alteration							Sulfide Mineralization										
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	Length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten- sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy						
														Domi- nant (%)	Second- ary (%)	Others (%)					Domi- nant (%)	Second- ary (%)	Others			Comments		
24	20R	1	12	91	104	12	174.66	DkGn	Wht	Cm	Pv	Sil/Mt	vfg/cg	Si	70	Sf	25	Cl (15), Chl (tr) Mt (tr)		DS	vfg	Py	tr				Distinctive unit with acicular cg anhy laths, up to 10mm long and ovoid sf (anhy?) spotting.	
24	20R	1	13	104	111	5	174.78	DkGn	Wht	Cm	Pv	GSC/ Sil/Mt	vfg/cg	Si	70	Sf	25	Cl (15), Chl (tr) Mt (tr)		DS	vfg	Py	tr				Distinctive unit with acicular cg anhy laths, up to 10mm long and ovoid sf (anhy?) spotting.	
25	20R	1	14	111	115	3	174.83	Gr		Cm	Pv	Sil/Mt	vfg	Si	75	Sf	24	Mt	1	DS	vfg	Py	tr					
25	20R	1	15	115	121	4	174.86	Gr		Cm	Pv	Sil/Mt	vfg	Si	75	Sf	24	Mt	1	DS	vfg	Py	tr					
25	21R	1	1	0	10	8	183.1	Gr	Gn	Cm	Pv	Sil/ GSC/ Mt	vfg	Si	82	Sf	10	Chl+Cl (10), Mt (tr)		DS	vfg	Py	3				Si, patchy chl-cl.	
25	21R	1	2	10	19	5	183.18	Gr	Gn	Cm	Pv	Sil/ GSC/ Mt	vfg	Si	75	Sf	10	Chl+Cl (10), Mt (5)		DS	vfg	Py	tr					
25	21R	1	3	19	35	14	183.23	Gn	Blk	Cm	Pv/ Sw	Sil/ GSC/ Mt	vfg	Si	65	Sf	20	Chl+Cl (5), Mt (8)		VS	vfg	Py	3				Green, chloritic, sf-rich unit with disseminated magnetite. Cut by a fine network of si-py+/-anhy veinlets and associated pervasive silicification, resulting in a patchy green (sf-chl-cl) and black (si-py) appearance.	
25	21R	1	4	35	43	5	183.37	Blk	Gn	Cm	Pv/ Sw	Sil/ GSC/ Mt	vfg	Si	80	Sf	7	Chl+Cl (1), Mt (10)		VS	vfg	Py	2				Same as above.	
25	21R	1	5	43	50	6	183.42	Blk	Gn	Cm	Pv/ Sw	Sil/ GSC/ Mt	vfg	Si	70	Sf	13	Chl+Cl (4), Mt (10)		VS	vfg	Py	3				Same as above.	
25	21R	1	6	50	56	2	183.48	Blk	Gn	Cm	Pv/ Sw	Sil/ GSC/ Mt	vfg	Si	75	Sf	10	Chl+Cl (3), Mt (10)		VS	vfg	Py	2				Same as above.	
25	21R	1	7	56	65	8	183.5	Blk	GrGn	Cm	Pv/ Sw	Sil/ GSC/ Mt	vfg	Si	80	Sf	10	Chl+Cl (2), Mt (3)		DS	vfg	Py	5				Same as above.	
25	21R	1	8	65	72	6	183.58	LtGn	Blk	Cm	Pv/ Sw	Sil/ GSC/ Mt	vfg	Si	35	Sf	40	Chl+Cl (15), Mt (tr)		VS	vfg	Py	5				Same as above, with a distinct si-sf-py vein.	
25	21R	1	9	72	77	2	183.64	Gr		Cm	Pv/ Sw	Sil/ GSC/ Mt	vfg	Si	70	Sf	25	Chl+Cl (3), Mt (1)		VS	vfg	Py	1				Slightly bleached portion of the same unit.	
25	21R	1	10	77	88	10	183.66	Blk	Gn	Cm	Pv/ Sw	Sil/ GSC/ Mt	vfg	Si	83	Sf	5	Chl+Cl (4), Mt (3)		VS	vfg	Py	5				Same unit: cut by a distinct py-si vein (2-3mm wide), with a network of fine si-py veinlets in its footwall.	
25	21R	1	11	88	95	6	183.76	Blk	Gn	Cm	Pv/ Sw	Sil/ GSC/ Mt	vfg	Si	50	Sf	30	Chl+Cl (12), Mt (3)		VS	vfg	Py	3					
25	21R	1	12	95	105	10	183.82	Gn	Gr	Cm	Pv/ Sw	Sil/ GSC/ Mt	vfg	Si	60	Sf	25	Chl+Cl (9), Mt (5)		DS/ VS	vfg	Py	1				Py disseminated in vuggy si vein.	
25	21R	1	13	105	115	9	183.92	GrGn	Blk	Cm	Pv/ Sw	Sil/ GSC/ Mt	vfg	Si	60	Sf	25	Chl+Cl (14), Mt (1)		DS/ VS	vfg	Py	tr					
25	21R	1	14	115	126	10	184.01	GrGn	Blk	Cm	Pv/ Sw	Sil/ GSC/ Mt	vfg	Si	65	Sf	20	Chl+Cl (8), Mt (2)		DS/ VS	vfg	Py	5				Clayey bleached portion of same unit as above.	
25	21R	1	15	126	133	6	184.11	GrGn		Cm	Pv	Sil/ GSC/ Mt	vfg	Si	65	Sf	25	Chl+Cl (9), Mt (tr)		DS	vfg	Py	1				Clayey bleached portion of same unit as above.	
25	21R	1	16	133	136	2	184.17	GrGn		Cm	Pv	Sil/ GSC/ Mt	vfg	Si	65	Sf	25	Chl+Cl (9), Mt (tr)		DS	vfg	Py	1				Clayey bleached portion of same unit as above.	

Leg 193 Alteration/Mineralization Log - Hole 1188A																										
Identifiers							Depth	Color		Alteration										Sulfide Mineralization						
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	Length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten- sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy				
														Domi- nant (%)	Second- ary (%)	Others (%)					Domi- nant (%)	Second- ary (%)	Others			Comments
25	21R	1	17	136	142	6	184.19	Gr		Cm	Pv/ Vn	Sil/ GSC/ Mt	vfg	Si	45	Sf	45	Chl+Cl (8), Mt (1)		VS	vfg	Py	1			Si-mt-py vein and ovoid, slightly oxidized sf rings.
25	21R	1	18	142	149	6	184.25	DkGn	Gr	Cm	Pv/ Vn	Sil/ GSC/ Mt	vfg	Si	45	Sf	35	Chl+Cl (18), Mt (tr), Sf (tr)		DS	vfg	Py	2			Acicular anhy vesicle fill.
26	22R	1	1	0	16	11	192.7	Wht		Cm	PV	Bl	vfg	Sf	60	Si	40	FeOx (tr)		DS	vfg	Py	tr			Vuggy sf-cl with tr disseminated py and FeOx. Possibly in situ? Mixed with fall back material: fresh aphyric dacite pebbles and a pseudoclastic si-sf-py (5%) vein.
26	23R	1	1	0	16	11	202.1	Wht		Cm	PV	Bl	vfg	Sf	60	Si	40	FeOx (tr)		DS	vfg	Py	tr			Vuggy sf-cl with tr disseminated py and FeOx.
							211.6																			END OF HOLE

Leg 193 Alteration/Mineralization Log - Hole 1188B																											
Identifiers								Color		Alteration										Sulfide Mineralization							Comments
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten- sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy					
														Domi- nant (%)	Second- ary (%)	Others (%)					Domi- nant (%)	Second- ary (%)	Others				
1	1Z	1	1	0	0.08	8	0	LtGr	LtBr	Cm	Pv	Bl/Sil	vfg	Si	55	Sf+Cl	40	Qtz (3), Anhy (1)		DS/ VF	vfg	Py	1				Sugary, very fine grained bleached and silicified sparsely vesicular volcanic rock. Py occurs as vfg disseminations and as vesicle fill, with qtz and anhydrite. Note that both this piece and the one below were taken from rubble at the bottom of Hole 1188B, and could be from any depth between 0 and 72 mbsf.
1	1Z	1	2	0.08	0.17	9	0.08	Gr		Cm	Pv	Sil/Bl	vfg	Si	70	Sf+Cl	30	Qtz (tr), Anhy (tr)		DS/ VS	vfg	Py	tr				Similar to above unit, but slightly more coarse grained and non vesicular. Pyrite occurs as vfg disseminations on fracture surfaces with anhydrite and quartz.

Leg 193 Alteration/Mineralization Log - Hole 1188F																												
Identifiers								Color		Alteration										Sulfide Mineralization						Comments		
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten - sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy						
														Dominant (%)		Secondary (%)		Others (%)				Dominant (%)		Secondary (%)		Others		
27	1Z	1	1	0	22	10	218	Gr	Gn	Cm	Pv	Sil	vfg	Si	65	Cl	20	Anhy (5), Qtz (5), Chl (5)			VS/ DS	vfg	Py	1				Mostly silicified gray material with some green more chloritic and softer clayey pieces. Anhy-py-(qtz) vein.
27	1Z	1	2	22	38	11	218.22	Gr	Gn	Cm	Pv	Sil	vfg	Si	90	Cl	5	Chl		2	VS/ DS	vfg	Py	tr				Similar to above, no chloritic pieces. Strongly silicified.
27	1Z	1	3	38	60	11	218.38	Gr		Cm	Pv	Bl	vfg	Cl	55	Si	40	Anhy		5	VS	vfg	Py	tr				Clayey bleached rock, Anhy-py on fractures.
27	1Z	1	4	60	79	10	218.6	Gr	Gn	Cm	Pv	Sil/Bl	vfg	Cl	50	Si	45	Chl (3), Anhy (2)			VS	vfg	Py	tr				Rubble: green si-chl and pale clayey pieces. Py-anhy on some fracture surfaces.
27	1Z	1	5	79	121	27	218.79	Gr		Cm	Pv	Sil	vfg	Si	80	Cl	16	Anhy		3	DS/ VS	vfg	Py	1				Strongly silicified unit. Anhy-py on fractures, qtz-anhy-py veins. Zoned alteration (from paler to darker = intensity of silicification?) away from fractures and veins. Vfg disseminated pyrite also throughout rock. Some softer more clayey fragments.
27	1Z	2	1	0	9	7	219.21	Gr	Gn	Cm	Pv	Sil	vfg	Si	5	Cl	45	Anhy		5	VS/ DS	vfg	Py	tr				Relict perlitic structure(?) gives some pieces pseudobrecciated appearance. The cement is anhydrite-rich (milky crystals of blocky to tabular anhydrite) with acicular radiating aggregates of crystals filling void space. Transmitted light microscopy indicates that the acicular crystals have a low birefringence, low RI (<<1.57) and inclined extinction, suggesting this mineral may be a zeolite.
27	1Z	2	2	9	61	40	219.3	Gr	Gn	Cm	Pv	Sil/Bl	vfg	Si	70	Cl	15	Anhy (11), Chl (4)			VS/ DS	vfg	Py	1				Scrapings of a 1 mm-wide veins suggest anhydrite is the main vein fill, with minor pyrite and rare quartz. One piece near the bottom and one from the middle of the interval are 85% anhydrite with small amounts of py, chl, and qtz.
27	1Z	2	3	61	92	25	219.82	Gn	Gr	Cm	Pv	Sil	vfg	Si	60	Cl	30	Anhy (1), Chl (9)			VS/ DS	vfg	Py	tr				A network of anhy+py veins is developed. Halos along these veins are whitish to light green-gray and grade into darker gray colors going away from the vein. One piece is pervasively silicified.
27	1Z	2	4	92	121	22	220.13	Gr	Gn	Cm	Pv	Sil/Bl	vfg	Si	60	Cl	35	Anhy (2), Chl (3)			VS/ DS	vfg	Py	tr				Some pieces appear bleached.
27	1Z	3	1	0	24	23	220.42	Gr	Gn	Cm	Pv	Sil/Bl	vfg	Si	60	Cl	35	Anhy (3), Chl (2)			VS/ DS	vfg	Py	tr				Some of the smaller pieces have bleached appearance adjacent to up to 2mm wide anhydrite-pyrite veins.
27	1Z	3	2	24	62	32	220.66	Gr	Gn	Cm	Pv	Sil/Bl	vfg	Si	60	Cl	33	Anhy (5), Chl (2)			VS/ DS	vfg	Py	tr				Anastomosing veins of anhy + py are developed in some pieces.
28	1Z	3	3	62	123	50	221.04	Gr	Gn	Cm	Pv	Sil	vfg	Si	70	Cl	25	Anhy (2), Chl (3)			VS/ DS	vfg	Py	tr				Some pieces appear highly silicified, based on their relative hardness and the gray color. There is a 2 mm wide anhy vein in one piece. Bands of different colors (ranging from dark gray to light gray-green are developed parallel to vein network of anhy+py and anhy+py surfaces of pieces (fractures).

Leg 193 Alteration/Mineralization Log - Hole 1188F

Fig 1-3 Alteration/Mineralization Log - Hole 1166																												
Identifiers								Color			Alteration								Sulfide Mineralization							Comments		
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten-sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy						
														Dominant (%)		Secondary (%)		Others (%)				Dominant (%)		Secondary (%)		Others		
28	1Z	4	1	0	60	50	221.65	Gr	Gn	Cm	Pv	Sil	vfg	Si	70	Cl	22	Anhy (1), Chl (7)			VS/DS	vfg	Py	tr				Pronounced liesegang-like color variations (dark gray - gray - greenish gray) adjacent to anhy-py(-qtz) veins. Differences in color and hardness probably reflect varying amounts of qtz, chl, and clay.
29	1Z	4	2	60	121	55	222.25	Gr	Gn	Cm	Pv	Sil/Bl	vfg	Si	70	Cl	20	Anhy (5), Chl (5)			VS/DS	vfg	Py	tr				Same as above. Abundant anhydrite in some piece in rubble.
29	2Z	1	1	0	24	15	221.5	Gr		Cm	Pv	Sil	vfg	Si	85	Cl	12	Anhy (1), Chl (1)			VS/DS	vfg	Py	1				Marked liesegang-like banding. Transmitted light microscopy on scrapings of the most competent bands confirm their quartz-rich nature, although minor clay and/or chlorite, anhydrite and pyrite are also present.
29	2Z	1	2	24	110	61	221.74	Gr		Cm	Pv	Sil/Bl	vfg	Si	60	Cl	38	Anhy (1), Chl (1)			VS/DS	vfg	Py	tr	Mc	tr		Zoned halos as above. 1-2 cm away from the veins, the rocks have a uniform gray color are are very soft. Halo are much harder owing to larger extents of silicification.
29	2Z	1	3	110	150	28	222.6	Gr		Cm	Pv	Sil/Bl	vfg	Si	70	Cl	28	Anhy		1	VS/DS	vfg	Py	tr	Mc	tr		Silicified zoned halos along anhy-qtz-py veins.
29	3Z	1	1	0	70	60	222.6	LtGr	DkGr	Cm	Pv	Bl	vfg	Si	60	Cl	39	Anhy		1	VS/DS	vfg	Mc	tr	Py	tr		This core is overall very similar to core 1 and 2, but appears more clayey, which is part due to a fair amount of gooey clays (from drill mud?), rust and grease on surfaces of many pieces. Anhy and sulf (py and mc have been recognized) on surfaces of some pieces. Rare Anhy+Sulf+Qtz veins in piece 1C. Some pieces show liesegang-like banding, with dark-gray areas being the most competent.
29	3Z	1	2A	70	78	6	223.3	LtGr	DkGr	Cm	Pv	Sil/Bl	vfg	Si	70	Cl	28	Anhy		2	DS	vfg	Mc	tr	Py	tr		Massive piece with liesegang-like banding. More silicified than rest of section.
29	3Z	1	2B	78	94	15	223.38	LtGr	DkGr	Cm	Pv	Sil/Bl	vfg	Si	50	Cl	48	Anhy		2	DS	vfg	Mc	tr	Py	tr		Anhy and sulf on surfaces of some pieces.
29	3Z	1	3	94	144	40	223.54	LtGr	DkGr	Cm	Pv	Sil/Bl	vfg	Si	55	Cl	43	Anhy		2	VS/DS	vfg	Mc	tr	Py	tr		
30	3Z	2	1	0	95	85	224.04	LtGrGn	DkGr	Cm	Pv	Sil/Bl	vfg	Si	65	Cl	35	Anhy		tr	DS/VS	vfg	Py	tr				Vuggy, strongly fractured core with angular, hard, indurated silicified fragments coated by and cemented in soft medium-gray clay. Vfg pyrite on fracture surfaces and disseminated in trace quantities throughout the core.
30	3Z	2	2A	95	107	13	224.99	Gr	LtGr	Cm	Pv	Sil/Bl	vfg	Si	60	Cl	38	Anhy		2	DS/VS	vfg	Py	tr				Hard, silicified, indurated fragments (some of which show a jigsaw fit) embedded in a dark gray to white clayey matrix. Dark gray clay "veins" are strongly sulfidic (py), paler material contains anhydrite. Pyrite occurs as fine euhedral grains in the clay and as trace disseminations in the silicified fragments. Brown grease on core is drilling contamination.
30	3Z	2	2B	107	117	8	225.11	LtGr		Cm	Pv	Sil/Bl	vfg	Si	70	Cl	29	Sf		1	DS	vfg	Py	tr				Similar to piece 1. Larger fragments show oscillatory zonation away from white sulfate (anhy?) coated fractures. Vfg disseminated py in vein halos.

Leg 193 Alteration/Mineralization Log - Hole 1188F																												
Identifiers								Color		Alteration										Sulfide Mineralization						Comments		
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten- sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy						
														Dominant (%)		Secondary (%)		Others (%)				Dominant (%)		Secondary (%)		Others		
30	3Z	2	2C	117	130	7	225.21	Gr		Cm	Pv	Sil	vfg	Si	85	Cl	13	Sf	2	DS	vfg	Py	tr					Large coherent rock with a 1-1.5 cm wide puggy clayey brecciated zone on its upper surface. Definite gradational alteration front (softer, more py) within large piece adjacent to the brecciation. Rock is cut by late si-anhy-py and hairline py veins with plae siliceous alteration halos. Quartz spotting is possible microvesicle fill. Py disseminated throughout.
30	3Z	2	2D	130	142	8	225.34	DkGr	LtGr	Cm	Pv	Sil/Bl	vfg	Si	60	Cl	40	Anhy	tr	DS	vfg	Py	tr					Rubble: approx 2/3 hard silicified fragments with zoned alteration halos; 1/3 dk gr clay with embedded silicified rock fragments.
30	3Z	2	3A	142	147	7	225.46	LtGr		Cm	Pv	Bl	vfg	Cl	67	Si	30	Anhy	3	DS/VS	vfg	Py	tr					Friable, soft, clay-rich alteration with irregular anhy-py vein network.
30	3Z	2	3B	147	155	6	225.51	LtGr	DkGr	Cm	Pv	Sil/Bl	vfg	Si	60	Cl	38	Anhy	2	DS	vfg	Py	tr					Similar to piece 2B. Indurated silicified fragments with concentric banding (probable vein alteration halos) embedded in white (anhy-rich) to dk gr clayey matrix. Py disseminated throughout clay matrix.
30	6Z	1	1A	0	6	4	233.1	Wht	LtGr	Cm	Pv	Sil/Bl	vfg	Si	85	Cl	13	Anhy	1	DS	vfg	Py	1					Rubble: hard, indurated fragment with si-anhy coatings on fracture surfaces. Zoned banded halos to veins. Py disseminated throughout.
30	6Z	1	1B	6	15	7	233.16	LtGr	Wht	Cm	Pv	Sil/Bl	vfg	Si	65	Cl	35	Anhy	tr	DS	vfg	Py	tr					Similar to 3Z-2, piece 2D. Silicified fragments embedded in a clayey matrix. Pale, anhy-rich zones in the matrix. Py disseminated throughout. Brown stains are drill grease.
30	6Z	1	1C	15	25	9	233.25	DkGr		Cm	Pv	Sil	vfg	Si	70	Cl	29			DS	vfg	Py	1					Indurated, silicified material. Hairline qtz-py veins have well developed 1cm wide banded alteration halos, with the strongest silicification adjacent to the veins. Interstitial puggy clay may be drilling disturbance. Patches of core contain up to 3% py, but overall content = 1%.
30	6Z	1	1D	25	34	6	233.35	LtGr	Wht	Cm	Pv	Sil/Bl	vfg	Si	75	Cl	23	Sf (2), FeOx (tr)		DS	vfg	Py	tr					Similar to above. White sf +/- si on most fracture surfaces. Vfg disseminated py is partially oxidized.
30	6Z	1	1E	34	39	4	233.44	Wht	LtGr	Cm	Pv	Sil/Bl	vfg	Si	23	Cl	13	Sf	1	DS	vfg	Py	1					Hard indurated core piece, with a white si-sf coated fracture surface (vein) showing a (by now typical) banded zoned alteration halo. Fine ovoid quartz spots in the groundmass may be filled microvesicles.
30	6Z	1	1F	39	45	5	233.49	LtGr	Wht	Cm	Pv	Sil/Bl	vfg	Si	75	Cl	23	Sf (2), FeOx (tr)		DS	vfg	Py	tr					Similar to above. White sf +/- si on most fracture surfaces. Vfg disseminated py is partially oxidized.
31	6Z	1	2	45	47	1	233.55	DkGn	Wht	Cm	Pv	Sil/SSC	vfg	Si	85	Chl	10	Cl (5), FeOx (tr)		DS/ VF	vfg	Py	tr					Hard, strongly silicified unit. White siliceous (minor clay) spherulites occur in a dark green silica-chlorite groundmass. Pyrite mostly occurs as fine euhedra in vugs in the spherulites. Minor FeOx spotting.
32	6Z	1	3A	47	61	9	233.57	Cr	LtGr	Cm	Pv	Sil/Bl	vfg	Si	80	Cl	18	Sf (2), FeOx (tr)		VS/ DS	vfg	Py	tr					Silicified, bleached rubble. Sf+/-Si on fracture surfaces, +/- py. FeOxide spotting after sulfides.

Leg 193 Alteration/Mineralization Log - Hole 1188F																												
Identifiers								Color		Alteration										Sulfide Mineralization						Comments		
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten-sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy						
														Dominant (%)		Secondary (%)		Others (%)				Dominant (%)		Secondary (%)		Others		
32	6Z	1	3B	61	66	4	233.71	Wht	LtGr	Cm	Pv	Sil	vfg	Si	85	Cl	13	Sf	1	DS	vfg	Py	1					Hard, indurated piece. White si-sf vein with zoned, 10mm half width banded siliceous alteration halo. Alteration intensity decreases away from vein. Late pyrite hairline veins. Fine quartz spotting probably represents remnant vesicles.
32	6Z	1	3C	66	86	16	233.76	Cr	LtGr	Cm	Pv	Sil/Bl	vfg	Si	80	Cl	18	Sf (2), FeOx (tr)		VS/ DS	vfg	Py	tr					Same as piece 3A.
32	6Z	1	3D	86	90	3	233.96	Wht	LtGr	Cm	Pv	Sil	vfg	Si	85	Cl	13	Sf	1	DS	vfg	Py	1					Same as piece 3B. Pyrite is clearly more abundant away from the intense silicification of the vein halo.
32	6Z	1	4A	90	94	3	234	Wht	LtGr	Cm	Pv	Sil	vfg	Si	85	Cl	13	Sf	1	DS	vfg	Py	1					Same as piece 3B. Late pyrite veinlet.
32	6Z	1	4B	94	127	26	234.04	LtGr	Cr	Cm	Pv	Sil	vfg	Si	80	Cl	18	Sf (2), FeOx (tr), Anhy (tr)		DS	vfg	Py	tr					Rubble: mixture of hard grey silicified pieces and more bleached looking pieces. Some larger fragments show zoned halos adjacent to white sf-si coated fractures.
32	6Z	2	1A	0	16	12	234.37	Wht	LtGr	Cm	Pv	Sil	vfg	Si	85	Cl	15	FeOx (tr), Anhy (tr)		DS/ VS	vfg	Py	tr					Similar to 6Z-1, piece 1A. Traces of disseminated pyrite. One piece has a py-coated fracture surface.
32	6Z	2	1B	16	24	8	234.53	LtGr		Cm	Pv	Sil	vfg	Si	85	Cl	15	Sf	tr	VS	vfg	Py	tr					Pyrite occurs as fine veinlets and in alteration halos to larger veins. Fine qtz spotting is possible microvesicle fill.
33	6Z	2	1C	24	39	7	234.61	LtGr	DkGr	Cm	Pv	Sil/Bl	vfg	Si	70	Cl	30	Sf	tr	DS/ VS	vfg	Py	tr					Rubbly, puggy core. Angular, hard, indurated silicified fragments coated by and cemented in soft med-gray clay. Py on fracture surfaces and disseminated throughout the rock.
33	6Z	2	2A	39	54	13	234.76	DkGr		Cm	Pv	Sil	vfg	Si	75	Cl	23	Sf	1	DS	vfg	Py	1					Inhomogeneous piece with patchy to banded silicification and softer clay-rich domains. Vfg disseminated py also has a patchy distribution. Elongate qtz-py spots are probable vesicle fill.
33	6Z	2	2B	54	69	9	234.91	LtGr	DkGr	Cm	Pv	Sil	vfg	Si	70	Cl	30	Sf	tr	DS/ VS	vfg	Py	tr					Same as piece 1C
33	6Z	2	3A	69	80	5	235.06	LtGr	DkGr	Cm	Pv	Sil	vfg	Si	70	Cl	30	Sf	tr	DS/ VS	vfg	Py	tr					Same as piece 1C
33	6Z	2	3B	80	87	5	235.17	DkGr	Gr	Cm	Pv	Sil	vfg	Si	90	Cl	8			VS/ VF	vfg	Py	2					Banded siliceous rock with ovoid py and qtz-py vug fill and fine pyrite veinlets. Very rare white prismatic crystals appear to be altered relict igneous plagioclase.
33	6Z	2	3C	87	102	9	235.24	LtGr		Cm	Pv	Sil	vfg	Si	70	Cl	30	Sf (tr), FeOx (tr)		DS/ VS	vfg	Py	tr					Same as piece 1C, trace FeOx spotting
34	7Z	1	1	0	101	68	235	Cr	LtGr	Cm	Pv	Sil	vfg	Si	80	Cl	20	FeOx (tr) Blue Si-Cl (tr - 1e only)		DS	vfg	Py	tr					Rounded pebbles of silicified, sparsely microvesicular volcanic rock. Intensity of silicification decreases away from edges of pebbles, leaving less altered kernels. Py is finely disseminated in the less silicified kernels, but absent from the intensely silicified piece margins. FeOx spotting on white coated surfaces is after pyrite. Distinct blue amorphous surface coating (si-cl??) on some fragments of 1e. Fine py bands in 1f may be pseudomorphing a flow structure.

Leg 193 Alteration/Mineralization Log - Hole 1188F																												
Identifiers								Color		Alteration										Sulfide Mineralization						Comments		
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten- sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy						
														Dominant (%)		Secondary (%)		Others (%)				Dominant (%)		Secondary (%)		Others		
35	7Z	1	2A	101	107	6	236.01	LtGr	Cr	Cm	Pv	Sil	vfg	Si	95	Cl	3	Pl (2), Qtz (tr)			DS/ VF	vfg	Py	tr				Intensely silicified rock. Distinctly zoned, banded halo of silicification away from one edge. Remnant igneous plagioclase phenocrysts. Py occurs as vfg disseminations and as slightly coarser vug (=vesicle?) fill. 5mm circular qtz-py filled vug may be a large vesicle.
35	7Z	1	2B	107	122	7	236.07	LtGr		Cm	Pv	Sil	vfg	Si	90	Cl	8	Pl (2), Sf (tr)			DS/ VS/ VF	vfg	Py	tr				Similar to above piece. Banded structure (=vein halos or flow banding?) and remnant igneous plagioclase phenocrysts (skeletal). Py occurs as vfg disseminations, with quartz in microvesicles (ovoid qtz+/- py spots), and on some pale, si-sf coated fractures.
35	7Z	1	2C	122	126	4	236.22	LtGr		Cm	Pv	Sil	vfg	Si	90	Cl	9	Sf (tr), Pl (tr)			DS/ VS/ VF	vfg	Py	tr				Banded, intensely silicified rock. Convoluted banding = silica and gray-greenish clays. Traces of vfg disseminated pyrite and py-qtz vug fill. White si-sf coated fractures host patches of pyrite and have zoned halos.
35	7Z	1	2D	126	151	16	236.26	LtGr	Wht	Cm	Pv	Sil	vfg	Si	90	Cl	8	Pl (2), Sf (tr)			DS/ VS/ VF	vfg	Py	tr				Similar to piece 2b. Drusy pyrite on some fracture surfaces.
35	7Z	2	1A	0	35	30	236.51	LtGr		Cm	Pv	Sil	vfg	Si	50	Cl	48	Sf		2	DS/ VF	vfg	Py	tr	Mc	tr		Anhy+py veins.
35	7Z	2	1B	35	43	5	236.86	LtGr		Cm	Pv	Sil	vfg	Si	75	Cl	24	Sf		1	DS/ VF	vfg	Py	tr				Trachytic texture. Anhy+py coated surfaces with silicified zoned halos.
35	7Z	2	1C	43	50	4	236.94	LtGr		Cm	Pv	Sil	vfg	Si	50	Cl	48	Sf		2	DS/ VF	vfg	Py	tr				Anhy+py veins.
35	7Z	2	2	50	57	6	237.01	LtGr		Cm	Pv	Sil	vfg	Cl	60	Si	39	Sf		1	DS	vfg	Py	tr	Mc	tr		Brecciated. Highly silicified clasts embedded in extremely soft, clayey matrix. Possibly drilling breccia.
35	7Z	2	3	57	60	2	237.08	LtGr	Wht	Cm	Pv	Sil	vfg	Si	50	Cl	48	Sf		2	DS/ VF	vfg	Py	tr				Small pieces of rubble, presumably similar to pieces 1 A and 1 C.
36	8Z	1	1A	0	9	7	236.2	LtGr		Cm	Pv	Sil	vfg	Si	70	Cl	27	Sf		1	DS/ VS	vfg	Py	2	Mc	tr		Zoned halos, dark gray parts are highly silicified. A silicified py-bearing stringer (<5 mm wide) cuts the halos. Both stringer and halo are cut by late py-anhy veins with narrow bleached halos.
36	8Z	1	1B	9	33	18	236.29	LtGr		Cm	Pv	Sil	vfg	Si	70	Cl	28	Sf		2	DS/ VS	vfg	Py	tr				No cut surfaces, but seems similar to piece 1A. Py-lined surfaces with zoned halos. Corroded anhy on surfaces of some pieces.
36	8Z	1	1C	33	40	5	236.53	LtGr		Cm	Pv	Sil	vfg	Si	70	Cl	28	Sf		1	DS/ VF	vfg	Py	1				Highly silicified, almost cherty or felsic looking irregular halos. Rock away from halos is soft with patchy anhy and py. Irregular halos cut at a shallow angle produce flame-like structures on cut surface. Colors in halos range from whitish gray to dark gray.

Leg 193 Alteration/Mineralization Log - Hole 1188F																											
Identifiers								Color		Alteration										Sulfide Mineralization							Comments
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten - sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy					
														Dominant (%)		Secondary (%)		Others (%)				Dominant (%)		Secondary (%)		Others	
36	8Z	1	1D	40	59	11	236.6	LtGr		Cm	Pv	Sil	vfg	Si	70	Cl	28	Sf	3	DS/ VS	vfg	Py	3				Zoned halos developed in some pieces, but associated vein material is eroded. Silicified halos along narrow anhy+py+qtz veins that cut the zone halos. Abundant py in the center of kernels, where the rock appears to have a spherulitic structure.
36	8Z	1	1E-1G	59	90	22	236.79	LtGr		Cm	Pv	Sil	vfg	Si	70	Cl	28	Sf	3	DS/ VS	vfg	Py	1				High silification where zoned halos are developed. Centers pf pieces are soft and rich in pyrite.
36	8Z	1	2	90	133	28	237.1	LtGr		Cm	Pv	Sil	vfg	Si	80	Cl	20	Sf	tr	DS/ VS	vfg	Py	tr				Silicified zoned halos. Plagioclase phenocrysts are replaced by very soft white material away from the halos, while in the halos, plagioclase is replace by whitish light gray material that is harder, but still scratchable.
36	9Z	1	1A	0	10	6	237.7	LtGr	Wht	Cm	Pv	Sil	vfg	Si	70	Cl	26	Sf	3	DS/ VS	vfg	Py	1				Flame-like zoned to patchy halo, sometimes cut by narrow py veins. Whitish to light gray elongate patches in halos are soft and consist of silica-clay with some anhydrite and pyrite.
37	9Z	1	1B	10	15	5	237.8	LtGr	Wht	Cm	Pv	Sil/Bl	vfg	Si	60	Cl	34	Sf	5	DS/ VS	vfg	Py	1	Mc	tr		Breccia(?). Irregular white clasts(?) are soft, anhy-clay-qtz-py bearing material. The groundmass is light green and fine-grained with disseminated gray silica-clay. There are dark-gray completely silicified oval patches developed in the piece.
38	9Z	1	1C	15	23	5	237.85	LtGr	Wht	Cm	Pv	Sil	vfg	Si	70	Cl	23	Sf	5	DS/ VS/ VF	vfg	Py	2				A zoned halo consists of a dark gray silicified band followed by a narrow, soft, bleached band. Away from the halo, alteration is pervasive, but anhy-py rich as well as quartz-rich patches are developed.
38	9Z	1	1D-F	23	55	20	237.93	LtGr		Cm	Pv	Sil	vfg	Si	70	Cl	23	Sf	5	DS/ VS/ VF	vfg	Py	2	Mc	tr		Mostly rubble that appears to be similar to piece 1C. Piece 1E has a cut surface exposing a silica veinlet with a cm wide halo of patchy silicification. The silica vein+halo is cut by a narrow py vein.
38	11G	1	1-3	0	26	20	238.9	Gr		Cm	Pv	Sil	vfg	Si	80	Cl	18	Sf	1	DS/ VS/ VF	vfg	Py	1	Mc	tr		Silicified rocks, mostly rubble. Piece 2 has cut surface, revealing zoned halos along a anhy-qtz-py vein. Elongate py aggregates are abundant in groundmass.
38	11G	1	4	28	38	8	239.18	Gr	Wht	Cm	Pv	Sil	vfg	Si	80	Cl	19	Sf	1	DS/ VS/ VF	vfg	Py	tr	Mc	tr		Zoned halos associated with anhy vein. Anhy-qtz-py veins with narrow zoned halos. Two small veinlet splay off the main vein and cut the wide zoned halo associated with the anhy vein. Several mm-sized rounded quartz aggregates in piece.
38	11G	1	5-6	38	66	20	239.28	Gr		Cm	Pv	Sil	vfg	Si	80	Cl	19	Sf	1	DS/ VS/ VF	vfg	Py	1				Zoned silicified halos. Mostly rubble.

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Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten- sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy					
														Dominant (%)		Secondary (%)		Others (%)				Dominant (%)		Secondary (%)		Others	
39	11G	1	7-8	66	104	30	239.56	Gr		Cm	Pv	Sil	vfg	Si	80	Cl	18	Sf	1	DS/ VS/ VF	vfg	Py	2				Plagioclase phenocrysts are relaxed by soft, white, clayey material. Py is abundant in groundmass and filling vesicles together with anhydrite. Zoned halos associated with anhydrite veins, some of which are preserved on the surfaces of some pieces. Open vesicles are lined with clay-silica and pyrite. Piece 8 has acicular clear crystals overgrowing anhydrite and pyrite in vugs.
39	11G	1	9	104	111	6	239.94	Gr		Cm	Pv	Sil	vfg	Si	80	Cl	18	Sf	1	DS/ VS/ VF	vfg	Py	2				Altered plagioclase phenocrysts. Narrow zoned halo along py vein. Silicified py-rich patch. Qtz-anhy-py vein exposed on surface.
39	11G	1	10	111	126	10	240.01	Gr		Cm	Pv	Sil	vfg	Si	80	Cl	18	Sf	1	DS/ VS/ VF	vfg	Py	2				Cm-sized anhy-py lined vug on back side of piece. Altered plagioclase phenocrysts. Several quartz-rich patches. Py is abundant as vug fill, associated with silica-clay and anhy. One 5 mm log prite-silica-clay vug.
39	11G	1	11	126	135	8	240.16	Gr		Cm	Pv	Sil	vfg	Si	80	Cl	18	Sf	1	DS/ VS/ VF	vfg	Py	2				Irregular quartz-rich vein cut by py-anhy veinlets. Altered plagioclase phenocrysts.
39	11G	1	12	135	141	5	240.25	Gr		Cm	Pv	Sil	vfg	Si	80	Cl	16	Sf	1	DS/ VS/ VF	vfg	Py	4				Abundant py with silica-clay overgrown by anhy in vugs. Piece is pervasively silicified.
39	11G	1	13	141	150	8	240.31	Gr	LtGr	Cm	Pv	Sil	vfg	Si	80	Cl	19	Sf	1	DS/ VS/ VF	vfg	Py	1				Zoned halos. Quartz-rich vein and quartz patches developed in back side of one piece. Piece is dark gray, but contains an irregular-shaped light-gray silicified patch.
39	13Z	1	1	0	22	15	241.4	Gr		Cm	Pv	Sil	vfg	Si	80	Cl	17			DS/ VF	vfg	Py	3				Vesicles are filled with pyrite. Plagioclase altered to white - bluish white clay
39	13Z	1	2	22	37	13	241.62	Gr		Cm	Pv	Sil	vfg	Si	80	Cl	18			DS/ VF	vfg	Py	2				Zoned silicified halos. Fine pyrite aggregates in groundmass could be filled vesicles.
39	13Z	1	3A	37	47	6	241.77	Gr		Cm	Pv	Sil	vfg	Si	80	Cl	19			DS/ VF	vfg	Py	1				Vesicles are line with quartz-clay and pyrite and have blocky anhydrite in centers.
39	13Z	1	3B	47	64	10	241.87	Gr		Cm	Pv	Sil	vfg	Si	80	Cl	19			DS/ VF	vfg	Py	1				Flow banding seems to be preserved during alteration. More white clay in previous spherules? Vesicle walls are line with silica-clay and pyrite.
39	13Z	1	3C	64	80	15	242.04	Gr		Cm	Pv	Sil	vfg	Si	80	Cl	19			DS/ VF	vfg	Py	1				
40	13Z	1	4	80	83	2	242.2	Gr		Cm	Pv	Sil	vfg	Si	50	Cl	48	Sf	1	DS/ VF	vfg	Py	1				White spherulites (about 1 mm across) in a greenish silicified and chloritized matrix. White spherules are extremely soft and probably consist mainly of white clay possibly with some anhydrite. Similar to Unit 35.
41	13Z	1	5A	83	104	20	242.23	Gr		Cm	Pv	Sil	vfg	Si	80	Cl	19			DS/ VS/ VF	vfg	Py	tr				Narrow pyrite veins with weakly developed light gray halos. Rounded quartz aggregates.
41	13Z	1	5B	104	122	16	242.44	Gr		Cm	Pv	Sil	vfg	Si	80	Cl	19			DS/ VS/ VF	vfg	Py	tr				Narrow pyrite veins with weakly developed light gray halos. Rounded quartz aggregates.

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Identifiers								Color		Alteration										Sulfide Mineralization						Comments		
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten - sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy						
														Dominant (%)		Secondary (%)		Others (%)				Dominant (%)		Secondary (%)		Others		
41	13Z	1	5C	122	136	12	242.62	Gr	Wht	Cm	Pv	Sil	vfg	Si	74	Cl	25	Sf	tr	DS/ VS/ VF	vfg	Py	tr					Quartz-rich aggregates in silicified rock. There is a whitish patch rich in white clay, qtz, py, anhy developed near the edge of one piece. This patch includes a quartz ovoid .
41	13Z	2	1	0	40	30	242.76	Gr	Wht	Cm	Pv	Sil	vfg	Si	80	Cl	17	Sf	tr	DS/ VS	vfg	Py	3					Rubble. 1-2% plagioclase phenocrysts altered to bluish clay. Some white si-sf coated fractures with vfg drusy py and bleached halos. Py disseminated throughout rock.
41	13Z	2	2	40	52	7	243.16	Gr	Wht	Cm	Pv	Sil	vfg	Si	68	Cl	30	Sf	tr	DS/ VS	vfg	Py	2					Rubble: similar to above material but with gray clayey coatings and cement between fragments.
41	13Z	2	3	52	65	8	243.28	Gr	Wht	Cm	Pv	Sil	vfg	Si	80	Cl	17	Sf	tr	DS/ VS	vfg	Py	3					Rubble: same as piece 1.
41	13Z	2	4	65	80	11	243.41	Gr	Wht	Cm	Pv	Sil	vfg	Si	80	Cl	17	Sf	tr	DS/ VS	vfg	Py	3					Rubble: same as piece 1.
41	14Z	1	1A	0	18	10	245.9	Gr	Wht	Cm	Pv	Sil	vfg	Si	80	Cl	19	Sf (tr), Anhy (tr)		DS/ VS	vfg	Py	1					Rubble. 1-2% plagioclase phenocrysts altered to bluish clay. Some white si-sf coated fractures with vfg drusy py and bleached halos. Elongate vesicles 1-3mm in size filled with crystalline py and anhy.
41	14Z	1	1B	18	24	5	246.08	Gr	Wht	Cm	Pv	Sil	vfg	Si	80	Cl	18	Anhy	2	DS/ VS	vfg	Py	tr					1-2% plagioclase phenocrysts altered to bluish clay. A vuggy, porous, autoclastic zone, consisting of py+si+cl+anhy and some volcanic fragments is present on one margin (possible flow top). Hairline py veins with narrow pale halos do not cut the autoclastic zone (maybe they diffuse?). Py also occurs as vfg groundmass disseminations.
41	14Z	1	1C	24	31	4	246.14	Gr	Wht	Cm	Pv	Sil	vfg	Si	85	Cl	13	Anhy	2	DS/ VS	vfg	Py	tr					Same as 1B, replaced plagioclase phenocrysts show a weak alignment.
41	14Z	1	1D	31	37	5	246.21	Gr	Wht	Cm	Pv	Sil	vfg	Si	80	Cl	17	Anhy	2	DS/ VS	vfg	Py	1					Same as 1B.
41	14Z	1	1E	37	49	9	246.27	Gr	Wht	Cm	Pv	Sil	vfg	Si	80	Cl	19	Anhy (tr), FeOx (tr)		DS/ VF	vfg	Py	1					Rubble: tr-1% plagioclase phenocrysts altered to bluish clay. Anhy-py vug fill. Py disseminated throughout the rock. Scattered FeOx spotting after sulfide.
41	14Z	1	2	49	59	9	246.39	Gr	Wht	Cm	Pv	Sil	vfg	Si	85	Cl	10	Anhy (1), Sf (2)		DS/ VS/ VF	vfg	Py	2					Very rare replaced plagioclase phenocrysts. Ovoid scattered (~1%) qtz-py patches up to 3mm in size are probable amygdales. Ovoid blue clay patches (<1mm, ~2% of rock) may be after plagioclase? Fine py veins have soft white sf-cl halos. Anhy and py occur as rare vesicle fill. Upper portion (<1cm) of piece is bleached and contains more intense veining, with fine py euhedra associated with sf. Disseminated py is present in trace quantities only, but vein and vug fill py give an overall 2%.
41	14Z	1	3	59	70	11	246.49	Gr	Wht	Cm	Pv	Sil	vfg	Si	88	Cl	10	Anhy	1	DS/ VS/ VF	vfg	Py	1					Same material as piece 2 and probably continuous with it.

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Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten - sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy				
														Dominant (%)	Secondary (%)	Others (%)					Dominant (%)	Secondary (%)	Others			
41	14Z	1	4	70	81	7	246.6	Gr	Wht	Cm	Pv	Sil	vfg	Si	80	Cl	18	Anhy (tr), FeOx (tr)		DS/ VS	vfg	Py	2			Rubble, similar to piece 1E. Py-anhy on fracture surfaces. Traces of FeOx on fractures (drilling contamination?).
41	14Z	1	5	81	96	11	246.71	Gr	GrGn	Cm	Pv	Sil	vfg	Si	85	Cl	12	Anhy (2), Chl (tr)		DS/ VS/ VF	vfg	Py	1			Very rare remnant plagioclase. Anhydrite occurs as vesicle fill and apparently in the body of the rock. Py occurs in fine veinlets, as vesicle fill with qtz or anhy and as scattered disseminations. Ovoid qtz-py amygdales up to ~6mm in size. Soft bluish clay ovoids. The piece has a greenish color = slightly chloritic?
41	14Z	1	6	96	108	11	246.86	Gr		Cm	Pv	Sil	vfg	Si	86	Cl	10	Anhy	3	DS/ VS/ VF	vfg	Py	1			Similar to piece 5. Scattered 1-2% remnant replaced plagioclase. 2mm anhydrite vein with a pyrite selvage and a siliceous alteration halo occurs at the base of the piece. Rock is cut by fine py veinlets with anhy selvages and siliceous halos. Ovoid qtz-py filled amygdales are up to 1cm in diameter. Py occurs as tr disseminations and as microvesicle fill.
41	14Z	1	7	108	115	7	246.98	Gr		Cm	Pv	Sil	vfg	Si	85	Cl	15	Anhy	tr	VS/ DS/ VF	vfg	Py	tr			1% remnant altered plagioclase. Py-anhy and py-qtz vesicle fill. Rare hairline py veinlets have bleached halos.
41	14Z	1	8	115	124	9	247.05	Gr		Cm	Pv	Sil	vfg	Si	85	Cl	14	Anhy (tr), Sf (tr)		VF/ DS	vfg	Py	1			Similar to above, traces of replaced plagioclase. Rare vuggy irregular py-anhy veinlets. Py-anhy and py-qtz vesicle fill. A white si-sf coated coated surface has a banded zoned siliceous alteration, with depletion of sulfide with respect to the rest of the rock.
41	14Z	1	9A	124	140	10	247.14	Gr	Cr	Cm	Pv	Sil	vfg	Si	85	Cl	14	Sf (tr), Anhy (tr)		DS/ VF	vfg	Py	1			Rubble: 1-2% remnant altered plagioclase. Vfg pyrite disseminated throughout and as fine microvesicle fill. Late hairline pyrite veinlets. White coated fractures with zoned, banded siliceous halos.
41	14Z	1	9B	140	146	3	247.3	Gr	Cr	Cm	Pv	Sil	vfg	Si	85	Cl	14	Anhy	tr	VF/ DS	vfg	Py	1			1-2% remnant altered plagioclase. Vfg py in elongate vesicles, rare hairline veinlets. Zoned, banded siliceous alteration halos adjacent to white coated margins. Tr anhydrite in vugs, ovoid quartz+/-clay blebs.
41	14Z	1	9C	146	152	3	247.36	Cr		Cm	Pv	Sil	vfg	Si	85	Cl	14	Sf (tr), Anhy (tr)		DS/ VF	vfg	Py	1			Rubble: remnant altered plagioclase phenocrysts. Same as 9A.
41	14Z	2	1	0	19	12	247.42	Gr	Cr	Cm	Pv	Sil	vfg	Si	85	Cl	10	Anhy (1), Qtz (2)		VF/ DS	vfg	Py	2			1-2% remnant altered plagioclase. Fine microvesicles filled with anhy-py or qtz-py. Dark qtz-py ovoid spots up to 8mm in size are probable vesicle fill.
41	15Z	1	1	0	6	5	250.4	Gr	Cr	Cm	Pv	Sil	vfg	Si	85	Cl	14	Sf (tr), Anhy (tr)		DS/ VF	vfg	Py	1			Rare remnant altered plagioclase. Vfg pyrite disseminated throughout and as vug and vesicle fill. Siliceous alteration halo occurs around the rim. Some voids are filled by white clay.
41	15Z	1	2	6	13	5	250.46	Gr	Cr	Cm	Pv	Sil	vfg	Si	75	Cl	25	FeOx		DS/ VF	vfg	Py	tr			Pyrite disseminated throughout. FeOx occurs on the surface.

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Identifiers								Color		Alteration										Sulfide Mineralization							Comments	
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten- sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy						
														Dominant (%)	Secondary (%)	Others (%)					Dominant (%)	Secondary (%)	Others					
41	15Z	1	3	13	21	5	250.53	Gr	Cr	Cm	Pv	Sil	vfg	Si	85	Cl	14	Anhy	tr	DS/ VF	vfg	Py	1				1% remnant altered plagioclase. White clay and pyrite as vesicle fill. Pyrite is disseminated throughout.	
41	15Z	1	4	21	27	4	250.61	Gr	Cr	Cm	Pv	Sil	vfg	Si	85	Cl	14	Anhy	tr	DS/ VF	vfg	Py	1				Some mm-sized voids filled with silica or white clay. Pyrite is disseminated throughout.	
41	15Z	1	5	27	38	10	250.67	Gr	Cr	Cm	Pv	Sil	vfg	Si	80	Cl	18	Anhy (1), FeOx		DS/ VF	vfg	Py	1				Rare remnant altered plagioclase. Pyrite and anhydrite crystals in vugs.	
41	15Z	1	6	38	44	6	250.78	Gr	Cr	Cm	Pv	Sil	vfg	Si	85	Cl	15	Anhy	tr	DS/ VF	vfg	Py	tr				Rare remnant altered plagioclase. Pyrite and anhydrite crystals in vugs.	
42	15Z	1	7	44	55	8	250.84	Gr	Cr	Cm	Pv	Sil	vfg	Si	80	Cl	18	Anhy (1), FeOx		DS/ VF	vfg	Py	1				Pyrite and anhydrite crystals in vugs. No phenocrysts.	
42	15Z	1	8	55	62	7	250.95	Gr	Cr	Cm	Pv	Sil	vfg	Si	85	Cl	8	Anhy	5	VS/ VF	vfg	Py	2				Remnant perlitic (?) texture cut by vuggy quartz veins with soft white (sf-cl?) halos and central anhy-py fill. Vesicles have anhydrite-py linings, particularly where cut by veins. No Plagioclase phenocrysts.	
42	15Z	1	9	62	90	28	251.02	Gr	Cr	Cm	Pv	Sil	vfg	Si	80	Cl	18	Anhy (1), FeOx		DS/ VF	vfg	Py	1				Pyrite and anhydrite crystals in vugs. No phenocrysts.	
42	15Z	1	10	90	96	6	251.3	Gr	Cr	Cm	Pv	Bl	vfg	Si	60	Cl	39	Anhy	tr	DS/ VF	vfg	Py	1				Irregular silica void fill. Pyrite and anhydrite crystals as vesicle fill. Pyrite is disseminated throughout.	
42	15Z	1	11	96	109	13	251.36	Gr	Cr	Cm	Pv	Sil/Bl	vfg	Si	75	Cl	23	Anhy	2	DS/ VS/ VF	vfg	Py	tr				Pyrite as vug fill with anhydrite, disseminated in the groundmass and in vuggy pyrite-anhhdrite veins. Hard silicified halo to edge of piece.	
42	15Z	1	12	109	118	10	251.49	Gr	Cr	Cm	Pv	Sil/Bl	vfg	Si	85	Cl	14	Anhy	1	VS/ DS	vfg	Py	tr				Ovoid silica-pyrite spots. Network of quartz-pyrite veins with siliceous halos and anhydrite fill in vuggy sections.	
42	15Z	1	13	118	129	10	251.58	Gr	Cr	Cm	Pv	Sil	vfg	Si	80	Cl	19	Anhy	1	VF/ VS/ DS	vfg	Py	tr				Py-anhy vug fill. Fine pyrite veinlets with anhydrite halos. Elongate 8mm silica ovoid cut by py veinlet. Sugary silicified rock.	
42	15Z	1	14	129	134	4	251.69	Gr	Cr	Cm	Pv	Sil	vfg	Si	70	Cl	29	Anhy	tr	VF/ DS	vfg	Py	1				Elongate vesicles filled with py-anhy or qtz. Relatively soft (clayey).	
42	15Z	1	15	134	139	5	251.74	Gr	Cr	Cm	Pv	Sil/Bl	vfg	Si	70	Cl	29	Anhy	1	DS/ VS/ VF	vfg	Py	tr				Similar to above. 3-4 mm vugs rimmed by anhydrite and pyrite.	
43	15Z	1	16	139	150	11	251.79	Gr	Cr	Cm	Pv	Sil	vfg	Si	80	Cl	16	Anhy	2	VF/ DS	vfg	Py	2				2 mm anhydrite vein on one margin with 5 mm siliceous halo. Elongate vesicles lined by anhydrite and pyrite. 1% plagioclase phenocrysts replaced by bluish clay. Microvesicles contain pyrite.	
43	15Z	2	1	0	12	10	251.9	Gr	Cr	Cm	Pv	Sil	vfg	Si	84	Cl	14	Anhy (1), FeOx		VF	vfg	Py	1				1% plagioclase phenocrysts replaced by bluish clay. Anhydrite and pyrite as vug fill and in veins. Pyrite occurs also in microvesicles.	
43	15Z	2	2	12	19	7	252.02	Gr	Cr	Cm	Pv	Sil	vfg	Si	82	Cl	15	Anhy	1	VF/ DS/ VS	vfg	Py	2				1% plagioclase phenocrysts replaced by bluish clay. Pyrite is disseminated throughout. A drusy vug fill with anhydrite. Rare fine pyrite veinlets with siliceous halo.	
43	16Z	1	1A	0	5	3	254.9	Gr	Cr	Cm	Pv	Sil	vfg	Si	85	Cl	15	Anhy	tr	DS	vfg	Py	tr				1% plagioclase phenocrysts replaced by bluish clay. Very fine-grained disseminated pyrite with pyrite-anhydrite vesicle linings.	

Leg 193 Alteration/Mineralization Log - Hole 1188F																												
Identifiers								Color		Alteration										Sulfide Mineralization						Comments		
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten- sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy						
														Dominant (%)		Secondary (%)		Others (%)				Dominant (%)		Secondary (%)		Others		
43	16Z	1	1B	5	19	12	254.95	Gr	Cr	Cm	Pv	Sil	vfg	Si	84	Cl	10	Anhy	2	VF/ VS/ DS	vfg	Py	2					2% scattered plagioclase phenocrysts replaced by bluish clay. Ovoid to slightly irregular patches up to 22 mm length (mostly 2 to 5 mm) are quartz+/- pyrite filled, slightly vuggy. Rare anhydrite in core of same 22 mm example appears to have a concentric alteration halo. Vesicles are anhydrite-pyrite lined. Fine quartz vein have pale soft anhydrite (?) selvages with siliceous halos. Si-Sf coated lower surface with zoned bleached halo.
44	16Z	1	1C	19	79	30	255.09	Gr	Cr	Cm	Pv	Sil	vfg	Si	85	Cl	13	Anhy	1	VF/ VS/ DS	vfg	Py	1					Rubble: Dominantly non-porphyritic with remnant autoclastic and flow banded tectures. Rare plagioclase phenocrysts in some pieces, replaced by bluish clay. Sulfate vesicle fill and pyrite-anhydrite vug lining. Fine pyrite-anhydrite veinlets with narrow bleached halos. Rare hard silica-pyrite vug fill.
44	16Z	1	2	79	93	9	255.69	Gr	Cr	Cm	Pv	Sil	vfg	Si	85	Cl	13	Anhy	1	VF/ VS/ DS	vfg	Py	1					Same as above.
44	16Z	1	3	93	148	38	255.83	Gr	Cr	Cm	Pv	Sil	vfg	Si	84	Cl	13	Anhy	1	VS/ VF	vfg	Py	2					Similar as above. Pieces have variable marginal volcanic facies textures. Piece 3a exhibits flow banding and possible tube vesicles. Piece 3e shows a coherent finger sandwiched within clastic material. Fragments of pale silica-clay, embedded in silica-pyrite matrix.
45	17Z	1	1	0	12	11	259.4	Gr	Cr	Cm	Pv	Sil	vfg	Si	75	Cl	21	Anhy	tr	VF/ VS	vfg	Py	3					2-3% plagioclase phenocrysts replaced by bluish clay. Ovoid silica-pyrite filled blebs. Large white (2 cm; sf-rich?) "xenolith" has pyrite-anhydrite lined vug. Irregular vuggy anhydrite-pyrite vein cut by fine pyrite veinlets with soft white (clayey?) alteration halos. Microvesicles are all filled by pyrite.
45	18Z	1	1	0	40	27	263.9	Gr	Cr	Cm	Pv	Sil	vfg	Si	80	Cl	19	Anhy	tr	VF/ VS	vfg	Py	1					1% plagioclase phenocrysts replaced by bluish clay. Bleached silicified halos on some edges of pieces. Elongate, aligned (=flow structure) microvesicles are filled with pyrite. Larger vugs lined by pyrite-anhydrite. Some surfaces are coated by pyrite-silica-sulfate.

Leg 193 Alteration/Mineralization Log - Hole 1188F

Log 175 Alteration/Mineralization Log - Hole 11001								Color				Alteration							Sulfide Mineralization							Comments		
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten - sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy						
														Dominant (%)		Secondary (%)		Others (%)				Dominant (%)		Secondary (%)		Others		
45	19Z	1	1	0	41	35	268.4	Gr	Cr	Cm	Pv	Sil	vfg	Si	80	Cl	18	Anhy (tr), Sf (tr)			VF/ VS	vfg	Py	2				2% plagioclase phenocrysts replaced by bluish clay. Bleached silicified halos on some edges, associated with dull white sulfate crusts. Microvesicles mostly filled with pyrite, larger vesicles (1 mm) lined by anhydrite-pyrite. Fine pyrite veinlets have anhydrite selvages and silicified halos. Vesicles and phenocrysts show flow alignment in some pieces. Pyrite is absent from vesicles in bleached halos near piece edges. Pyrite content ranges from 1 to 3%.
46	22Z	1	1	0	7	7	282.1	Gr	DkGr	Cm	Pv	Sil	vfg	Si	80	Cl	20	Anhy		tr	DS/ VF	vfg	Py	tr				Upper part of piece looks slightly brecciated. Multiple dark gray bands border the brecciated zone. Quartz patches.
46	22Z	1	2A	7	13	4	282.17	Gr	Wht	Cm	Pv	Sil	vfg	Si	70	Cl	28	Anhy		2	DS/ VS/ VF	vfg	Py	tr				Large anhy + py lined vug.
46	22Z	1	2B	13	18	7	282.23	LtGr	Wht	Cm	Pv	Sil	vfg	Si	80	Cl	18	Anhy		2	DS/ VF	vfg	Py	tr				Bleached appaerance.
46	22Z	1	3	18	22	5	282.28	Gr	Gn	Cm	Pv	Sil	vfg	Si	70	Cl	28	Chl		2	DS/ VF	vfg	Py	tr				Slightly chloritized.
46	22Z	1	4	22	29	4	282.32	Gr	Wht	Cm	Pv	Sil	vfg	Si	85	Cl	14	Anhy		1	DS/ VS/ VF	vfg	Py	tr				Irregular halos (ligh gray to white - dark gray) Elongate patch with quartz and py.
46	22Z	1	5	29	33	6	282.39	Gr	Gn	Cm	Pv	Sil	vfg	Si	70	Cl	27	Chl		3	DS/ VF	vfg	Py	tr				Slightly chloritized.
46	22Z	1	6	33	40	8	282.43	Gr	LtGr	Cm	Pv	Sil	vfg	Si	80	Cl	19	Anhy		1	DS/ VF	vfg	Py	tr				One edge of piece looks slightly brecciated, has a light gray color and is noticably softer than remainder of piece. Concentric halos.
46	22Z	1	7	40	55	4	282.5	Gr	LtGr	Cm	Pv	Sil	vfg	Si	80	Cl	19	Anhy		1	DS/ VF	vfg	Py	tr				Rubble. Pyrite occurs mostly in veinlets. Fine pyrite filling vesicles or voids.
46	22Z	1	8A	55	61	4	282.65	Gr	LtGr	Cm	Pv	Sil	vfg	Si	80	Cl	19	Anhy		1	DS/ VF/ VS	vfg	Py	tr				Slightly brecciated at one edge. Cut by py vein.
46	22Z	1	8B	61	66	4	282.71	Gr	LtGr	Cm	Pv	Sil	vfg	Si	70	Cl	29	Anhy		1	DS/ VF/ VS	vfg	Py	tr				Slightly brecciated. Cut by py vein.
46	22Z	1	9	66	73	4	282.76	Gr	LtGr	Cm	Pv	Sil	vfg	Si	80	Cl	19	Anhy		1	DS/ VF	vfg	Py	tr				Rubble. Some vesicles and voids are filled with pyrite. Pyrite also occurs filling veinlets with quartz.
46	22Z	1	10	73	79	8	282.83	Gr	LtGr	Cm	Pv	Sil	vfg	Si	80	Cl	19	Anhy		1	DS/ VF	vfg	Py	tr				Piece looks slightly brecciated in center.
46	22Z	1	11	79	88	6	282.89	Gr	LtGr	Cm	Pv	Sil	vfg	Si	80	Cl	18	Anhy		1	DS/ VF	vfg	Py	1				Rubble.
47	22Z	1	12	88	96	8	282.98	Gr	Gn	Cm	Pv	Sil	vfg	Si	75	Chl	18	Anhy (1), Cl (4)			DS/ VF	vfg	Py	2				Uppermost part of piece is gray and looks slightly brecciated. Remainder of piece is green and apparently chloritized. Silicified halos appear to extent into piece at the expense of the chloritized portions (silicification post dates chloritization).
47	22Z	1	13	96	105	8	283.06	Gn	Gr	Cm	Pv	Sil	vfg	Si	75	Chl	20	Anhy (1), Cl (4), Mt (tr)			DS/ VF	vfg	Py	tr				Pervasively chloritized and silicified.

Leg 193 Alteration/Mineralization Log - Hole 1188F

Log 175 Alteration/Mineralization Log - Hole 11001																											
Identifiers								Color		Alteration										Sulfide Mineralization						Comments	
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten- sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy					
														Dominant (%)	Secondary (%)	Others (%)						Dominant (%)	Secondary (%)	Others			
47	22Z	1	14	105	117	7	283.15	Gn	Gr	Cm	Pv	Sil	vfg	Si	75	Chl	20	Anhy (1), Cl (4)		DS/ VF	vfg	Py	tr				Some quartz blebs with py.
47	22Z	1	15	117	126	8	283.27	Gn	Gr	Cm	Pv	Sil	vfg	Si	75	Chl	20	Anhy (1), Cl (4)		DS/ VF	vfg	Py	tr				Noticably spotted texture in groundmass, possibly vesicle filled with chlorite? Scrapings of soft infill reveal silica-clay(chlorite?) and anhydrite.
48	23Z	1	1	0	11	8	286.6	Gr		Cm	Pv	Sil	vfg	Si	80	Cl	18	Anhy	1	DS/ VF/ VS	vfg	Py	1				Silicified. Plagioclase phenocrysts altered to white clay. Tan mm-sized soft clast. Pyrite veinlets and py-anhy-qtz lines vugs.
48	23Z	1	2	11	14	2	286.71	Gr		Cm	Pv	Sil	vfg	Si	80	Cl	17	Anhy	1	DSVS	vfg	Py	2				5 mm wide anhy vein with 6 mm wide cyclic halo of light and dark gray bands. Altered plagioclase phenocrysts. Narrow py veinlets.
48	23Z	1	3	14	25	9	286.74	Gr		Cm	Pv	Sil	vfg	Si	80	Cl	17	Anhy	3	DS/ VF	vfg	Py	tr				
48	23Z	1	4	25	32	6	286.85	Gr		Cm	Pv	Sil/ GSC	vfg	Si	75	Cl	25	Anhy	3	DS	vfg	Py	tr				Silicified with zoned halos.
48	23Z	1	5	32	38	4	286.92	Gn		Cm	Pv	Sil	vfg	Si	75	Chl	20	Anhy (1), Cl (4)		DS/ VS	vfg	Py	tr				Silicified with zoned halos.
48	23Z	1	6	38	44	5	286.98	Gr	Wht	Cm	Pv	Sil	vfg	Si	75	Cl	20	Anhy	5	DS/ VF	vfg	Py	tr				Chloritized and silicified piece. Flow banding. Spherical objects (<1 mm) are light-gray to white and soft (presumably white clay).
48	23Z	1	7A	44	51	5	287.04	Gr	Wht	Cm	Pv	Sil	vfg	Si	60	Cl	35	Anhy	5	DS/ VF	vfg	Py	tr				Narrow silicified halo. Otherwise piece is quite soft and has slightly bleached appearance.
48	23Z	1	7B	51	55	2	287.11	Gr	Wht	Cm	Pv	Sil	vfg	Si	70	Cl	27	Anhy	2	DS	vfg	Py	1				Irregular halos, gray areas are hard (silicified). Tan areas are softer (contain more clay and anhydrite?).
48	23Z	1	8A	55	62	5	287.15	Gr	Wht	Cm	Pv	Sil	vfg	Si	70	Cl	28	Anhy	2	DS/ VS/ VF	vfg	Py	tr				
48	23Z	1	8B	62	66	3	287.22	Tan	Gr	Cm	Pv	Sil	vfg	Si	70	Cl	25	Anhy	4	DS/ VS/ VF	vfg	Py	1				Brecciated. Silicified clasts. Matrix is whitish gray and soft.
48	23Z	1	9A	66	72	4	287.26	Tan	Gr	Cm	Pv	Sil	vfg	Si	64	Cl	35	Anhy	1	DS/ VF	vfg	Py	tr		Sp (tr)		Bleached appearance, less hard than gray silicified rocks. Only one grain of a dark mineral that could be sphalerite or magnetite.
48	23Z	1	9B	72	77	5	287.32	Tan	Wht	Cm	Pv	Sil	vfg	Si	64	Cl	35	Anhy	1	DS/ VF	vfg	Py	tr				Bleached appearance, less hard than gray silicified rocks.
48	23Z	1	9C	77	83	3	287.37	Gr	Wht	Cm	Pv	Sil	vfg	Si	64	Cl	35	Anhy	1	DS/ VF	vfg	Py	tr				Bleached appearance, less hard than gray silicified rocks.
48	23Z	1	10A	83	88	4	287.43	Gr	Tan	Cm	Pv	Sil	vfg	Si	80	Cl	19	Anhy	1	DS/ VF/ VS	vfg	Py	1				Silicified with py-filled vugs and anhy-py vein. Chlorite-rich halos developed around pyrite-filled vugs.
48	23Z	1	10B	88	101	10	287.48	Gr	Tan	Cm	Pv	Sil	vfg	Si	80	Cl	19	Anhy	1	DS/ VF/ VS	vfg	Py	1				
49	23Z	1	11A	101	113	10	287.61	Gn	Gr	Cm	Pv	Sil/ GSC	vfg	Si	80	Chl	18	Anhy	tr	DS/ VF/ VS	vfg	Py	2				Chloritized and silicified. py in stringers and void fill. Silicification overprints chloritization and is strongest developed in patches. Chlorite-rich halos developed around pyrite-filled vugs.
49	23Z	1	11B	113	120	6	287.73	Gn	Gr	Cm	Pv	Sil/ GSC	vfg	Si	80	Chl	19	Anhy	tr	DS/ VF/ VS	vfg	Py	1				Rubble.

Leg 193 Alteration/Mineralization Log - Hole 1188F																											
Identifiers								Color		Alteration										Sulfide Mineralization						Comments	
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten - sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy					
														Dominant (%)		Secondary (%)		Others (%)				Dominant (%)		Secondary (%)			Others
49	23Z	1	12	120	130	9	287.8	Gn	Gr	Cm	Pv	Sil/ GSC	vfg	Si	80	Chl	20	Anhy	tr	DS/ VF/ VS	vfg	Py	tr			Sp (tr)	Chloritized and silicified. Piece contains quartz-rich patches. One patch is 1 cm long axis, has abundant py, and includes an anhy-rich vug and a soft lath-like object that could be an altered feldspar crystal. Completely altered plagioclase crystals are embedded in the silicified groundmass of the rock. Py-qtz-anhy in vugs. Chlorite-rich halos developed along pyrite-rich veinlets. Sphalerite occurs in quartz-pyrite vein.
49	23Z	1	13	130	138	6	287.9	Gn	Gr	Cm	Pv	Sil/ GSC	vfg	Si	80	Chl	19	Anhy (1), Pl (tr)		DS/ VF/ VS	vfg	Py	1				Chloritized and silicified rock with spherical blebs that show varying degrees of silicification. It appears that the larger spheres are soft and the small ones are harder than steel. The 2 mm wide anhy-qtz-py vein is developed, and the cut surface of the piece represents a sections that cuts the zoned halos associated with this vein in a shallow angle.
49	23Z	1	14	138	149	10	287.98	Gn	Gr	Cm	Pv	Sil/ GSC	vfg	Si	80	Chl	20	Anhy (1), Pl (tr)		DS/ VF	vfg	Py	tr				Rubble. Appears similar to Piece 13.
49	23Z	2	1A	0	6	4	288.09	Gn	Gr	Cm	Pv	Sil	vfg	Si	70	Chl	27	Anhy	2	DS	vfg	Py	1				Anhy vein with gray halo in chloritized/silicified rock with gray to tan irregular patches.
49	23Z	2	1B	6	12	5	288.15	Gn	Gr	Cm	Pv	Sil	vfg	Si	70	Chl	28	Anhy	2	DS/ VS	vfg	Py	tr				
49	23Z	2	2	12	22	6	288.21	Gn	Gr	Cm	Pv	Sil	vfg	Si	70	Chl	28	Anhy	2	DS/ VS	vfg	Py	tr				Anhy vein with zoned halo.
49	23Z	2	3A	22	29	5	288.31	Gn	Gr	Cm	Pv	Sil/ GSC	vfg	Si	80	Chl	17	Anhy	2	DS/ VF/ VS	vfg	Py	1				Chloritized rock with light gray to gray alteration halos around vugs that are partly filled with anhy+py. Chlorite-rich halos developed along pyrite-rich veinlets.
49	23Z	2	3B	29	35	3	288.38	Gn	Gr	Cm	Pv	Sil/ GSC	vfg	Si	80	Chl	17	Anhy	2	DS/ VF/ VS	vfg	Py	1				Anhy vein with gray halo. Chloritized rock with silicification strongest in dark gray patches.
49	23Z	2	3C	35	44	7	288.44	Gn	Gr	Cm	Pv	Sil/ GSC	vfg	Si	80	Chl	16	Anhy	2	DS/ VF/ VS	vfg	Py	2				Chloritized with silicification most pronounced along pyrite-quartz vein. Chlorite-rich halos developed along pyrite-rich veinlets.
49	23Z	2	4	44	51	6	288.53	Gn	Gr	Cm	Pv	Sil/ GSC	vfg	Si	70	Chl	19	Anhy	5	DS/ VF/ VS	vfg	Py	1				Chloritized with gray silicified halo along pyrite-quartz vein.
49	23Z	2	5	51	56	3	288.6	Gr	Gn	Cm	Pv	Sil	vfg	Si	70	Cl	28	Anhy	2	DS/ VF	vfg	Py	tr				Qtz-anhy-py vein w/ light gray halo. Rock is chloritized and silicified with gray silica-clay patches up to 1 cm long axis.
49	23Z	2	6	56	63	5	288.65	Gn	Gr	Cm	Pv	Sil/ GSC	vfg	Si	70	Chl	27	Anhy	2	DS/ VF/ VS	vfg	Py	1				Chloritized and silicified with silica-clay patches up to 1 cm long axis.
49	23Z	2	7	63	69	6	288.72	Gn	Gr	Cm	Pv	Sil/ GSC	vfg	Si	70	Chl	27	Anhy	2	DS/ VF/ VS	vfg	Py	1				Some as piece 7.
49	23Z	2	8	69	84	12	288.78	Gn	Gr	Cm	Pv	Sil	vfg	Si	70	Chl	28	Anhy	2	DS/ VS	vfg	Py	tr				Chloritized and silicified rock. Rubble. Some anhy-qtz-py filled vugs.
49	23Z	2	9	84	91	6	288.93	Gn	Gr	Cm	Pv	Sil	vfg	Si	70	Chl	27	Anhy	2	DS/ VS	vfg	Py	1				Chloritized and silicified rock. Rubble. Some anhy-qtz-py filled vugs.

Leg 193 Alteration/Mineralization Log - Hole 1188F

Identifiers								Color		Alteration										Sulfide Mineralization							Comments	
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten- sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy						
														Dominant (%)		Secondary (%)		Others (%)				Dominant (%)		Secondary (%)		Others		
49	25Z	1	1	0	8	6	295.6	Gr	Gn	Cm	Pv	Sil	vfg	Si	60	Cl	38	Anhy	2	DS/ VF	vfg	Py	tr				Complex halo with irregular white soft (presumably clay and anhy rich) domains, which appear coarse-grained compared to the extremely fine-grained gray silica-clay halo.	
49	25Z	1	2	8	17	8	295.68	Gn	Gr	Cm	Pv	Sil	vfg	Si	85	Chl	14	Anhy (tr), Mt (tr)		DS/ VF	vfg	Py	1			Highly silicified with quartz patches. Vugs are lined with quartz and pyrite.		
49	25Z	1	3	17	22	3	295.77	Gr	Gn	Cm	Pv	Sil	vfg	Si	80	Chl	20	Anhy	1	DS/ VF/ VS	vfg	Py	tr			Zoned halo cut by anhy-py verin		
49	25Z	1	4	22	28	6	295.82	Gn	Gr	Cm	Pv	Sil	vfg	Si	85	Chl	13	Anhy (tr), Mt (tr)		DS/ VF	vfg	Py	1			Similar to Piece 2. Vesicles lined with quartz and pyrite with a few blades of anhydrite.		
49	25Z	1	5	28	42	12	295.88	Gn	LtGr	Cm	Pv	Sil	vfg	Si	70	Chl	14	Anhy (5), Cl (10)		DS/ VF/ VS	vfg	Py	1			Chloritized and silicified rock. 3 mm wide anhy vein w/ assymetric halo (light gray on one side (clay, anhy, sil, py) and light greenish gray, soft and extremely fine-grained on the other side, where it grades into more silicified, very hard, gray material that is also present in a vein perpendicular to the anhy vein. Late py veins are developed.		
49	25Z	1	6	42	48	4	296.02	Gn	Gr	Cm	Pv	Sil	vfg	Si	80	Chl	19	Anhy	1	DS	vfg	Py	tr			Rubble.		
49	26Z	1	1	0	18	11	300.1	DkGr	GrGn	Cm	Pv	Sil	vfg	Si	85	Cl	12	Chl (3), Anhy (tr)		VF/ VS	vfg	Py	tr			Mostly hard, indurated. Green, softer chloritic patch in one piece. Another has a hard white Si-sf coated surface with a zoned, banded siliceous halo. Spotty quartz vesicle fill. Pyrite occurs in rare hairline veinlets and as microvesicle fill.		
49	26Z	1	2	18	26	7	300.28	DkGnGr		Cm	Pv	Sil/ GSC	vfg	Si	88	Chl	10	Chl (2), Anhy (tr), Mt (tr)		VF/ VS/ DS	vfg	Py	tr			Scattered remnant plagioclase altered to bluish clay. Greenish coloration of the rock is probably due to chlorite. Fine pyrite veinlets with anyhdrite selvages and soft, clayey(?) bleached halos. Quartz filled ovoids are probable amygdales. Py occurs as vug fill and is rimmed by magnetite in places. Extremely fine magnetite is also disseminated in the body of the rock.		
50	26Z	1	3	26	31	3	300.36	LtGr	Wht	Cm	Pv	Sil	vfg	Si	85	Cl	14	Anhy	1	VF/ VS	vfg	Py	tr			2-3% remnant plagioclase phenocrysts replaced by bluish clay. Fine py veinlets with anhydrite selvages. Anhy-py vesicle fill. Rare ovoid to elongate qtz patches. The sample shows a probable flow structure: alignment of phenocrysts and some banding.		
50	26Z	1	4	31	94	30	300.41	Gr	LtGr	Cm	Pv	Sil	vfg	Si	90	Cl	10	Anhy (tr), Sf (tr)		VF/ DS	vfg	Py	tr			Rubble. 1-2% remnant plagioclase phenocrysts altered to clay. 0.1-1mm ovoid spots on core are qtz-py vesicle fill. Hard white si-sf veins with zoned alteration halos. Irregular, coarser (2-5mm) silica and silica-anhydrite blebs are possibly large filled vesicles.		

Leg 193 Alteration/Mineralization Log - Hole 1188F

Identifiers								Color		Alteration							Sulfide Mineralization						Comments			
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten-sity	Style	Type	Grain Size	Mineralogy (non sulfides)					Style	Grain Size	Mineralogy					
														Dominant (%)		Secondary (%)		Others (%)			Dominant (%)		Secondary (%)		Others	
50	26Z	1	5	94	105	11	301.04	Gr		Cm	Pv	Sil	vfg	Si	85	Cl	14	Anhy (tr), Sf (1)		DS/VS	vfg	Py	tr			1% remnant plagioclase phenocrysts replaced by bluish clay. Rare vuggy anhydrite-pyrite veins. White si-sf coated fracture had a dark alteration halo containing extremely fine grained pyrite.
50	26Z	1	6	105	109	2	301.15	Gr	Gn	Cm	Pv	Sil	vfg	Si	70	Cl	20	Chl-Sm (3), Anhy (3), Sf (2)		VF/DS	vfg	Py	2			The groundmass of the rock is similar to the previous piece, with trace remnant plagioclase phenocrysts replaced by bluish clay. One surface of the piece is coated by hard white si-sf with a gray alteration halo. However, this small sample is dominated by 2 large irregular filled vugs ~1cm in size. One is filled by porous qtz-sulfate and is surrounded by a soft pale (sf?) 3mm alteration halo which contains traces of disseminated pyrite. The other vug (which is incompletely represented in the sample) is filled by porous qtz-py-minor anhy and has a 3-4mm banded blue-green clay and white sulfate halo, with 10-15% pyrite.
50	26Z	2	1	0	19	10	301.19	Gr	Cr	Cm	Pv	Sil	vfg	Si	75	Cl	25	Anhy (tr), Sf (tr)		DS	vfg	Py	tr			Rubble: 1% remnant plagioclase phenocrysts replaced by bluish clay. Si-sf coated surfaces with bleached halos. Rare 3-8mm si-filled ovoids.
50	26Z	2	2	19	24	4	301.38	Gr	Wht	Cm	Pv	Sil	vfg	Si	80	Cl	20	Anhy (tr), Sf (tr)		DS	vfg	Py	tr			< 1% remnant plagioclase phenocrysts replaced by bluish clay. Si-sf coated surface with a bleached halo. 6mm ovoid qtz-sf-tr py bleb.
50	26Z	2	3	24	60	16	301.43	Gr	Cr	Cm	Pv	Sil	vfg	Si	75	Cl	25	Anhy (tr), Sf (tr)		DS	vfg	Py	tr			Rubble: similar to piece 1. One piece appears to have a remnant spherulitic texture.
50	26Z	2	4	60	108	28	301.79	Gr	Wht	Cm	Pv	Sil	vfg	Si	80	Cl	20	Anhy (tr), Sf (tr)		DS/VF	vfg	Py	tr			Rubble: similar to above piece. Distinct fine (0.1-1mm) dark spotting is due to microvesicles filled with silica (+pyrite in some cases).
50	27Z	1	1	0	22	16	304.6	Gr	wht	Cm	Pv	Sil	vfg	Si	85	Cl	13	Sf (2), KSpar (tr)		DS?VF	vfg	Py	tr			1% remnant plagioclase phenocrysts replaced by bluish clay. Hard white si-sf crust with a halo containing extremely fine grained pyrite. Traces of fine grained pyrite are also present in the remainder. One of the fragments in the bin has fine ovoid qtz+/-py spots (vesicle fill).
50	27Z	1	2	22	31	8	304.82	Gr	DkGr	Cm	Pv	Sil	vfg	Si	85	Cl	15	Sf (tr), Mt (tr)		VF/VS	vfg	Py	tr			The sample shows convoluted banding (=flow banding?), fine (0.1-1mm) ovoid silica filled vesicles, single poorly defined hairline si-anhy-tr py vein. Traces of pyrite in very fine grained vugs. Trace fine grained magnetite euhedra, possibly with pyrite cores.
51	30Z	1	1	0	5	4	318.1	LtGr	Wht	Cm	Pv	Sil	vfg	Si	70	Anhy	20	Cl	10	VF/VS	vfg	Py	tr			Brecciated, intensely silicified piece with pseudoclastic texture. Silica - minor clay altered fragments are hosted in an anhy-silica matrix. Hairline anhydrite-tr pyrite veins with narrow soft bleached alteration halos cut some fragments.

Leg 193 Alteration/Mineralization Log - Hole 1188F

Identifiers								Color		Alteration							Sulfide Mineralization						Comments				
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten - sity	Style	Type	Grain Size	Mineralogy (non sulfides)					Style	Grain Size	Mineralogy						
														Dominant (%)		Secondary (%)		Others (%)				Dominant (%)		Secondary (%)		Others	
51	30Z	1	2	5	10	4	318.15	LtGr	DkGr	Cm	Pv	Sil	vfg	Si	87	Sf	5	Cl (5), Chl (2), Mt (1)		DS	vfg	Py	tr				Polymict breccia. Angular to rounded, silicified fragments are embedded in a dark gray quartz matrix. Black patches are vfg hard silica. Vfg magnetite is disseminated through the dark quartz. Rare dark green clay altered clasts. A larger, sulfate rich clast appears to be fragmental itself, implying multiple brecciation events.
51	30Z	1	3	10	13	2	318.2	LtGr		Cm	Pv	Sil	vfg	Si	85	Sf	10	Cl	5	DS	vfg	Py	tr				Intensely silicified. White sf vein on one margin has traces of pyrite and a dark alteration halo. Rare patches of pale green clay in the rock.
51	30Z	1	4	13	20	5	318.23	DkGr	LtGr	Cm	Pv	Sil/Mt	vfg	Si	91	Cl	5	Cl (5), Sf (2), Mt (2)		DS	vfg	Py	tr				Strongly silicified breccia, similar to Piece 2. Fragments (or pseudofragments?) are hosted in a matrix of hard, dark gray quartz with fine grained disseminated magnetite. Also rare, irregular magnetite veinlets. Rounded to ovoid, almost black silica blebs, similar to those interpreted to be amygdals in previous cores, are present in the matrix.
52	31Z	1	1	0	10	4	322.6	Gr	Wht	VH	Pv	Sil/Mt	vfg	Si	80	Cl	5	Mt (1), Anhy (1)		DS/ VS	vfg	Py	tr				Igneous plagioclase phenocrysts not entirely replaced? Microcrystalline quartz-clay-plagioclase groundmass. 1mm magnetite-pyrite-quartz vein with a pale silicified halo. Anhy vein with a dark silicified halo. Fresh pyrite in the darker area. Magnetite, pyrite and fg magnetite with cores of pyrite in the dominant light gray area.
53	31Z	1	2	10	21	10	322.7	Gr	Lt-GrGn	Cm	Pv	Sil	vfg	Si	85	Sf	10	Cl	5	DS/ VF	vfg	Py	tr				Mottled, apparently clastic rock. Siliceous clasts are hosted in a matrix of quartz and vuggy anhydrite. Pyrite occurs as disseminations and as drusy vug fill.
53	31Z	1	3	21	27	3	322.81	Gr		Cm	Pv	Sil	vfg	Si	85	Cl	10	Sf	5	VF	vfg	Py	tr				Fine ovoid Qtz+/- pyrite spots are vesicle fill.
53	31Z	1	4	27	34	5	322.87	Gr	Lt-GrGn	Cm	Pv	Sil/Bl	vfg	Si	70	Cl	25	Sf	5	VF	fg-vfg	Py	tr				Softer, more clayey sample. Trace remnant igneous plagioclase phenocrysts. The sample has a rubbly outer surface, suggesting a relationship to the breccia pieces (pc 2 and 5). Patches of slightly coarser pyrite as well as fine ovoid Qtz-py vesicle fill.
53	31Z	1	5	34	42	6	322.94	Gr	Lt-GrGn	Cm	Pv	Sil/Bl	vfg	Si	60	Sf	30	Cl (9), Mt (tr)		VF/ DS	vfg	Py	1				Similar to piece 2. Hard silicified fragments are hosted in a porous sulfate rich matrix. Greenish coloration suggests chloritic clays. Pyrite-anhydrite vug fill.
54	34Z	1	1	0	9	8	336.4	Gr	Tn	Cm	Pv	Sil	vfg	Si	70	Cl	28	Sf (2), Mt (tr)		DS/ VS	vfg	Py	tr				Silicified rock with zoned halos, ranging in color from dark gray over gray to tanish gray. Disseminated py and mt in anhydrite-quartz-clay matrix and pyrite in anhydrite veinlets.
54	34Z	1	2	9	13	3	336.49	Gr		Cm	Pv	Sil	vfg	Si	70	Cl	28	Sf (2), Mt (tr)		DS/ VS	vfg	Py	tr				Dark gray silicified halo, otherwise similar to Piece 1

Leg 193 Alteration/Mineralization Log - Hole 1188F

Fig 1-9 Alteration/Mineralization Log - Rock Floor																														
Identifiers								Color		Alteration							Sulfide Mineralization					Comments								
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten - sity	Style	Type	Grain Size	Mineralogy (non sulfides)					Style	Grain Size	Mineralogy									
														Dominant (%)	Secondary (%)	Others (%)				Dominant (%)	Secondary (%)	Others								
54	34Z	1	3	13	17	4	336.53	Gr		Cm	Pv	Sil	vfg	Si	70	Cl	28	Sf (2), Mt (tr)	DS	vfg	Py	tr				Rubble, appears similar to Pieces 1 and 2				
54	34Z	1	4	17	24	6	336.57	Gr		Cm	Pv	Sil	vfg	Si	70	Cl	27	Sf (3), Mt (tr)	DS	vfg	Py	tr				Irregular complex halos (whitish-gray, gray, tanish-gray). Vugs are filled with anhy, qtz, and py.				
55	34Z	1	5	24	28	3	336.64	Bk	Gr	Cm	Pv	Sil/Mt	vfg	Si	55	Cl	25	Sf (5), Mt (15)	MS/ VF	vfg	Py	tr				Pervasively silicified, slightly brecciated, and heavily impregnated with magnetite. Anhy-py-qtz vein is developed at one edge of piece (working half). Irregular vugs are filled with white material (clay-silica-anhy). Plagioclase microlites and rare plagioclase phenocrysts are altered to white, soft material. Py-anhy-qtz filled vugs.				
55	34Z	1	6	28	31	3	336.68	DkGr	LtGr	Cm	Pv	Sil/Mt	vfg	Si	60	Cl	27	Pl (10), Mt (1), Sf (1)	DS	vfg	Py	tr				Silicified rock, but fresh plagioclase microlites present in matrix. Anhy-py vein.				
55	34Z	1	7	31	38	6	336.71	Gr	LtGr	Cm	Pv	Sil/Mt	vfg	Si	70	Cl	25	Sf (tr), Mt (5)	DS/ VF/ VS	vfg	Py	tr				Highly silicified breccia. Silicified gray clasts, angular quartz and quartz-py clast, qtz-mt-py-rich clasts and clayey clasts are embedded in a vfg qtz-mt-rich clay bearing matrix. Magnetite permeates the rock. Py with anhy in vesicles. Clay-rich, soft areas of the rock are whitish-gray to tan in color.				
55	34Z	1	8	38	40	2	336.78	Gr	Tn	Cm	Pv	Sil;	vfg	Si	70	Cl	28	Sf (2), Mt (tr)	DS/ VF	vfg	Py	tr				Similar to Piece 1 and 2.				
55	34Z	1	9	40	50	9	336.8	Gr	Bk	Cm	Pv	Sil/Mt	vfg	Si	70	Cl	31	Mt (4), Sf (1)	DS/ VF	vfg	Py	tr				Highly silicified breccia. Silicified gray to dark gray clasts of various shapes and sizes and with varying Mt contents , clasts coarse-grained qtz+py float in a qtz-clay-mt bearing matrix. Piece 9A: Red hexagonal platelets and prismatic crystals of probable hematite. Quartz and pyrite as well as anhy-py in amygdales.				
55	34Z	1	10	50	58	7	336.9	Gr	Bk	Cm	Pv	Sil/Mt	vfg	Si	65	Cl	26	Mt (5), Sf (1)	DS/ VF	vfg	Py	3				Brecciated and cemented by qtz-mt-clay matrix in center, where bluish, extremely fine-grained silica (quartz?) is developed in vugs.				
55	34Z	1	11	58	63	4	336.98	Gr	Bk	Cm	Pv	Sil/Mt	vfg	Si	70	Cl	26	Sf (2), Mt (1)	DS/ VF	vfg	Py	tr				Rubble. Appears similar to pieces 7, 9, and 10. Hairline py veinlet.				
55	34Z	1	12	63	71	7	337.03	Gr	Bk	Cm	Pv	Sil/Mt	vfg	Si	70	Cl	25	Mt (4), Sf (1)	DS/ VF	vfg	Py	tr				Similar to 7, 9, and 10 in mineralization but less brecciated. Mt-rich apophysis and veins filled with mt-qtz-py are developed. Host rock is porous, silicified with anhy-py vug fills. Patchy occurrence of gray silicified areas surrounded by light gray more clayey rock. Anhy-py vein.				
56	34Z	1	13a	71	88	17	337.11	Gr	Lt-GrGn	Cm	Pv	Sil	vfg	Si	60	Cl	38	Sf (1), Mt (tr)	DS	vfg	Py	1				Rubble. Some anhy on surfaces. Similar to 13B				
56	34Z	1	13b	88	92	4	337.28	Gr	Lt-GrGn	Cm	Pv	Sil	vfg	Si	60	Cl	39	Sf (1), Mt (tr)	DS	vfg	Py	tr				Silicified rock with patchy distribution of light gray more clayey and gray, more silicified areas. Spherical, light gray and light greenish gray spots (possible vesicle fill) could contain chlorite or green clay.				

Leg 193 Alteration/Mineralization Log - Hole 1188F																											
Identifiers								Color		Alteration										Sulfide Mineralization						Comments	
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten - sity	Style	Type	Grain Size	Mineralogy (non sulfides)					Style	Grain Size	Mineralogy						
														Dominant (%)	Secondary (%)	Others (%)					Dominant (%)	Secondary (%)	Others				
56	34Z	1	13c	92	96	3	337.32	Gr	Lt-GrGn	Cm	Pv	Sil	vfg	Si	60	Cl	39	Sf (1), Mt (tr)		DS	vfg	Py	tr				Pyrite in vesicles with anhydrite.
56	34Z	1	13d	96	103	6	337.36	Gr	Lt-GrGn	Cm	Pv	Sil	vfg	Si	60	Cl	39	Sf (1), Mt (tr)		DS/VS	vfg	Py	tr				Vfg-fg pyrite.
56	34Z	1	14	103	111	8	337.43	Gr	Lt-GrGn	Cm	Pv	Sil	vfg	Si	60	Cl	39	Sf (1), Mt (tr)		DS/VF	vfg	Py	tr				Silicified rock. Central part of piece has been overprinted is light gray and has gray to greenish-gray patches of varying size, shape and hardness. This feature gives the rock a slightly brecciated appearance, but this brecciated zone may just have been a zone of preffered fluid transport. A clay-rich veinlet with silicified extremely fine-grained halos is developed. Green spots in rock could be chloritic. Shape of the brecciated zone is similiar to the magnetite-rich apophysis in Piece 12.
56	34Z	1	15	111	117	5	337.51	Gr	Lt-GrGn	Cm	Pv	Sil	vfg	Si	60	Cl	39	Sf (1), Mt (tr)		DS	vfg	Py	tr				Rubble.
56	34Z	1	16a	117	122	4	337.57	Gr	Lt-GrGn	Cm	Pv	Sil	vfg	Si	50	Cl	48	Sf (1), Mt (tr)		DS	vfg	Py	1				Pyrite is associated with quartz. Rock has layers rich in soft, light gray clay and others that are heavily silicified and dark gray in color.
56	34Z	1	16b	122	130	7	337.62	Gr	Lt-GrGn	Cm	Pv	Sil	vfg	Si	65	Cl	33	Sf (2), Mt (tr)		DS	vfg	Py	tr				Gray and bluish gray highly silicified clasts in a light gray, presumably clay-rich matrix.
56	34Z	1	17	130	133	2	337.7	Gr	Lt-GrGn	Cm	Pv	Sil	vfg	Si	65	Cl	33	Sf (2), Mt (tr)		DS	vfg	Py	tr				Rubble.
57	35Z	1	1	0	15	10	340	Gr	DkBr	Cm	Pv	Sil/Mt	vfg	Qtz	77	Cl	20	Mt	2	DS	vfg	Py	1				Rubbly, brecciated lookign sugary silicified rock with quartz filled microvesicles. Vfg disseminated magnetite. Dark brown silty coatings are strongly magnetic - probably drill flour.
57	35Z	1	2A	15	22	6	340.15	Gr		Cm	Pv	Sil	vfg	Qtz	71	Cl	25	Anhy	2	VS/VF	vfg	Py	2				Weakly microvesicular rock with py filled microvesicles. Vuggy anhy-py vein with no halo.
57	35Z	1	2B	22	31	5	340.22	Gr	DkBr	Cm	Pv	Sil/Mt	vfg	Qtz	82	Cl	10	Mt	8	DS	vfg	Py	2				Silicified rubble with vfg disseminated pyrite. Dark drown powder is magnetite (probably drill flour).
57	35Z	1	2C	31	41	5	340.31	Gr		Cm	Pv	Sil	vfg	Qtz	80	Cl	18	Sf	1	VF/DS/VS	vfg	Py	1				Qtz-py fill in 1-2mm vesicles, vfg py in microvesicles. White sulfate vein on 2 surfaces.
57	35Z	1	2D	41	54	14	340.41	Gr		Cm	Pv	Sil	vfg	Qtz	80	Cl	18	Mt	tr	DS/VF	vfg	Py	2				Vfg disseminated magnetite, qtz-py vesicle fill.
57	35Z	1	2E	54	75	15	340.54	Gr	Br	Cm	Pv	Sil/Mt	vfg	Qtz	67	Cl	29	Sf (2), Mt (2)		VF	vfg	Py	tr				Rubble: softer - a lot more clay rich. Vfg disseminated mt throughout. Some sf veinlets.
57	35Z	1	2F	75	83	6	340.75	LtGr	Wht	Cm	Pv	Sil	vfg	Qtz	82	Cl	15	Anhy	2	VF/DS	vfg	Py	1				Hard silicified piece with a crustiform qtz-anhy vein with a banded halo. Vfg py occurs as microvesicle fill.
57	35Z	1	2G	83	90	3	340.83	LtGr	Wht	Cm	Pv	Sil	vfg	Qtz	88	Cl	15	Anhy	1	VF/DS	vfg	Py	1				Same as above.
57	35Z	1	2H	90	97	4	340.9	LtGr	Wht	Cm	Pv	Sil	vfg	Qtz	61	Anhy	30	Cl	8	VF/DS	vfg	Py	1				Two pieces of rubble: one is the same as above, the other is a fragment of a banded crustiform quartz-anhydrite vein.
57	35Z	1	2I	97	103	3	340.97	LtGr	Wht	Cm	Pv	Sil	vfg	Qtz	74	Cl	20	Anhy	5	VF/DS	vfg	Py	1				Banded halo to anhydrite vein.

Leg 193 Alteration/Mineralization Log - Hole 1188F																												
Identifiers								Color		Alteration											Sulfide Mineralization						Comments	
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten- sity	Style	Type	Grain Size	Mineralogy (non sulfides)					Style	Grain Size	Mineralogy							
														Dominant (%)	Secondary (%)	Others (%)				Dominant (%)	Secondary (%)	Others						
57	35Z	1	2J	103	115	7	341.03	LtGr	Wht	Cm	Pv	Sil	vfg	Qtz	78	Cl	15	Anhy	5	VF/ DS	vfg	Py	2				Rubble. Quartz-anhydrite veins have banded alteration halos. Pyrite occurs as microvesicle fill. The rock exhibits has a sugary siliceous nature.	
57	35Z	1	3A	115	136	20	341.15	LtGr	Wht	Cm	Pv	Sil	vfg	Qtz	78	Cl	15	Anhy	5	VF/ DS	vfg	Py	2				Same as above.	
57	35Z	1	3B	136	150	14	341.36	LtGr		Cm	Pv	Sil/Bl	vfg	Cl	40	Qtz	30	Anhy	29	DS/ VS	vfg	Py	1				Soft banded rock with convex upward subhorizontal bands. The downward curve at each side of the core probably represents drilling disturbance. The core shows a gradational change from a sulfate-clay dominated assemblage at the top to a quartz-clay rich base. Quartz mostly occurs as ovoid 0.5-1mm vesicle fill. The base of the piece is cut by a crustiform qtz-anhy-py vein.	
57	35Z	2	1A	0	8	6	341.5	LtGr		Cm	Pv	Sil	vfg	Qtz	65	Anhy	30	Cl (5), Mt (tr)		VS/ DS	vfg	Py	tr				Dominantly pieces of crustiform qtz-anhy vein. Trace disseminated py and mt in vein.	
57	35Z	2	1B	8	12	3	341.58	LtGr	Wht	Cm	Pv	Sil	vfg	Qtz	82	Cl	15	Anhy	2	VF	vfg	Py	1				Banded vein halos, crustifrom qtz-py veins, py+/-anhy vesicle fill.	
57	35Z	2	1C	12	16	3	341.62	LtGr	Wht	Cm	Pv	Sil	vfg	Qtz	82	Cl	15	Anhy	2	VF	vfg	Py	1				Similar to above, not banded.	
57	35Z	2	1D	16	28	6	341.66	Gr	Wht	Cm	Pv	Sil?	vfg	Qtz	50	Cl	40	Anhy	9	DS	vfg	Py	1				Similar fragments to above, embedded in white sticky clay and grit (drill flour?)	
57	35Z	2	2A	28	38	6	341.78	Gr		Cm	Pv	Sil	vfg	Qtz	60	Cl	30	Anhy	8	DS/ VS	vfg	Py	2				Rubble: siliceous fragments with pyrite veinlets.	
57	35Z	2	2B	38	49	10	341.88	LtGr	Wht	Cm	Pv	Sil	vfg	Qtz	70	Cl	26	Anhy	2	VS/ VF	vfg	Py	2				Zoned - hard silicified rim 1-1.5 cm in width surrounds a slightly softer,darker colored kernal. Py occurs in fine irregular veinlets and as vesicle fill, sometimes accompanied by quartz or anhydrite.	
57	36G	1	1	0	8	6	344.5	LtGr	Wht	Cm	Pv	Sil	vfg	Qtz	65	Cl	30	Anhy	5	DS/ VF	vfg	Py	tr				Hard silicified rim adjacent to anhydrite vein. Softer, more clayey core. Qtz+/-py fill. Very fine grained disseminated py (microvesicle fill?)	
57	36G	1	2	8	22	11	344.5	LtGr	Wht	Cm	Pv	Sil	vfg	Qtz	70	Cl	28	Anhy	2	DS/ VF	vfg	Py	tr				Same as above, banded alteration halos.	
55	36G	1	3	22	25	3	344.5	Blk	Gr	Cm	Pv	Sil/Mt	vfg	Qtz	65	Cl	20	Mt (10), Anhy (5)		DS	vfg	Py	1				Brecciated mt-qtz vein (?) material similar to that seen in core 34Z. Dark patches are mt-clay+/-qtz intergrowths.	
57	37Z	1	1	0	16	12	344.5	Gr	Tan	Cm	Pv	Sil	vfg	Qtz	75	Cl	15	Anhy (5), Mt (tr)		DS/ Vf	vfg	Py	tr				Banded, zoned alteration halos. Mt occurs only in dark kernel. Py abundance decreases from 2% in the kernel to 0% in the rim. Brown mineral is interpreted to be a dirty qtz-clay intergrowth	
57	37Z	1	2	16	65	25	344.66	Gr	Tan	Cm	Pv	Sil	vfg	Qtz	75	Cl	15	Anhy (10), Mt (tr)		DS/ Vf	vfg	Py	tr				Rubble: same material as above. Sulfate spotting in some bands (=anhydrite vesicle fill?) Scattered crustifrom qtz-anhy+/-py veins.	
57	37Z	1	3	65	124	35	345.15	Gr	Tan	Cm	Pv	Sil	vfg	Qtz	75	Cl	15	Anhy (10), Mt (tr)		DS/ Vf	vfg	Py	tr				Rubble: same material as above.	

Leg 193 Alteration/Mineralization Log - Hole 1188F																											
Identifiers								Color		Alteration										Sulfide Mineralization						Comments	
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten - sity	Style	Type	Grain Size	Mineralogy (non sulfides)					Style	Grain Size	Mineralogy						
														Dominant (%)		Secondary (%)		Others (%)				Dominant (%)		Secondary (%)		Others	
57	37Z	1	4	124	131	4	345.74	DkGr	Tan	Cm	Pv	Sil	vfg	Qtz	85	Cl	10	Anhy (3), Mt (1)		DS/ VS/ VF	vfg	Py	1				Three pieces of above material. Two dark mt-bearing kernels, 1 paler outer zone with tarnished pyrite flattened on one surface.
57	37Z	2	1	0	16	10	345.81	Gr	LtGr	Cm	Pv	Sil	vfg	Qtz	70	Cl	26	Anhy (3), Mt (tr)		VS/ VF	vfg	Py	1				Rubble: silicified microvesicular volcanic rock. Tr py on fracture surfaces and as vug fill. Greenish clay with py as vug fill on one piece and anhy on another. Hard anhy on some fracture surfaces.
57	37Z	2	2	16	29	12	345.97	Gr	Wht	Cm	Pv	Sil	vfg	Qtz	75	Cl	22	Anhy (2), Mt (tr)		VS/ DS	vfg	Py	1	Mc	tr		Extremely fg mt disseminated throughout the rock. Py occurs with crustiform qtz-anhy on fractures Pale, silvery marcasite is present on one fracture surface. Fine quartz veins have dark siliceous halos, grading into paler clay-rich bands. 0.5-1mm ovoid qtz+/-py amygdals.
58	37Z	2	3	29	35	6	346.1	Blk	DkGr	Cm	Pv	Sil	vfg	Qtz	78	Mt	10	Anhy (5), Cl (5)		VS/ VF	vfg	Py	2				Dark siliceous rock with (5-8%) magnetite disseminated throughout the groundmass. Cut by vuggy qtz-anhy-py veins with near massive 2mm magnetite alteration halos. Very fine (<0.5mm) ovoid qtz microvesicle fill. Anhy-py in coarser vugs/vesicles.
59	37Z	2	4	35	45	8	346.16	Gr	GrGn	Cm	Pv	Sil	vfg	Qtz	85	Cl	12	Anhy	2	VN/ DS	vfg	Py	1				Banding appears to show compositional variation (flow banding?) 2mm pyrite-anhydrite (selvage) vein with a hard silicified halo appears to intersect the banding. 0.5-1mm green clay spots in some bands, quartz spots in others (microvesicle fill).
59	37Z	2	5	45	58	7	346.26	Gr	Cr	Cm	Pv	Sil	vfg	Qtz	75	Cl	20	Anhy	5	DF/ DS	vfg	Py	tr				Rubble: pale sugary silicified rock with faint banding. Anhydrite veins with hard silicified halos are present on some surfaces. Py occurs as microvesicle fill.
59	37Z	2	6	58	66	7	346.39	LtGr	Wht	Cm	Pv	Sil	vfg	Qtz	75	Cl	25	Anhy	tr	VF/ DS	vfg	Py	tr				Pale silicified, banded rock. Trace igneous plagioclase phenocrysts are altered to soft white clay. Fine ovoid quartz amygdals, pyrite in microvesicles.
59	37Z	2	7	66	114	26	346.47	LtGr	DkGr	Cm	Pv	Sil	vfg	Qtz	80	Cl	18	Anhy (2), Mt (tr)		VF/ VN	vfg	Py	tr				Mixed rubble. Most is pale gray and silicified, similar to the piece above. A number of pieces show distinct banding, with ovoid quartz amygdals confined to discrete bands, suggesting the layering is volcanic. One fragment has a narrow py-anhydrite vein with a qtz-mt-anhy halo (approx. 2% of this rock is magnetite). Two fragments in the bay are dark colored and contain vfg disseminated magnetite, similar to the underlying piece.

Leg 193 Alteration/Mineralization Log - Hole 1188F

Log 139 Alteration/Mineralization Log - Hole 11861																												
Identifiers								Color		Alteration						Sulfide Mineralization						Comments						
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten - sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy						
														Dominant (%)	Secondary (%)	Others (%)						Dominant (%)	Secondary (%)	Others				
59	37Z	2	8	114	123	8	346.95	DkGr	LtGr	Cm	Pv	Sil	vfg	Qtz	89	Cl	10	Anhy (1), Mt (tr)			DS	vfg	Py	tr				Hard silicified rock with very fine grained disseminated magnetite. One surface is coated by a hard white anhydrite vein with a pale alteration halo. Pyrite is finely disseminated in the vein halo.
59	37Z	2	9	123	147	11	347.04	LtGr	DkGr	Cm	Pv	Sil	vfg	Qtz	80	Cl	15	Anhy (5), Mt (tr)			DS	vfg	Py	tr				Rubble: gray silicified fragments. Many have crustiform anhydrite veins with pale banded halos. Many pieces contain 0.1-0.5mm ovoid quartz amygdales. Rare darker fragments contain trace -2 % vfg disseminated magnetite.
60	38Z	1	1	0	12	10	349	LtGr		Cm	Pv	Sil	vfg	Qtz	70	Cl	28	Anhy (2), Mt (tr)			VF/ DS	vfg/fg	Py	tr				Trace of vfg py and some mt in groundmass. Uniformly silicified light gray rocks. Groundmass is dominantly quartz with some light-gray clay . Anhy-py filling vugs.
60	38Z	1	2	12	74	38	349.12	LtGr		Cm	Pv	Sil	vfg	Qtz	70	Cl	28	Anhy		2	VF/ DS	vfg/fg	Py	tr				Same as Pc. 1. One large piece has a gray center that appears mor silicified.
60	38Z	1	3	74	130	30	349.74	LtGr	GnGr	Cm	Pv	Sil	vfg	Qtz	70	Cl	28	Anhy (2), Mt (tr)			VF/ DS	vfg/fg	Py	tr				Rubble. Same as Pc. 1. Greenish-gray pieces near bottom of interval contain green clay-chlorite and some magnetite.
61	38Z	2	1	0	40	35	350.3	GnGr	Gr	Cm	Pv	Sil	vfg	Qtz	70	Cl	28	Anhy (tr), Mt (tr)			VF/ DS	vfg/fg	Py	tr	Mc	tr		Silicified greenish gray rock. Quartz is more abundant as vug fill and mt more abundant in groundmass than in previous unit. Magnetite abundance may go up to 1% in some pieces. Marcasite in anhydrite-quartz vein.
61	38Z	2	2	40	74	25	350.7	GnGr	Gr	Cm	Pv	Sil	vfg	Qtz	70	Cl	28	Anhy (tr), Mt (tr)			VF/ DS	vfg/fg	Py	tr				Similar to Piece 1. Some pieces appear brecciated with a soft gritty-clayey matrix, which could be rock flour (drilling induced breccia).
61	38Z	2	3	74	81	5	351.04	Gr	GnGr	Cm	Pv	Sil	vfg	Qtz	70	Cl	28	Anhy (tr), Mt (tr)			DS	vfg/fg	Py	1				More pyrite as fg vug fill than Pc 1 and 2. Less chlotitic clay.
61	38Z	2	4	81	92	10	351.11	Gr	GnGr	Cm	Pv	Sil	vfg	Qtz	70	Cl	28	Anhy (tr), Mt (tr)			VF/ DS	vfg/fg	Py	tr				Coherent piece but looks very similar to the rubble in Pieces 1 and 2. Relict microlitic groundmass texture. Plagioclase crystals are replaced by white material (illite?). Groundmass is gray, greenish-gray or green silica-clay, sometimes giving the rock a spotty appearance.
62	39Z	1	1	0	7	3	353.5	Gr	LtGr	Cm	Pv	Sil	vfg	Qtz	75	Cl	23	Anhy (1), Mt (1)			VF/ VS/ DS	vfg/fg	Py	tr				Anhy-py vein with zoned halo. Dark gray bands are quartz-rich. Vfg mt and py in quartz-dominated matrix. Pyrite-anhydrite lines voids.
62	39Z	1	2	7	13	5	353.57	LtGr	Gr	Cm	Pv	Sil	vfg	Qtz	65	Cl	31	Anhy (1), Mt (tr)			VF/ VS/ DS	vfg/fg	Py	1				2-3 cm wide zoned halo with gray and light gray bands running parallel to surface of piece. Center of piece is gray with dark gray spots that are vugs filled with clay and clay halso around py-filled vugs. Vugs filled with anhy-py are also present.
62	39Z	1	3	13	16	2	353.63	Gr	LtGr	Cm	Pv	Sil	vfg	Qtz	65	Cl	30	Anhy (3), Mt (tr)			VF/ VS/ DS	vfg/fg	Py	2				Plagioclase phenocrysts (up to 1.5 mm long) are replaced by white and gray clay. Vugs are lined/filled with anhy-py-qtz. 0.1 mm py vein with 0.2 mm wide light gray halos.

Leg 193 Alteration/Mineralization Log - Hole 1188F

Alteration														Sulfide Mineralization					Comments						
Identifiers				Color		Alteration								Sulfide Mineralization											
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten- sity	Style	Type	Grain Size	Mineralogy (non sulfides)					Style	Grain Size	Mineralogy				
														Dominant (%)	Secondary (%)	Others (%)				Dominant (%)	Secondary (%)	Others			
62	39Z	1	4	16	27	10	353.66	Gr	DkGr	Cm	Pv	Sil	vfg	Qtz	65	Cl	30	Anhy (3), Mt (tr)	VF/ VS/ DS	vfg/fg	Py	1		Anhy-py vein with 1 cm wide dark gray halo is crosscut by py veinlets with mm-wide silicified halos. Groundmass is quartz with gray and light gray clay. Plagioclase phenocrysts (up to 3 mm long) are replaced by dark gray clay and quartz.	
62	39Z	1	5A-C	27	37	6	353.77	LtGr		Cm	Pv	Sil	vfg	Qtz	63	Cl	31	Anhy (5)	VF/ DS	vfg/fg	Py	1		Spotty texture of rock is owing to py-anhy filled vugs with clay-rich halos. Plagioclase phenocrysts replaced by white clay.	
62	39Z	1	6A+ B	37	55	12	353.87	LtGr		Cm	Pv	Sil	vfg	Qtz	65	Cl	33	Anhy (1), Mt (tr)	VF/ DS	vfg/fg	Py	1		Silicified, clay-bearing matrix. Plagioclase phenocrysts replaced by bluish-white clay.	
63	39Z	1	7A-C	55	71	11	354.05	Gr	Bk	Cm	Pv	Sil/Mt	vfg	Qtz	65	Cl	32	Anhy (tr), Mt (3)	VF/ DS	vfg/fg	Py	tr		Abundant magnetite imposing a drak gray to black color to the rock. Mt is intergrwon with clay and qtz. Dark spots are soft and magnetic -> clay+mt. Vugs are filled with py+cl or py-anhy. Py is rare in matirx.	
63	39Z	1	8A+ B	71	80	6	354.21			Cm	Pv	Sil	vfg	Qtz	63	Cl	31	Anhy (5)	VF/ DS	vfg/fg	Py	1		Similar to Pieces 5A-C.	
63	39Z	1	9	80	83	2	354.3	Bk	Gr	Cm	Pv	Sil/Mt	vfg	Qtz	65	Cl	30	Anhy (tr), Mt (5)	VF/ DS	vfg/fg	Py	tr		Similar to Pieces 7A-C but more abundant magnetite. Up to 4 mm long acicular plgioclase crystals are replaced by white clay.	
63	39Z	1	10A	83	87	3	354.33	Gr	LtGr	Cm	Pv	Sil	vfg	Qtz	70	Cl	29	Anhy (1), Mt (tr)	VF/ DS	vfg/fg	Py	tr		Aligned acicular plagioclase crystals are replaced by white clay. Stretched vesicles are filled with py-anhy. There is pronounced color change from light gray to dark gray at an irregularly shaped boundary .	
63	39Z	1	10B-G	87	117	15	354.37	LtGr	DkGr	Cm	Pv	Sil/Mt	vfg	Qtz	70	Cl	27	Anhy (tr), Mt (2)	VF/ DS	vfg/fg	Py	1		Silica-clay veinlets with narrow dark gray halos. Magnetite contents vary from trace to 3%. Chlorite (?) crystal in vug with magnetite and pyrite.	
64	39Z	1	11A +B	117	132	8	354.67			Cm	Pv	Sil	vfg	Qtz	63	Cl	31	Anhy (5)	VF/ DS	vfg/fg	Py	1	Sp	tr	Similar to Pieces 5 and 8. Claer yellow sphalerite crystal in a vug.
64	39Z	1	12A +B	132	143	5	354.82			Cm	Pv	Sil	vfg	Qtz	63	Cl	31	Anhy (5)	VF/ DS	vfg/fg	Py	1			Similar to Pieces 5 and 8.
64	39Z	2	1	0	4	2	354.93	Gr	LtGr	Cm	Pv	Sil	vfg	Qtz	75	Cl	23	Mt	1	VS/ DS/ VF	vfg/fg	Py	1		Spotty occurrence due to vesicles? filled with quartz. Py disseminated in groundmass. Some fg py as vesicle fill.
64	39Z	2	2	4	17	8	354.97	LtGr	Gr	Cm	Pv	Sil	vfg	Qtz	75	Cl	25	Mt	tr	DS/ VF	vfg/fg	Py	tr		Similar to Piece 1, but less mt and py. Vugs filled/lined with py-caly-anhy.
64	39Z	2	3A-F	17	39	14	355.1	GnGr	Tan	Cm	Pv	Sil	vfg	Qtz	65	Cl	35	Anhy (1), Mt (tr)	DS/ VF	vfg/fg	Py	1			Greenish-gray rock with tan halos along anhy-py veins. Plagioclase microphenocrysts are replaced by white to bluish-white clay. Vesicles and vugs are filled/lined with py+anhy.
64	39Z	2	4A-C	39	55	8	355.32	GnGr		Cm	Pv	Sil	vfg	Qtz	65	Cl	35	Anhy (1), Mt (tr)	DS/ VF	vfg/fg	Py	1			Same as Piece 3 but no tan halos.
65	40Z	1	1A-D	0	16	8	358	DkGr	Bk	Cm	Pv	Sil/Mt	vfg	Qtz	60	Cl	33	Anhy (1), Mt (5)	VF/ DS	fg/vfg	Py	1			Silicified microcrystalline groundmass. Obvious vesicles lined/ filled with green clay, anhy, py, and mt. Commonly, py occurs in the cneters of mat-filled vesicles.
66	40Z	1	2A-F	16	82	45	358.16	LtGr	GnGr	Cm	Pv	Sil	vfg	Qtz	65	Cl	34	Anhy (tr), Mt (tr)	VF/ DS	vfg	Py	tr			Similar to Unit 64. Anhy-opy filled vugs.

Leg 193 Alteration/Mineralization Log - Hole 1188F																												
Identifiers								Color		Alteration										Sulfide Mineralization							Comments	
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten - sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy						
														Dominant (%)		Secondary (%)		Others (%)				Dominant (%)		Secondary (%)		Others		
67	40Z	1	3A-F	82	136	32	358.82	LtGr	Gr	Cm	Pv	Sil	vfg	Qtz	70	Cl	30	Anhy (tr)		VS/ DS/ VF	vfg	Py	tr					Brecciated and silicified. Dark gray highly silicified and gray soft domains, some of which have angular shapes . Clay-anhy-py veinlets.
67	40Z	2	1A-D	0	59	40	359.39	LtGr	Gr	Cm	Pv	Sil	vfg	Qtz	70	Cl	28	Anhy (1)		DS	vfg	Py	1					Brecciated with cm sized angular highly silicified clast that are surrounded by a light gray to tanish gray silica-clay matrix. The matrix is completely recrystallized which makes distiguishing the original texture difficult. However, relict textures suggest it is composed of clay-silica altered clasts embedded in a silica-rich cement.
67	40Z	2	2A-B	59	83	15	359.98	LtGr	Gr	Cm	Pv	Sil	vfg	Qtz	70	Cl	28	Anhy (1)		DS	vfg	Py	1					Similar to Piece 1.
68	41Z	1	1-2C	0	17	8	362.5	Gr	Bk	Cm	Pv	Sil/Mt	vfg	Qtz	70	Cl	26	Mt (3), Anhy (tr)		VS/ DS/ VF	vfg	Py	1					Anhy vein in Pc 1. Mt finely disseminated in groundmass. Mt-rich vein with pyrite in center and a narrow gray halo in Pc. 2.
69	41Z	1	3A-G	17	100	45	362.67	LtGr	Lt-GnGr	Cm	Pv	Sil	vfg	Qtz	70	Cl	29	Mt(tr)		DS/ VF	vfg	Py	1					Silicified vfg gray halos. Rock away from halos is spotty owing to qtz-clay-py rich vug fill.
69	41Z	1	4A-C	100	138	28	363.67	LtGr	Lt-GnGr	Cm	Pv	Sil	vfg	Qtz	70	Cl	30	Mt(tr)		DS/ VF	vfg	Py	tr					Similar to 3A-G.
69	41Z	2	1-6	0	81	50	364.05	TnGr		Cm	Pv	Sil	vfg	Qtz	70	Cl	29	Mt(tr)		DS	vfg	Py	1					Silicified rock with finely disseminated pyrite. Tan to light gray clay in matrix. Some anhy veins. Pieces 1, 3A, and 4A are gray and muddy with fragments of silicified rock.
70	42Z	1	1	0	5	3	367	LtGr	Wht	Cm	Pv	Sil	vfg	Qtz	70	Cl	20	Anhy	10	VF/ DS	vfg	Py	tr					Rubble. Pale, silicified rocks with anhydrite veins and associated alteration halos. Zonation from anhy lined and filled vesicles adjacent to veins to qtz-clay amygdals away from it. Py occurs vfg disseminated crystals in microvesicles.
70	42Z	1	2A	5	16	8	367.05	LtGr	Wht	Cm	Pv	Sil	vfg	Qtz	70	Cl	20	Anhy	2	VF/ DS	vfg	Py	tr					Rubble: same as above piece.
70	42Z	1	2B	16	22	3	367.16	LtGr		Cm	Pv	Sil	vfg	Qtz	80	Cl	16	Anhy	2	VF/ DS/ VN	vfg	Py	2					Qtz-py fill in stretched vesicles. Py also disseminated in the groundmass and as fine euhedra on a sulfate-coated surface.
70	42Z	1	2C	22	38	10	367.22	LtGr	Wht	Cm	Pv	Sil	vfg	Qtz	75	Cl	20	Anhy	5	VF/ DS	vfg	Py	tr					Rubble: same as pieces 1 & 2A.
70	42Z	1	3	38	49	6	367.38	LtGr	Wht	Cm	Pv	Sil	vfg	Qtz	75	Cl	20	Anhy	5	VF/ DS	vfg	Py	tr					Mottle textured with qtz and porous anhydrite-clay domains. Py in microvesicles.
70	42Z	1	4A	49	53	2	367.49	LtGr		Cm	Pv	Sil	vfg	Qtz	80	Cl	18	Anhy	2	VF/ DS	vfg	Py	tr					Banded structure, probably vein-related zoned alteration. Fine qtz+/-py and anhy+/-py amygdals form discrete bands. Py also occurs as vfg crystals in microvesicles.
70	42Z	1	4B	53	61	8	367.53	LtGr	Gn	Cm	Pv	Sil	vfg	Qtz	80	Cl	17	Chl (2), Anhy (tr)		VF/ DS	vfg	Py	1					Elongate qtz+/-py and py (core)-green clay (rim=chlorite?) amygdals.
70	42Z	1	4C	61	67	4	367.61	LtGr	Gn	Cm	Pv	Sil	vfg	Qtz	80	Cl	17	Chl (2), Anhy (tr)		VF/ DS	vfg	Py	1					Same as above

Leg 193 Alteration/Mineralization Log - Hole 1188F																												
Identifiers								Color		Alteration										Sulfide Mineralization							Comments	
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten-sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy						
														Dominant (%)		Secondary (%)		Others (%)				Dominant (%)		Secondary (%)		Others		
70	42Z	1	4D	67	71	2	367.67	LtGr		Cm	Pv	Sil	vfg	Qtz	80	Cl	17	Anhy	2	VF	vfg	Py	1					Py in qtz-py amygdales and on anhydrite vein. Zoned alteration halo to vein from anhy to qtz-py amygdales.
70	42Z	1	4E	71	74	3	367.71	LtGr		Cm	Pv	Sil	vfg	Qtz	80	Cl	20	Chl (tr), Anhy (tr)		VF	vfg	Py	tr					Qtz+/-py amydules, some with greenish clay halos.
70	42Z	1	4F	74	98	14	367.74	LtGr	Wht	Cm	Pv	Sil	vfg	Qtz	72	Cl	20	Anhy	8	VF/DS	vfg	Py	tr					Rubble: same as pieces 1, 2A and 2C.
70	42Z	1	5	98	123	15	367.98	LtGr	Wht	Cm	Pv	Sil	vfg	Qtz	75	Cl	22	Anhy	3	VF/DS	vfg	Py	tr	Sp	tr			Similar to above. Extremely fine grained ruby red sphalerite(?) crystals in some partially quartz-filled vesicles (very rare).
70	42Z	1	6	123	133	6	368.23	LtGr	Wht	Cm	Pv	Sil	vfg	Qtz	75	Cl	22	Anhy	3	VF	vfg	Py	tr					Less vesicular than overlying pieces. Anhy veins on fractures. Py occurs as fine euhedra in anhy veins microvesicles.
70	42Z	1	7	133	146	7	368.33	LtGr	Gr	Cm	Pv	Sil	vfg	Qtz	75	Cl	22	Anhy	3	DS/VS	vfg	Py	tr	Sp	tr			Again, very few vesicles. Py in anhy veins and as vfg disseminations. Honey gold sphalerite crystals on one anhy vein.
70	42Z	2	1	0	7	4	368.46	Gr		Cm	Pv	Sil	vfg	Qtz	75	Cl	20	Anhy	5	VF	vfg	Py	tr					Clayey, dirty rubble. Py in microvesicles. Some qtz-py amygdales.
70	42Z	2	2	7	24	10	368.53	Gr		Cm	Pv	Sil	vfg	Qtz	75	Cl	20	Anhy	5	VF	vfg	Py	1					Clayey, dirty rubble. Some very vesicular pieces with py-mnr qtz amygdales (5% py overall in these rocks). Anhy veins have anhy-lined vesicles in their halos.
70	42Z	2	3	24	29	2	368.7	Wht		Cm	Pv	Bl/Sil	vfg	Cl	50	Qtz	40	Anhy	10									Bleached with rare quartz amygdales. No sulfide.
71	43Z	1	1	0	56	25	371.5	DkGrGn	Gr	Cm	Pv	Sil	vfg	Qtz	80	Cl	12	Anhy (3), Chl (3), Mt (tr)		DS/ VF/ VS	vfg	Py	2					Approximately half the rounded fragments (3-7cm in size) in the bay are similar pale gray siliceous material to that seen in core 42Z, Unit 70. There are also 2 small pieces of dark gray magnetite-bearing rock, identical to the groundmass of Unit 72, below. The remainder of the material in the bay, described here as Unit 71, is gray-green, pervasively silicified vesicular aphyric volcanic rock. Scattered coarser (2-6mm) vesicles are lined by anhy-chl or qtz-chl overgrown by pyrite. Finer (<1mm) vesicles are filled by qtz, qtz-py or py with a chloritic halo.

Leg 193 Alteration/Mineralization Log - Hole 1188F																										
Identifiers								Color		Alteration										Sulfide Mineralization						Comments
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten - sity	Style	Type	Grain Size	Mineralogy (non sulfides)					Style	Grain Size	Mineralogy					
														Dominant (%)	Secondary (%)	Others (%)					Dominant (%)	Secondary (%)	Others			
72	43Z	1	2	56	65	5	372.06	DkGr	Blk	Cm	Pv	Sil/Mt	vfg	Qtz	75	Cl	16	Anhy (5), Mt (3), Pl (1), Chl (tr)		DS/ VS/ VF	vfg	Py	tr			Dark gray pevasively silicified rock. Cut by a slightly vuggy, 0.5mm anhy-py and chl-py veinlet with a 3mm halo of silica which zones into a 5mm silica-magnetite halo. Magnetite also occurs throughout the rock as very fine grained disseminations and as vesicle fill with blue quartz and pyrite, with occasional late anhydrite. General paragenesis in vesicles is mt+qtz early, py+/-anhy late. An ovoid 2cm silica patch which is associated with a paler, more bleached portion of the rock, appears to host an irregular, vuggy anhy-mt-py vein. Trace-1% fresh acicular plagioclase phenocrysts, up to 3mm long, occur in the less bleached portion of the rock. Late fine py veinlets cut the main vein.
72	43Z	1	3	65	89	19	372.15	DkGr	Blk	Cm	Pv	Sil/Mt	vfg	Qtz	75	Cl	17	Anhy (7), Mt (5), Chl (tr)		VF/ DS/ VS	vfg	Py	tr			Same material as above, apparently continuous, with the same vein. Apparent fragmental texture with clasts (or xenoliths?) of quartz up to 2cm in size, wrapped by late py+/-anhy veins which crosscut the main vein. White anhy amygdales are abundant in the magnetite-bearing zone of the vein halo, which is more intense than in piece 2. Mt-qtz-(py-anhy) amygdales elsewhere. One of the quartz "clasts" is cut by a vuggy qtz-mt-(anhy-py) vein. Rare igneous plagioclase is altered to clay.
72	43Z	1	4a	89	101	10	372.39	DkGr	Blk	Cm	Pv	Sil/Mt	vfg	Qtz	80	Cl	8	Anhy (7), Mt (2), Chl (5)		VF/ DS/ VS	vfg	Py	tr	Sp	tr	Similar to pieces 2 and 3. Core of vein, which was py-anhy in upper pieces contains qtz-mt and anhy-py zones in this sample, as well as soft green clay, and ruby red sphalerite(?). The second piece in the bay is not veined, but contains 2 coarse (1-2cm) "clasts" of quartz in a similar magnetite-bearing groundmass.
72	43Z	1	4b	101	114	8	372.51	DkGr	Blk	Cm	Pv	Sil	vfg	Qtz	85	Cl	11	Anhy (7), Mt (tr), Pl (tr)		VF/ DS/ VS	vfg	Py	1			One small piece of mt-bearing dark volcanic and a large "vein piece." Breccia-like qtz-(cl-anhy) zones into a hlao of qtz with tr disseminated mt (in some case overgrowing py), scatted partially altered igneous plagioclase and anhy-py vesicle fill. This then zones into a banded silica-mt halo similar to that seen around the distinct vein in pieces 2 and 3.

Leg 193 Alteration/Mineralization Log - Hole 1188F																													
Identifiers								Color		Alteration										Sulfide Mineralization							Comments		
Unit	Core	Sec	Pc#	Inter. Top	Inter. Bottom	length (cm)	Curated Depth (mbsf)	Dom.	Sec.	Inten - sity	Style	Type	Grain Size	Mineralogy (non sulfides)						Style	Grain Size	Mineralogy							
														Dominant (%)		Secondary (%)		Others (%)				Dominant (%)		Secondary (%)		Others			
72	44Z	1	1	0	41	21	374	DkGr	Cr	Hi	Pv	Sil/Mt	vfg	Qtz	73	Pl	15	Cl (7), Anhy (3), Mt (2), Chl (tr)		VF/ DS	vfg	Py	1				Rubble: Mixed pieces of mt-bearing dark gray volcanic rock, (similar to 43Z1, pcs 2-4) and paler, more "normal" silicified pieces. Some mt-rich fragments are fractured; consisting of silicified rocks with py, anhy and chl amygdales cut by an irregular network of fine qtz and anhydrite veins with mt-rich alteration halos. Others are fragments of hard silicified rock with up to 8% disseminated magnetite and seem to be similar to the vein halos in other pieces. These may be the halos of larger, unsampled veins. Pieces with fine dark quartz-magnetite veins contain abundant fine grained igneous feldspar laths.		
72	44Z	1	2	41	56	6	374.41	Gr	Cr	Cm	Pv	Sil	vfg	Qtz	70	Cl	25	Anhy (3), Mt (tr)		VF(V N)	vfg	Py	tr				Rubble: Dominantly pale siliceous material with fine qtz and anhydrite amygdales and trace vfg pyrite in microvesicles. Scattered magnetite-bearing pieces generally appear to be developed as halos to narrow anhy-py veins.		
72	44Z	1	3	56	91	13	374.56	Gr	DkGr	Cm	Pv	Sil/Mt	vfg	Qtz	80	Cl	13	Anhy (5), Mt (2), Chl (tr)		VN/ DS	vfg	Py	tr				Rubble: Mostly mt-bearing siliceous fragments. Anhy-py veins have distinct mt-rich selvages. Magnetite is disseminated throughout the rock and occurs as vesicle fill adjacent to veins. Other vesicle fill includes py+/-chl, qtz+/-py and anhy+/-py. The bay also contains a few pieces of paler siliceous material similar those in Bay 2.		

Leg 193 Sulfide Log - Hole 1188A

Identifiers					% Mineral-ization	Style of Mineral-ization	Sulfide Mineralogy																	Total Sulfide %	Comments
Unit	Core	Sec.	Piece	Interval			Pyrite			Chalcopyrite			Sphalerite			Other			Other						
							Texture	Grain Size	%		Texture	Grain Size	%		Texture	Grain Size	%	Min-eral	Texture	Grain Size	%				
2	5R	1	7	35-42	10	DS	Soot	Efg	>5														10		
2	5R	1	8	42-49	5	DS	Soot	Efg	>5														5		
5	7R	1	17	109-118	10	DS	Soot	Efg	>5														10		
5	7R	1	18	118-128	10	DS	Soot	Efg	>5														10		
5	7R	1	19	128-138	20	DS	Soot	Efg	>5														20		
5	7R	1	20	138-150	20	DS	Soot	Efg	>5														20		
5	7R	2	1	0-26	10	VS / DS	Gran	Vfg	10														10	0-5 mm veins.	
5	7R	2	2	26-43	10	DS	Gran	Efg	10														10	TS	
6	8R	1	4	20-28	5	VS	Gran	Vfg	5														5	<1 mm veins.	
6	8R	1	9	74-79	5	DS	Dr	Fg	5														5	EuheDral crystals.	
7	9R	1	5	34-38	5	DS	Dr	Fg	3				Dr	Fg	2								5	Fe - sphalerite on the top of py.	
8	9R	2	1	0-34	5	DS	Soot	Efg	>5														5		
8	9R	2	7	90-104	10	DS	Dr+Gran	Vfg	10														10	Veinlets dark clay; Druse in white anhydrite.	
8	9R	3	2	17-33	10	DS	Soot	Efg	>5														10		
10	12R	1	10	95-103	15	DS	Soot	Efg	>5														15		
10	12R	1	11	103-117	15	DS	Soot	Efg	>5														15		
17	16R	1	1	0-3	15	DS	Dr	Vfg	15														15	Drusy anhy-py open space fill.	
19	17R	1	22a	106-130	5	DS	Gran	Vfg	5														5	TS of piece 19 (87-93 cm).	
23	20R	1	1	0-7	5	DS / VS	Gran	Vfg	5														5	Very fine py veinlets with strong alteration.	
23	20R	1	3	18-21	10	DS	Gran	Vfg	10														10	EuheDral crystals with striations.	
23	20R	1	8	53-57	10	DS	Gran	Vfg	10														10	SubheDral and euheDral py crystals.	
23	20R	1	9	67-77	5	DS	Gran	Vfg	5														5	TS	
23	20R	1	10	77-81	5	DS	Gran	Vfg	5														5		
24	20R	1	12a,b	91-104	10	VS / DS	Gran	Vfg	10														10	Dessiminated py and veinlet network; TS.	
24	20R	1	13	104-110	10	DS	Gran	Vfg	10														10	in vugs	
25	21R	1	3	19-35	10	DS	Gran	Vfg	5														5	> 10% voids; TS.	
25	21R	1	4	35-43	10	DS	Gran	Vfg	10														10		
25	21R	1	5	43-50	15	DS	Gran	Vfg	15														15		
25	21R	1	6	50-56	10	DS	Gran	Vfg	10														10		
25	21R	1	7	56-65	10	DS	Gran	Vfg	10														10		
25	21R	1	8	65-72	15	DS / VS	Gran	Vfg	15														15	Pyrite veinlets < 1 mm; TS.	
25	21R	1	10	77-89	10	DS	Gran	Vfg	10														10		
25	21R	1	11	89-96	10	DS	Gran	Vfg	10														10		
25	21R	1	12	96-105	10	DS	Gran	Vfg	9				Gran	Vfg	<1								10	Rare yellow sphalerite.	
25	21R	1	13	105-115	5	DS	Gran	Vfg	5														5		
25	21R	1	14	115-126	10	DS / VS	Gran	Vfg	10	Int	Vfg	Trace (?)											10		
25	21R	1	15	126-132	5	DS / VS	Gran	Vfg	5	Int	Vfg	Trace (?)											5		
25	21R	1	17	136-142	5	DS / VS	Gran	Vfg	5	Int	Vfg	Trace (?)											5		
25	21R	1	18	145-150	5	DS / VS	Gran	Vfg	5														5		

Leg 193 Sulfide Log - Hole 1188A																											
Identifiers				Associated Gangue																				Total Sul-		Comments	
Unit	Core	Sec.	Piece	Barite			AnhyDrite			Quartz/Silica			Clays			Other				Other				Total Gangue %	fide + Gangue %		
				Texture	Grain Size	%	Texture	Grain Size	%	Texture	Grain Size	%	Texture	Grain Size	%	Min-eral	Texture	Grain Size	%	Min-eral	Texture	Grain Size	%				
2	SR	1	7							Gran	Vfg	70	Msv	Vfg	20										90	10	
2	SR	1	8							Gran	Vfg	75	Msv	Vfg	10										95	100	
5	7R	1	17				Gran	Vfg	60	Gran	Vfg	5	Msv	Vfg	25										90	100	
5	7R	1	18				Gran	Vfg	70	Gran	Vfg	5	Msv	Vfg	15										90	100	
5	7R	1	19				Gran	Vfg	65	Gran	Vfg	5	Msv	Vfg	10										80	100	
5	7R	1	20				Gran	Vfg	60	Gran	Vfg	10	Msv	Vfg	10										80	100	
5	7R	2	1				Bld	Vfg	70	Gran	Vfg	6	Msv	Vfg	14										90	100	
5	7R	2	2				Bld	Vfg	70	Gran	Vfg	5	Msv	Vfg	15										90	100	
6	8R	1	4				Bld	Vfg	20	Gran	Vfg	5	Msv	Vfg	70										95	100	
6	8R	1	9				Bld	Vfg	35	Gran	Vfg	25	Msv	Vfg	35										95	100	
7	9R	1	5				Bld	Mg	20	Gran	Vfg	10	Msv	Vfg	65										95	100	
8	9R	2	1				Gran	Vfg	50	Gran	Vfg	25	Msv	Vfg	20										95	100	
8	9R	2	7				Gran	Fg	40	Gran	Fg	40	Msv	Vfg	10										90	100	
8	9R	3	2				Gran	Vfg	45	Gran	Vfg	25	Msv	Vfg	20										90	100	
10	12R	1	10				Gran	Vfg	45	Gran	Vfg	20	Msv	Vfg	20										85	100	
10	12R	1	11				Gran	Vfg	45	Gran	Vfg	20	Msv	Vfg	20										85	100	
17	16R	1	1				Bld	Cg	85																85	100	
19	17R	1	22a				Msv	Vfg	10	Gran	Vfg	10	Msv	Vfg	60	Mt	Gran	Vfg	15						95	100	Anhy / py veinlets.
23	20R	1	1				Glo	Vfg	45				Msv	Vfg	50										95	100	Sulfate matrix.
23	20R	1	3				Gran	Vfg	10	Gran	Vfg	5				Chl	Gran	Vfg	75						90	100	
23	20R	1	8				Gran	Vfg	10	Gran	Vfg	5				Chl	Gran	Vfg	75						90	100	
23	20R	1	9				Gran	Vfg	25	Gran	Vfg	5				Chl	Gran	Vfg	65						95	100	
23	20R	1	10				Gran	Vfg	45	Gran	Vfg	45				Chl	Dis	Vfg	5						95	100	
24	20R	1	12a, b				Gran	Vfg	30				Msv	Vfg	55	Chl	Dis	Vfg	5						90	100	Sulfates in spherical structures.
24	20R	1	13				Gran	Vfg	40	Gran	Vfg	30													90	100	
25	21R	1	3				Gran	Vfg	45	Gran	Vfg	17	Msv	Vfg	30	Mt	Dis	Vfg	3						95	100	
25	21R	1	4				Gran	Vfg	40	Gran	Vfg	12	Msv	Vfg	35	Mt	Dis	Vfg	3						90	100	
25	21R	1	5				Gran	Vfg	35	Gran	Vfg	13	Msv	Vfg	35	Mt	Dis	Vfg	2						85	100	
25	21R	1	6				Gran	Vfg	40	Gran	Vfg	13	Msv	Vfg	35	Mt	Dis	Vfg	2						90	100	
25	21R	1	7				Gran	Vfg	40	Gran	Vfg	18	Msv	Vfg	30	Mt	Dis	Vfg	2						90	100	
25	21R	1	8				Gran	Vfg	35	Gran	Vfg	18	Msv	Vfg	30	Mt	Dis	Vfg	2						85	100	
25	21R	1	10				Gran	Vfg	38	Gran	Vfg	25	Msv	Vfg	25	Mt	Dis	Vfg	2						90	100	
25	21R	1	11				Gran	Vfg	39	Gran	Vfg	30	Msv	Vfg	20	Mt	Dis	Vfg	1						90	100	
25	21R	1	12				Gran	Vfg	40	Gran	Vfg	17	Msv	Vfg	30	Mt	Dis	Vfg	3						90	100	
25	21R	1	13				Gran	Vfg	40	Gran	Vfg	24	Msv	Vfg	30	Mt	Dis	Vfg	1						95	100	
25	21R	1	14				Gran	Vfg	35	Gran	Vfg	20	Msv	Vfg	30	Mt	Dis	Vfg	5						90	100	
25	21R	1	15				Gran	Vfg	35	Gran	Vfg	25	Msv	Vfg	25	Mt	Dis	Vfg	10						95	100	
25	21R	1	17				Gran	Vfg	40	Gran	Vfg	20	Msv	Vfg	25	Mt	Dis	Vfg	10						95	100	
25	21R	1	18				Gran	Vfg	40	Gran	Vfg	20	Msv	Vfg	30	Mt	Dis	Vfg	5						95	100	

Leg 193 Structure Log - Hole 1188A																									
Core identifiers							Structure				Structural orientation						Mineral infill						Alteration Halo		
Core	Sec	pc#	Interv. (cm)	Depth cur. top (mbsf)	Length of piece (cm)	oriented piece Y/N	Fea- ture Generation	Length (cm)	Thick- ness (mm)	Unit - Host-rock	App. dip, pitch of line		Calculated/Measured orientation				NonSulfides			Sulfides			Inten- sity	Dom.	
											A.f.	S.f.	Strike Trend	Dip	Dip direc- tion	General orienta- tion	Dom.	Sec.	Others	Dom.	Sec.	Others			
Comments																									
7R	1	8	31-42	48.51	4	N	Va		1	4-ALT/IGN						Sw	Anhy			Py					Vein network of pyrite + anhydrite in altered volc. rock
7R	1	12	62-80	48.82	16	Y	Va	5	1	4-ALT/IGN	55E	40N	346	56	76	Inc	Anhy			Py					
7R	1	12	62-80	48.82	16	Y	Vb	2	1-2	4-ALT/IGN						Ir	Anhy			Py					
7R	1	12	62-80	48.82	16	Y	Vc	7		4-ALT/IGN	90E		0	90	90	v	Anhy			Py					
7R	1	12	62-80	48.82	16	Y	Vd	4		4-ALT/IGN	60E	20N	348	61	78	Inc	Anhy			Py					
7R	1	13	80-87	49	6	Y	Va	5	2	4-ALT/IGN	15W	0N	180	15	270	Sh	Anhy								
7R	1	13	80-87	49	6	Y	Vb	4	1-2	4-ALT/IGN	10E	90N	90	90	180	v	Anhy								
7R	1	13	80-87	49	6	Y	Vc	3	1	4-ALT/IGN	15E	90N	90	90	180	v	Anhy								
7R	1	13	80-87	49	6	Y	Vd	4	1	4-ALT/IGN	45W	20S	160	47	250	Inc	Anhy			Py					
7R	1	14	87-95	49.07	6	Y	Va	5	2-8	4-ALT/IGN	10E	20S	64	22	154	Sh	Anhy			Py					
7R	1	14	87-95	49.07	6	Y	Clay-band			4-ALT/IGN	15W	20S	216	24	306	Sh									
7R	1	15	95-102	49.15	4	Y		Va		8	4-ALT/IGN			0	0	0	h	Anhy			Py				
7R	1	16	102-109	49.22	4	N	Va			4-ALT/IGN						Anhy									
7R	1	17	109-119	49.29	8	Y	Va,bc	8	40	5-ALT/IGN						Sv	Clay			Py					Chlorite-clay fragments in pyrite-clay matrix; pyrite-clay vein
7R	1	18	119-128	49.39	7	Y	Va		1	5-ALT/IGN						Sw				Py					Vein network in anhydrite-chlorite-clay volcanic rock, rounded pseudo-clasts between veins
7R	1	19	128-139	49.48	9	Y	Va			5-ALT/IGN	60W					Inc	Anhy								Fine white vein network, some blue alteration rims pseudo-clasts between veins;bleached overprint
7R	1	20	139-150	49.59	10	Y	Va			5-ALT/IGN	25W					Inc	Anhy								Anhydrite bleaching overprints grey clay alteration of rock; pseudo-clasts rimmed with blue float in pyrite-clay matrix
7R	1	20	139-150	49.59	10	Y	Vb			5-ALT/IGN	60E					Inc	Anhy								
7R	2	1	0-16	49.7	16	N	Va		<1	5-ALT/IGN						Sw	Anhy			Py					Vein network, rounded bleached pseudo-clasts with grey rims; veins contain anhydrite+pyrite
7R	2	1	16-26	49.86	8	N	Va			5-ALT/IGN						Sw	Anhy			Py					Clay alteration halos around veins
7R	2	2	26-43	49.96	16	Y	Va			5-ALT/IGN						Sw	Anhy			Py					Anhydrite overprints clay alteration;country rock appears disrupted and is altered but relict spherulitic texture present
7R	2	4	54-67	50.24	12	Y	Va			5-ALT/IGN						Sw	Anhy			Py					Fine vein network
7R	2	5	67-73	50.37	4	N	Va			5-ALT/IGN						Sw	Anhy			Py					Fine vein network
7R	2	6	73-85	50.43	10	Y	So			5-ALT/IGN	steepW					Inc									Chlorite-altered, disrupted bedding laminae in gray clay matrix
7R	2	6	73-85	50.43	10	Y	Va			5-ALT/IGN						Sw	Anhy			Py					Anhydrite-pyrite vein-network
8R	1	3	13-20	58.03	5	N	Va			6-ALT/IGN						Sw	Anhy			Py					Vein network
8R	1	4	20-28	58.1	6	Y	Va		1	6-ALT/IGN	18W	20N	228	26	318	Inc				Py					Fine vein network;Va, Vb, Vc part of network
8R	1	4	20-28	58.1	6	Y	Vb		1	6-ALT/IGN	25E	17S	33	19	123	Sh				Py					Fine vein network;Va, Vb, Vc part of network
8R	1	4	20-28	58.1	6	Y	Vc		1	6-ALT/IGN	37W	17S	158	39	248	Inc				Py					Fine vein network;Va, Vb, Vc part of network
8R	1	5	28-42	58.18	14	Y	So			6-ALT/IGN						Inc									So folded; rotated pieces containing primary banding preserved float in altered matrix

Core identifiers							Structure				Structural orientation						Mineral infill						Alteration Halo		Comments
Core	Sec	pc#	Interv. (cm)	Depth cur. top (mbsf)	Length of piece (cm)	oriented piece Y/N	Feature Generation	Length (cm)	Thick-ness (mm)	Unit - Host-rock	App. dip, pitch of line		Calculated/Measured orientation				NonSulfides			Sulfides			Inten-sity	Dom.	
											A.f.	S.f.	Strike Trend	Dip	Dip direc-tion	General orienta-tion	Dom.	Sec.	Others	Dom.	Sec.	Others			
8R	1	7	45-65	58.35	18	Y	So			6-ALT/IGN	09W	hori-zon-tal	180	9	270	Sh									Color banding above disrupted layer
8R	1	7	45-65	58.35	18	Y	Va		<1	6-ALT/IGN	15E					Sh	Anhy								
8R	1	7	45-65	58.35	18	Y	Vb		<1	6-ALT/IGN	12E	hori-zon-tal	0	12	90	Sh	Anhy			Py					
8R	1	7	45-65	58.35	18	Y	Vc		<1	6-ALT/IGN	23E	7S	16	24	106	Sh	Anhy	Si		Py					
8R	1	7	45-65	58.35	18	Y	Vc1		<1	6-ALT/IGN	48E					Inc	Anhy	Si		Py					
8R	1	7	45-65	58.35	18	Y	Vd		<1	6-ALT/IGN	32E	58S	69	60	159	Inc	Anhy			Py					
8R	1	7	45-65	58.35	18	Y	So			6-ALT/IGN	70W	58S	150	73	240	Inc									Flow banding below disrupted layer
8R	1	8	65-74	58.55	7	Y	So			6-ALT/IGN	48E	45S	42	56	132	Inc									Flow bands; rollover at bottom of piece
8R	1	8	65-74	58.55	7	Y	Va			6-ALT/IGN						Sh,Sw	Anhy	Si		Py					Vein network
8R	1	8	65-74	58.55	7	Y	Vb			6-ALT/IGN	22W	sub-horiz	180	22	270	Sh	Anhy			Py					
8R	1	10	97-108	58.87	10	Y	So			6-ALT/IGN	65E		302	65	32	Inc									Flow banding
8R	1	10	97-108	58.87	10	Y	Va		<1-1	6-ALT/IGN						Sw	Anhy	Si		Py					So flow banding; network veining
8R	1	11	108-140	58.98	31	Y	So			6-ALT/IGN						Cur-sv									So flow banding; vein network;anhydrite overprints clay-pyrite matrix
8R	1	11	108-140	58.98	31	Y	Va			6-ALT/IGN						Sw	Anhy	Si		Py					Vein network
8R	1	13	144-150	59.34	5	Y	So			7-ALT/IGN	18W	sub-horiz	180	18	270										
8R	1	13	144-150	59.34	5	Y	Va	>5	<1-1	7-ALT/IGN						Inc	Si	Anhy		Py					
8R	1	13	144-150	59.34	5	Y	Vb	>5	<1-1	7-ALT/IGN						Inc	Anhy			Py					
8R	1	13	144-150	59.34	5	Y	Vc	3-4	<1-1	7-ALT/IGN						Inc	Anhy								
8R	1	13	144-150	59.34	5	Y	Vd	5	<1-1	7-ALT/IGN						Sh	Anhy								
8R	2	1	0-7	59.4	5	Y	Va	2	0.3	7-ALT/IGN	28W	33N	231	40	321	Inc	Anhy			Py					
8R	2	2	7-18	59.47	9	Y	Va			7-ALT/IGN	23E	42S	65	45	155	Inc				Py					
8R	2	2	7-18	59.47	9	Y	So			7-ALT/IGN	60W														Vesicle orientation; vesicles with anhy+py
8R	2	4	22-32	59.62	8	Y	So			7-ALT/IGN	60E	55S	40	66	130	Inc									Vesicle orientation; vesicles with anhy+py
8R	2	4	22-32	59.62	8	Y	F			7-ALT/IGN	20W	50N	253	51	343	Inc									No slip-sense
8R	2	6	40-51	59.8	10	Y	Va			7-ALT/IGN	28E	30S	47	38	137	Inc				Py					So defined by vesicle orientation
9R	1	4	16-29	67.76	12	Y	So			7-ALT/IGN	30W	27N	221	38	311	Inc									Vesicle orientation
9R	1	4	16-29	67.76	12	Y	Va		<1	7-ALT/IGN	25W	60S	105	61	195	Inc	Anhy								Vein fibres indicate extension
9R	1	6	39-54	67.99	13	Y	So			7-ALT/IGN	5W	22S	102	22	192	Sh									Vesicle orientation at top of piece
9R	1	6	39-54	67.99	13	Y	Va			7-ALT/IGN	50W					Inc	Anhy								
9R	1	6	39-54	67.99	13	Y	Vb			7-ALT/IGN	8E					Sh	Anhy								
9R	1	6	39-54	67.99	13	Y	So			7-ALT/IGN	10W	6N	211	12	301	Sh									Vesicle orientation at bottom of piece
9R	1	6	39-54	67.99	13	Y	Va		1	7-ALT/IGN	60E		0	60	90	Inc	Anhy			Py					
9R	1	6	39-54	67.99	13	Y	Vb			7-ALT/IGN	40W					Inc	Anhy								
9R	1	7	54-88	68.14	32	Y	So			8-ALT/IGN	50E	50S	45	59	135	Inc									
9R	2	8	103-127	70.13	22	Y	So			8-ALT/IGN	horiz	78N	270	70	360	Inc									Parallel lamination and vesicles
9R	2	9	127-141	70.37	10	Y	So			8-ALT/IGN	40E	40S	45	70	135	Inc									Flow banding
9R	3	2	17-33	70.68	15	Y	Va			8-ALT/IGN						Inc,cur				Py					
9R	3	2	17-33	70.68	15	Y	Va			8-ALT/IGN						Sw	Anhy			Py					
10R	1	3	11-19	77.41	7	Y	So			8-ALT/IGN	65E					Inc									Vesicles
10R	1	4	19-34	77.49	13	Y	So			8-ALT/IGN	68E					Inc									Vesicles
10R	1	9	85-95	78.15	8	Y	So			9-ALT/IGN	35E	50N	300	54	30	Inc									Vesicles

Leg 193 Structure Log - Hole 1188A

Core identifiers							Structure				Structural orientation						Mineral infill						Alteration Halo		Comments
Core	Sec	pc#	Interv. (cm)	Depth cur. top (mbsf)	Length of piece (cm)	oriented piece Y/N	Fea- ture Generation	Length (cm)	Thick- ness (mm)	Unit - Host-rock	App. dip, pitch of line		Calculated/Measured orientation				NonSulfides			Sulfides			Inten- sity	Dom.	
											A.f.	S.f.	Strike Trend	Dip	Dip direc- tion	General orienta- tion	Dom.	Sec.	Others	Dom.	Sec.	Others			
10R	1	9	85-95	78.15	8	Y	Va			9-ALT/IGN	20E	horiz	0	20	90	Sh	Anhy	Si		Py					
10R	1	11	110-122	78.4	10	Y	So			9-ALT/IGN	45E	36S	36	51	126	Inc									Vesicles
10R	2	6	31-42	77.61	9	Y	Va		<1	9-ALT/IGN	32W	22S	147	37	237	Inc	Anhy								
10R	2	6	31-42	77.61	9	Y	Vb		1	9-ALT/IGN	37W	horiz	180	37	270	Inc	Anhy			Py					
10R	2	6	31-42	77.61	9	Y	Vc		5-20	9-ALT/IGN	60E	80N	287	80	17	Inc	Anhy	Si		Py					
10R	2	11	66-73	77.96	6	N	Va			9-ALT/IGN	E					Inc	Anhy		Py						
11R	1	2	15-30	87.05	14	Y	Va	6	1	9-ALT/IGN	70E	70S	45	76	135	Inc	Anhy					Cm	Clay	2-3 mm halo of white clay minerals	
11R	1	2	15-30	87.05	14	Y	Vb	3	<1	9-ALT/IGN						Ir	Anhy								Irregular veinlet
11R	1	3	30-44	87.2	10	N	V1		1-2	9-ALT/IGN							Anhy			Py		Cm	Clay	2-3 mm halos of white clay minerals	
11R	1	3	30-44	87.2	10	N	V2		< 1	9-ALT							Anhy								Crosscutting white clay alteration
11R	1	4	44-56	87.34	9	N	Va		1	9-ALT/IGN							Anhy					Cm	Clay	1 mm halo of white clay	
11R	1	6	75-83	87.65	7	N	Va		< 1	9-ALT							Anhy			Py		Cm	Clay	Crosscutting white clay alteration	
11R	1	7	83-101	87.73	9	N	Va		1	9-ALT							Anhy			Py		Cm	Clay	Crosscutting white clay alteration	
11R	1	8	101-108	87.91	4	N	Va		1	9-ALT							Anhy					Cm	Clay	Crosscutting white clay alteration	
11R	1	9	108-124	87.98	9	N	Va		1	9-ALT							Anhy			Py		Cm	Clay	Crosscutting white clay alteration	
11R	2	3	40-55	88.68	10	Y	Va	5	1	9-ALT/IGN			270	70	0	Inc	Anhy			Py		Cm	Clay	3-5 mm halo of white clay minerals	
12R	1	2	4-11	96.64	6	N	Va	0.1-3	0.1	9-ALT/IGN						Sw	Anhy			Py		Cm	Clay	Vein network with 3-10 mm halos of white clay	
12R	1	4	39-50	96.99	10	Y	Va	8-10	10-20	10-ALT/IGN			90	80	180	Ir	Anhy			Py					Concordant Sulfate alteration
12R	1	4	39-51	96.99	10	Y	So			10-ALT/IGN			270	60	0	Inc									
12R	1	4	39-52	96.99	10	Y	F			10-ALT/IGN	70E	40N	343	71	73	Inc									
12R	1	5	50-57	97.1	7	N	Va		<1	10-ALT/IGN						Sw				Py					Vein network of <1mm thick veinlets
12R	1	7	71-78	97.31	5	Y	Va	5	2-3	10-ALT/IGN			270	5	0	Sh	Anhy					Vh	Clay	5 mm halo of white clay gradually decreasing for 10-12 cm overprinting earlier alteration	
12R	1	8	78-91	97.38	12	Y	Va	<1	0.1-1	10-ALT						Sw	Clay	Si							Vein network of <1 to mm veinlets overprinting earlier chlorite-clay alteration
12R	1	9-12	91-128	97.51	32	Y	Va	<1-3	0.1-1	10-ALT/IGN						Sw	Sulf	Si	Clay						Vein network of clay-silica-Sulfate veins overprinting pervasively clay-chlorite altered volcanics
12R	1	11	103-117	97.63	13	Y	So			10-ALT/IGN			270	45	0	Inc									Relict flowbanding in volcanics
12R	1	12	117-128	97.77	10	Y	Va	5	0.5	10-ALT/IGN			270	75	0	Sv	Anhy								
12R	1	14	140-149	98	6	Y	Va	<1-3	0.1-1	10-ALT/IGN						Sw	Sulf	Si	Clay						Vein network of clay-silica-Sulfate veins overprinting pervasively clay-chlorite altered volcanics
12R	2	1	0-10	98.08	4	Y	Va	<1-3	0.1-1	10-ALT/IGN						Sw	Sulf	Si	Clay						Vein network of clay-silica-Sulfate veins overprinting pervasively clay-chlorite altered volcanics
12R	2	2	10-27	98.18	15	Y	So, Va	<1-3	0.1-1	10-ALT/IGN	50E	40S	35	56	125	Sw	Clay	Si	Sulf						Vein network of clay-silica-Sulfate veins overprinting pervasively clay-chlorite altered volcanics, veins preferably parallel flowbanding

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Core identifiers							Structure				Structural orientation						Mineral infill						Alteration Halo		Comments
Core	Sec	pc#	Interv. (cm)	Depth cur. top (mbsf)	Length of piece (cm)	oriented piece Y/N	Fea- ture Generation	Length (cm)	Thick- ness (mm)	Unit - Host-rock	App. dip, pitch of line		Calculated/Measured orientation				NonSulfides			Sulfides			Inten- sity	Dom.	
											A.f.	S.f.	Strike Trend	Dip	Dip direc- tion	General orienta- tion	Dom.	Sec.	Others	Dom.	Sec.	Others			
12R	2	3	27-36	98.35	6	Y	Va	<1-3	0.1-1	10-ALT/IGN						Sw	Clay	Si	Sulf						Vein network of clay-silica-Sulfate veins overprinting pervasively clay-chlorite altered volcanics
12R	2	4	36-53	98.44	15	Y	Va	<1-3	0.1-1	10-ALT/IGN						Sw	Clay	Si	Sulf						Vein network of clay-silica-Sulfate veins overprinting pervasively clay-chlorite altered volcanics
12R	2	4	36-53	98.44	15	Y	So			10-ALT/IGN	40E	30S	35	46	125	Inc									Flowbanding in highly altered volcanics
13R	1	3-4	12-27	106.42	9	Y	Va	1-6	1	11-ALT/IGN			0	90	90	Sw	Anhy			Py			Cm	Clay	Vein-network with white clay halos
13R	1	5	27-34	106.57	4	N	Va		<1	11-ALT							Anhy								
13R	1	6	34-42	106.64	5	Y	Va	3	<1-1	11-ALT/IGN							Ir	Anhy				Cm	Clay	1-2 mm halos of white clay	
13R	1	7	42-52	106.72	8	Y	Va	5	3-10	11-ALT/IGN			270	90	0		Ir	Anhy	Clay						
13R	1	8	52-59	106.82	6	Y	Va			11-ALT/IGN							Ir	Anhy	Clay						
13R	1	9-13	59-109	106.89	42	Y	V1		0.1-0.3	11-ALT						Sw	Sulf			Py		Vh	Clay	mm halo of gray clay(?)	
13R	1	9-13	59-73	106.89	42	Y	V2	1-7	1-30	11-ALT						Sw	Anhy			Py		Cm	Clay	Vein-network with mm halos of white clay	
13R	1	9	59-73	106.89	11	Y	V2	7	1-2	11-ALT	50E	60S	55	65	145	Inc	Anhy			Py		Cm	Clay	Pronounced vein in vein-network with mm halos of white clay	
13R	1	13	98-109	107.28	10	Y	V2	5	20-30	11-ALT			180	35		Inc,Sw	Anhy			Py					Pronounced vein in vein-network with mm halos of white clay
13R	1	13	98-109	107.28	10	Y	V3	7	1	11-ALT	40W	40N	225	50	315	Inc	Anhy			Py		Cm	Clay	Crosscutting V2 anhydrite vein and V1 clay vein-network	
13R	1	16	127-138	107.57	10	Y	Va	1-10	<1	11-ALT/IGN	65E	0N	0	65	90	Sw	Anhy	Clay		Py		Vh	Clay	Preferred orientation of most veins in network. mm halos of white clay	
14R	1	4	14-25	116.14	11	Y	So			13-ALT/IGN	50E	40S	35	56	125	Inc									Flowbanding in highly altered volcanics
14R	1	4-12	14-94	116.14	67	Y	Va	1-7	0.5-2	13-ALT/IGN						Sw	Anhy			Py		Vh	Si	Vein-network crosscutting gray, clay altered volcanics with patchy white clay alteration, mm halos of silica	
15R	1	1	1-5	125.71	4	N	Va	>5	40	15							Anhy			Py					Piece from one thick vein, including pieces 1-6
15R	1	2	5-10	125.75	4	N	Va	>5	40	15							Anhy			Py					Piece from one thick vein, including pieces 1-6
15R	1	3	10-14	125.8	2.5	N	Va	>5	25	15							Anhy			Py					Piece from one thick vein, including pieces 1-6
15R	1	4	14-22	125.84	5	N	Va	>5	50	15							Anhy			Py					Piece from one thick vein, including pieces 1-6
15R	1	5	22-24	125.92	2	N	Va	>5	20	15							Anhy			Py					Piece from one thick vein, including pieces 1-6
15R	1	6	24-28	125.94	4	N	Va	>5	40	15							Anhy			Py					Piece from one thick vein, including pieces 1-6
15R	1	20	81-93	126.51	11	Y	Va	7	1-2	16-ALT/IGN			325	60		Inc	Si	Anhy		Py					
15R	1	21	93-106	126.63	11	Y	Va1	5	<0.2	16-ALT/IGN	70W	35S	165	71	255	Inc				Py		Hi	Si	1-2 mm gray siliceous halos	
15R	1	21	93-106	126.63	11	Y	Va2	4	<0.2	16-ALT/IGN	30E	15N	335	32	65	Inc				Py		Hi	Si	1-2 mm gray siliceous halos	
15R	1	22	106-111	126.76	4	N	Va	4	<0.5	16-ALT/IGN							Anhy								Crosscutting contact between white and gray altered volcanics
16R	1	3	7-12	135.47	5	N	Va	2	<1	ALT/IGN							Anhy	Si		Py					
16R	1	4	12-25	135.52	11	Y	Va	10	1-10	17-ALT/IGN			0	90		v	Si								Vein deflects from vertical to subhorizontal, also branching
16R	1	5	25-30	135.65	4	N	Va			17-ALT/IGN							Si			Py					

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Core identifiers							Structure				Structural orientation						Mineral infill						Alteration Halo		Comments	
Core	Sec	pc#	Interv. (cm)	Depth cur. top (mbsf)	Length of piece (cm)	oriented piece Y/N	Fea- ture Gener- ation	Length (cm)	Thick- ness (mm)	Unit - Host-rock	App. dip, pitch of line		Calculated/Measured orientation				NonSulfides			Sulfides			Inten- sity	Dom.		
											A.f.	S.f.	Strike Trend	Dip	Dip direc- tion	General orienta- tion	Dom.	Sec.	Others	Dom.	Sec.	Others				
16R	1	7	40-47	135.8	6	Y	Va	2	1	17-ALT/IGN			0	90		v	Si			Py						
16R	1	7	40-47	135.8	6	Y	So			17-ALT/IGN			90	45		Inc									mm-scale lamination, flowbanding?	
16R	1	8	47-59	135.87	11	Y	Va1	9	<0.5	17-ALT/IGN			310	90		v				Py						
16R	1	8	47-59	135.87	11	Y	Va2	7	0.5	17-ALT/IGN			270	75		Sv	Si			Py						
16R	1	9	59-69	135.99	9	Y	Va	9	<0.5	17-ALT/IGN			90	75		Sv	Si			Py			Md	Clay	5 mm diffuse halo of clay minerals?	
16R	1	10	69-79	136.09	9	Y	Va	5	<0.5	17-ALT/IGN			0	0		h	Si			Py			Md	Si	2 mm diffuse siliceous halos	
16R	1	11	79-84	136.19	4	N	Va		<1	17-ALT/IGN						Si			Py							
16R	1	14	94-103	136.34	6	Y	Va	5	1	17-ALT/IGN	60W	15N	351	60	81	Inc	Si			Py					Vein crosscuts lamination, probably flowbanding	
16R	1	15	103-107	136.43	2	N	Va	2	1	17-ALT/IGN							Si									
16R	2	3	16-20	137.02	3	Y	So			18-ALT/IGN			0	0	0	h										
16R	2	6	31-39	137.17	7	Y	So			18-ALT/IGN	35W	40N	230	48	320	Inc									Intraformational recumbent fold structure	
16R	2	7	39-53	137.25	12	Y	So			18-ALT/IGN	22W	30N	235	35	325	Inc									Irregular flowbanding	
16R	2	8	53-59	137.39	6	Y	So			18-ALT/IGN	37W	20S	217	44	307	Inc									Irregular flowbanding	
16R	2	9	59-70	137.45	10	Y	So			18-ALT/IGN	32W	12N	199	33	289	Inc									Flowbanding	
16R	2	9	59-70	137.45	10	Y	Va			18-ALT/IGN						v				Py			Vh	Chl, Clay	Flowbanding	
16R	2	10	70-77	137.56	4	N	Va	5	5	19-ALT/IGN							Anhy						Cm	Clay		
16R	2	12	86-94	137.72	6	Y	So			19-ALT/IGN			180	70	270	Inc									Upright very tight folds, no cleavage visible, horizontal axis;chloritic alteration	
16R	2	15	109-119	137.95	9	Y	Va	5	2	19-ALT/IGN						Ir	Anhy						Vh	Clay		
16R	2	15	109-119	137.95	9	Y	Vb	5	2	19-ALT/IGN						Ir				Py				Chl		
16R	2	15	109-119	137.95	9	Y	Vc	7	1	19-ALT/IGN						Sv				Py				Chl		
17R	1	8	38-44	145.48	4	Y	Va		<1	19-ALT/IGN						Sv	Si			Py					General chloritic alteration of host	
17R	1	15	70-73	145.8	2	Y	F		<1	19-ALT/IGN						Inc										
17R	1	16	73-77	145.83	3	Y	Va		<1	19-ALT/IGN						Inc	Anhy			Py				Si	Alteration 5-8mm thick;bleached zone 25-30mm thick	
17R	1	17	77-80	145.87	2	Y	Va		1	19-ALT/IGN						Inc	Anhy			Py					Bleached zone 6 mm thick; alteration covers thickness of 20mm	
17R	1	22	107-130	146.17	22	Y	V1a		<1	19-ALT/IGN							Anhy						Cm	Clay		
17R	1	22	107-130	146.17	22	Y	V1b		<1	19-ALT/IGN							Anhy						Hi	Clay		
17R	1	22	107-130	146.17	22	Y	V1c		<1	19-ALT/IGN							Anhy			Py			Cm	Clay		
17R	1	22	107-130	146.17	22	Y	V2a		0.5	19-ALT/IGN	10W	30N	253	31	343	Inc	Anhy			Py						
17R	1	22	107-130	146.17	22	Y	V2b		0.5	19-ALT/IGN						v	Anhy			Py				Si		
17R	1	24	133-140	146.43	6	Y	Va		10	19-ALT/IGN			0	70	90	Inc,Sw	Anhy			Py	Mt			Si	Vein network with a general dip	
17R	1	25	140-150	146.5	8	Y	Va		<1	19-ALT/IGN			40	75	130	Inc	Anhy			Py				Si	Halo 5mm thick each side	
17R	2	2	5-11	146.65	5	Y	Va		1-2	19-ALT/IGN						Inc	Anhy			Mt	Py			Si	Vein network with a general dip	
17R	2	3	11-18	146.71	6	Y	Va		1-2	19-ALT/IGN						Inc	Anhy			Py	Mt				Vein network with a general dip; radiating acicular anhydrite in veins	
19R	1	14	65-72	164.95	5	Y	So			22-ALT/IGN						h									Vesicles	
20R	1	2	8-18	173.98	9	Y	Va		<1	23-ALT/IGN			0	40	90	Inc				Py						Surface coating
20R	1	4	23-32	174.13	9	Y	Va		10	23-ALT/IGN	48W	32S	135	41	225	Inc				Mt	Py				Broad zone of disseminated mineralization	
20R	1	12	91-104	174.81	12	Y	Va		<1	24-ALT/IGN						Inc,Sw				Py	Mt				Vein network	
21R	1	10	77-88	183.87	10	Y	Va		1-4	25-ALT/IGN			0	68	90	Inc				Py						
21R	1	11	88-95	183.98	6	Y	Va		0.5	25-ALT/IGN			0	65	90	Inc	Anhy			Py	Mt					
21R	1	12	95-105	184.05	10	Y	Va		<1	25-ALT/IGN			180	50	270	Inc	Anhy			Mt						
21R	1	12	95-105	184.05	10	Y	Vb		<1	25-ALT/IGN						Sh				Py	Mt	Cp				

Leg 193 Structure Log - Hole 1188A																										
Core identifiers							Structure				Structural orientation						Mineral infill						Alteration Halo			
Core	Sec	pc#	Interv. (cm)	Depth cur. top (mbsf)	Length of piece (cm)	oriented piece Y/N	Feature Generation	Length (cm)	Thick-ness (mm)	Unit - Host-rock	App. dip, pitch of line		Calculated/Measured orientation				NonSulfides			Sulfides			Inten-sity	Dom.		
											A.f.	S.f.	Strike Trend	Dip	Dip direc-tion	General orien-tation	Dom.	Sec.	Others	Dom.	Sec.	Others				
																										Comments
21R	1	14	115-126	184.25	9	Y	Va		1-2	25-ALT/IGN	28W	20N	214	33	304	Inc	Si	Anhy		Py	Mt					
21R	1	14	115-126	184.25	9	Y	Vb		<1	25-ALT/IGN						Sh	Si	Anhy		Py						
21R	1	17	136-142	184.46	6	Y	Va		<1	25-ALT/IGN			0	57	90	Inc				Mt				Bleached zone has clay, anhy, py and is 14mm thick		

Leg 193 Structure Log - Hole 1188B																										
Core identifiers							Structure				Structural orientation							Mineral infill						Alteration Halo		Comments
Core	Sec	pc#	Interv. (cm)	Depth cur. top (mbsf)	Length of piece (cm)	oriented piece Y/N	Fea- ture Generation	Length (cm)	Thick- ness (mm)	Unit - Host-rock	App. dip, pitch of line		Calculated/Measured orientation				Nonsulfides			Sulfides			Inten- sity	Dom.		
											A.f.	S.f.	Strike Trend	Dip	Dip direc- tion	General orien- tation	Dom.	Sec.	Others	Dom.	Sec.	Others				
13R	1	4	20-26		2-3	N	Bc										Chl	Qtz		Py					1-25mm fragments, polymict	
13R	1	5	26-31		3	N	Va	<1-2	<0.5	20							Qtz			Py					Several veinlets	
13R	1	6-9	31-38		1-3	N	Va, bc	<1	<0.5-1	20						Sw	Qtz			Py	Cpy	Tt			Fragments cemented by qtz-py, veinlets in network	
13R	1	10	48-56		7	N	Va	<1-2	<0.5-0.5	20						Sw	Qtz			Py					Network	

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Core identifiers							Structure				Structural orientation						Mineral infill						Alteration Halo		Comments		
Core	Sec	pc#	Interv. (cm)	Depth cur. top (mbsf)	Length of piece (cm)	oriented piece Y/N	Feature Generation	Length (cm)	Thick-ness (mm)	Unit - Host-rock	App.dip, pitch of line		Calculated/Measured orientation				Nonsulfides			Sulfides			Inten-sity	Dom.			
											A.f.	S.f.	Strike Trend	Dip	Dip direc-tion	General orienta-tion	Dom.	Sec.	Others	Dom.	Sec.	Others					
1Z	1	1	0-22	218	1-5	N	Va	1-3	0.5-1	27								Anhy	Si		Py						Numerous veinlets in network
1Z	1	2	22-34	218.22	1-4	N	Va		<0.5	27								Anhy									
1Z	1	3	34-60	218.34	1-5	N	Va		<1-1	27								Anhy	Si		Py						Several pieces
1Z	1	4	60-79	218.6	1-3	N	Va		<1-1	27								Anhy									Several pieces
1Z	1	5	79-121	218.79	7	Y	Va-Vc		<1-1	27						Inc,V	Anhy	Si		Py							
1Z	1	5	79-121	218.79	12	Y	Vd-Vf		<1-1	27						Sv,V	Anhy	Si		Py							
1Z	1	5	79-121	218.79	4	N	Vg		<1	27						Ir	Anhy			Py							
1Z	2	2a	20-29	219.4	9	Y	Va	4	2	27							Anhy			Py							
1Z	2	2a	20-29	219.4	9	Y	Vb	3	<1	27	44W	66N	247	68	337	Inc	Anhy			Py							
1Z	2	2a	20-29	219.4	9	Y	Vc	1	1	27						Cur	Anhy			Py							
1Z	2	2a	20-29	219.4	9	Y	Vd	4	1	27	67W	64N	221	72	311	Inc	Anhy			Py							
1Z	2	2a	20-29	219.4	9	Y	Ve	2	<1	27	77E		350	77	80	Sv	Anhy			Py							
1Z	2	2a	20-29	219.4	9	Y	Vf	5	<1	27	77E		325	77	55	Sv	Anhy			Py							
1Z	2	2a	30-38	219.5	8	N	V1	2.5	<1-1	27						Sv	Anhy			Py				Si			Diffuse siliceous halo, some sulfate?
1Z	2	2a	30-38	219.5	8	N	V2	2.5	<1	27						Inc	Si	Anhy		Py							Crosscut halo of V1
1Z	2	2a	40-43	219.6	3	N	Va	3	1	27						Sv	Anhy			Py							Bluish color of anhydrite
1Z	2	2a	40-43	219.6	3	N	Vb	3	<1	27						Sv	Anhy			Py							Open space fill
1Z	2	2a	40-43	219.6	3	N	Vc	3	<1	27						Sv	Anhy			Py							
1Z	2	2a	40-47	219.6	6.5	N	Va			27						Inc	Anhy	Si		Py							
1Z	2	2a	40-47	219.6	6.5	N	Vb			27						Sv	Si										
1Z	2	2a	56-60	219.76	6	N	Va	5	5	27						Sv	Anhy	Si									
1Z	2	2a	56-60	219.76	6	N	Vb			27						Sv	Anhy	Si		Py							Pyrite forms lining of vein
1Z	2	2a	56-60	219.76	6	N	Vc			27						Sv	Anhy	Si									
1Z	2	2a	56-60	219.76	6	N	Vd			27						V	Anhy	Si									
1Z	2	3	65-87	219.85	21.5	Y	Va	5.5	<1	27	90		305	90	215	Sv	Si			Py							Ends at Ve vein, sparse pyrite
1Z	2	3	65-87	219.85	21.5	Y	Vb	12	<1	27						Cur/Sv	Si			Py							Sparse fine pyrite
1Z	2	3	65-87	219.85	21.5	Y	Vc	2.5		27	25W	15S	150	28	240	Cur,Inc	Anhy	Si		Py				Si			Anhydrite fills jog, siliceous alteration halo
1Z	2	3	65-87	219.85	21.5	Y	Vd	4	<1	27						Cur											Ends at Va vein
1Z	2	3	65-87	219.85	21.5	Y	Ve	5	1	27	30W	30N	225	39	315	Cur,Inc	Si			Py							Ends at Vb vein
1Z	2	3	65-87	219.85	21.5	Y	Vf	5	<1	27						Cur											Ends at veins Va and Vb
1Z	2	3	65-87	219.85	21.5	Y	Vg	3	<1	27	10W	55S	97	55	187	Inc	Si			Py							
1Z	2	3	65-87	219.85	21.5	Y	Vh	1.5	<1	27	75E						Chl			Py							Fine chlorite(?) vein
1Z	2	3	65-87	219.85	21.5	Y	Vi	8	1	27	75E		290	85	20	V	Si			Py							
1Z	2	3	65-87	219.85	21.5	Y	Vj	7	<1	27						Sh	Si			Py							
1Z	2	3	65-87	219.85	21.5	Y	Vk	5	<1	27	90		210	90	120	V	Si			Py							May continue as vein Vm
1Z	2	3	65-87	219.85	21.5	Y	Vi	4	0.5	27	90		0	90	90	V	Si			Py							
1Z	2	3	65-87	219.85	21.5	Y	Vm	12	<1	27	90		0	90	90	V	Si			Py							
1Z	2	3	65-87	219.85	21.5	Y	Vn	3	1	27						Sh	Si			Py							
1Z	3	1a	4-9	220.44	5	N	V1	6	<1	27							Anhy	Si		Py			Cm	Si			
1Z	3	1a	4-9	220.44	5	N	V2	1.5	0.5	27							Clay			Py							
1Z	3	1a	4-9	220.44	5	N	Vb	1.5	<1	27							Si	Anhy									
1Z	3	3a	83-93	221.27	6	N	Va	3	<1	28							Anhy	Si		Py			Cm	Si			halo 3 mm thick, overprints zoned alteration in country rock
1Z	3	3a	83-93	221.27	6	N	Va	3	<1	28							Anhy			Py			Cm				
1Z	4	1a	44-60	222.04	14	Y	Va	9	2	28	23W	0	180	23	270	Inc	Si	Anhy		Py			Cm	Si			1.5 cm alteration halo, ends at vein Ve
1Z	4	1a	44-60	222.04	14	Y	Vb	11.5	<1	28	90						Si	Anhy		Py			Cm	Si			1.5 cm alteration halo
1Z	4	1a	44-60	222.04	14	Y	Vc	4	1	28	27E	60N	286	61	16	Inc	Si	Anhy		Py			Cm				
1Z	4	1a	44-60	222.04	14	Y	Vd	9	<1	28						Cur	Anhy	Si		Py			Cm				
1Z	4	1a	44-60	222.04	14	Y	Ve	7	<1	28						V				Py			Cm				3 mm diffuse alteration halo
1Z	4	1a	44-60	222.04	14	Y	Vf	7	<0.1	28	23W									Py							

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Core identifiers							Structure				Structural orientation						Mineral infill						Alteration Halo		Comments		
Core	Sec	pc#	Interv. (cm)	Depth cur. top (mbsf)	Length of piece (cm)	oriented piece Y/N	Feature Generation	Length (cm)	Thickness (mm)	Unit - Host-rock	App.dip, pitch of line		Calculated/Measured orientation				Nonsulfides			Sulfides			Inten- sity	Dom.			
											A.f.	S.f.	Strike Trend	Dip	Dip direc- tion	General orienta- tion	Dom.	Sec.	Others	Dom.	Sec.	Others					
1Z	4	2a	69-75	222.29	5	N	V1	5	<1	29								Clay	Anhy					Cm	Si	Halo of silica+/-anhydrite	
1Z	4	2a	69-75	222.29	5	N	V2a	1	<1	29											Py						Cuts alteration halo of V1
1Z	4	2a	69-75	222.29	5	N	V2b	4	<1	29											Py						Cuts alteration halo of V1
2Z	1	1a	0-6	221.5	5	N	V1	5	<1	29								Si	Anhy		Py			Cm	Si	Cyclic siliceous halo	
2Z	1	1a	0-6	221.5	5	N	V2a	5	<1	29								Anhy	Si		Py			Cm	Si	Cuts alteration halo of V1	
2Z	1	1a	0-6	221.5	5	N	V2b	4	<1	29								Anhy	Si		Py			Cm	Si		
2Z	1	1b	6-14	221.56	6	N	Va	>3	10	29								Anhy			Py			Cm	Si	Cyclic 15 mm siliceous halo	
2Z	1	2e	55-66	222.05	9	Y	Va	>6	2	29						Inc	Anhy				Py				Si	Cyclic 5 mm siliceous halo	
2Z	1	2f	66-80	222.16	1-6	N	Va		1-3	29						Sh	Anhy				Py				Si	Cyclic 10 mm siliceous halo	
2Z	1	2g	80-91	222.3	10	Y	Va	>5	1	29							Anhy								Si	Cyclic 10 mm siliceous halo	
2Z	1	2h	91-111	222.41	6	Y	Va	>3	1	29							Anhy				Py				Si	15 mm halo	
2Z	1	2h	91-111	222.41	11	Y	Va	>6	1	29	50W	0	180	50	270	Inc	Anhy				Py				Si	1-1.5 mm halo	
2Z	1	2h	91-111	222.41	11	Y	Vb	>4	1	29	55E	0	0	50	90	Inc	Anhy				Py				Si	1-1.5 mm halo	
2Z	1	2h	91-111	222.41	11	Y	Vc	>10	>1	29	0	70N	270	70	0	Inc	Anhy				Py				Si	Cyclic 10 mm siliceous halo	
2Z	1	3a	111-125	222.61	1-3	N	Va		1-3	29							Anhy	Si			Py				Si	Cyclic 10 mm siliceous halo	
2Z	1	3b	125-140	222.75	11	Y	V1a	>11	>0.5	29						Inc	Anhy								Si	Cyclic 10 mm siliceous halo	
2Z	1	3b	125-140	222.75	11	Y	V1b	>10	>0.5	29						Sv	Anhy								Si		
2Z	1	3b	125-140	222.75	11	Y	V2	>5	<0.5	29						Inc					Py				Si	1 mm halo	
2Z	1	3c	140-152	222.9	1-2	N	Va		≤1	29							Anhy								Si		
3Z	1	1a-3b	0-142	222.6	1-7	Y/N	Va		≤1	29							Anhy				Py				Si	Cyclic 10 mm siliceous halo	
3Z	1	2a	70-78	223.3	7	Y	Va			29						V	Anhy				Py				Si	Cyclic 10 mm siliceous halo	
3Z	2	1a-3b	0-154	224.05	<1-13	Y/N	Va		≤1	30							Anhy				Py				Si	Cyclic 10 mm siliceous halo	
3Z	2	2c	117-130	225.22	13	Y	Va, Vb		1-1.5	30						Inc	Anhy	Si			Py						Zoned veins: anhydrite in center and rims of pyrite+silica
6Z	1	1a-4b	0-124	233.1	1-10	Y/N	Va		≤1	30-32							Anhy	Si			Py				Si	Cyclic up to 20 mm siliceous halos	
6Z	1	1c	16-26	233.26	10	Y	Va, Vb	5-7	<0.5	30						Inc,Cur					Py			Md	Si	Weak halos up to 1 mm wide	
6Z	1	3b	61-66	233.71	4	N	V1	>4	>0.5	32							Anhy								Si	Cyclic 15 mm siliceous halo	
6Z	1	3b	61-66	233.71	4	N	V2	2-3	<0.5	32							Si				Py						Crosscut halo around vein V1
6Z	1	3d	86-90	233.96	3	N	V1	>3	1	32							Si										Very finegrained silica vein
6Z	1	3d	86-90	233.96	3	N	V2	≥2	<0.5	32							Si				Py						Crosscuts vein V1
6Z	1	4a	90-94	234	3	N	Va	≥2	<0.5	32							Si				Py						Network of irregular veinlets
6Z	2	1b	15-23	234.49	8	N	Va	>3	<0.5	32											Py						
7Z	1	1a	0-22	235	1-6	N	Va, Vb	>6	1-1.5	34							Si				Py						
7Z	1	1b	22-29	235.22	6	N	V1a-b	>3	>0.5	34							Anhy							Cm	Si	Cyclic 10-20 mm siliceous halo	
7Z	1	1b	22-29	235.22	6	N	V2	2	<0.5	34							Anhy				Py						Crosscut halo around vein V1
7Z	1	1c	29-50	235.29	1-7	N	Va		<1-1	34							Anhy							Cm	Si	Cyclic siliceous halos	
7Z	1	1c	29-50	235.29	1-7	N	Vb		<1	34							Si				Py						
7Z	1	1e-2d	57-152	235.57	1-7	N	Va		<1-1	34-35							Anhy							Cm	Si	Cyclic siliceous halos	
7Z	1	1e-2d	57-152	235.57	1-7	N	Vb		<1	34-35							Si				Py						
7Z	2	1a-1c	0-51	236.51	1-5	N	Va		<1-1	35							Anhy							Cm	Si	Cyclic siliceous halos	
7Z	2	1a-1c	0-51	236.51	1-5	N	Vb		<1	35							Si				Py						
7Z	2	1b	35-44	236.86	5	N	V2	1-4	<0.5	35							Si	Anhy									Crosscuts V1 si-anhy-py vein with cyclic siliceous halo
8Z	1	1a	0-10	236.2	7.5	N	-	5	1.5	36														Cm	Si	Silica alteration halo	
8Z	1	1a	0-10	236.2	7.5	N	V1	7	1	36							Si	Anhy						Cm	Si		
8Z	1	1a	0-10	236.2	7.5	N	V2a,b	3	<0.5	36							Anhy				Py						Bleached 1 mm margin
8Z	1	1e	61-67	236.81	5	N	Va		<0.5	36							Anhy				Py				Si,An- hy		1 mm halo

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Core identifiers							Structure				Structural orientation						Mineral infill						Alteration Halo		Comments
Core	Sec	pc#	Interv. (cm)	Depth cur. top (mbsf)	Length of piece (cm)	oriented piece Y/N	Fea- ture Generation	Length (cm)	Thick- ness (mm)	Unit - Host-rock	App.dip, pitch of line		Calculated/Measured orientation				Nonsulfides			Sulfides			Inten- sity	Dom.	
											A.f.	S.f.	Strike Trend	Dip	Dip direc- tion	General orientation	Dom.	Sec.	Others	Dom.	Sec.	Others			
8Z	1	1f	67-74	236.87	6	N	V1a	2	15	36							Si								Possibly halo around vein not intersected
8Z	1	1f	67-74	236.87	6	N	V1b	5	2	36							Si			Py					Pyrite hairline rimmed by silica
8Z	1	1f	67-74	236.87	6	N	V1c	3	<0.5	36							Si			Py					Only trace pyrite
8Z	1	1f	67-74	236.87	6	N	V2a	4	1	36							Si	Anhy						Si	Siliceous halo
8Z	1	2b	111-121	237.31	6	N	V2b	3	1.5	36							Anhy	Si		Py			Cm	Si	1 mm siliceous halo
8Z	1	2b	111-121	237.31	6	N	V1			36							Anhy			Py			Cm	Si	14 mm halo
8Z	1	2b	111-121	237.31	6	N	V2a		<0.5	36							Anhy			Py					
8Z	1	2b	111-121	237.31	6	N	V2b		<0.5	36							Anhy			Py					
9Z	1	1a	0-10	237.7	7	N	-	7	>25	36							Si	Anhy							Probably halo around vein not intersected
9Z	1	1a	0-10	237.7	7	N	-	7	>10	36							Si	Anhy							Probably halo around vein not intersected
9Z	1	1a	0-10	237.7	7	N	V2a	5	<0.5	36							Anhy			Py				Si	3 mm halo
9Z	1	1a	0-10	237.7	7	N	V2b	4	<0.5	36							Anhy			Py					0.5 mm alteration halo
9Z	1	1a	0-10	237.7	7	N	V2c	4	<0.5	36							Anhy			Py					0.5 mm alteration halo
9Z	1	1a	0-10	237.7	7	N	V2d	0.9	<0.5	36							Si			Py					
9Z	1	1b	10-15	237.8	4	N	Va	4	<0.5	37										Py					
9Z	1	1b	10-15	237.8	4	N	Vb	6	<0.5	37							Anhy			Py				Si,An- hy	6 mm halo
9Z	1	1b	10-15	237.8	4	N	So			37															Flowbanding
9Z	1	1c	15-22	237.85	5	N	V1	2.5	<0.5	38							Si	Anhy		Py	Mc				
9Z	1	1c	15-22	237.85	5	N	V2	3.5	<0.5	38							Anhy			mc					cuts V1
9Z	1	1c	15-22	237.85	5	N	So			38							Anhy			Py					Filling of possible flattened relict vesicles
11G	1	2a	12-21	238.92	8	N	Va	6	<0.5	38							Anhy	Si		Py			Cm	Si	5-10 mm halo
11G	1	2a	12-21	238.92	8	N	So			38							Anhy			Py	Mc				Filling of possible flattened relict vesicles
11G	1	4a-b	28-38	239.08	7.5	N	V1	5	>0.5	38							Si			Py			Cm	Si	
11G	1	4a-b	28-38	239.08	7.5	N	V2	7.5	<0.5	38							Anhy	Si		Py	Mc			Si,An- hy	4 mm halo
11G	1	9a	105-113	239.85	7	N	Va	5	>2	39							Anhy			Py					4 mm alteration halo
11G	1	9a	105-113	239.85	7	N	Vb	6.5	<0.5	39							Si	Anhy		Py				An- hy,Si	2 mm alteration halo
11G	1	9a	105-113	239.85	7	N	Vc	3	<0.5	39							Si	Anhy		Py					2 mm alteration halo
11G	1	9a	105-113	239.85	7	N	Vd	3.5	<0.5	39										Py					
11G	1	10	114-126	239.94	10	N	Va	4	<0.5	39							Anhy			Py					
11G	1	10	114-126	239.94	10	N	So			39							Anhy			Py					Filled vesicles
11G	1	11	124-135	240.04	8	N	V1a	4	<0.5	39							Si	Anhy		Py					Hairline veinlet
11G	1	11	124-135	240.04	8	N	V1b	3	<0.5	39							Si	Anhy		Py					Hairline veinlet
11G	1	11	124-135	240.04	8	N	V1c	2.5	<0.5	39							Si	Anhy		Py					Hairline veinlet
13Z	1	2a	22-37	241.62	9	Y	Va	9	>0.5	39							Sv	Si	Anhy	Py				Si	Cyclic siliceous halo
13Z	1	3b	47-64	241.87	8	Y	Va	8	>0.5	39							Sv,cur	Anhy	Si	Py					Flowbanding
13Z	1	3b	47-64	241.87	8	Y	So			39							Sv								Vesicles 25 deg. angle to flowbanding
13Z	1	3b	47-64	241.87	8	Y	So			39							Inc								
13Z	1	5a	83-104	242.23	5	Y	Va	2	1	41							Sv	Anhy	Si				Cm	Si,An- hy	5 mm halo
13Z	1	5a	83-104	242.23	5	Y	Vb	5	<0.5	41							Si			Py			Md	Si	Hairline vein, weak halo
13Z	1	5b	104-121	242.44	6	N	V1	2	<0.5	41							Si	Anhy		Py			Cm	Si	2 mm halo
13Z	1	5b	104-121	242.44	6	N	V2a	3	<0.5	41							Anhy			Py			Cm	Si	1 mm halo, crosscuts V1
13Z	1	5b	104-121	242.44	6	N	V2b	4-6	<0.5	41										Py			Cm	Anhy	< 1 mm halo
13Z	1	5c	121-137	242.61	8	Y	Va		≤ 0.5	41							Inc,cur			Py			Cm	Anhy	< 1 mm halo or selvage
13Z	2	4-Jan	0-81	242.76	1-4	N	Va		<0.5	41										Py			Cm	Anhy	< 1 mm halo or selvage

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Core identifiers							Structure				Structural orientation						Mineral infill						Alteration Halo		Comments	
Core	Sec	pc#	Interv. (cm)	Depth cur. top (mbsf)	Length of piece (cm)	oriented piece Y/N	Fea- ture Generation	Length (cm)	Thick- ness (mm)	Unit - Host-rock	App.dip, pitch of line		Calculated/Measured orientation				Nonsulfides			Sulfides			Inten- sity	Dom.		
											A.f.	S.f.	Strike Trend	Dip	Dip direc- tion	General orienta- tion	Dom.	Sec.	Others	Dom.	Sec.	Others				
14Z	1	1b	18-24	246.08	5	N	Va,Vb	3-4	<0.5	41										Py				Si	1 mm halos	
14Z	1	1c	24-31	246.14	4	N	Va,Vb	3-4	<0.5	41										Py				Si	1 mm halos	
14Z	1	1d	31-37	246.21	4	N	Va	3	<0.5	41										Py						
14Z	1	2	49-59	246.39	9	Y	Va,Vb	6-9	<0.5	41					Sv					Py						
14Z	1	4	69-81	246.59	1-3	N	Va		≤1	41							Anhy			Py					Several pieces in rubble	
14Z	1	5	81-96	246.71	10	Y	Va,Vb	8-9	<0.5	41						Inc				Py				Anhy	< 1 mm halos	
14Z	1	6	96-108	246.86	11	Y	Va	8	2	41							Anhy			Py			Cm	Si	Anhydrite rimmed by pyrite, surrounded by 10 mm cyclic siliceous halo	
14Z	1	6	96-108	246.86	11	Y	Vb	9	≤ 0.5	41	51E	59S	53	64	143	Inc	Anhy			Py			Cm	Si	Pyrite rimmed anhydrite, surrounded by 0.5-2 mm siliceous halo	
14Z	1	6	96-108	246.86	11	Y	Vc	7	<0.5	41						Inc,Cur	Anhy			Py				Si		
14Z	1	6	96-108	246.86	11	Y	Vd	3.5	<0.5	41						Inc	Anhy			Py				Si		
14Z	1	6	96-108	246.86	11	Y	Ve	5	<0.5	41						Inc	Anhy			Py				Si		
14Z	1	6	96-108	246.86	11	Y	Vf	4	<0.5	41						Inc	Anhy			Py				Si		
14Z	1	6	96-108	246.86	11	Y	Vg	4	<0.5	41						Inc	Anhy			Py				Si		
14Z	1	6	96-108	246.86	11	Y	Vh	2	<0.5	41						Inc	Anhy			Py						
14Z	1	6	96-108	246.86	11	Y	Vi	5	<0.5	41						Inc	Anhy			Py				Si		
14Z	1	6	96-108	246.86	11	Y	Vj	5	<0.5	41						Inc				Py						
14Z	1	6	96-108	246.86	11	Y	Vk	3	<0.5	41						Sv				Py						
14Z	1	6	96-108	246.86	11	Y	Vl	3	<0.5	41						Inc				Py						
14Z	1	6	96-108	246.86	11	Y	Vm	3	<0.5	41						Sv				Py						
14Z	1	6	96-108	246.86	11	Y	Vn	2	<0.5	41						Sv	Anhy									
14Z	1	6	96-108	246.86	11	Y	Vo	2	<0.5	41						Sv	Anhy									
14Z	1	6	96-108	246.86	11	Y	Vp	1	<0.5	41						Inc	Anhy									
14Z	1	6	96-108	246.86	11	Y	So							90											Plagioclase laths	
14Z	1	6	96-108	246.86	11	Y	V2	6	1.5	41	4E	36N	27S	36	5	Inc	Anhy								Coarse, open space, partly vuggy	
14Z	1	7	108-115	246.98	7	N	Va	5	<0.5	41						Inc				Py				Hi	An- hy, Si	
14Z	1	8	115-124	247.05	8	Y	Va	5	≥1	41	52E	32N	334	55	64	Inc	Anhy							Hi	Si	7 mm halo
14Z	1	9a	124-140	247.14	1-5	N	Va		≤1	41							Anhy			Py					Si	
14Z	1	9b	140-145	247.3	4	N	Va		<0.5	41										Py				Md	Si	1-2 mm halo
14Z	2	1a	0-6	247.41	4	N	Va,Vb	3-4	<1	41							Anhy							Anhy	1 mm halos	
15Z	1	1	0-6	250.4	5	N	Va	5	>0.5	41							Anhy			Py				Hi	Si	1 mm halo
15Z	1	1	0-6	250.4	5	N	Vb	1	≥1	41							Anhy							Cm	An- hy, Si	10 mm halo
15Z	1	6	38-45	250.78	6	N	Va	3	<0.5	41										Py				Cm	Anhy	1 mm halo
15Z	1	6	38-45	250.78	6	N	Vb	3	<0.5	41										Py						
15Z	1	8	56-62	250.96	6	N	Va	4	0.5	42							Anhy			Py						
15Z	1	8	56-62	250.96	6	N	Vb	4	0.5-1	42							Qtz	Anhy		Py						
15Z	1	9	62-90	251.02	1-3	N	Va	2	<0.5	42							Anhy			Py					Si	<0.5 mm halo
15Z	1	11	96-109	251.36	1-4	N	Va	2	<0.5	42							Anhy			Py					Si	<0.5 mm halo
15Z	1	12	109-118	251.49	8	Y	Va-Vf	3-8	<0.5	42							Anhy			Py					Si	1-3 mm halos
15Z	1	16	139-150	251.79	10	Y	Va	3	1-2	43							Anhy								Si	5mm halo, 10 mm halo of bleaching
15Z	2	2	19-Dec	252.02	7	N	Va	3	<0.5	43							Anhy			Py					An- hy, Si	2 mm anhydrite halo grading into 5 mm siliceous halo
16Z	1	1b	19-Jun	254.96	13	Y	Va	1-5	<0.5	43							Anhy			Py				Hi	Si, Clay	Pyrite with selvage
16Z	1	1c- 3e	19-148	255.09	1-7	Y/N	Va	<1-2	<0.5	44							Si			Py						In numerous pieces throughout section
17Z	1	1	0-12	259.4	11	Y	Va	9	0.5	45	40W	34N	219	47	309	Inc	Qtz			Py				Hi	Anhy	1-10 mm halo/selvage
17Z	1	1	0-12	259.4	11	Y	Vb	4	0.5	45				110	90	20	V			Py				Hi	Anhy	1-5 mm halo
17Z	1	1	0-12	259.4	11	Y	Vc	4	1	45							V, Ir			Qtz				Hi, Cm	Anhy	0.5-2mm halo
18Z	1	1a	0-13	263.9	11	Y	Va	11	>0.5	45							Sv	Anhy		Py					Si	Cyclic 5 mm siliceous halo

Leg 193 Structure Log - Hole 1188F

Core identifiers							Structure				Structural orientation						Mineral infill						Alteration Halo		Comments
Core	Sec	pc#	Interv. (cm)	Depth cur. top (mbsf)	Length of piece (cm)	oriented piece Y/N	Feature Generation	Length (cm)	Thick-ness (mm)	Unit - Host-rock	App.dip, pitch of line		Calculated/Measured orientation				Nonsulfides			Sulfides			Inten-sity	Dom.	
											A.f.	S.f.	Strike Trend	Dip	Dip direc-tion	General orien-tation	Dom.	Sec.	Others	Dom.	Sec.	Others			
18Z	1	1a	0-13	263.9	11	Y	Vb	5	>0.5	45						Inc	Anhy			Py				Si	1mm siliceous halo
19Z	1	1b	17-Jun	268.46	10	Y	Va	5	>0.5	45						Sh	Anhy						Cm	Si	10 mm cyclic siliceous halo
19Z	1	1b	17-Jun	268.46	10	Y	Vb	1-2	<0.5	45										Py					Parallel relict flowbanding
19Z	1	1c	17-24	268.57	7	N	Va	3	1	45							Anhy			Py			Hi	Si	3 mm siliceous halo, py in center of vein
19Z	1	1e	33-41	268.73	6	Y	Va	3	<0.5	45			211	56	301	Inc	Anhy			Py					Pyrite in center of vein
19Z	1	1e	33-41	268.73	6	Y	So			45			0	13	90	Sh									Flowbanding, irregular
22Z	1	1	0-7	282.1	6	N	Va	4	<0.1	46							Anhy							Si,Clay	Cyclic siliceous halo, pyrite close to center of vein
22Z	1	1	0-7	282.1	6	N	Vb	3	<0.1	46							Anhy			Py			Cm	Clay	
22Z	1	1	0-7	282.1	6	N	Vc	2	2	46							Si								Wedges out
22Z	1	1	0-7	282.1	6	N	So			46															Folded flowbanding
22Z	1	2a	13-Jul	282.17	5	N	Va	1.5	<0.5	46										Py					
22Z	1	15	116-126	283.26	7	N	Va	4	<0.5	47							Anhy			Py				Si	3 mm siliceous halo
23Z	1	1	0-9	286.6	6	N	Va	3	<0.1	48							Anhy			Py				Clay	<1 mm halo
23Z	1	1	0-9	286.6	6	N	Vb	4	<0.1	48							Anhy			Py				Clay	<1 mm halo
23Z	1	1	0-9	286.6	6	N	Vc	1.2	<0.1	48							Anhy			Py				Clay	<1 mm halo
23Z	1	1	0-9	286.6	6	N	Vd	1.5	<0.1	48							Anhy			Py				Clay	<1 mm halo
23Z	1	1	0-9	286.6	6	N	Ve	4	<0.1	48							Anhy			Py				Clay	<1 mm halo
23Z	1	1	0-9	286.6	6	N	So			48															Flowbands and aligned plagioclase laths
23Z	1	3	15-25	286.75	8	N	V1	6	1.5	48							Anhy			Py			Cm	Si,Anhy	Open space fill, crack-seal vein, selvages of cyclic anhydrite and silica lamina
23Z	1	3	15-25	286.75	8	N	V2a	2.5	<0.1	48							Anhy			Py					Crosscut parts of V1 selvages
23Z	1	3	15-25	286.75	8	N	V2a	1.5	<0.1	48							Anhy			Py					Crosscut parts of V1 selvages
23Z	1	3	15-25	286.75	8	N	V2c	2	<0.1	48							Anhy			Py					Crosscut parts of V1 selvages
23Z	1	11a	101-113	287.61	5	Y	Va	5.5	<0.1	49	20W	40S	113	42	203	Inc	Anhy			Py			Cm	Clay	Halo < 1 mm
23Z	1	11a	101-113	287.61	5	Y	Vb	7	<0.1	49						cur	Anhy			Py					
23Z	1	11a	101-113	287.61	5	Y	Vc	5.5	<0.1	49			190	60	270	Inc	Anhy			Py					
23Z	1	11a	101-113	287.61	5	Y	Vd	2	<0.1	49						V	Anhy			Py					
23Z	1	11a	101-113	287.61	5	Y	Ve	2.5	<0.1	49						Sh				Py				Chl	
23Z	1	11a	101-113	287.61	5	Y	Vf	2	<0.1	49						Sh				Py				Chl	
23Z	1	12	120-130	287.8	9	Y	Va	5	<0.1	49			15E	12S	38	19	128	Inc		Py				Si	
23Z	1	12	120-130	287.8	9	Y	Vb	3	<0.1	49			30W	25S	141	37	231	Inc		Py				Si	
23Z	1	12	120-130	287.8	9	Y	So			49			25E	50S		52	159								One elongate pyrite-filled vesicle
23Z	1	12	120-130	287.8	9	Y	Vc	3	1	49			25E	50S	69	52	159	Inc			Py				Chl,Si
23Z	1	13	130-138	287.9	6	N	Va	5	<0.1	49										Py				Chl	
23Z	1	13	130-138	287.9	6	N	Vb	0.8	<0.1	49										Py				Chl	
23Z	1	13	130-138	287.9	6	N	Vc	5	<0.1	49										Py				Chl	
23Z	1	13	130-138	287.9	6	N	Vd	1.5	0.5	49							Anhy			Py					
23Z	1	13	130-138	287.9	6	N	Ve	3	2	49							Anhy			Py					Open space crystallization
23Z	2	2	13-23	287.93	5	Y	Va	5	3	49				90	65	180	Inc	Anhy		Py				Si	15 mm siliceous halo, open space fill
23Z	2	3b	28-35	288.08	3	Y	Va	3	3	49				0	90	-	V	Anhy					Cm	Si	10 mm siliceous halo
23Z	2	3c	35-43	288.15	6	Y	Va	6	0.5	49							Inc	Anhy		Py					
23Z	2	4	43-51	288.23	6	N	Va	3.5	1.2	49							Anhy			Py					
23Z	2	6	56-63	288.36	4.5	Y	Va	1	4	49							Inc	Anhy		Py				Si	Siliceous 7 mm halo, open space fill
23Z	2	7	63-70	288.43	5.5	Y	Va	3	<0.1	49							Anhy			Py					
23Z	2	7	63-70	288.43	5.5	Y	Vb	6	<0.1	49			30E	20S	32	34	122	Inc	Anhy	Py					
25Z	1	1	0-9	295.6	7	N	V1	-	1-1.5	49							Ir	Anhy		Py			Cm	Si	15-20 mm white silica halo
25Z	1	1	0-9	295.6	7	N	V2	<1-2	<0.5	49										Py					Veinlets, some crosscuts V1 and its halo
25Z	1	3	18-22	295.78	2	N	Va	2	0.5	49							Anhy						Cm	Chl	<0.5 mm halo

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Core identifiers							Structure				Structural orientation						Mineral infill						Alteration Halo		Comments
Core	Sec	pc#	Interv. (cm)	Depth cur. top (mbsf)	Length of piece (cm)	oriented piece Y/N	Fea- ture Generation	Length (cm)	Thick- ness (mm)	Unit - Host-rock	App.dip, pitch of line		Calculated/Measured orientation				Nonsulfides			Sulfides			Inten- sity	Dom.	
											A.f.	S.f.	Strike Trend	Dip	Dip direc- tion	General orien- tation	Dom.	Sec.	Others	Dom.	Sec.	Others			
25Z	1	4	22-28	295.82	6	Y	Va		>1	49						Inc	Anhy						Hi	Si	5 mm siliceous halo
25Z	1	5	28-42	295.88	12	Y	V1a	9	10-15	49						Sv	Anhy						Cm	Si,Chl	5-10 mm siliceous halo with small patces of chlorite
25Z	1	5	28-42	295.88	12	Y	V1b	6	0.5-1	49						Inc	Anhy			Py			Cm	Si	3 mm halo
25Z	1	5	28-42	295.88	12	Y	V2	9	2	49						Sv	Anhy			Py					Open space fill, very minor pyrite
26Z	1	1	0-18	300.1	5	N	Va	5	10	49							Anhy			Py			Hi	Si	5 mm siliceous halo, trace py in vein
26Z	1	2	18-26	300.28	7	N	Va,Vb	3	<0.5	49										Py				Anhy	<0.5 mm halos
26Z	1	3	26-31	300.36	3	N	Va,Vb	2-4	<0.5	50							Anhy			Py					
26Z	1	3	26-31	300.36	3	N	So			50															Relict mm-scale flow banding
26Z	1	4	31-94	300.41	1-4	N	Va	1-4	1-10	50							Anhy			Py				Si	Trace to minor pyrite
26Z	1	5	94-105	301.04	10	N	Va	9	0.5-2	50							Anhy			Py			Hi	Si	Minor pyrite in veinlets
26Z	1	6	105-109	301.15	3	N	Va	4	2-7	50							Anhy			Py				Si	Very minor pyrite
26Z	2	1-4	0-108	301.18	<1-5	N	Va	<1-5	1-10	50							Anhy			Py				Si	Numerous pieces, trace pyrite in veins
27Z	1	1	0-22	304.6	8	N	Va	5	5	50							Anhy						Hi,Md	Si	Diffuse siliceous halo
27Z	1	1	0-22	304.6	8	N	Vb	5	≥0.5	50							Anhy						Md	Si	5-7 mm halo
27Z	1	2	22-31	304.82	6	N	Va	4	≥1.5	50							Qtz						Hi	An- hy,Clay	Anhydrite halo with clay patches in outer part
27Z	1	2	22-31	304.82	6	N	Vb,Vc	2-3	<0.5	50							Anhy								
31Z	1	1	0-12	322.6	3	N	Va	3	0.5	52						V	Qtz	Anhy	Mt	Py			Hi	Clay,Si	0.5-1 mm halo
31Z	1	1	0-12	322.6	3	N	Vb	2	1	52						Sv	Anhy						Cm	Clay,Si	1-5 mm halo, with magnetite in outer rim
34Z	1	10	44-58	336.84	8	Y	V1	3	0.5	55						Sv	Anhy	Si							
34Z	1	10	44-58	336.84	8	Y	Va	2	0.5	55						Inc	Anhy	Chl		Py					
34Z	1	10	44-58	336.84	8	Y	V2	3	<0.5	55						Sv	Anhy								
34Z	1	12	61-69	337.01	6	Y	Va	3	<0.5	55						Inc	Qtz			Py					
34Z	1	12	61-69	337.01	6	Y	Vb	5	<0.5	55						Inc	Qtz								
34Z	1	12	61-69	337.01	6	Y	Vc	3	<0.5	55						Inc	Qtz	Mt		Py					
34Z	1	12	61-69	337.01	6	Y	Vd	4	<0.5	55						Ir	Qtz	Anhy		Py					
34Z	1	14	103-112	337.43	6	Y	Va	5	<0.5	56						Inc,Ir	Anhy	Chl					Hi	Clay,Si	5 mm halo
34Z	1	14	103-112	337.43	6	Y	Vb	6	<0.5	56						Ir	Anhy	Chl					Hi	Clay,Si	<0.5 mm halo
35Z	1	2a	15-22	340.15	6	N	Va			57							Anhy			Py					
35Z	1	2a	15-22	340.15	6	N	Vb	2	1	57							Anhy								
35Z	1	2c	30-40	340.3	5	N	Va	4	≥1	57						Inc	Anhy			Py				Clay	1 mm halo
35Z	1	2d	40-54	340.4	11	Y	Va,Vb	2-3	<0.5	57						Inc	Anhy								
35Z	1	2d	40-54	340.4	11	Y	Vc	2	<0.5	57						Inc	Anhy			Py				Clay	<0.5 mm halo
35Z	1	2e-3a	54-136	340.54	<1-5	N	Va			57							Anhy			Py				Si	Up to 10 mm halos around some veins
36G	1	1-2	0-23	344.5	2-5	N	Va	≤ 3	≤1	57							Anhy							Si	Siliceous halos up to 10 mm
37Z	1	1	0-17	344.5	3-10	N	Va,Vb	1-4	1	57							Qtz	Anhy						Si	Diffuse halos
37Z	1	2-4	17-132	344.67	<1-4	N	Va		≤1	57							Anhy			Py				Si	
37Z	2	2	16-28	345.98	7	N	Va	4	0.5-2	57							Qtz	Mt					Md	Clay	10-18 mm halo
37Z	2	2	16-28	345.98	7	N	Vb	3	<0.5	57							Anhy			Py			Hi	Clay	<0.5 mm halo, trace py in vein
37Z	2	2	16-28	345.98	7	N	Vc	6	<0.5	57							Anhy			Py					
37Z	2	2	16-28	345.98	7	N	Vd	3	1	57							Anhy			Py					
37Z	2	2	16-28	345.98	7	N	Ve	3	<0.5	57										Py					
37Z	2	4	35-44	346.17	4	N	Va	4	1	59							Anhy			Py				Si	1 mm halo, py in center of vein
37Z	2	5	44-57	346.26	1-5	N	Va			59							Anhy							Si	
37Z	2	7	65-113	346.47	1-5	N	Va	2	1.5	59							Anhy			Py				Si,Clay	Pyrite in center of vein, magnetite in halo around vein
37Z	2	7	65-113	346.47	1-5	N	Vb			59							Anhy							Si	
37Z	2	8	113-124	346.95	7	N	Va	3	1	59							Anhy			Py				Si,Clay	10-15 mm halo

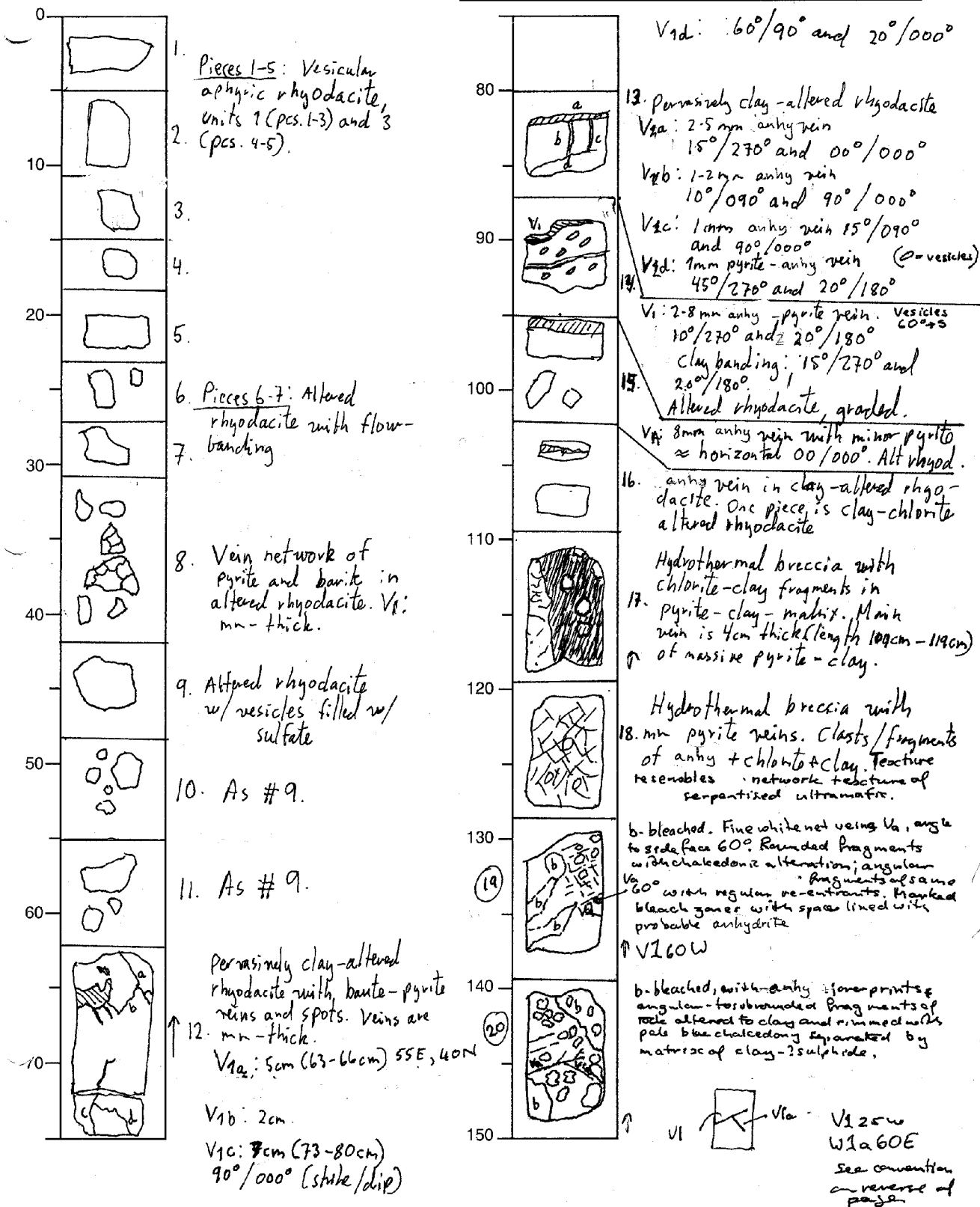
Leg 193 Structure Log - Hole 1188F																									
Core identifiers							Structure				Structural orientation						Mineral infill						Alteration Halo		Comments
Core	Sec	pc#	Interv. (cm)	Depth cur. top (mbsf)	Length of piece (cm)	oriented piece Y/N	Fea- ture Gener- ation	Length (cm)	Thick- ness (mm)	Unit - Host-rock	App.dip, pitch of line		Calculated/Measured orientation				Nonsulfides			Sulfides			Inten- sity	Dom.	
											A.f.	S.f.	Strike Trend	Dip	Dip direc- tion	General orientation	Dom.	Sec.	Others	Dom.	Sec.	Others			
37Z	2	9	124-147	347.06	1-3	N	Va			59							Anhy							Si	Some pieces with coarse anhydrite, some with cyclic siliceous halos
38Z	2	1	0-48	350.29	<1-3	N	Va			61							Anhy			Py					Minor to trace pyrite, some pieces with siliceous halos
38Z	2	1	48-76	350.77	<1-3	N	Va			61							Anhy			Py					Minor to trace pyrite, some pieces with siliceous halos
38Z	2	1	76-83	351.05	<1-3	N	Va			61							Anhy			Py					Minor to trace pyrite, some pieces with siliceous halos
39Z	1	1	0-7	353.5	3	N	Va	7	1	62							Anhy						Cm	Si	1.5 mm halo
39Z	1	2	13-Jul	353.57	5	N	So			62															Folded flow banding
39Z	1	4	16-27	353.66	11	N	Va	1	≥0.5	62							Anhy						Hi	Clay,Si	
39Z	1	4	16-27	353.66	11	N	V1	8	≥1	62							Anhy			Py			Hi	Clay,Si	
39Z	1	4	16-27	353.66	11	N	V2	2	<0.5	62							Anhy			Py					Crosscuts V1 halo
39Z	1	6b	45-55	353.95	1-2	N	Va		<0.5	62							Anhy			Py					
39Z	1	10a	83-87	354.33	4	N	Va			63							Anhy								
39Z	1	10b	87-92	354.37	2.5	N	Va,Vb	3	<0.5	63							Mt			Py					
39Z	1	10c	92-95	354.42	2	N	Va-Vc	1	<0.5	63							Mt			Py					
39Z	1	10d	95-98	354.45	2	N	Va	2	<0.5	63							Anhy	Qtz						Si	1 mm halo
39Z	1	10d	95-98	354.45	2	N	Vb	2	<0.5	63							Mt								
39Z	1	10e	98-104	354.48	3.5	N	Va	4	<0.5	63							Mt			Py				Clay,Si	
39Z	1	10f	104-108	354.54	3	N	Va	3.5	<0.5	63							Mt							Si	<0.5 mm halo
39Z	1	10g	108-115	354.58	1-3	N	Va,Vb	1-1.5	<0.5	63							Mt								
39Z	1	10g	108-115	354.58	1-3	N	Vc	1	<0.5	63							Mt							Si	
39Z	2	1	0-5	354.4	1-1.5	N	Va,Vb	1	<0.5	64							Mt								
39Z	2	3c	24-28	354.64	3	N	Va	4	≥1	64							Anhy								
40Z	1	2b	21-30	358.21	1-4	N	Va	2	<0.5	66							Anhy		Py	Sph					Light yellow sphalerite
40Z	1	2c	30-41	358.3	10	N	Va	5	1	66							Anhy	Mt	Py						Pyrite, magnetite rims anhydrite
40Z	1	2e	46-49	358.46	2.5	N	Va	2	≥0.5	66							Anhy								
40Z	1	2f	49-83	358.49	<1-4	N	Va		≥0.5	66							Anhy								
40Z	1	3a	83-99	358.83	<1-4	N	Va		<0.5	67							Mt							Chl	<0.5 mm halos
40Z	1	3b	99-107	358.99	6	Y	Va		<0.5	67						Sw	Anhy		Py						Trace pyrite
40Z	1	3c	107-115	359.07	2-3	Y	Va		<0.5	67						Sw	Anhy	Mt	Py						Minor pyrite, trace magnetite
40Z	1	3d-3f	115-136	359.15	<1-3	N	Va		<0.5	67						Sw	Anhy		Py						Some veins with trace pyrite
40Z	1	3f	122-136	359.22	<1-2	N	Vb		<0.5	67							Mt		Py					Si	
40Z	2	1a	0-22	359.5	<1-2	N	Va		<0.5	67							Mt		Py						Trace to minor pyrite
40Z	2	1a	0-22	359.5	<1-2	N	Vb		<0.5-0.5	67							Anhy								
41Z	1	2a	10-Jun	362.56	3	N	Va	3	0.5	68							Mt		Py						
41Z	1	2c	13-17	362.63	2	N	Va	1	<0.5	68							Mt								
41Z	1	3b	20-41	362.7	<1-5	N	Va		≤ 0.5	69							Anhy		Py						Trace pyrite
41Z	1	3d	48-60	362.98	<1-3	N	Va		≤ 0.5	69							Anhy		Py						Trace pyrite
41Z	1	3g	69-99	363.19	<1-2	N	Va		≤ 0.5	69							Anhy		Py						Trace pyrite
41Z	1	5	110-139	363.6	<1-3	N	Va		≤ 0.5	69							Anhy		Py						Trace pyrite
41Z	2	1-5b	0-81	363.88	<1-4	N	Va		<0.5	69							Anhy		Py						
42Z	1	1-2a	0-16	367	<1-4	N	Va		≤1	70							Anhy		Py					Si	Trace to minor pyrite
42Z	1	2b	16-22	367.16	3	N	Va		≤ 0.5	70							Anhy		Py						
42Z	1	2c	22-38	367.22	1-4	N	Va		≤1	70							Anhy		Py					Si	Trace to minor pyrite
42Z	1	4a	49-53	367.49	2	N	Va		≥0.5	70							Anhy	Si	Py						
42Z	1	4c	61-66	367.61	4	N	Va		≥0.5	70							Anhy							Si	
42Z	1	4d	66-70	367.66	2	N	Va		<0.5	70							Anhy		Py					Si	
42Z	1	4f-7	75-146	367.75	<1-3	N	Va		≤1	70							Anhy		Py					Si	Trace to minor pyrite, brown sphalerite in piece 7
42Z	2	1-3	0-28	368.5	<1-4	N	Va		≤1	70							Anhy		Py					Si	Trace pyrite

Leg 193 Structure Log - Hole 1188F

Core identifiers							Structure				Structural orientation						Mineral infill						Alteration Halo		Comments
Core	Sec	pc#	Interv. (cm)	Depth cur. top (mbsf)	Length of piece (cm)	oriented piece Y/N	Feature Generation	Length (cm)	Thick-ness (mm)	Unit - Host-rock	App.dip, pitch of line		Calculated/Measured orientation				Nonsulfides			Sulfides			Inten-sity	Dom.	
											A.f.	S.f.	Strike Trend	Dip	Dip direction	General orientation	Dom.	Sec.	Others	Dom.	Sec.	Others			
43Z	1	1	0-56	371.5	6	N	Va	2	<0.5	71							Anhy								
43Z	1	1	0-56	371.5	6	N	Vb	5	<0.5	71							Anhy								
43Z	1	1	0-56	371.5	3	N	Vc	3	<0.5-2	71							Anhy								
43Z	1	2-3c	56-89	372.06	4-8	Y	V1	23	2-4	72						V	Qtz	Anhy	Mt,Chl	Py			Cm,Hi	Si,Mt	Branching, tapering vein Center of vein anhy+/-py+/-mt, surrounded by quartz. Halo of magnetite-bearing quartz with minor clays/chlorite
43Z	1	2	56-65	372.06	4	Y	V2	5	1	72							Sv,Ir	Anhy			Py			Si	Crosscuts and follows V1
43Z	1	2	56-65	372.06	4	Y	Va	2	1	72							Mt				Py				
43Z	1	3a	65-75	372.15	8	Y	V1	8	3	72			30	86	120	V	Qtz	Anhy	Mt,Chl	Py			Cm,Hi	Si,Mt	
43Z	1	3a	65-75	372.15	8	Y	V1b			72	37W	21S	153	40	243	Inc									Branch of V1
43Z	1	3a	65-75	372.15	8	Y	V2	7	<0.5	72			29	45	119	Inc,Ir				Py					Crosscuts V1
43Z	1	3a	65-75	372.15	8	Y	Va,Vb	2	<0.5	72						Inc	Mt								Veinlets
43Z	1	3a	65-75	372.15	8	Y	So			72			2	90	-	V									Vesicles and aligned plagioclase phenocrysts
43Z	1	3b	75-82	372.25	6	Y	V1	6	4	72			350	70	80	Inc	Qtz	Anhy	Mt,Chl	Py			Cm,Hi	Si,Mt	
43Z	1	3b	75-82	372.25	6	Y	V1b			72	57W	53S	139	64	229	Inc									Branch of V1
43Z	1	3b	75-82	372.25	6	Y	So							90											2 plagioclase laths
43Z	1	3b	75-82	372.25	6	Y	V2	4	<0.5	72						Sv	Anhy								Crosscuts V1
43Z	1	3c	82-89	372.32	5	Y	V1	5	4	72			350	90	80	V	Qtz	Anhy	Mt,Chl	Py			Cm,Hi	Si,Mt	
43Z	1	3c	82-89	372.32	5	Y	V2a	3	<0.5	72						Inc	Anhy			Py					Crosscuts V1
43Z	1	3c	82-89	372.32	5	Y	V2b	7	<0.5	72	15E	8S	28	17	118	Sh	Anhy			Py					Crosscuts V1
43Z	1	3c	82-89	372.32	5	Y	So				83E			85											Vesicles and aligned plagioclase phenocrysts
43Z	1	3c	82-89	372.32	5	Y	Va	4	<0.5	72						V	Qtz	Mt							Magnetite in core of vein
43Z	1	4a	89-101	372.39	6	N	V1	6	3	72						V	Qtz	Mt		Py			Si,Mt		Magnetite-bearing siliceous halo, as 2-3c
43Z	1	4a	89-101	372.39	3	N	Va	1	<0.5	72						Sw	Anhy								
43Z	1	4a	89-101	372.39	3	Y	So				83E			85											Plag,vesicles, flow band
43Z	1	4b	101-114	372.51	5	N	Va,Vb	4	<0.5	72							Anhy								
44Z	1	1	0-41	374	3	N	Va	1-3	<0.5	72						Sw	Anhy			Py					
44Z	1	1	0-41	374	2	N	Vb	2	0.5	72							Mt								
44Z	1	1	0-41	374	4	N	Vc	<1-2	<0.5	72						Sw	Anhy								
44Z	1	1	0-41	374	3	N	V1	3	<0.5	72							Mt			Py					
44Z	1	1	0-41	374	3	N	V2	3	<0.5	72							Anhy								Crosscuts V1
44Z	1	3	56-91	374.56	<1-5	N	V1	5	0.5	72							Anhy			Py			Si		1-1.5 mm halo
44Z	1	3	56-91	374.56	<1-5	N	V2	2	<0.5	72							Mt			Py			Si		Crosscuts V1
44Z	1	3	56-91	374.56	<1-5	N	Va	3	≥0.5	72							Anhy			Py			Si,Mt		
44Z	1	3	56-91	374.56	<1-5	N	Vb	≤1	≤1	72							Anhy								
44Z	1	3	56-91	374.56	<1-5	N	Vc	≤1	<0.5	72							Mt								

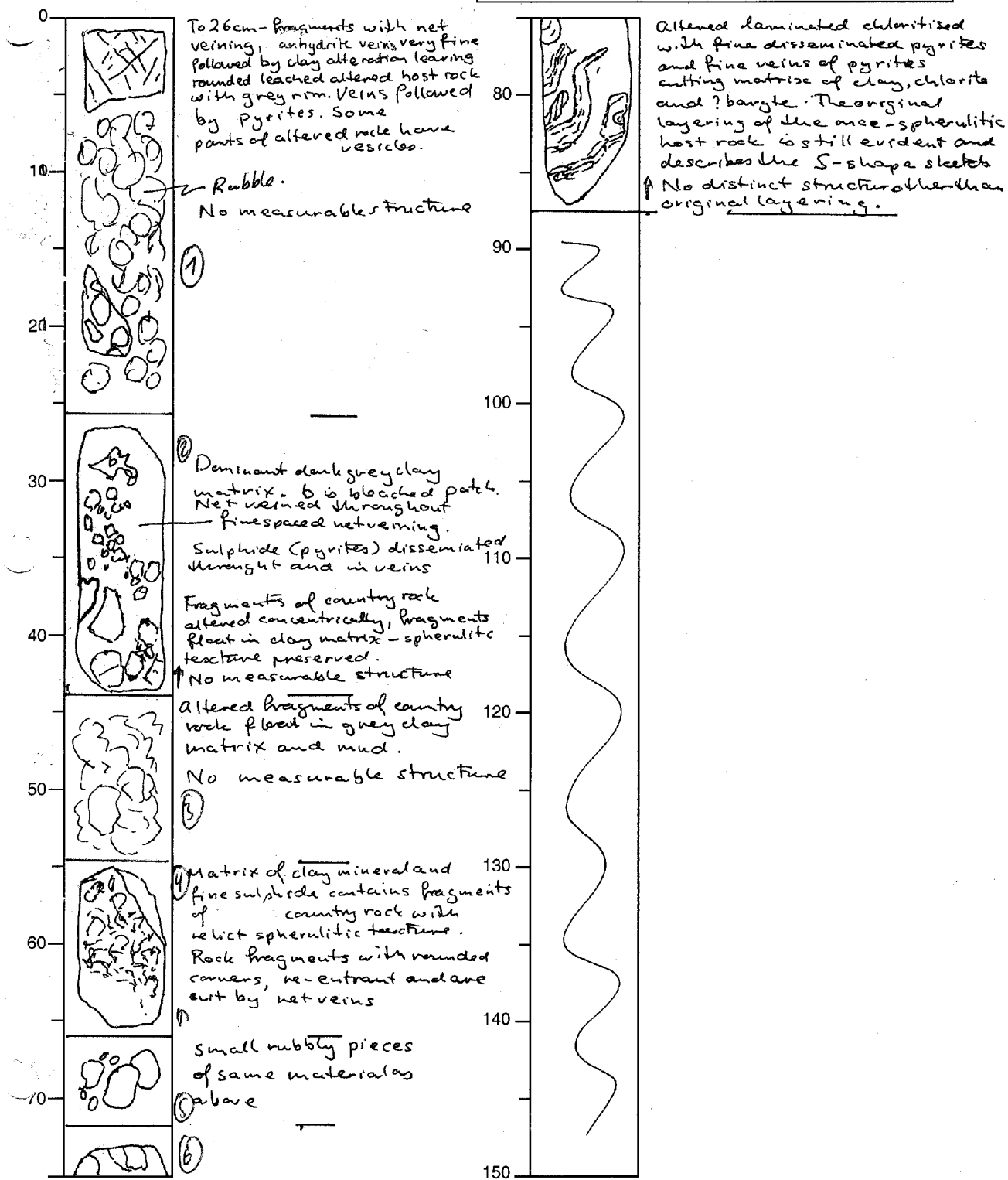
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188 A	7R	1	BJE



STRUCTURAL GEOLOGY DESCRIPTION

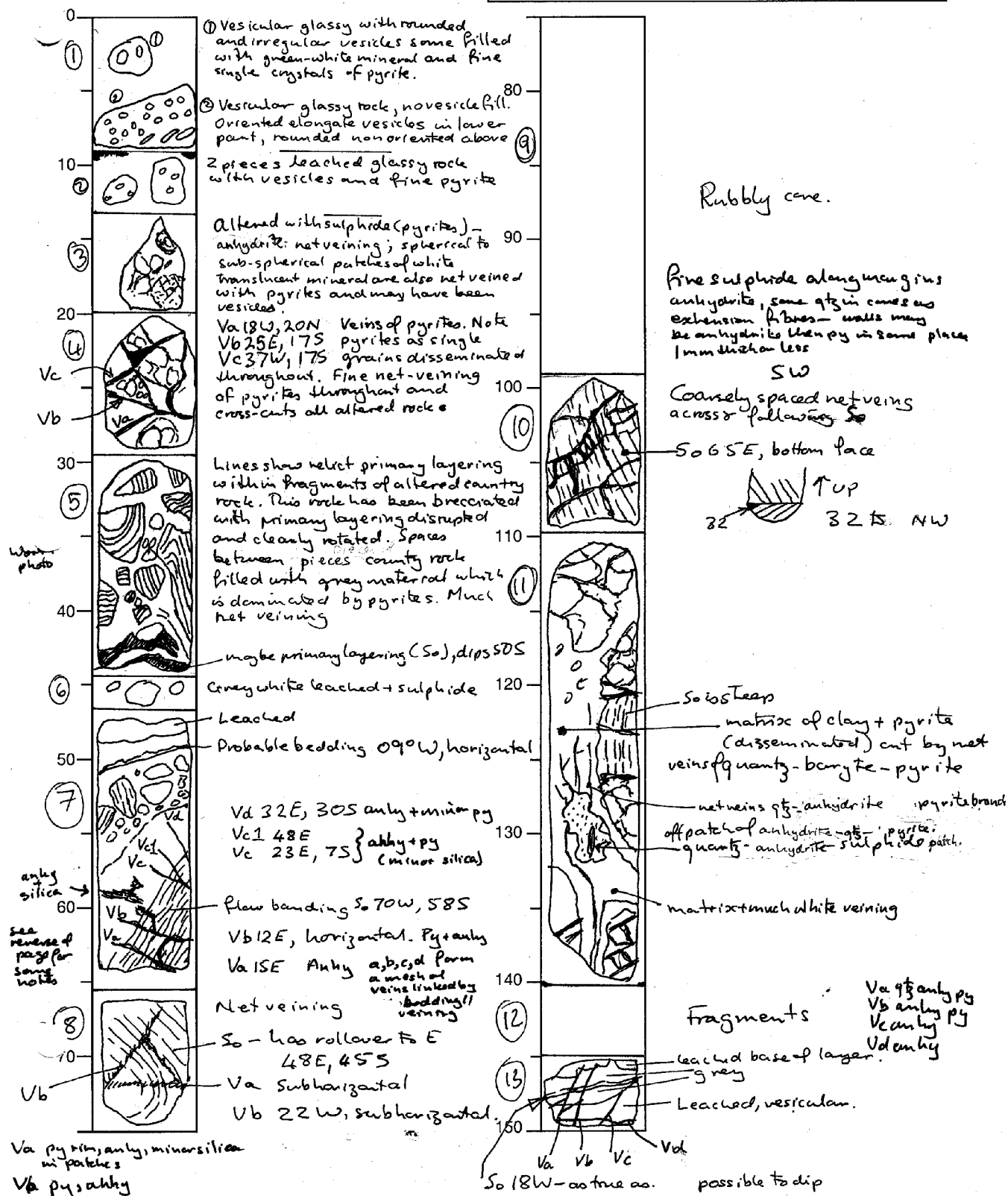
Leg	Hole	Core	Section	Observer
193	1188A	007R	02	ROT



cont next column.

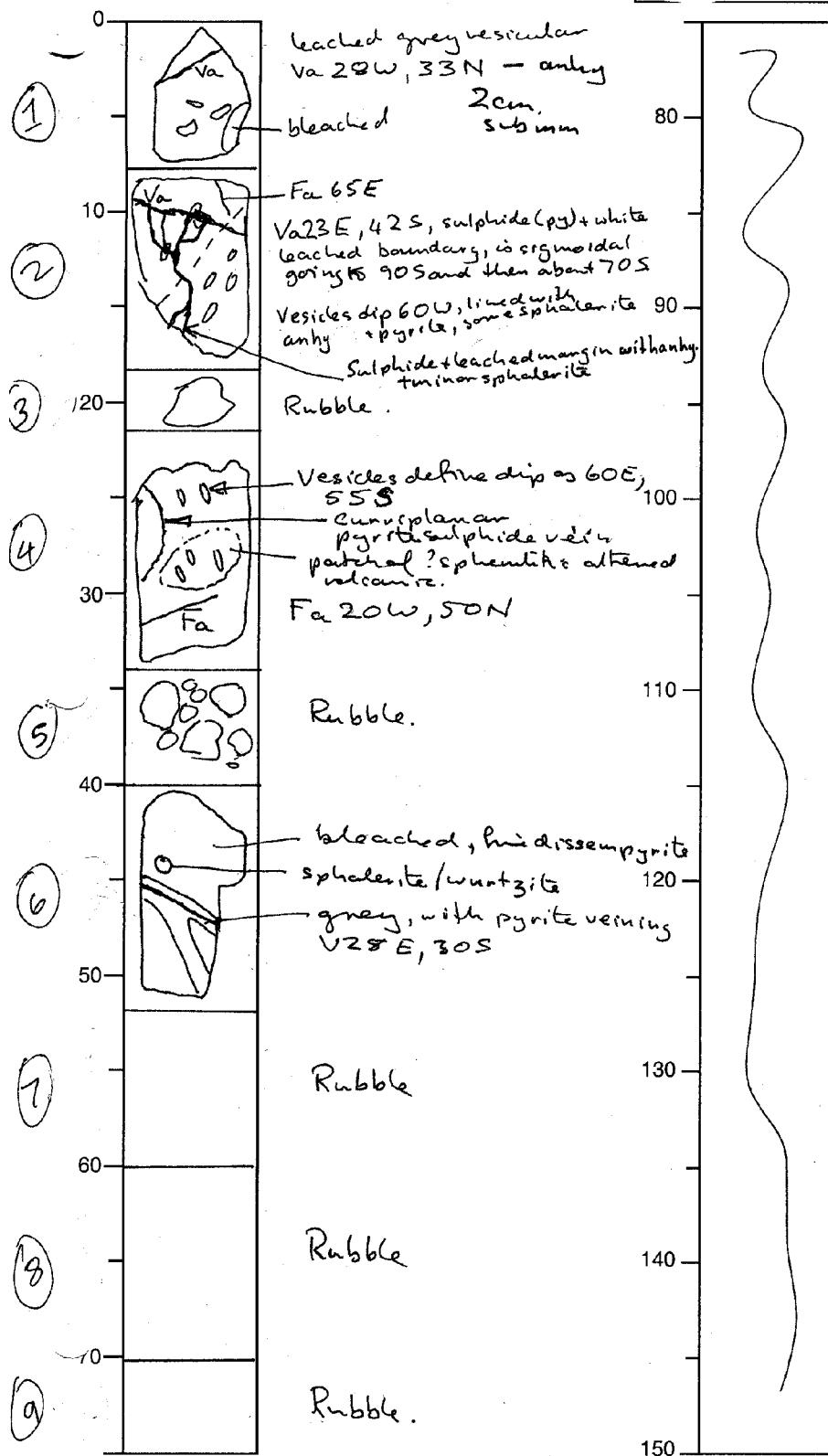
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188A	008R	0 1	RHF



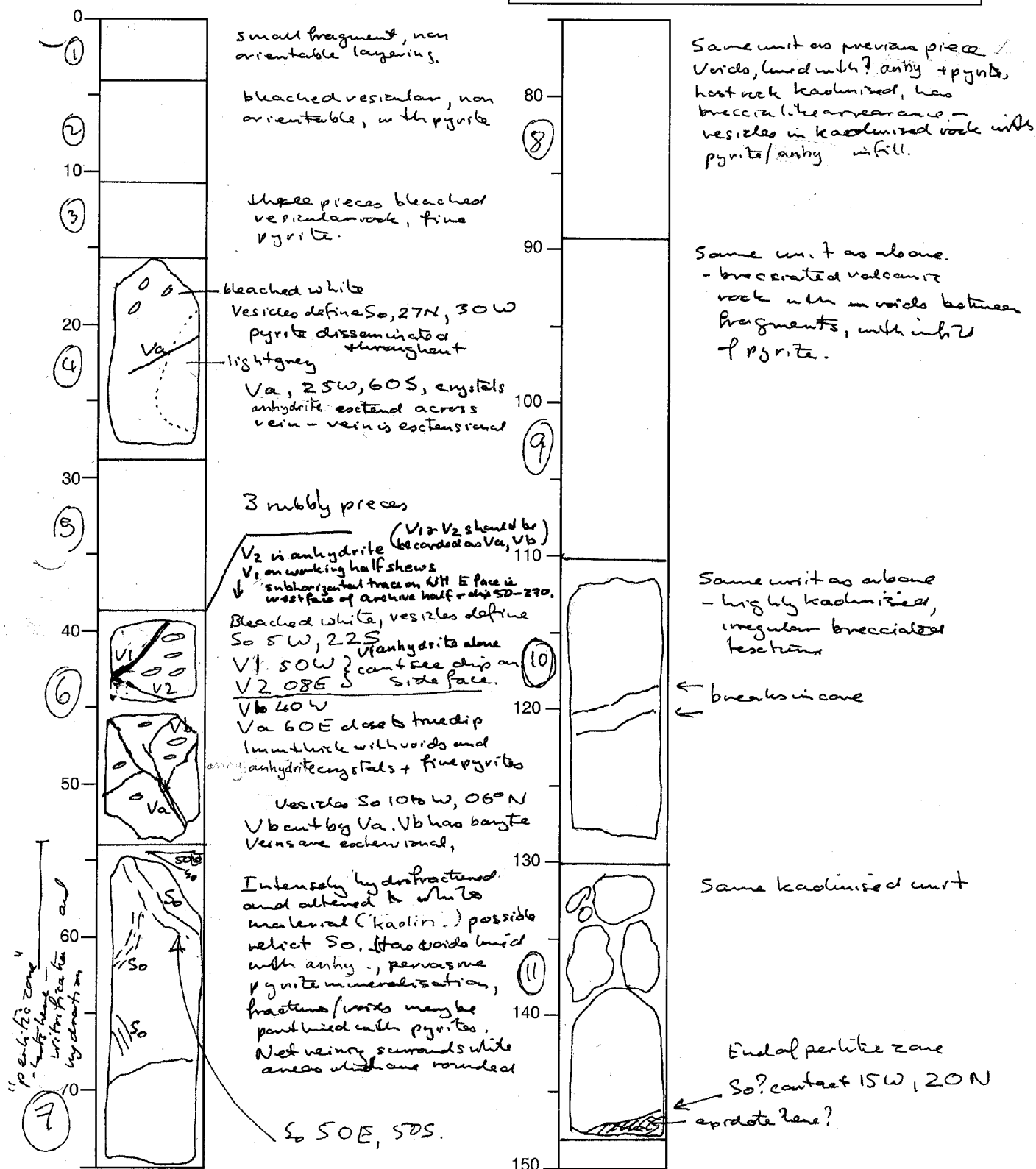
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188A	008R	02	PJ



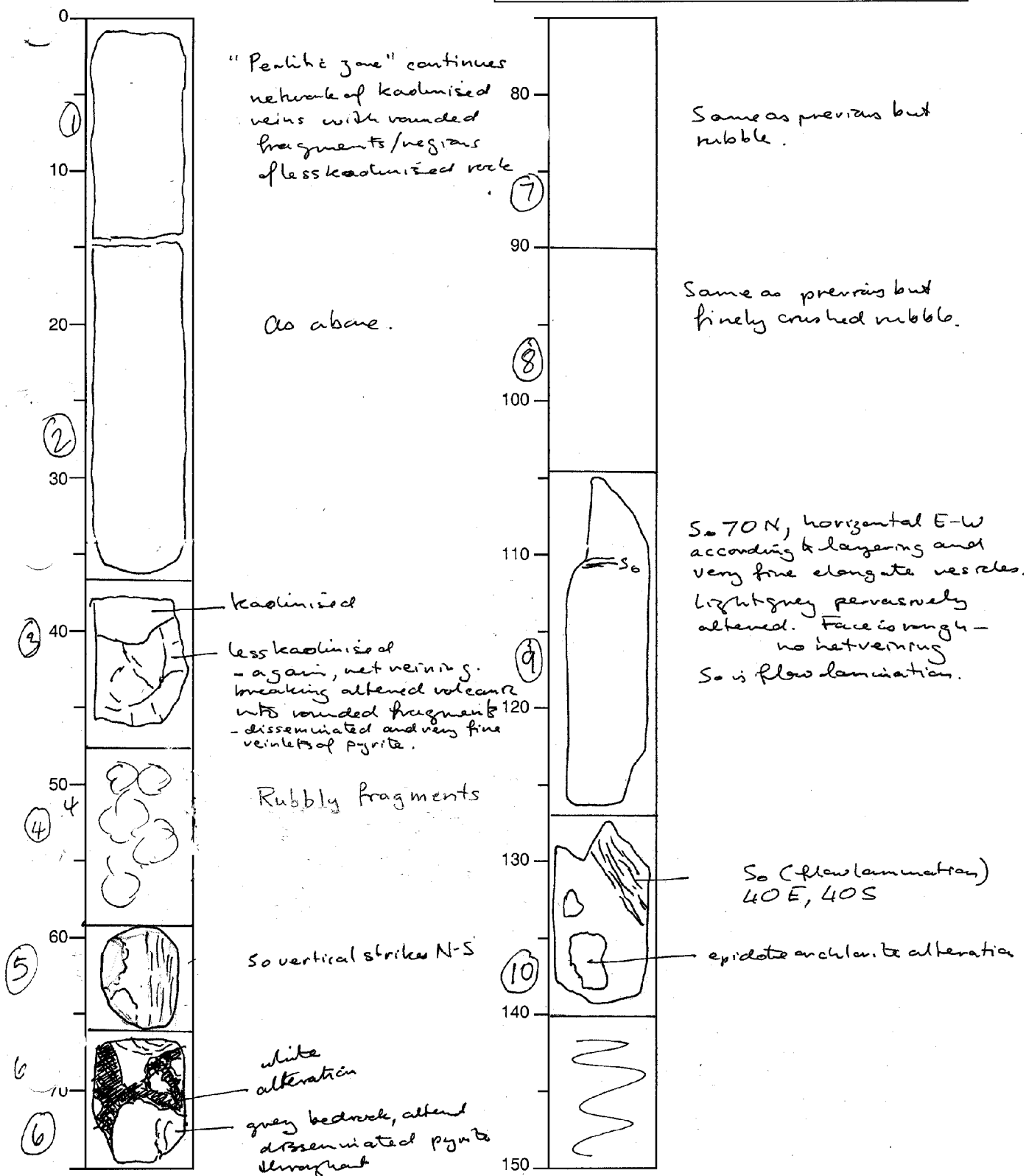
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188A	009R	01	RHF



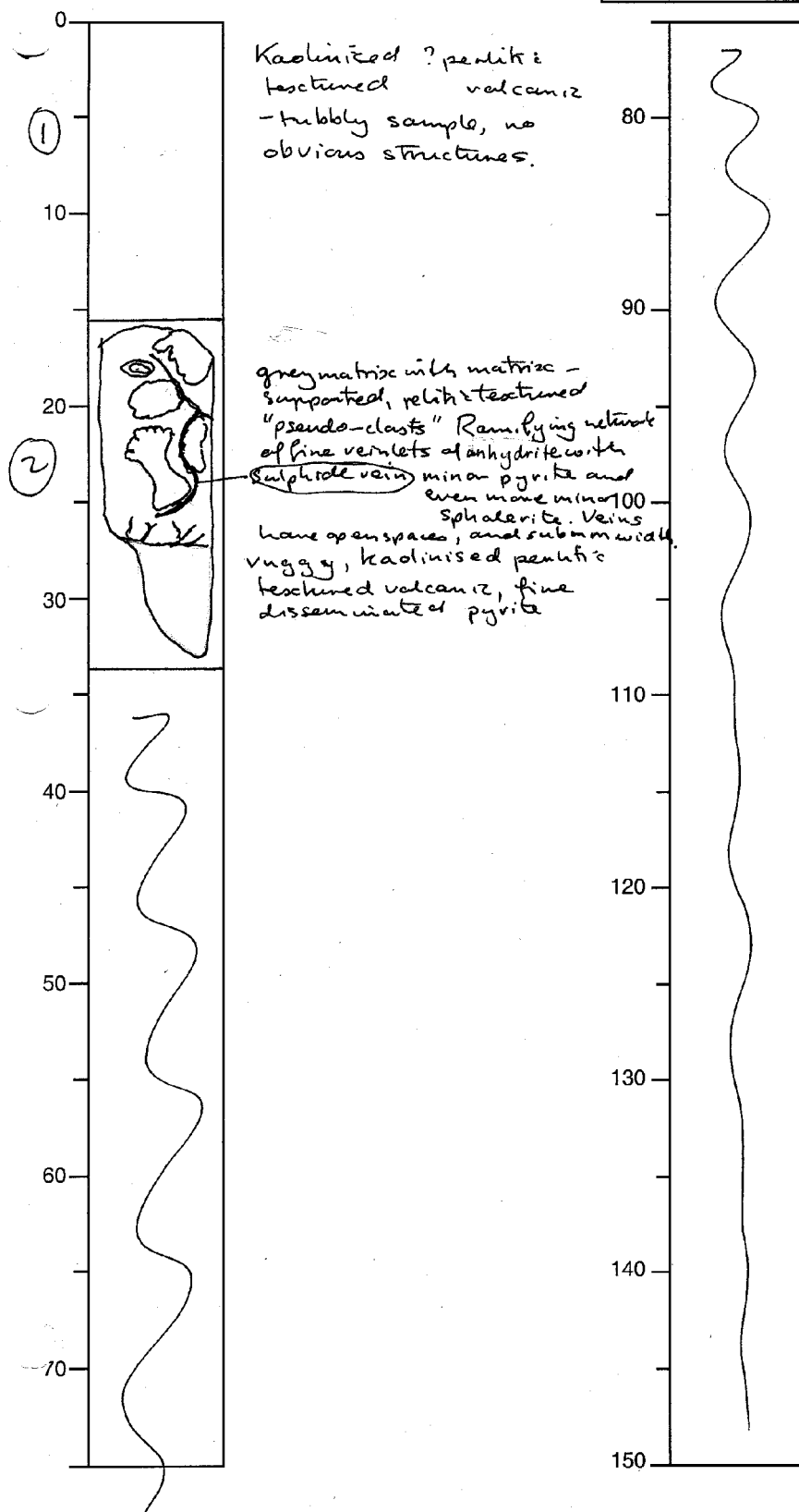
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188A	009R	2	R



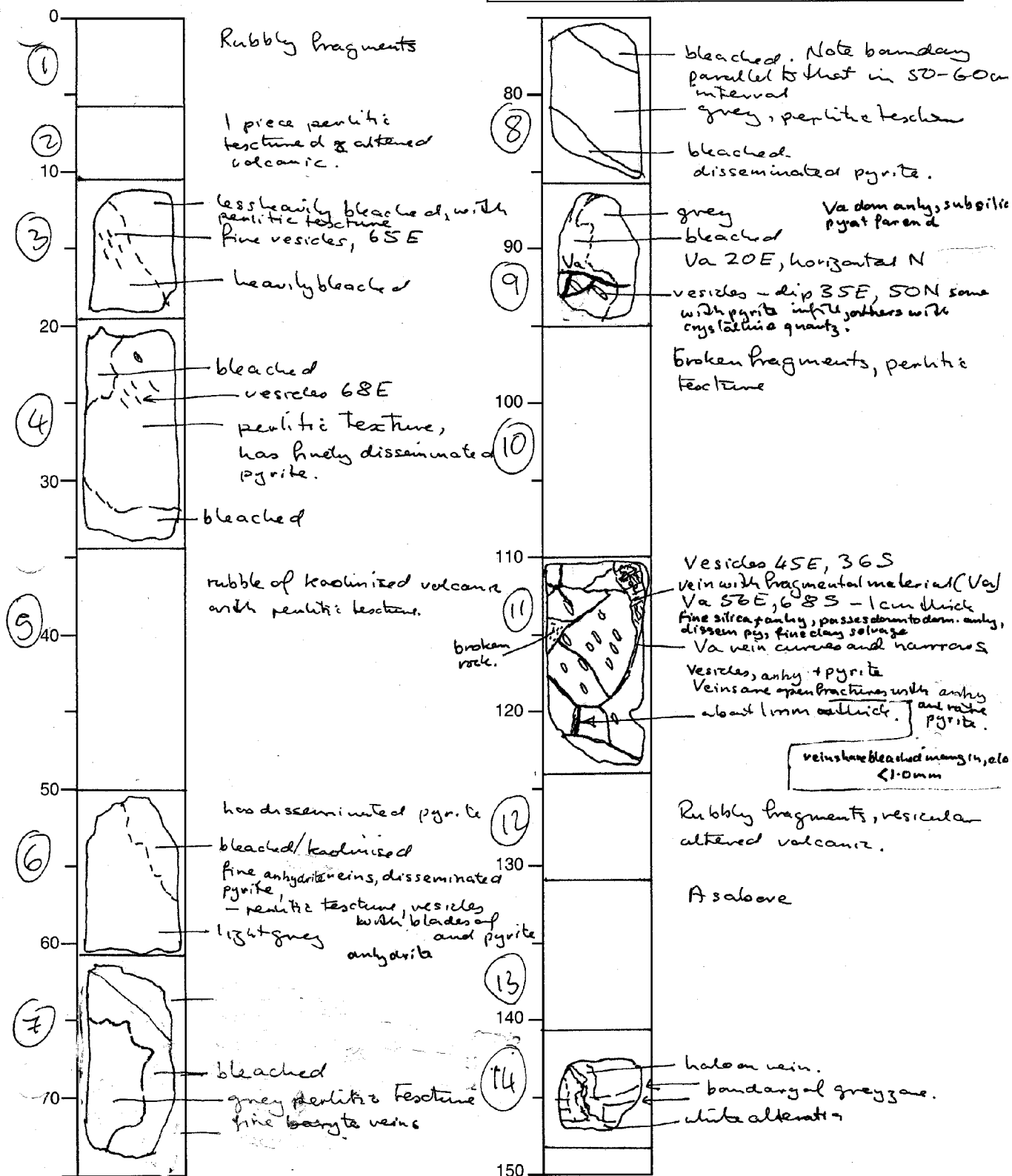
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188A	009R	03	RJR



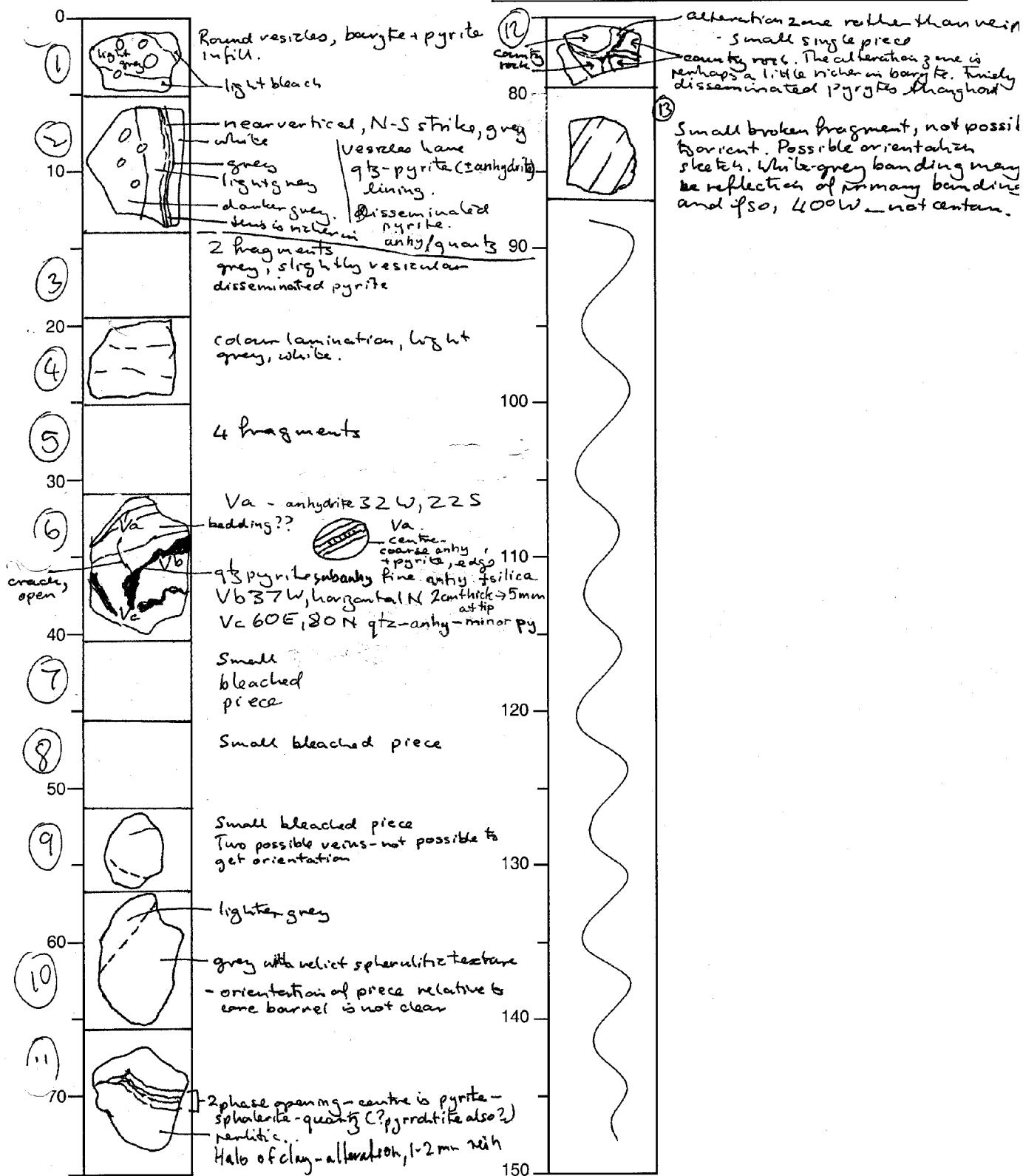
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188A	010-R	1	RTH



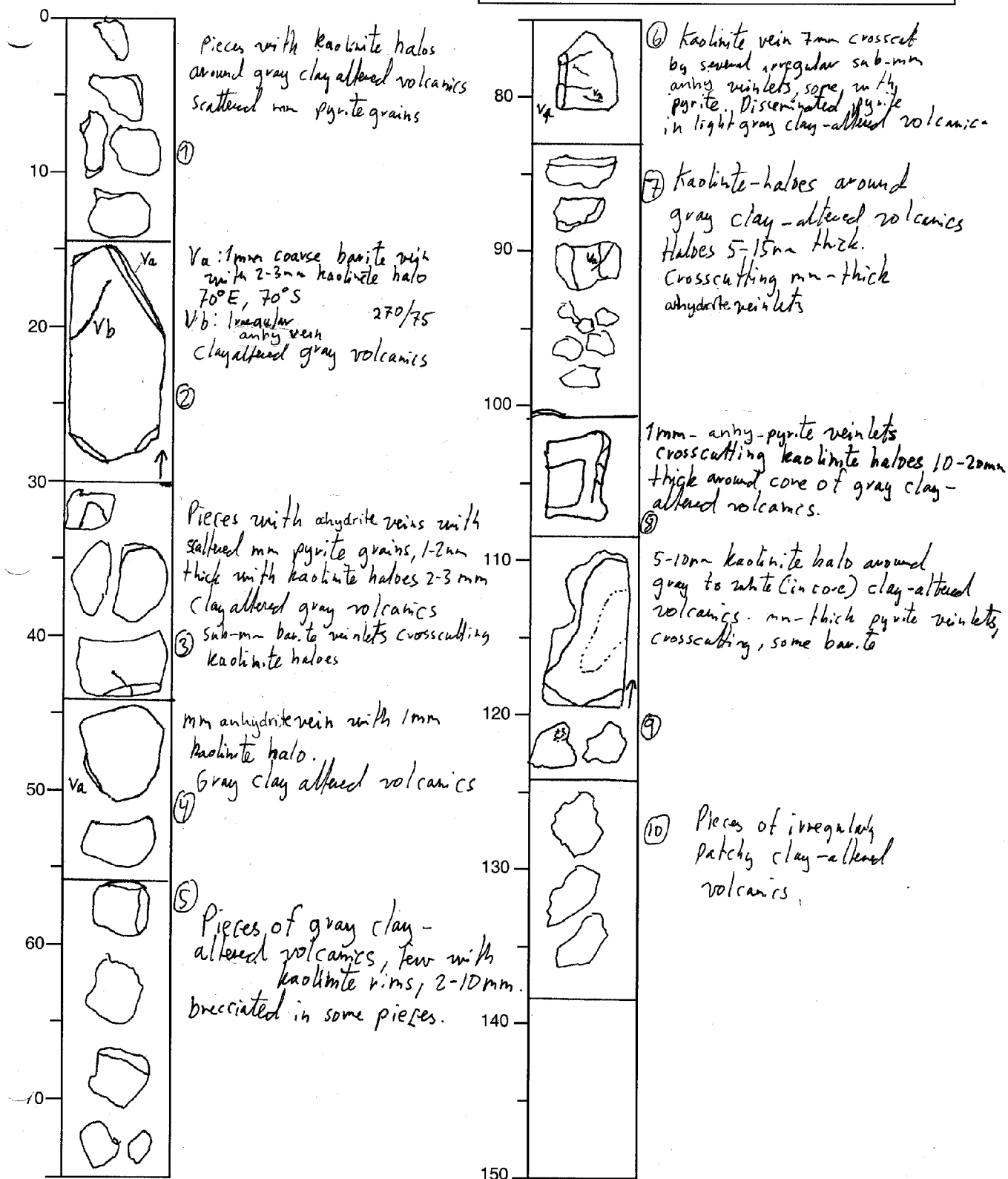
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188A	010R	02	RH



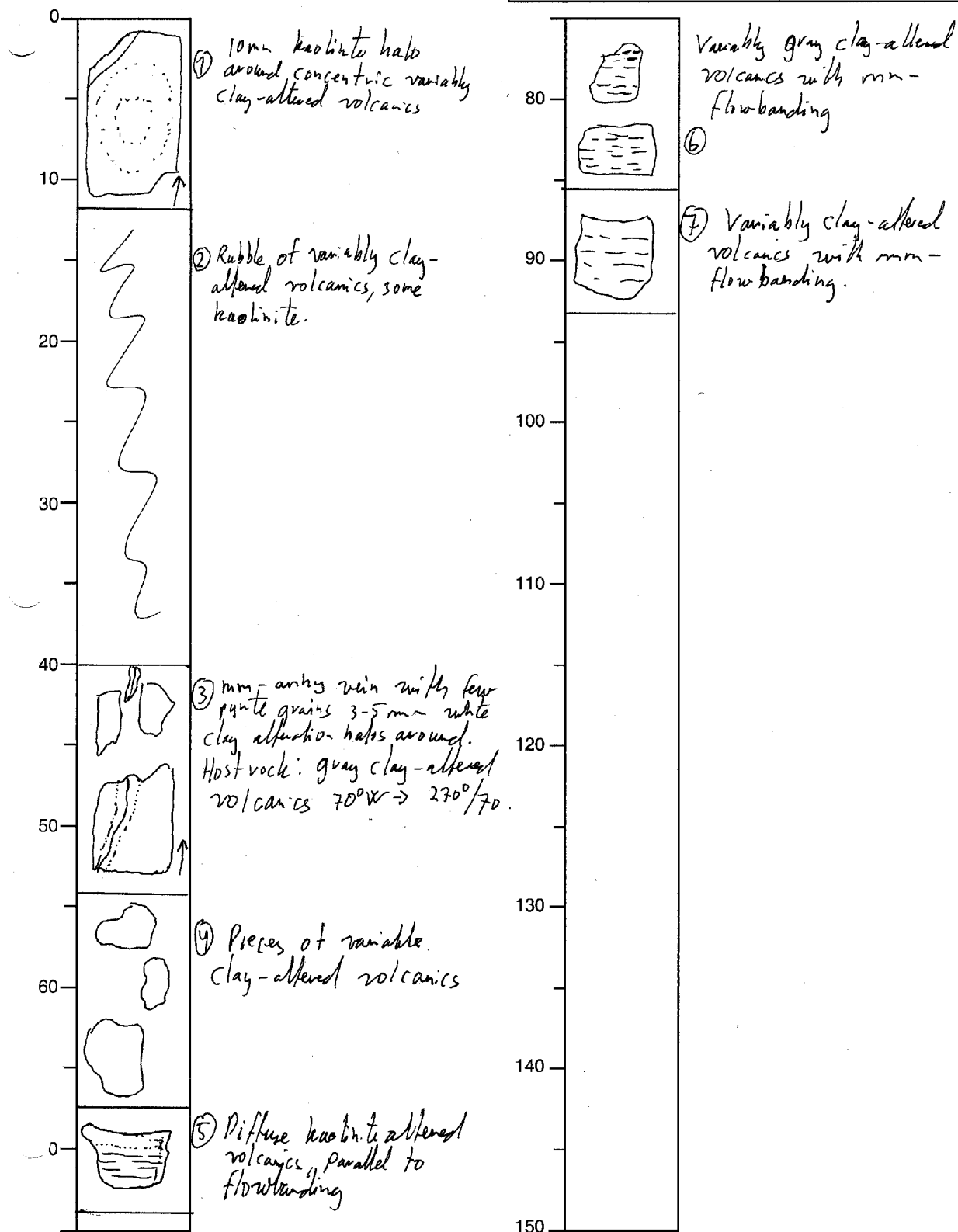
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188A	11R	1	BJE



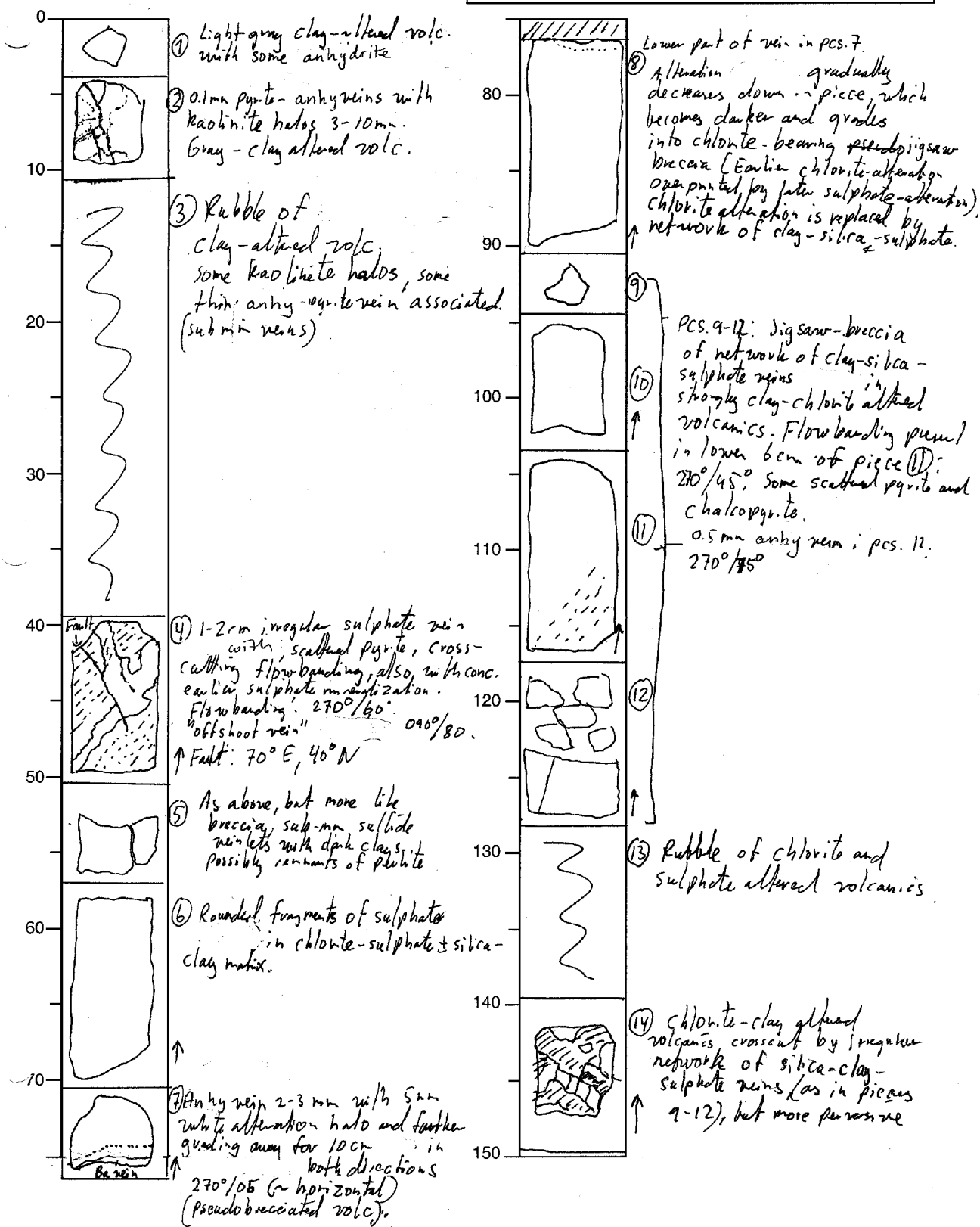
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188 A	11R	2	BSE



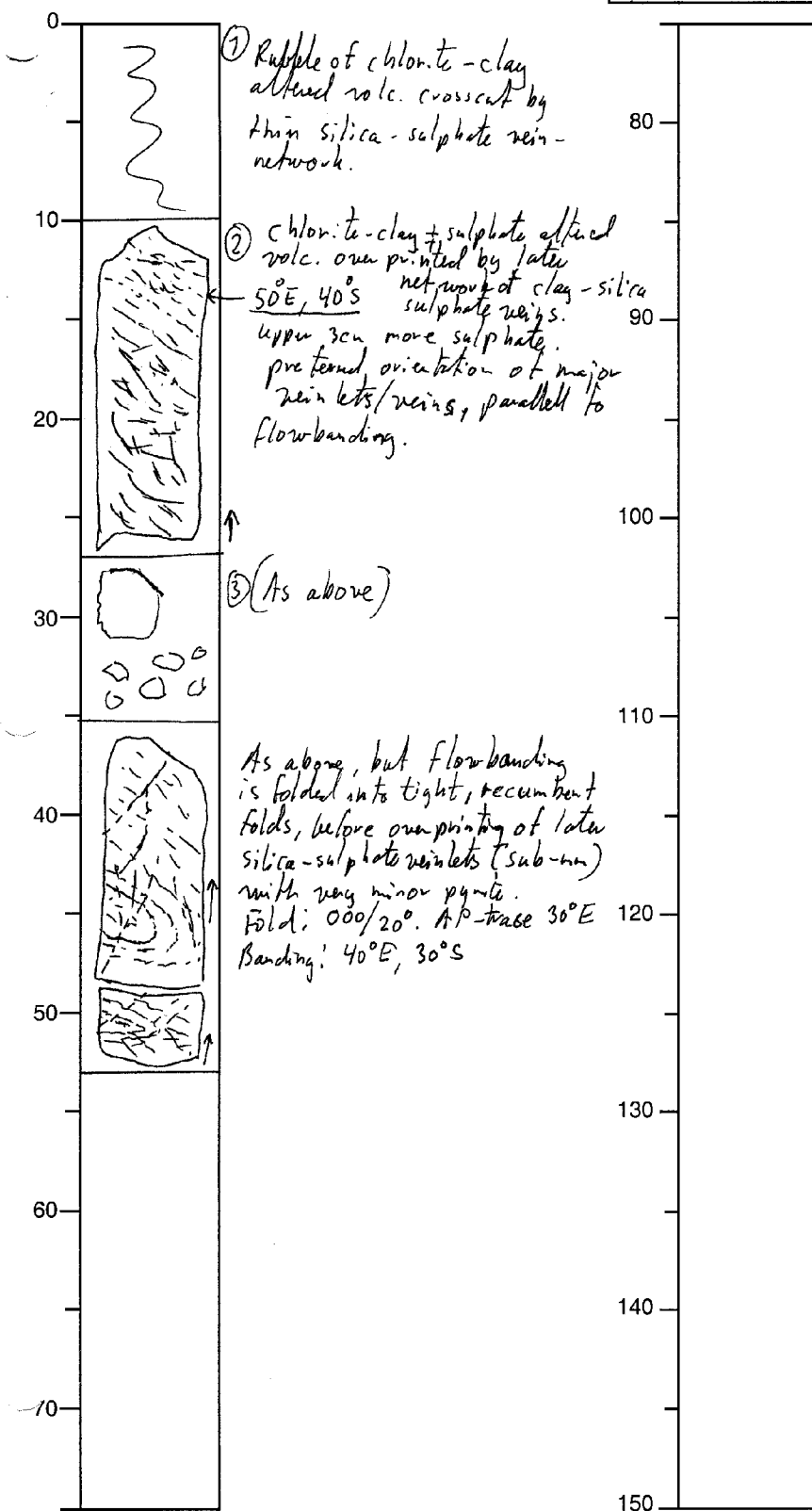
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188A	12R	1	BSE

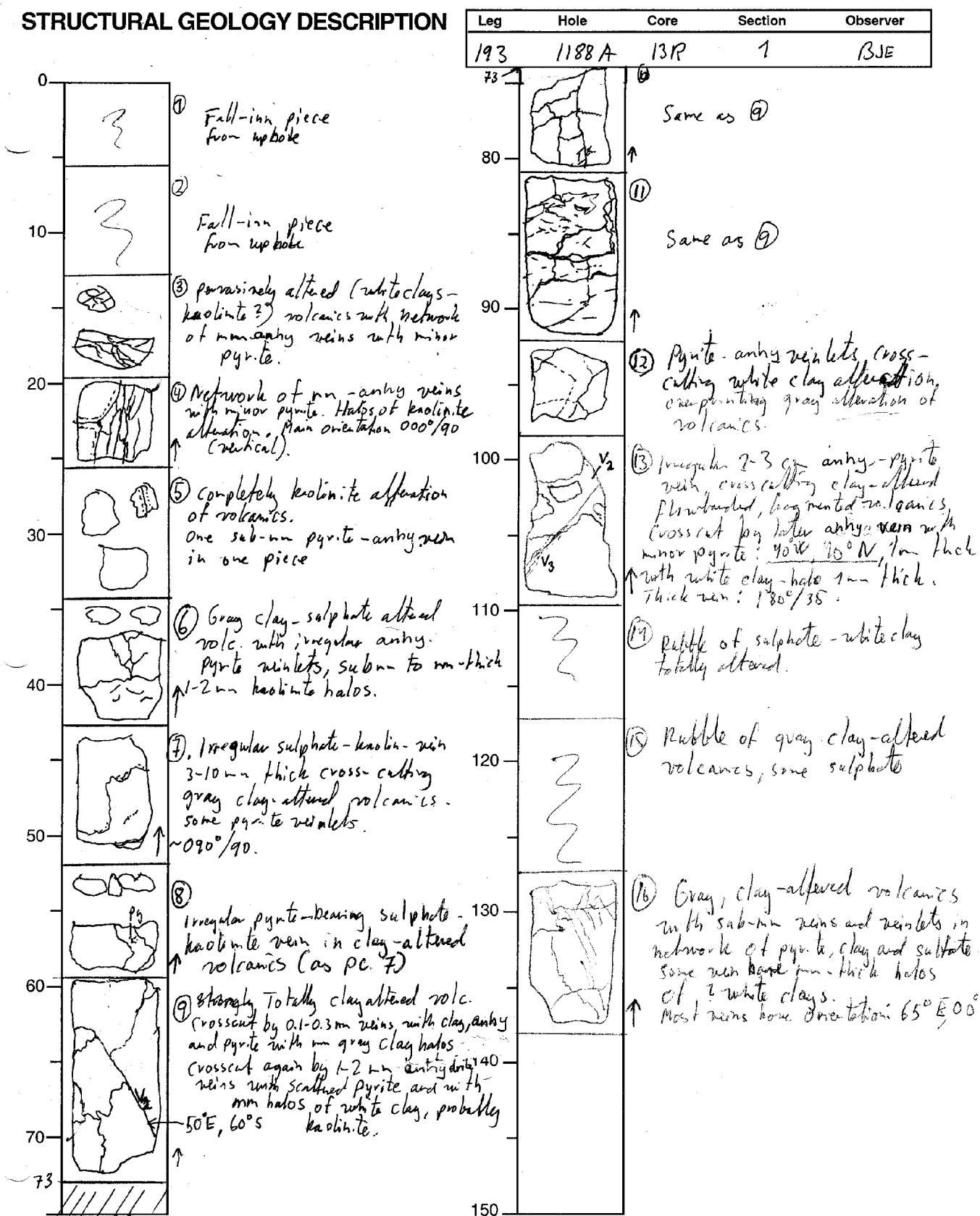


STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188A	12R	2	BSE

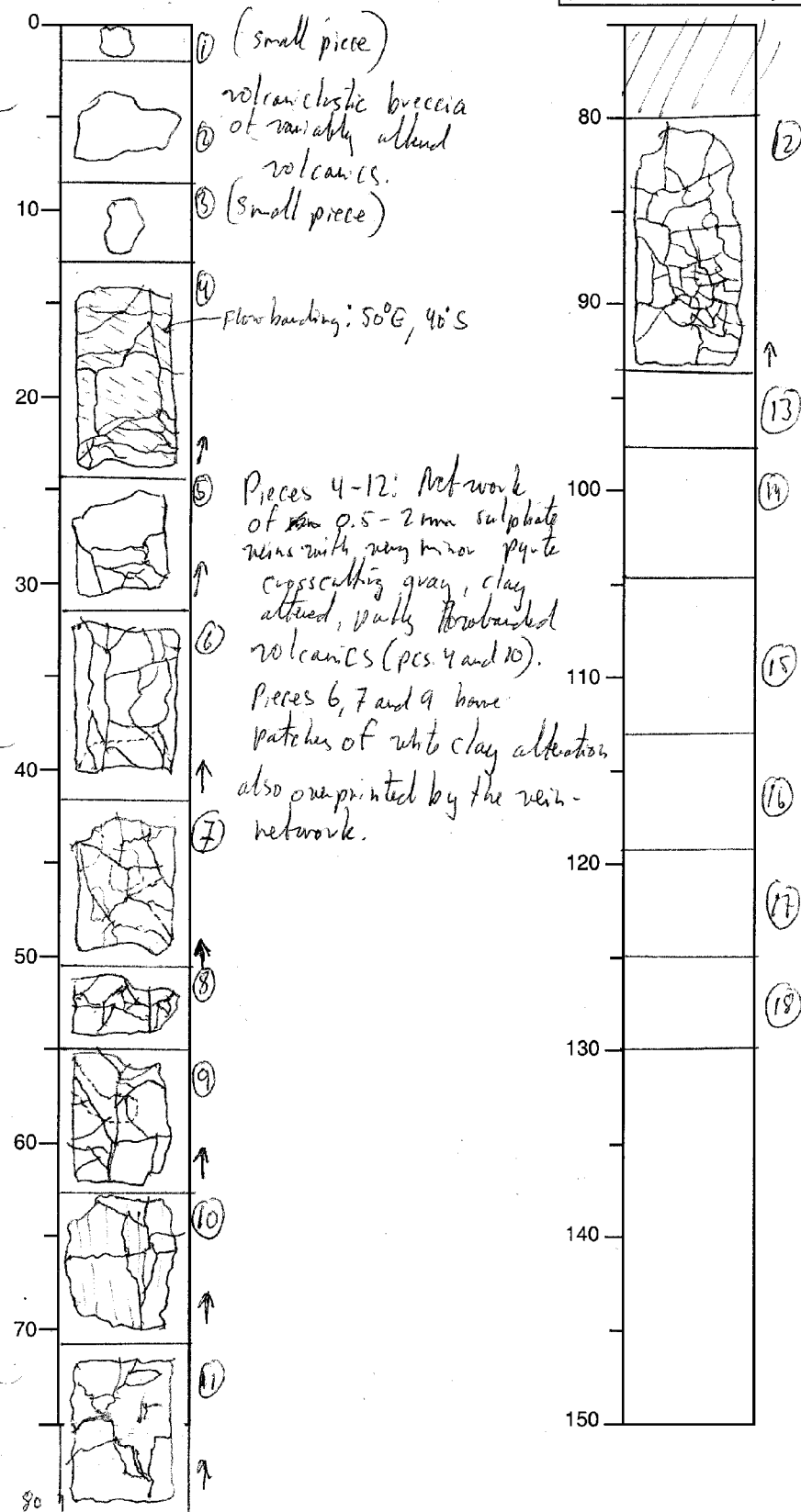


STRUCTURAL GEOLOGY DESCRIPTION



STRUCTURAL GEOLOGY DESCRIPTION

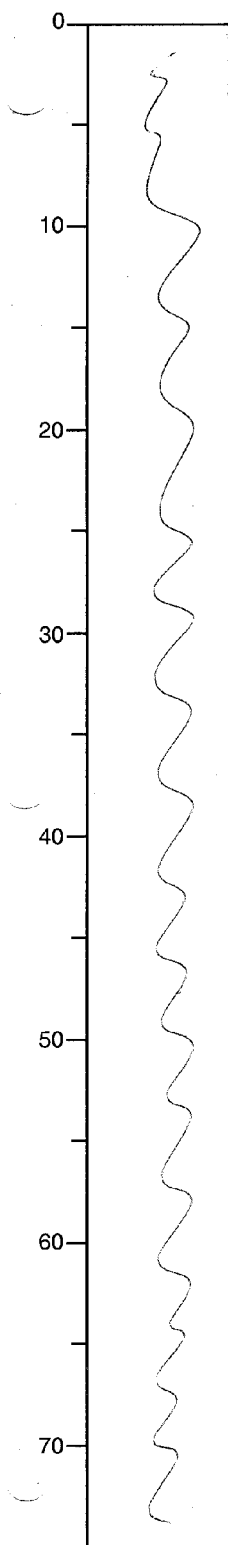
Leg	Hole	Core	Section	Observer
193	1188A	NR	1	BSE



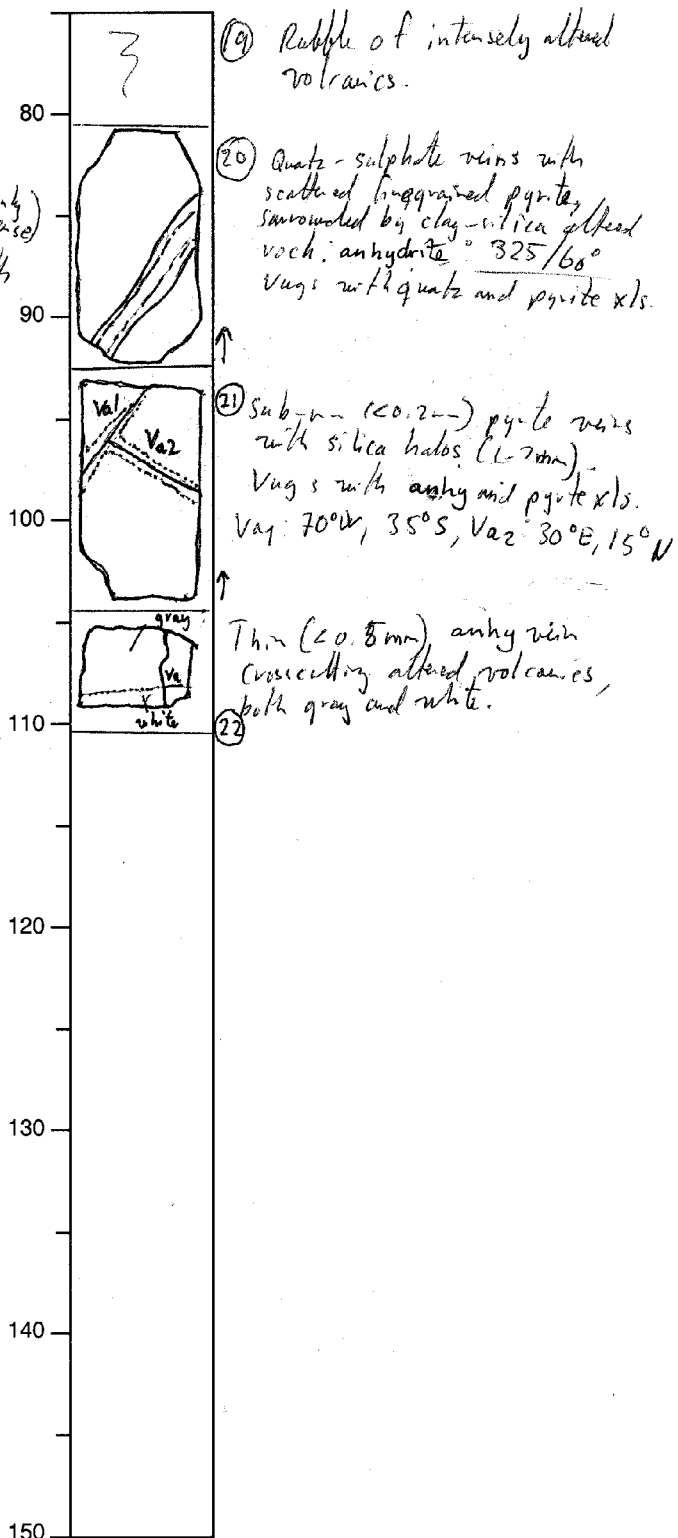
Pieces 13-18:
Volcaniclastic breccia
of variably altered volcanics
(as piece no. 2).

STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188A	15R	1	BJE

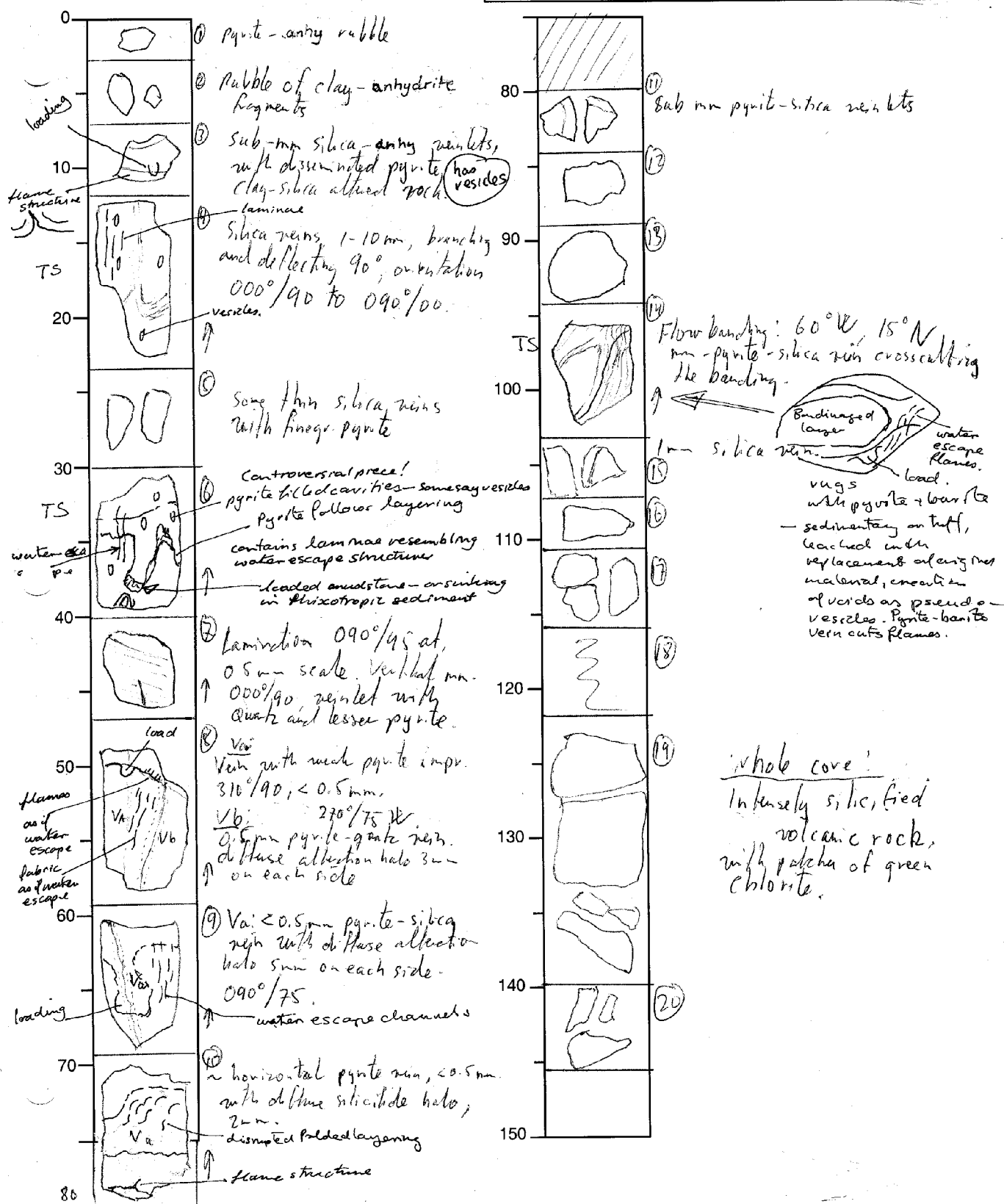


Pieces 1-18: 0-75cm
Small pieces and rubble
of coarse anhydrite with pyrite
(pcs 1-6) and variably (mainly
clay-altered volcanics intense)
(pieces 7-18), some also with
anhydrite.



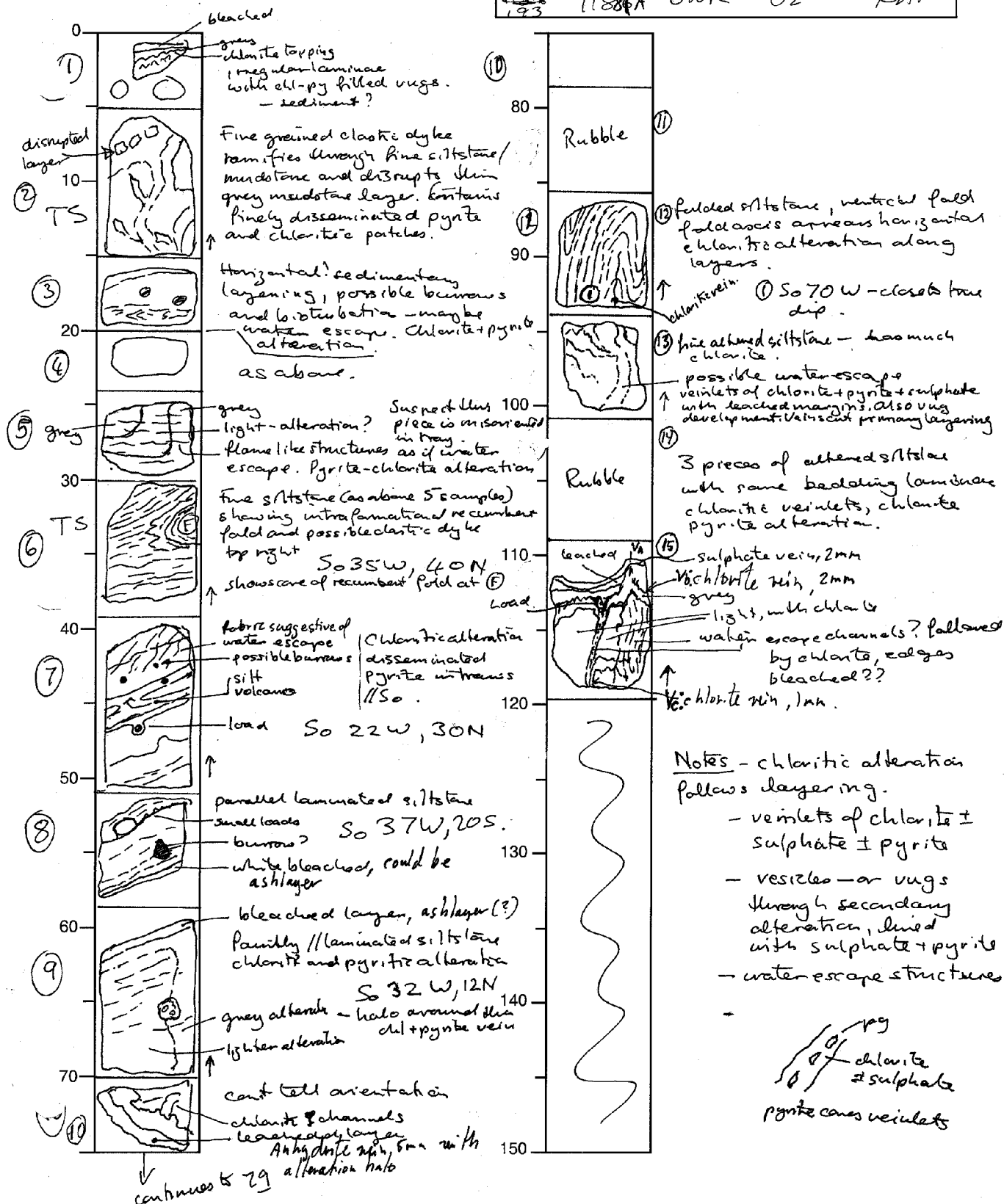
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188A	16R	1	PJE



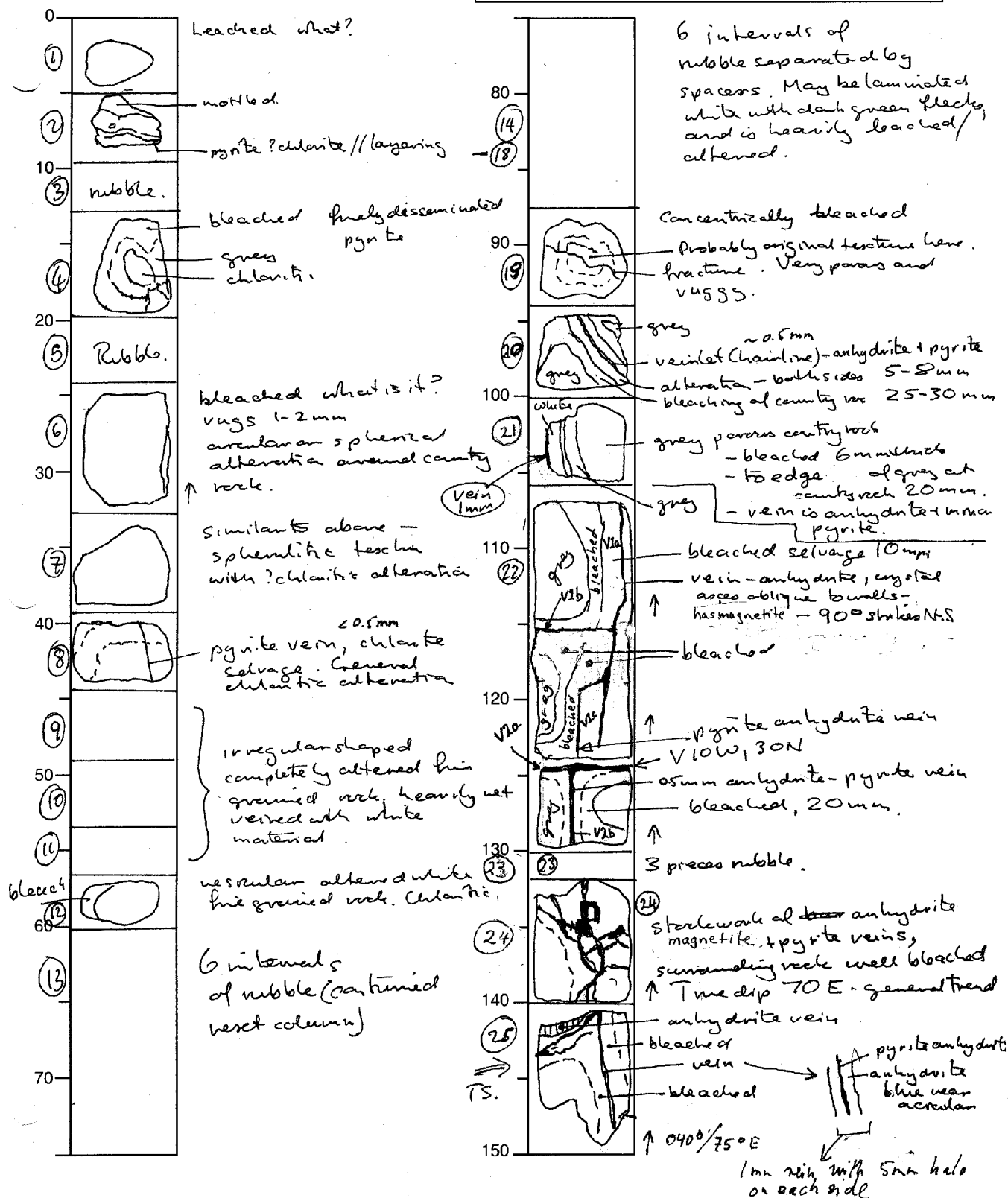
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
H188 193	1188A	016R	02	RAT



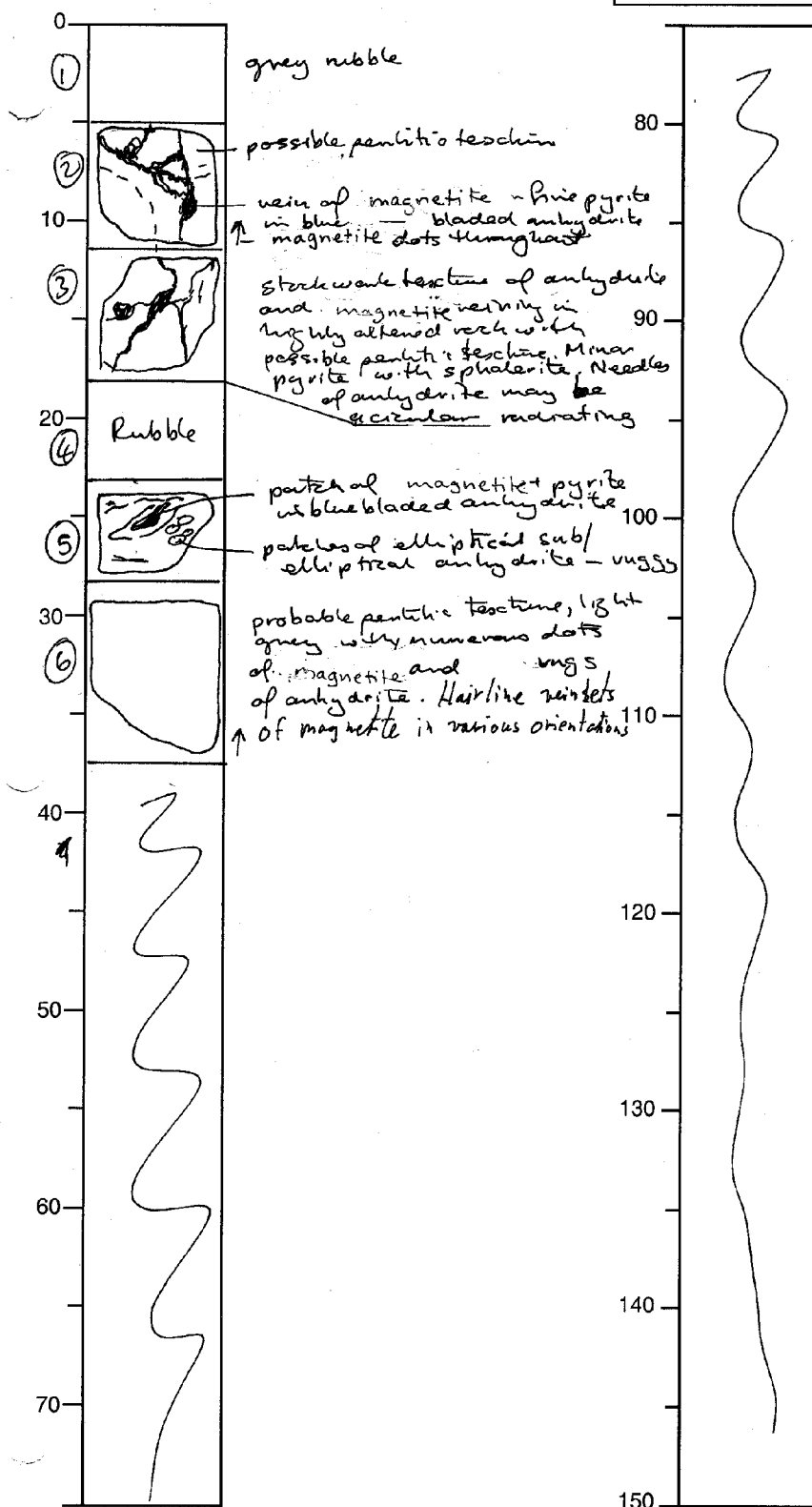
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188A	017R	1	RA



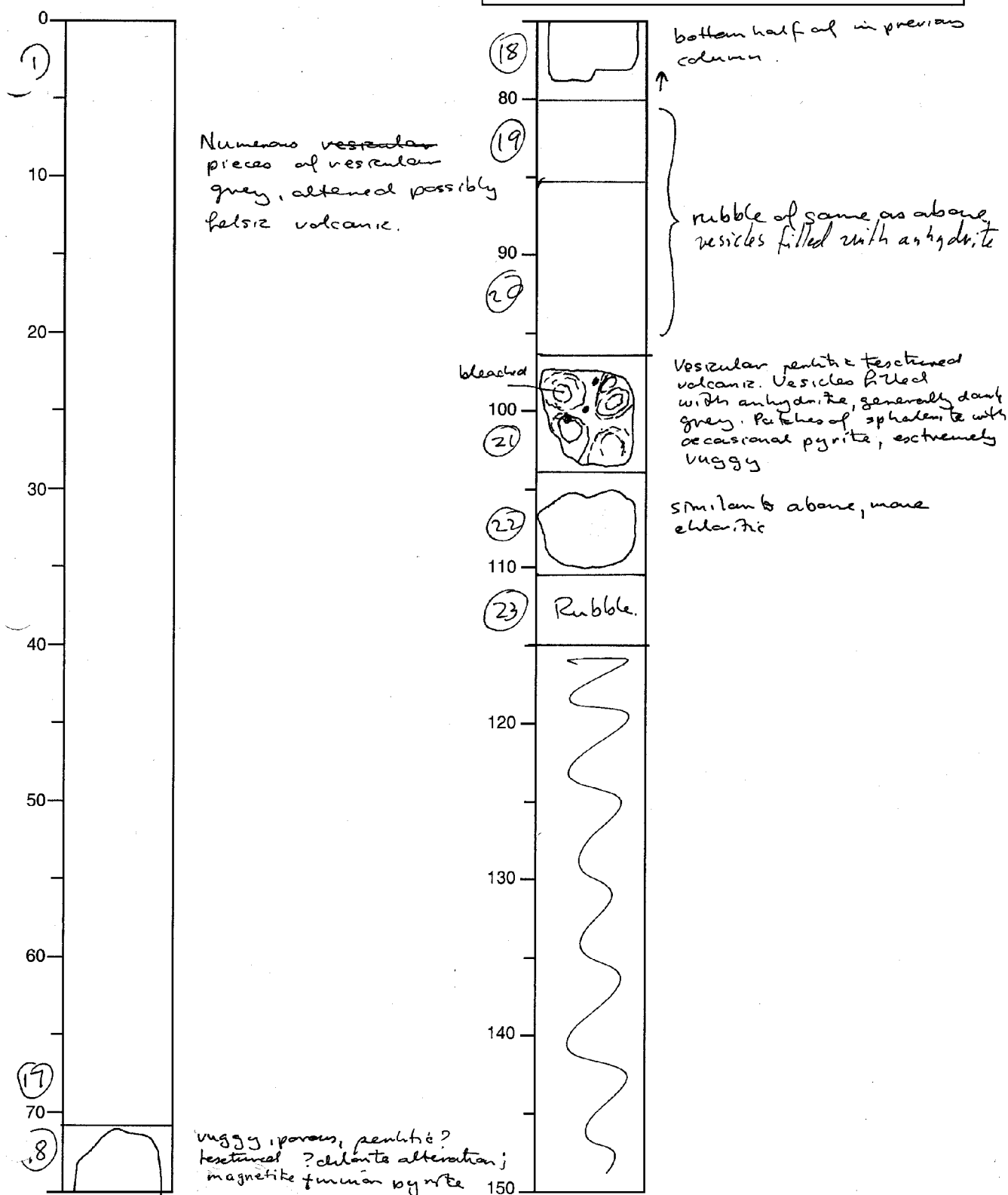
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188A	017R	02	RET



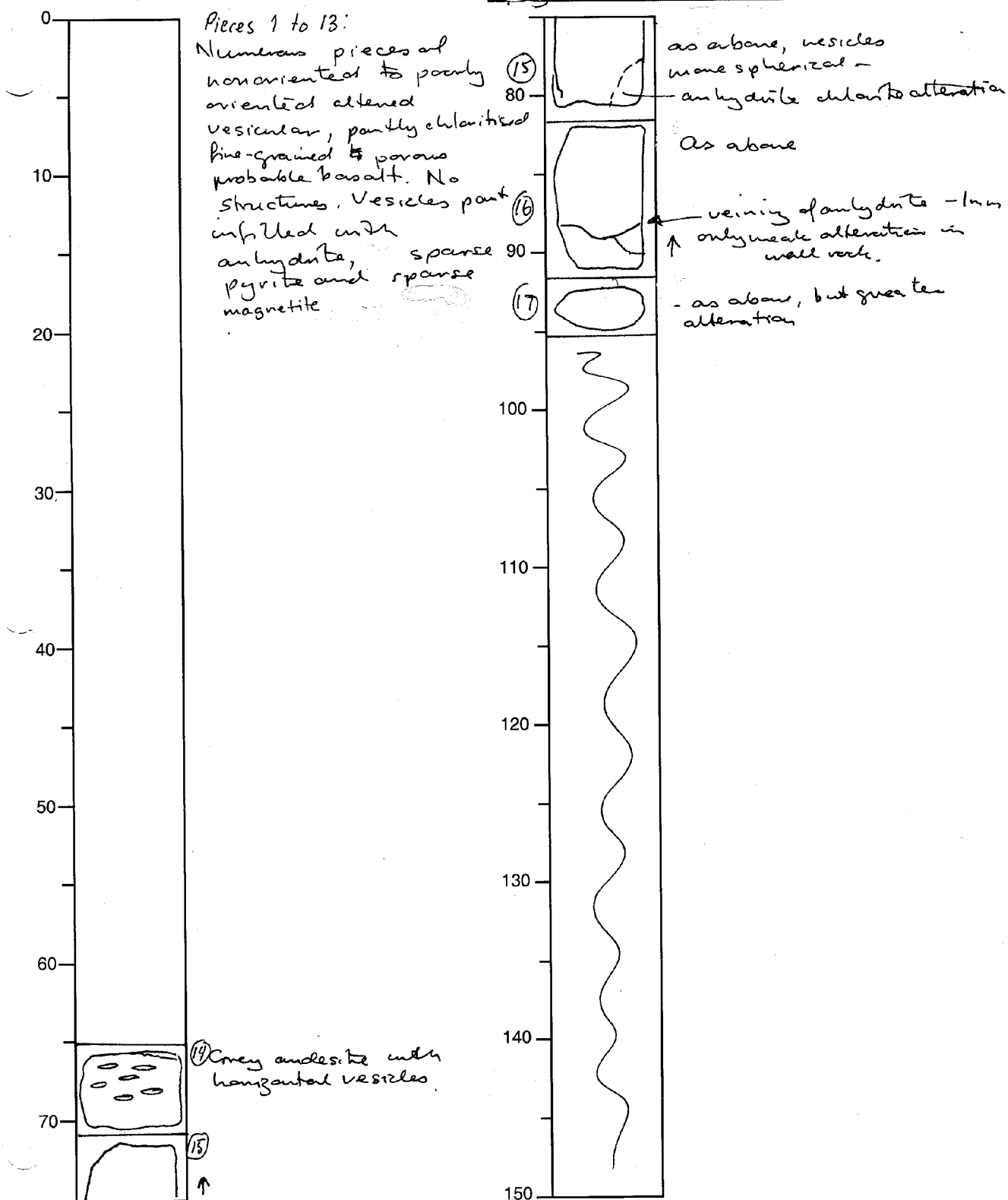
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
197	1188A	018R	01	RHF



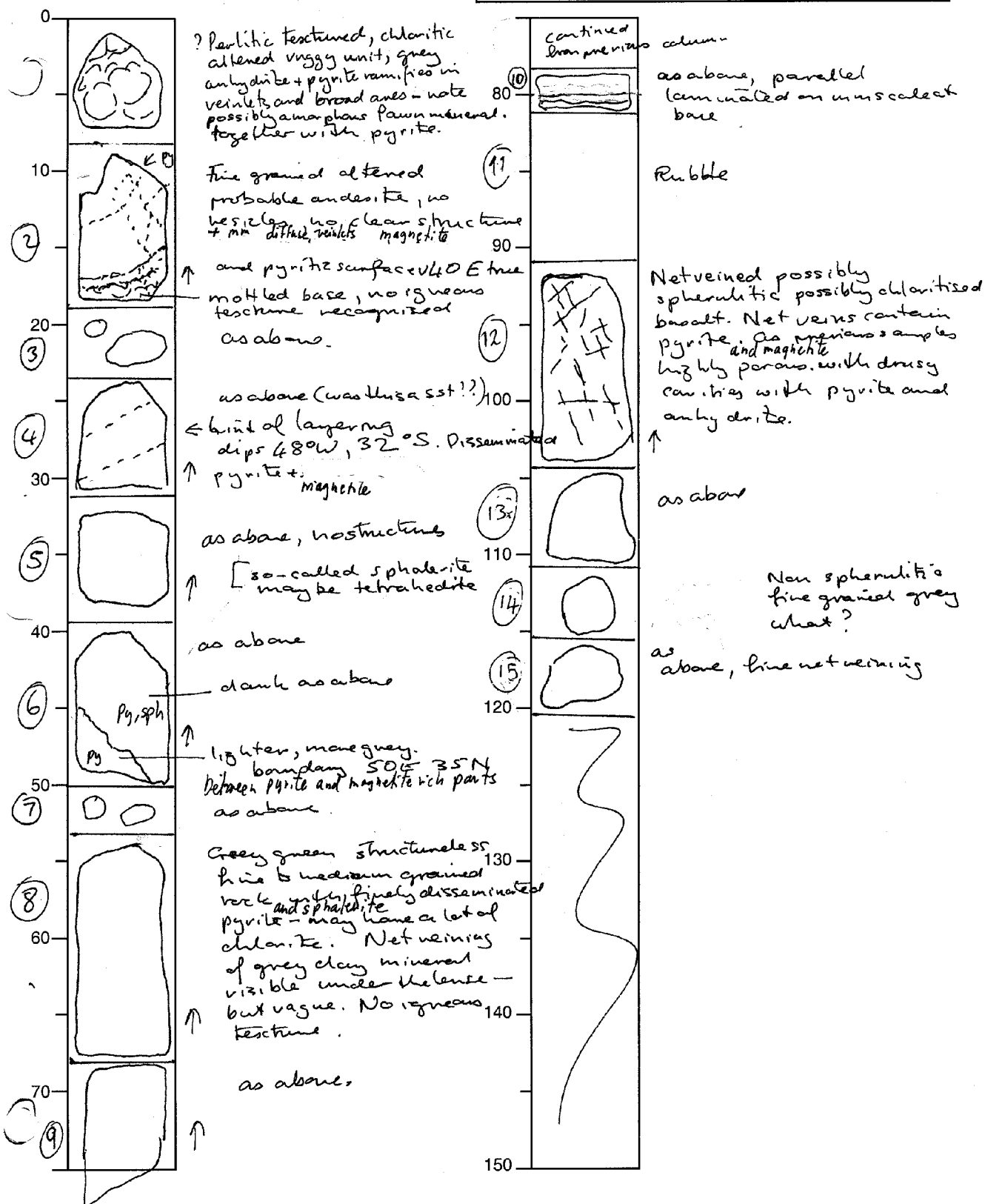
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188A	019R	1	RGT



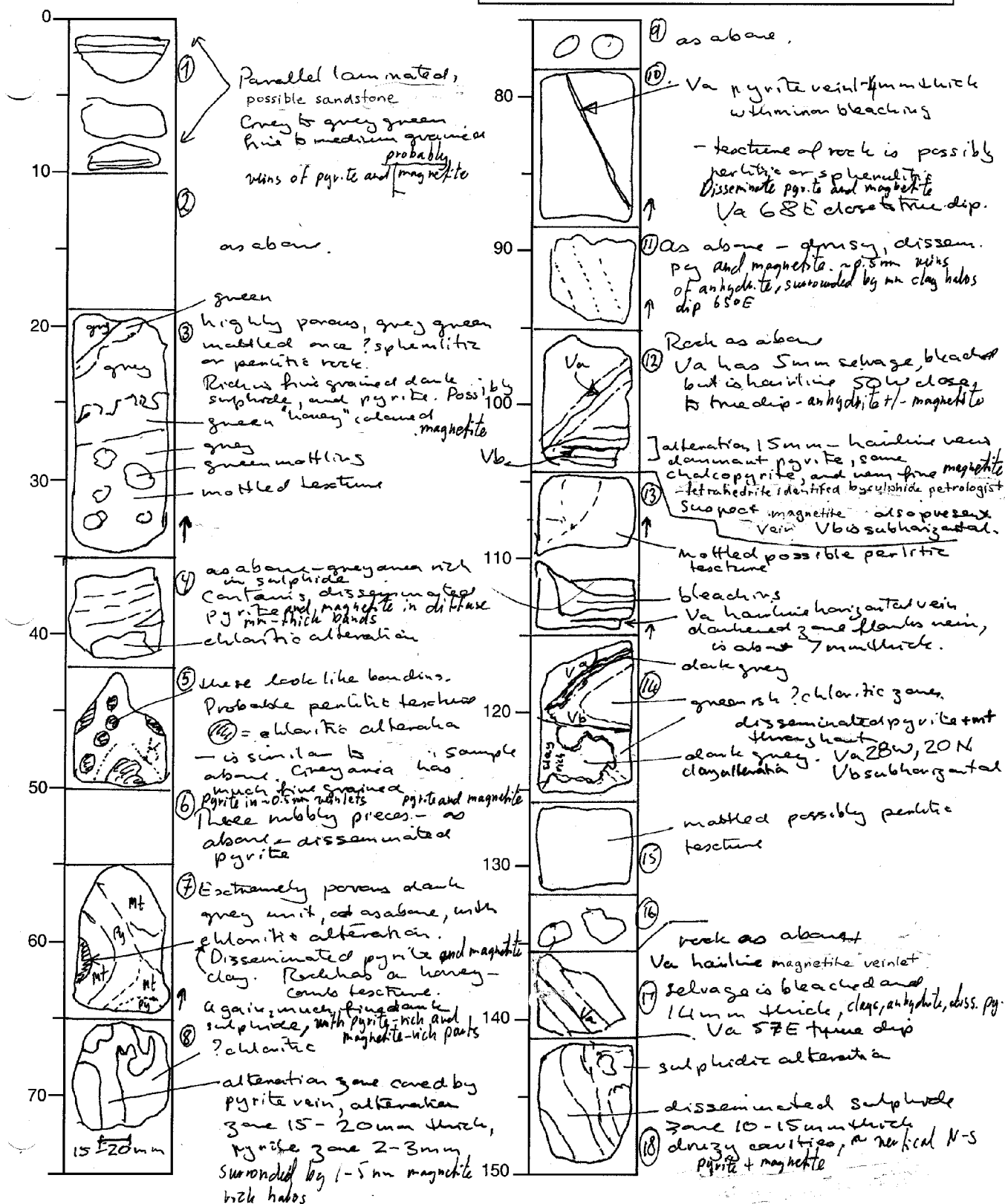
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188A	020R	1	RTT



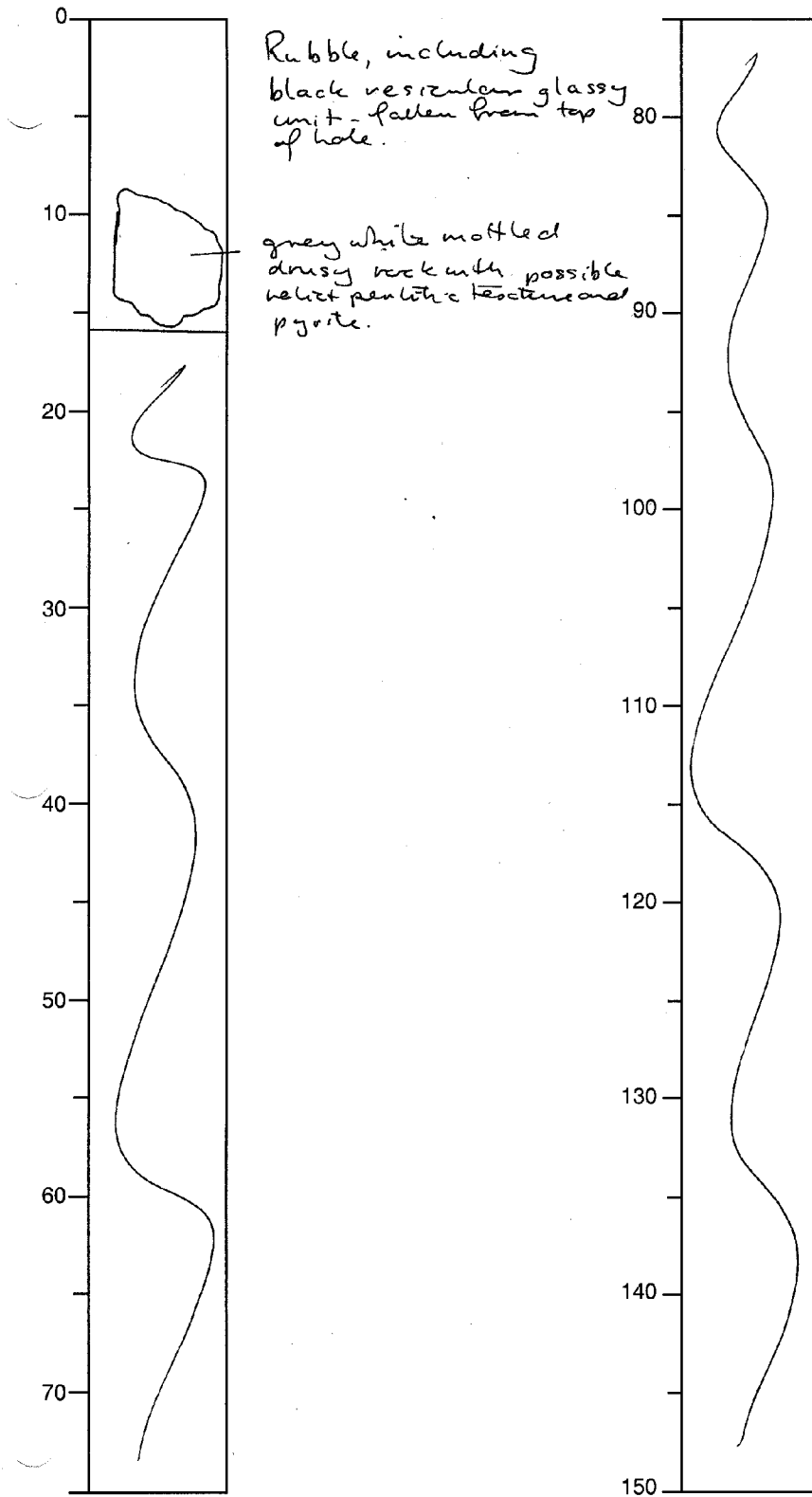
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188A	021R	1	RBT



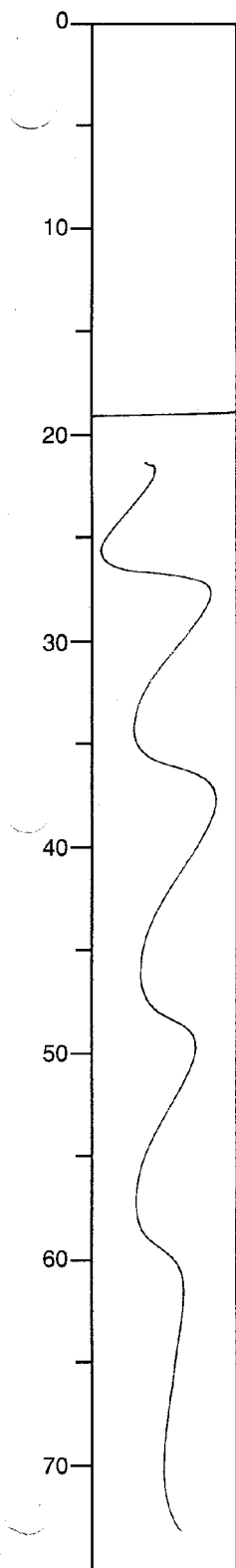
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188A	022R	1	RMT

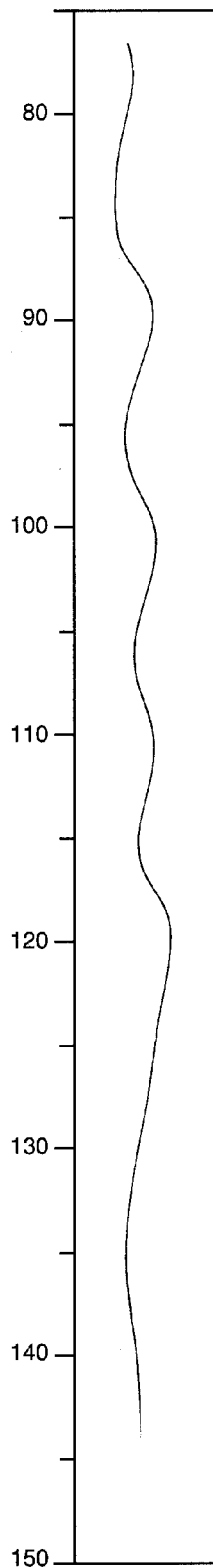


STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188A	23R	01	RET

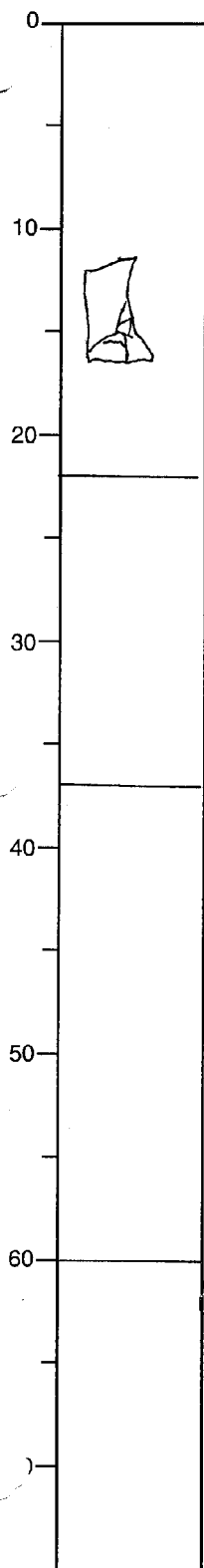


Rubble -
extremely leached
greywhite mnt. No R
structures - much
anhydrite, porous.



STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	1Z	1	BJE



①

Anhydrite-quartz-pyrite
varieties - 0.5-1 mm.

②

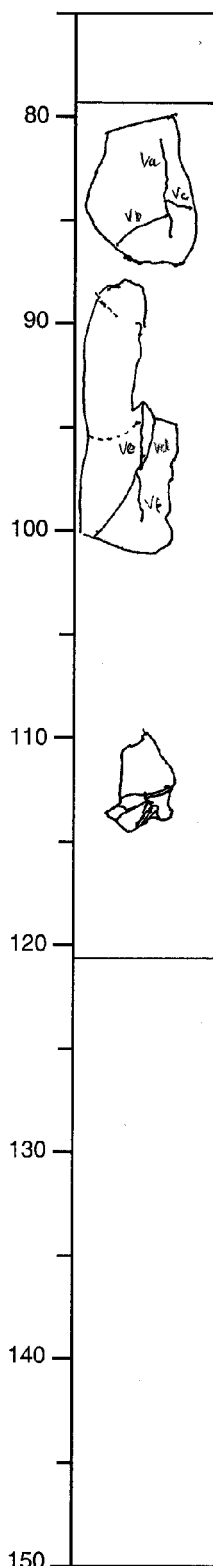
One small piece with
a < 0.5 mm anhydrite
rib.

③

Rubble with small pieces
with numerous submm to mm
anhydrite veins with minor
quartz. A few with very
fine pyrite.

④

Rubble, a few pieces
with anhydrite variegates
(as # 3).



⑤

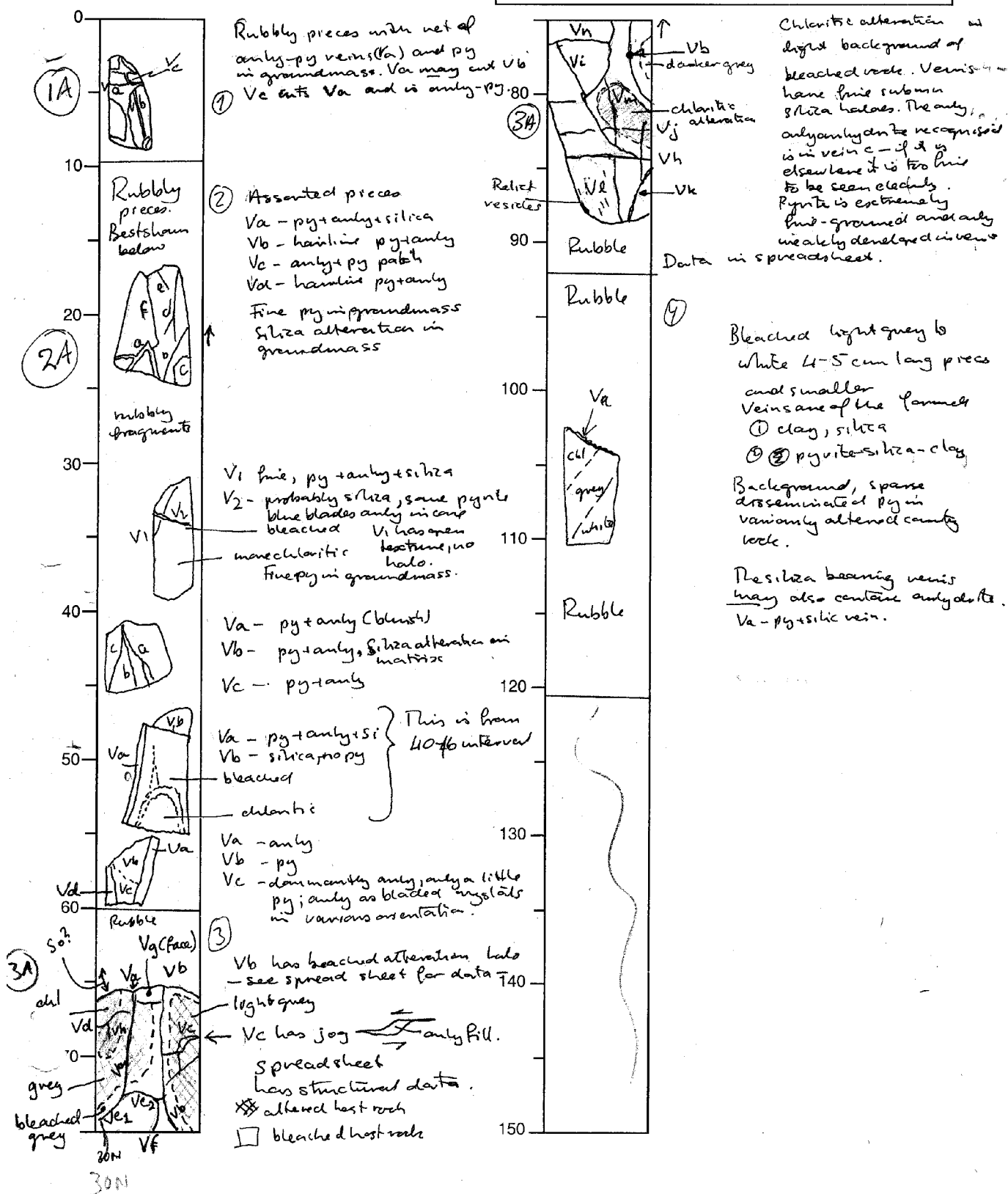
Submm quartz-anhydrite veins
with minor pyrite

↑

irregular anhydrite vein with
very minor pyrite

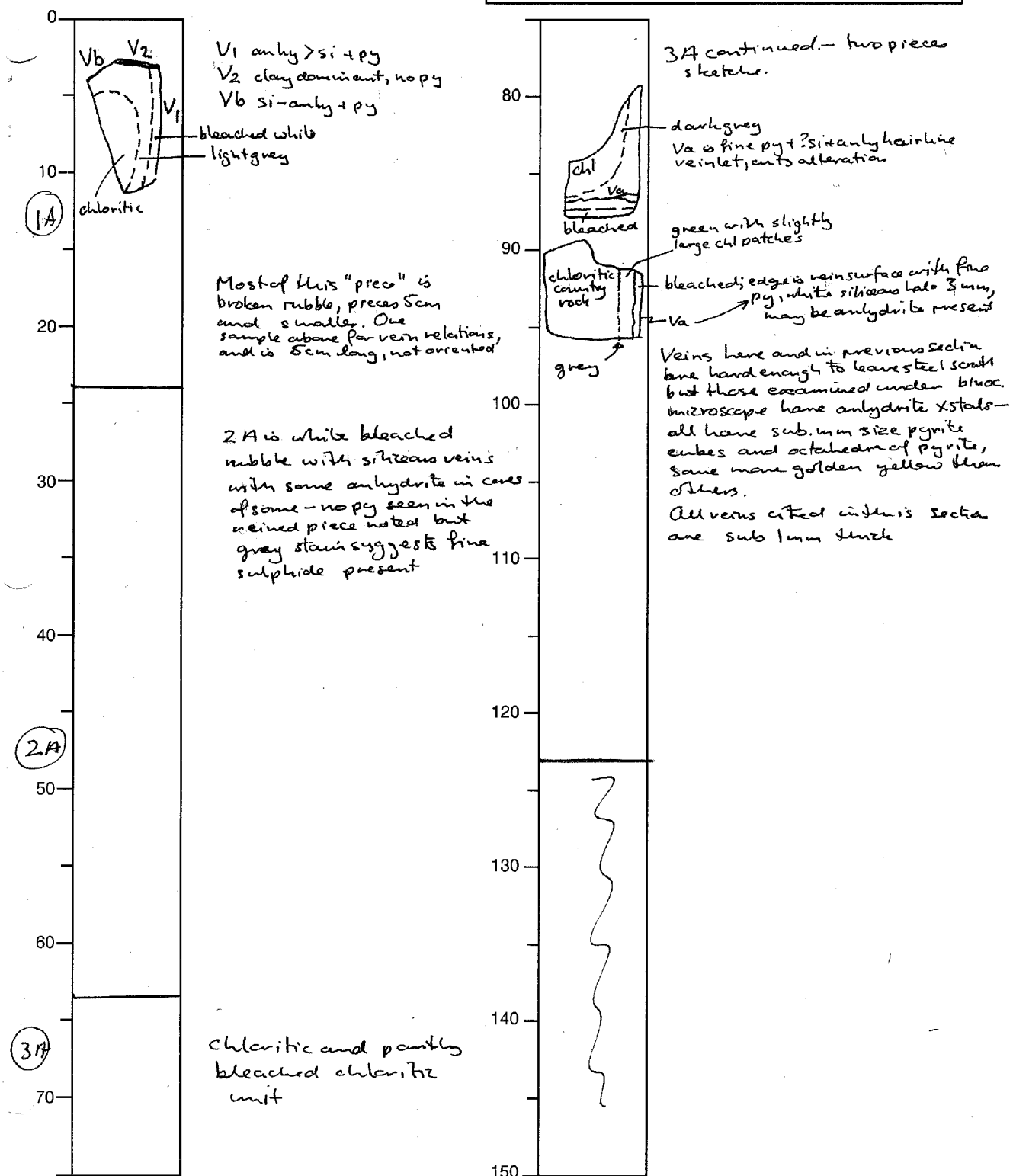
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	1Z	2	RAF



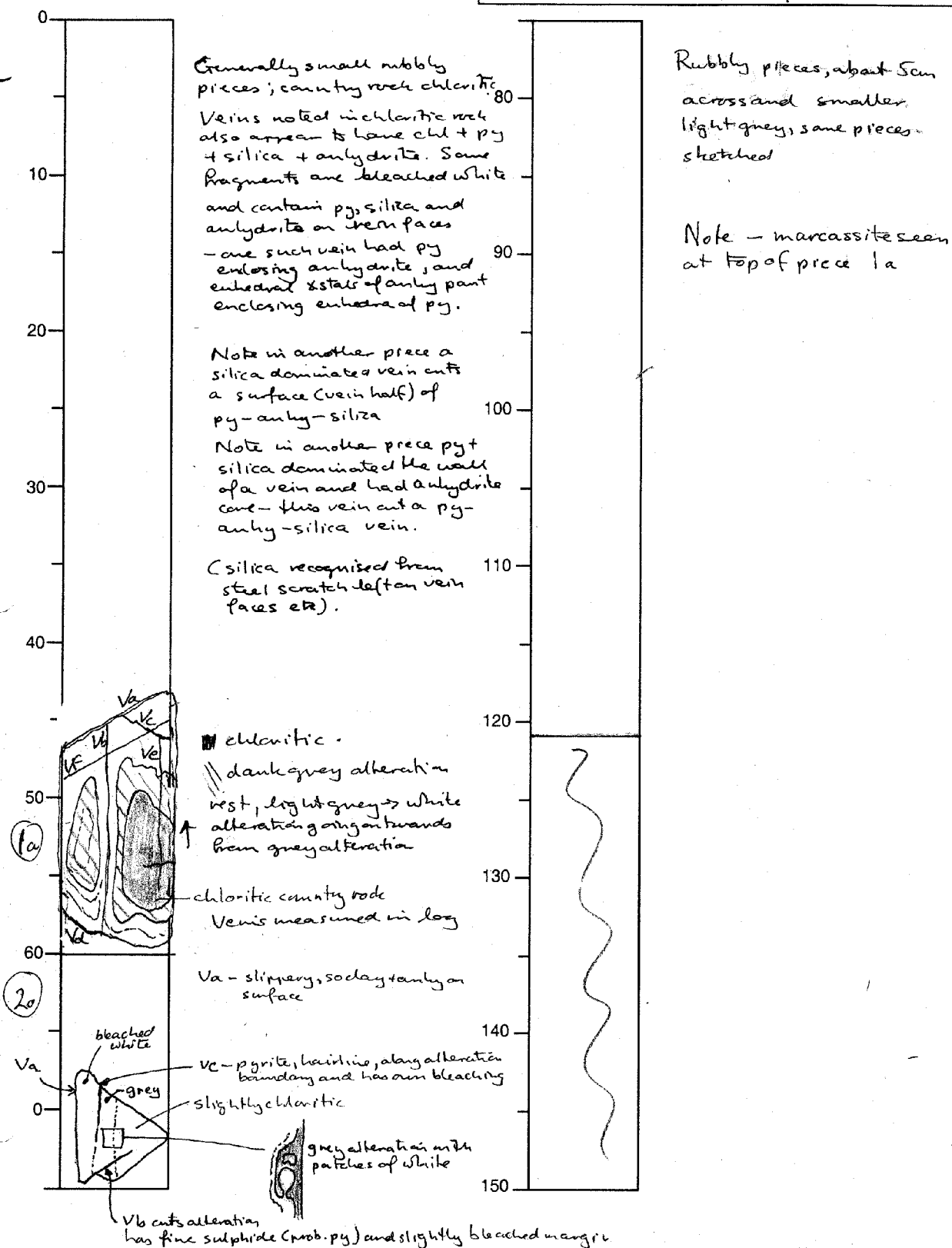
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	1Z	3	RAT



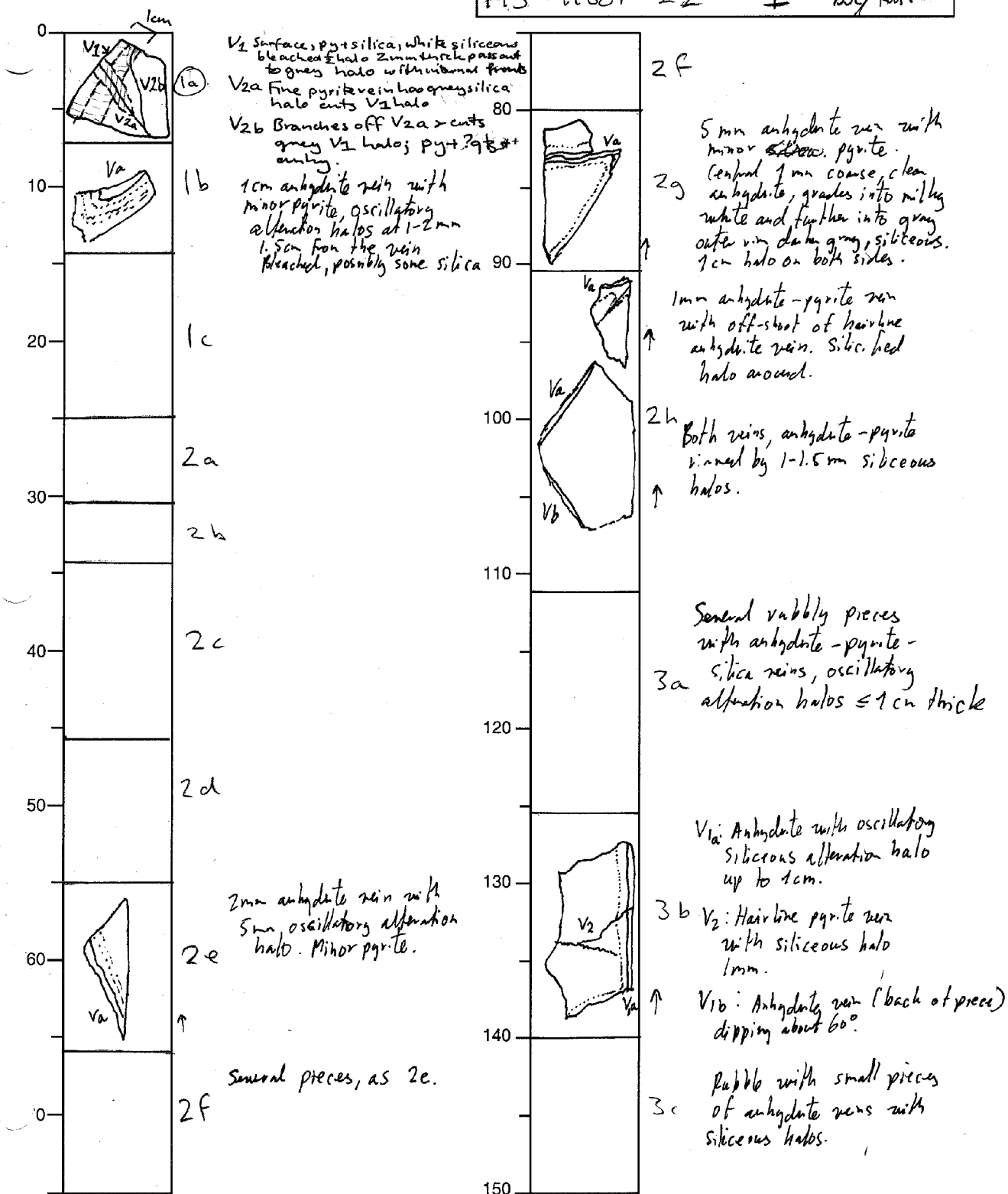
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	1Z	4	RJF



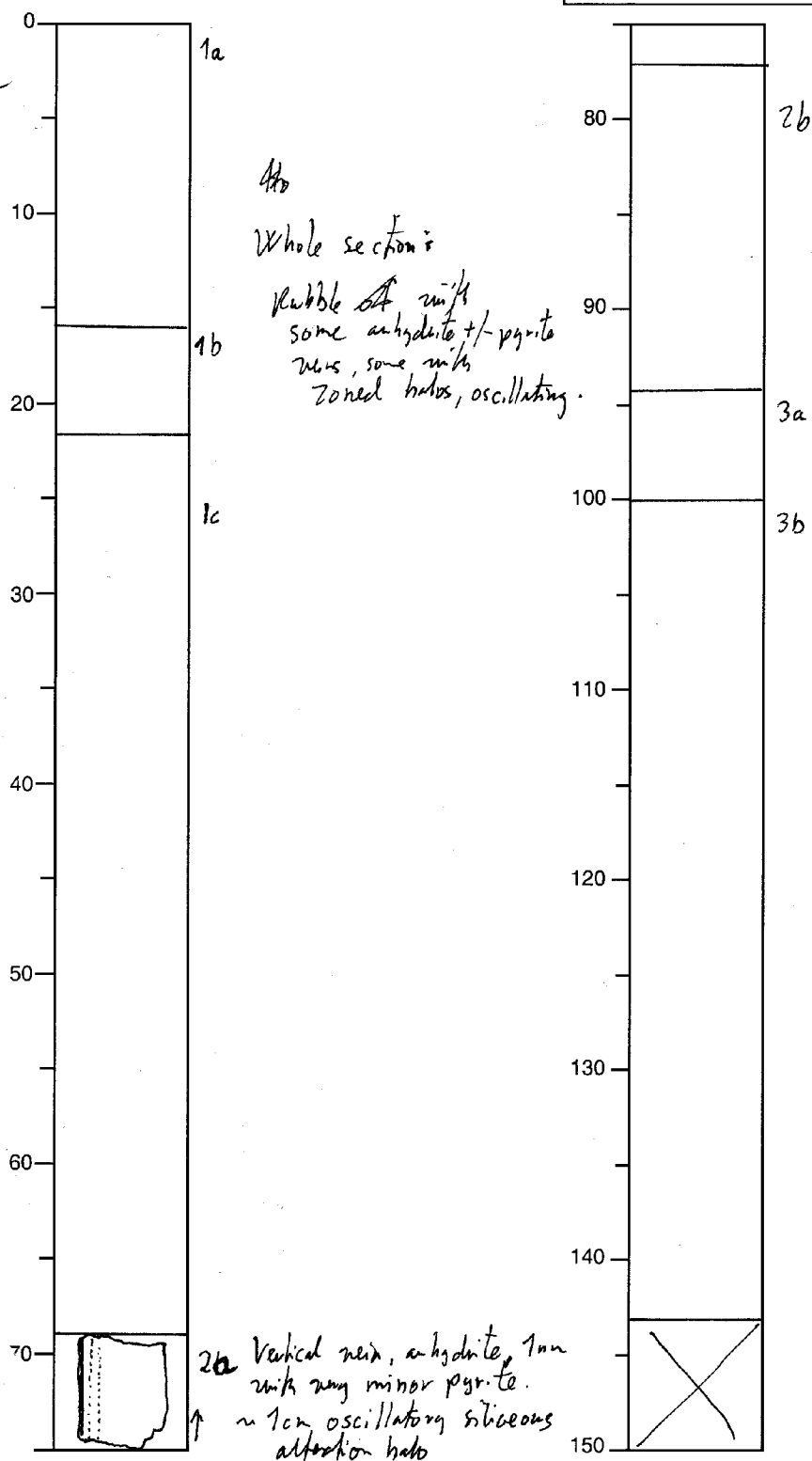
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	2Z	1	BJE/PTT



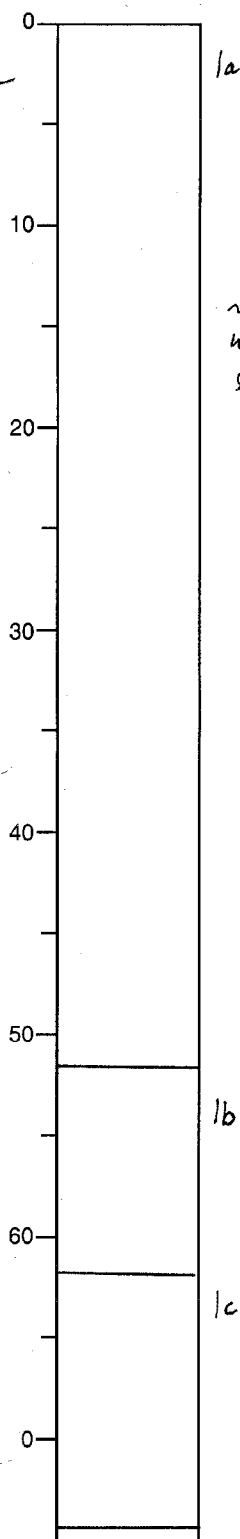
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188 F	3Z	1	BJE



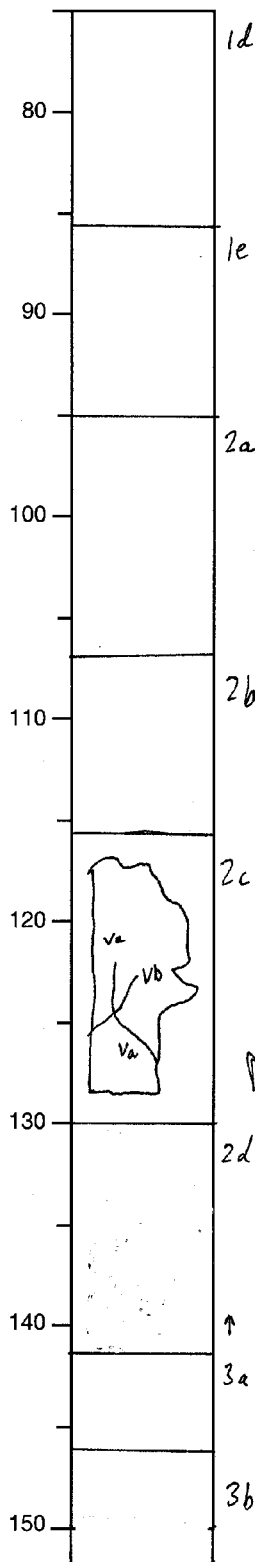
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	3Z	2	BJE



Whole Section:

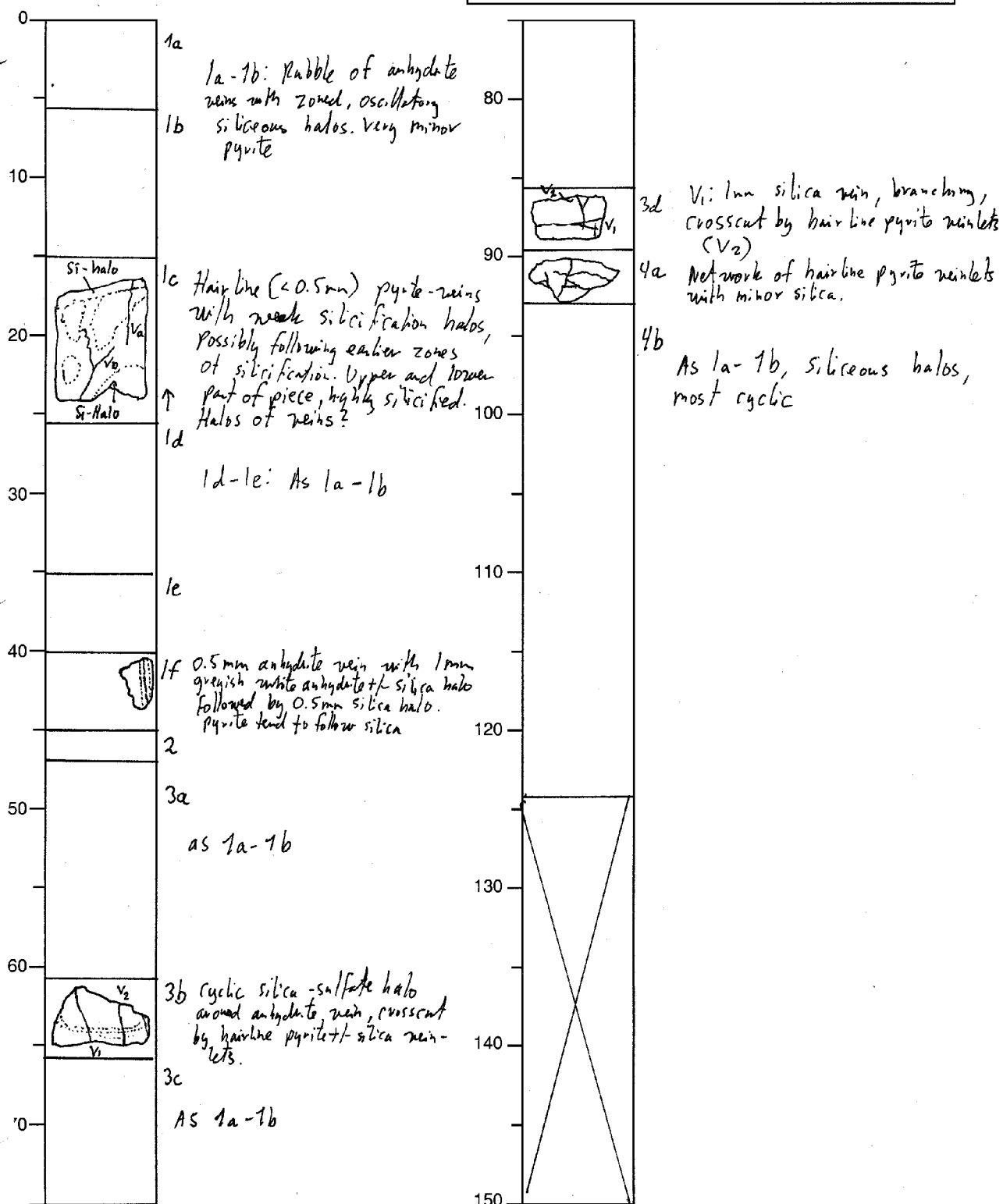
Anhydrite +/- pyrite veins,
~ mm thick, most with
up to ~~10~~ cm oscillatory
siliceous alteration halos
(Rubble).



2d Va; Vb: 1-1.5 mm
anhydrite-quartz-pyrite veins
with anhydrite core, rimmed by
quartz-pyrite, especially pronounced
in Va

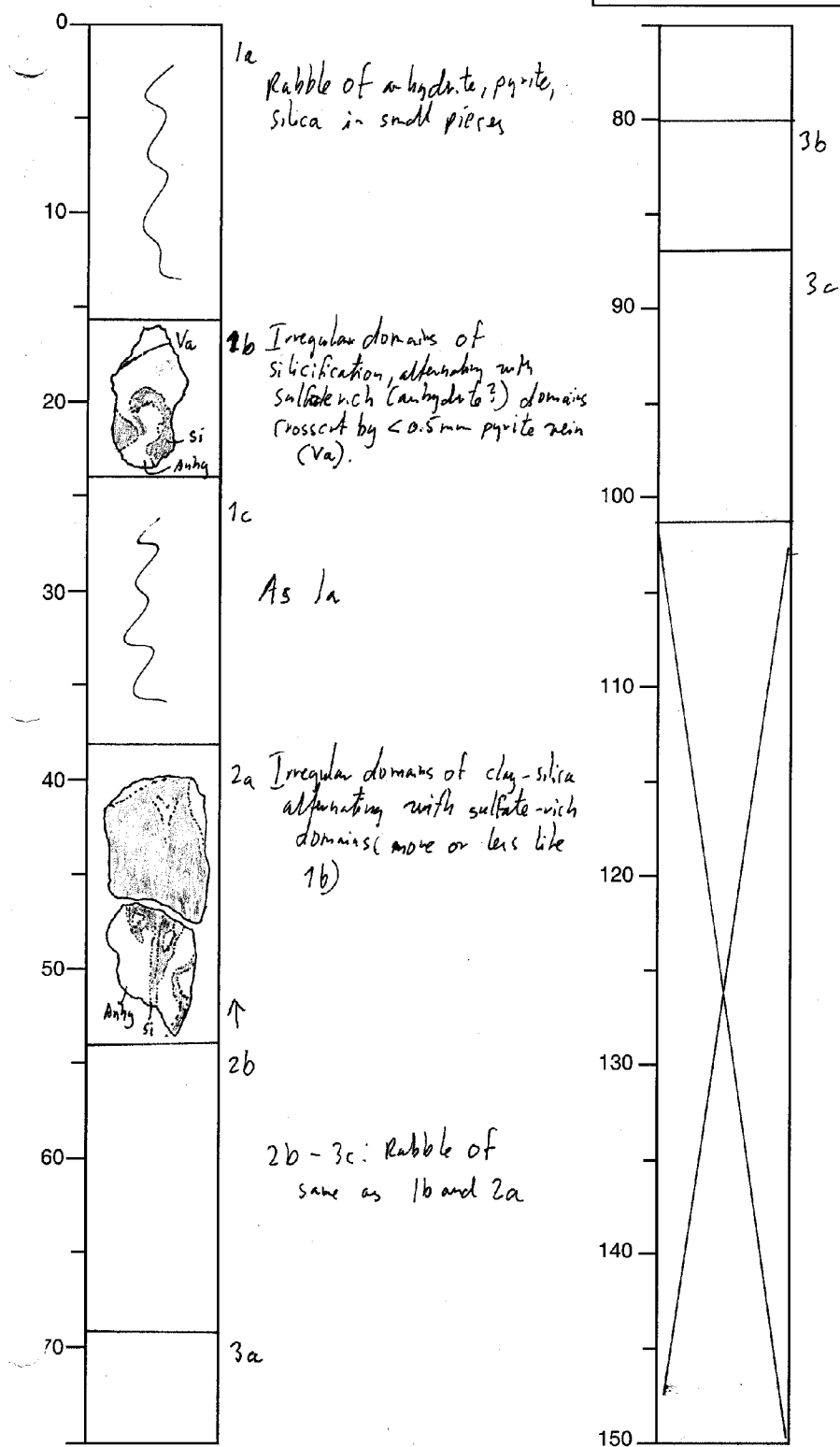
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	6Z	1	BSE



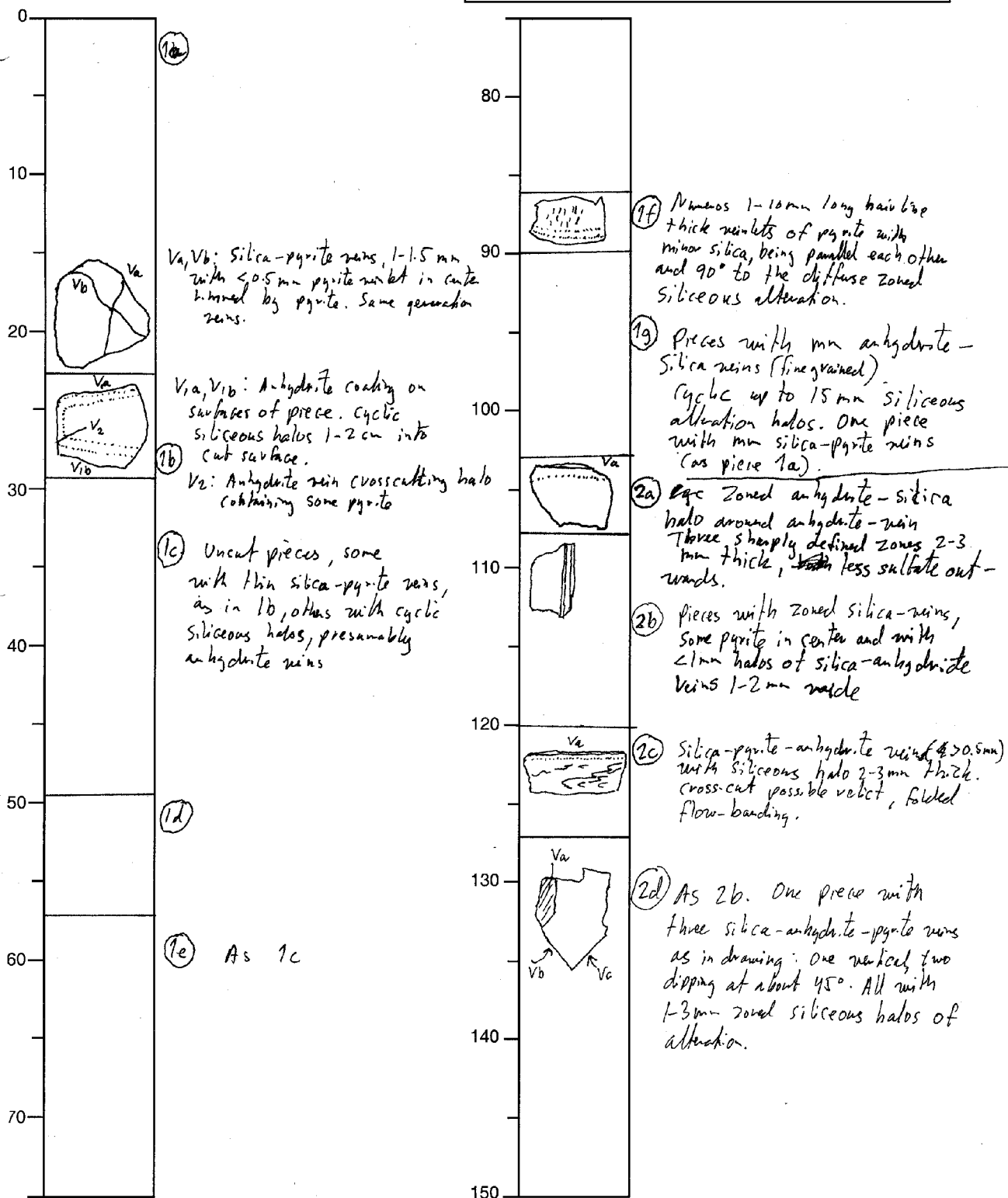
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	6Z	2	BSE



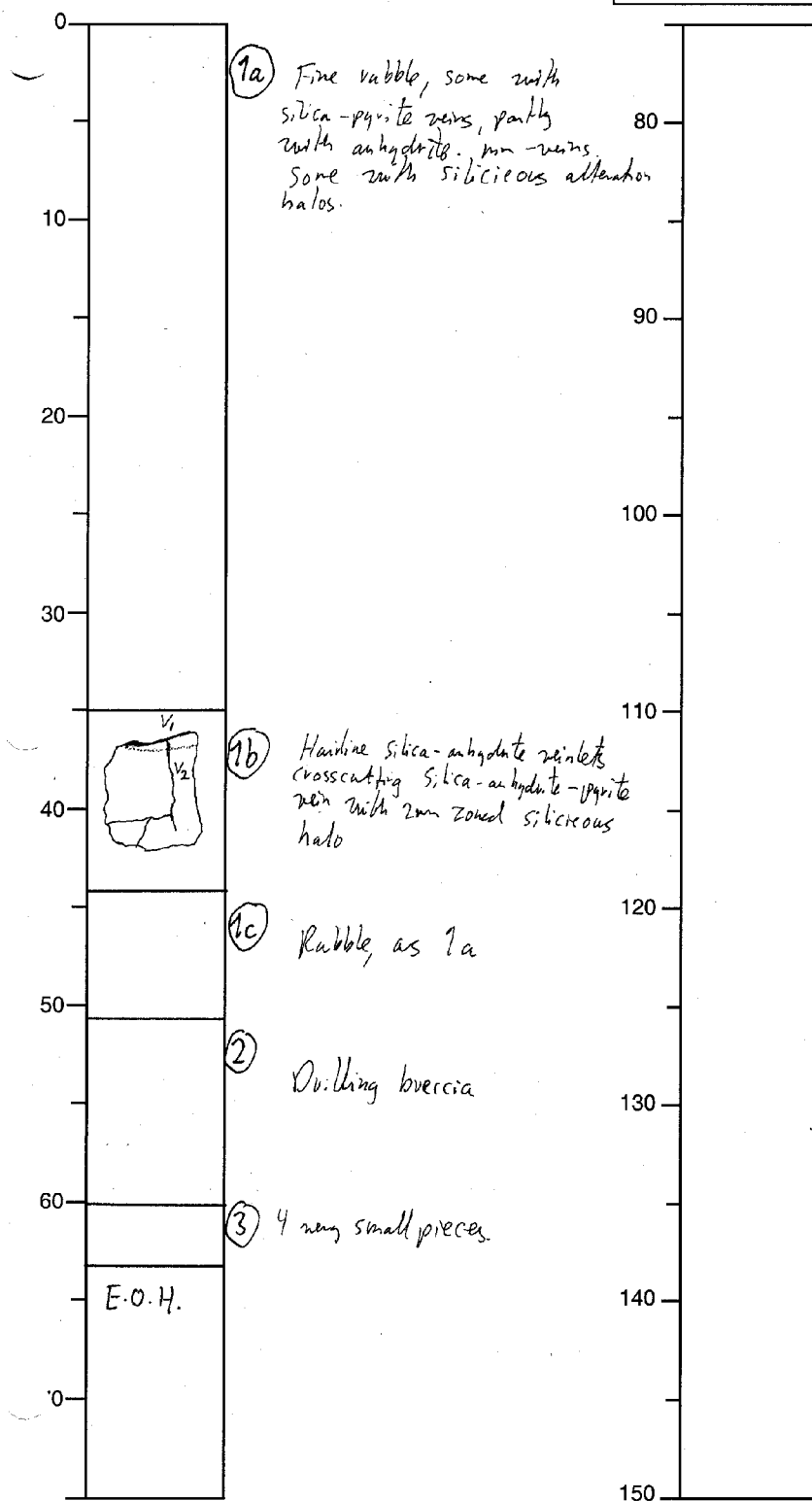
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	7Z	1	BSE



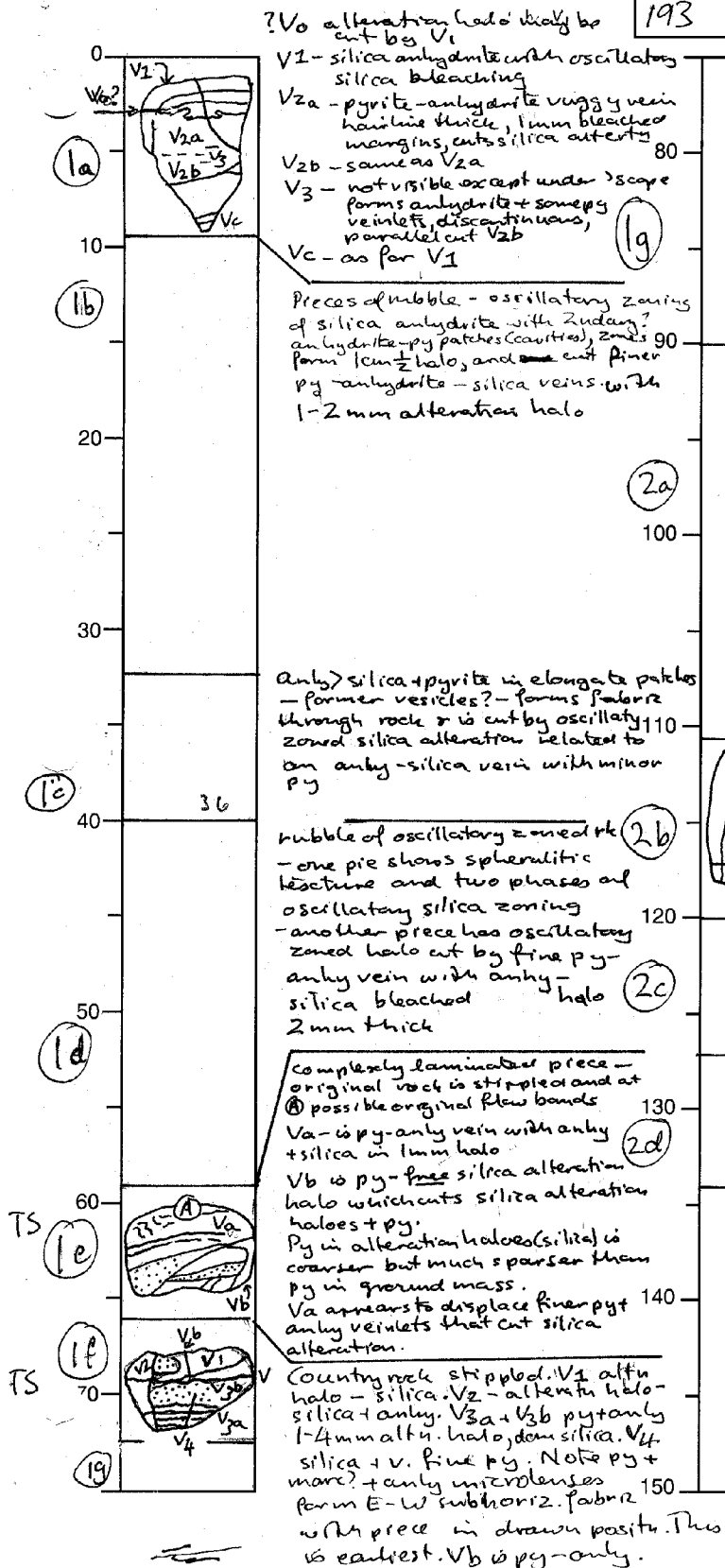
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	7Z	2	BJE



STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	8Z	1	REF



Rubby pieces of similar material as 1e + 1f - contains only vein with blue grey anhydrite with halo of silica anhydrite. Vein is NOTABLE for no sulphide. Two possible veins with pyrite + anhydrite.

Rubby pieces - silicate halo 4mm around surface which was anhydrite + silica vein + some pyrite overgrowing anhydrite.

Contains veinlet anhydrite - pyrite vesicles V₁ is silica alteration halo 7mm thick on anhydrite vein with minor pyrite + a different dark grey sulphide + pyrite. V₂ anhydrite + pyrite veins. Background early anhydrite + pyrite alteration forms veinlets growing crude fabric.

NOTE the anhydrite - pyrite veinlets reported as forming a background fabric in 1e + 1f are malacchite + pyrite + anhydrite. This is cut by coarse pyrite + anhydrite and the silica alteration haloes.

Leg	Hole	Core	Section	Observer
193	1188F	9Z	1	RH

STRUCTURAL DESECT DESCRIPTION

Order of formation: ① First phase silica alteration ② Second phase silica alteration

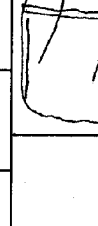
193

0

(1a) 

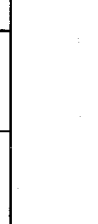
- V₂ Hairline vein, 3mm silica halo loses py. in silica zone ② - w anhy + py vein
- V_{2a} Hairline hairline, 0.5mm, anhy alteration halo anhy + py
- V_{2b} Hairline hairline, 0.5mm, anhy alteration halo anhy + py
- V_{2c} Hairline very fine hairline - py + silica + 80 anhy - under binocular it looks as if anhy alteration halo cuts V_{2c}.

10

(1b) 

- V₂ - 1cm halo.
- Fragmental rock, piece at (A) has relict flow banding, at one (A) change in colour from dark to light in background silica alteration. At (B) later bleaching & silica alteration, cross previous silica alteration. V_{2a} is hairline fracture with py. V_{2b} is anhy + py vein, typical of that associated with 90.
- silica } V₁ 1/2 halo, 3mm alteration anhy
- V_{2a} - hairline anhy + minor emb. py
- V_{2b} - same

20

(1c) 

100

(1d) Rubby pieces

110

120

50

(1e) 

- V₁ hairline marcellite or py silicate anhy + silica halo mm.
- V₂ is hairline marcellite or anhy vein which cuts V₁ but loses anhy sulphate as it does so. Background lenticles of py and/or marc + anhydrite form a crude fabric

130

(1f) Three small pieces

60

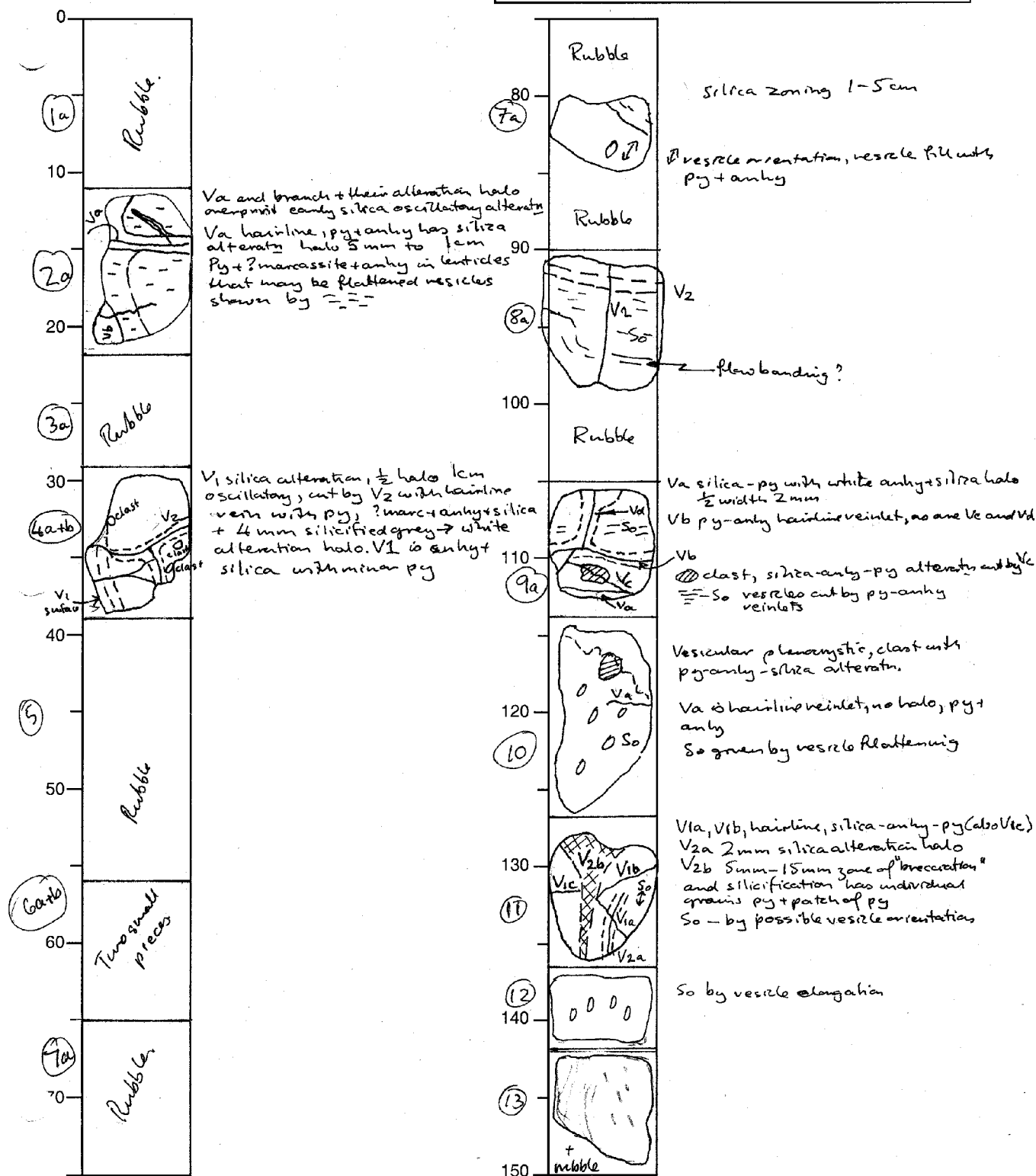
70

140

150

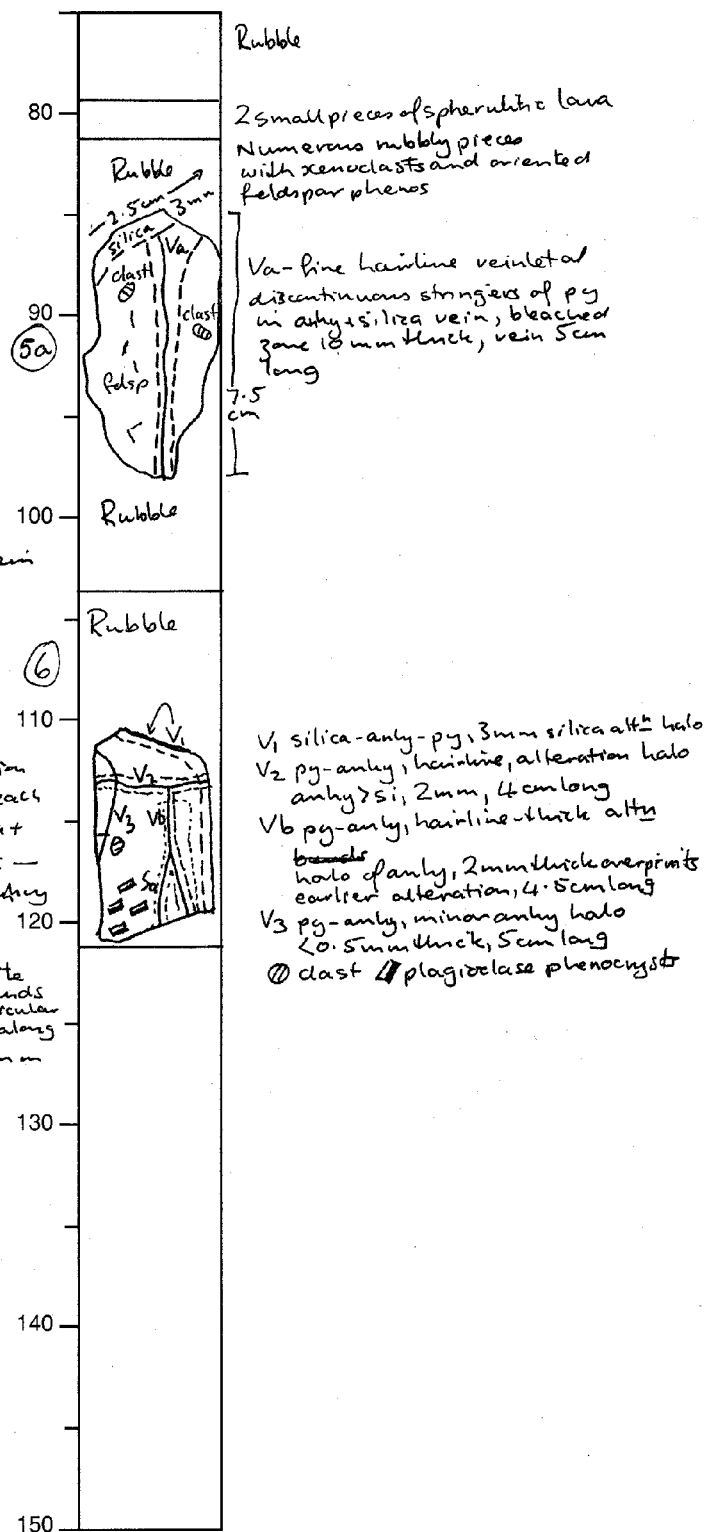
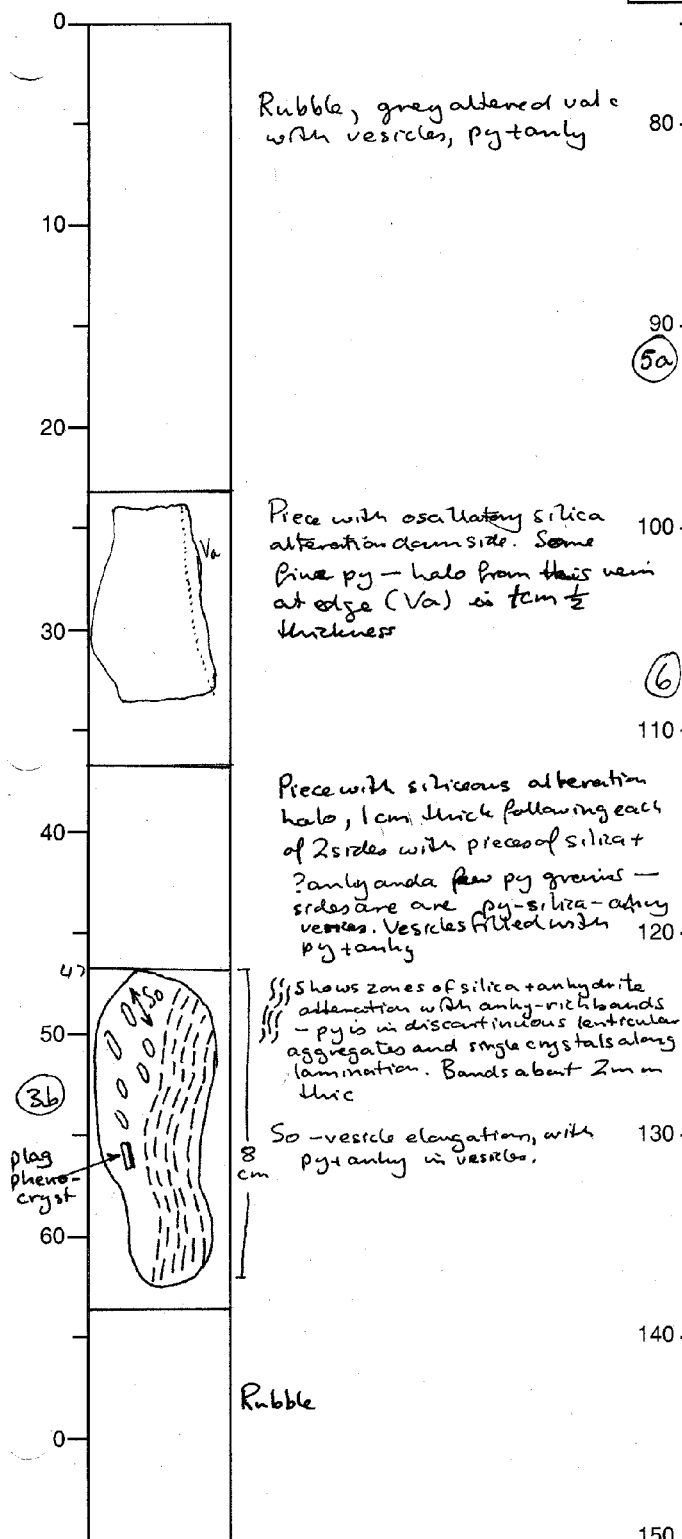
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	11G	1	RTH



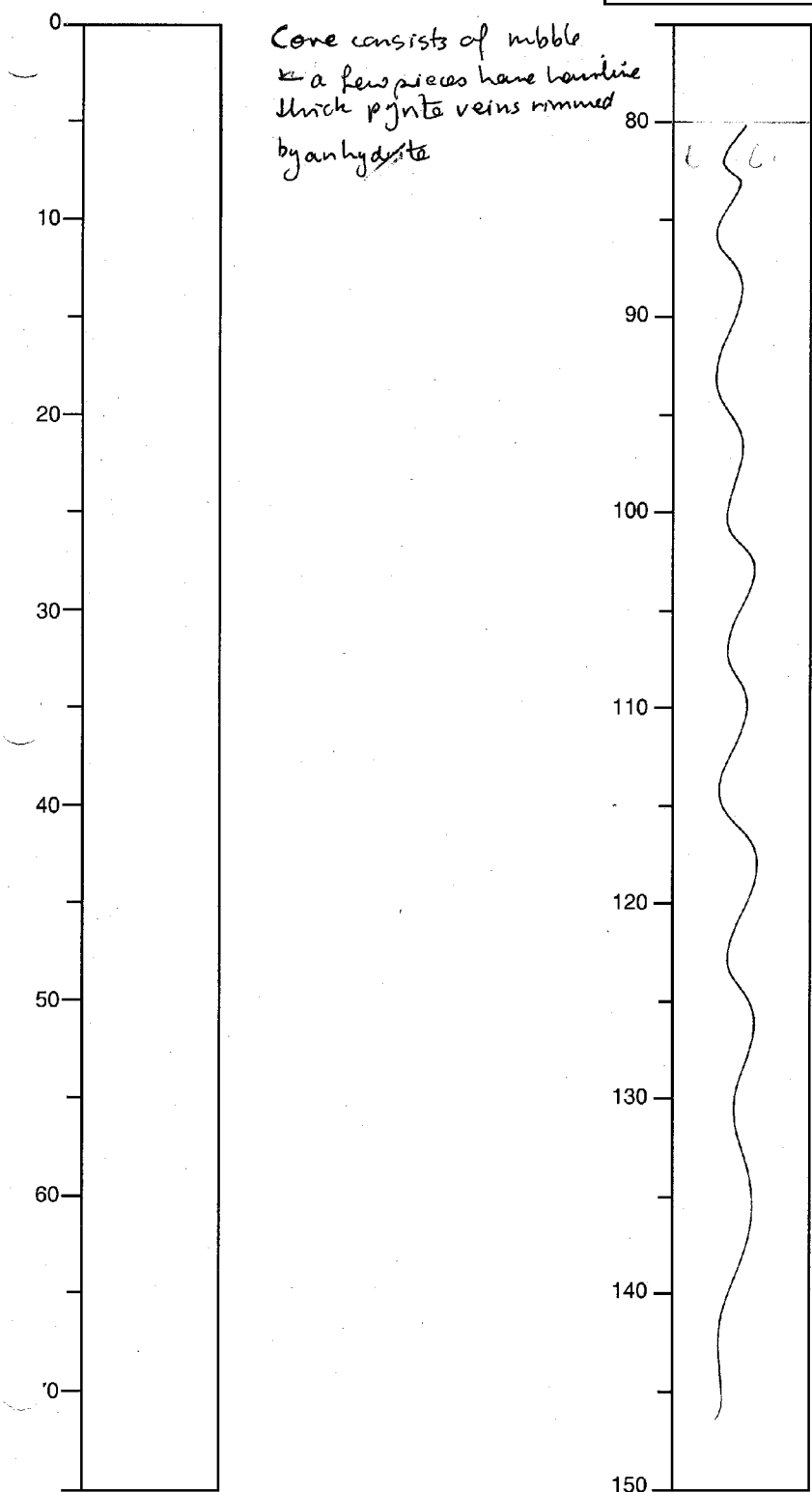
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	13Z	1	RH



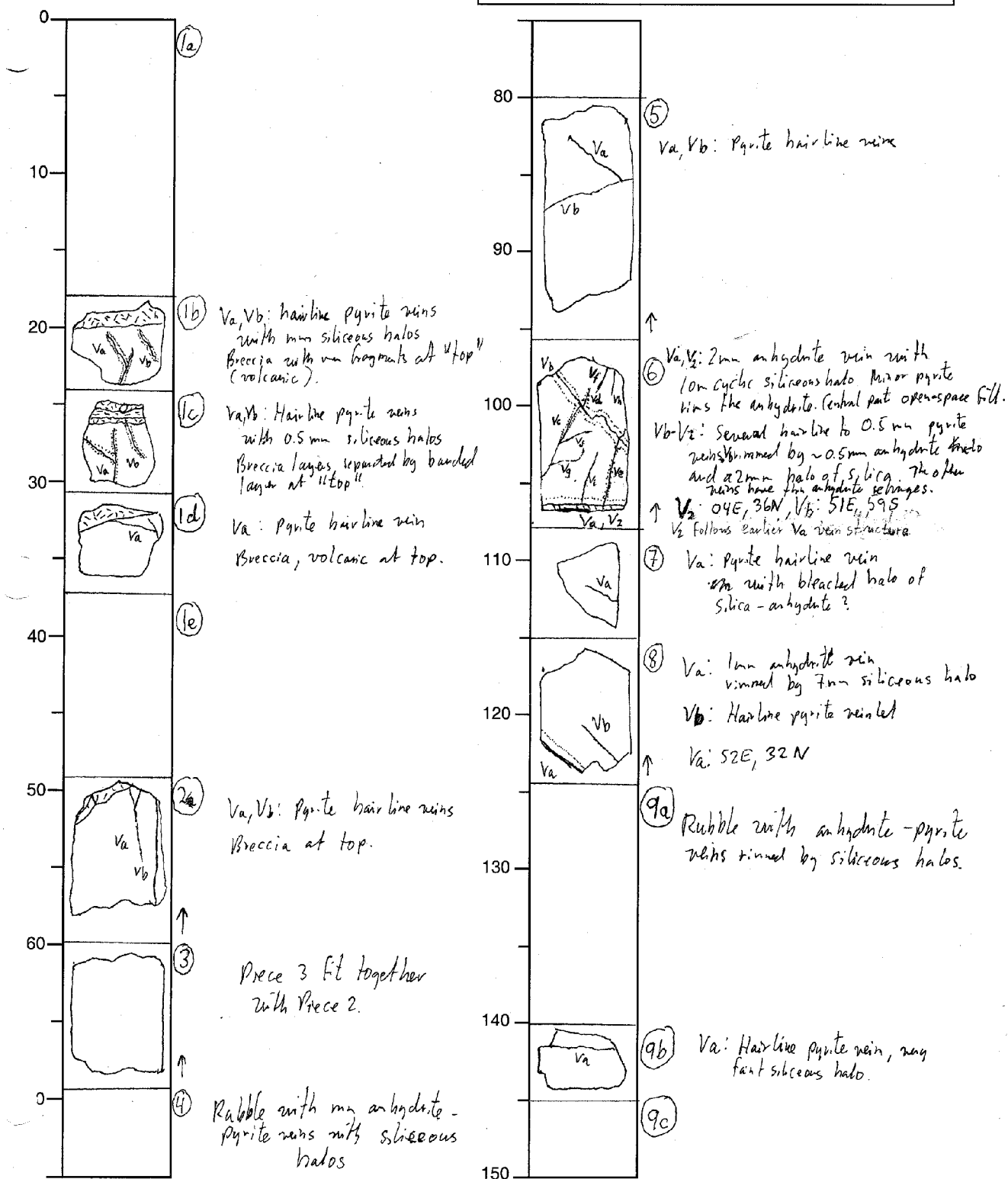
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188 F	13Z	2	RAH



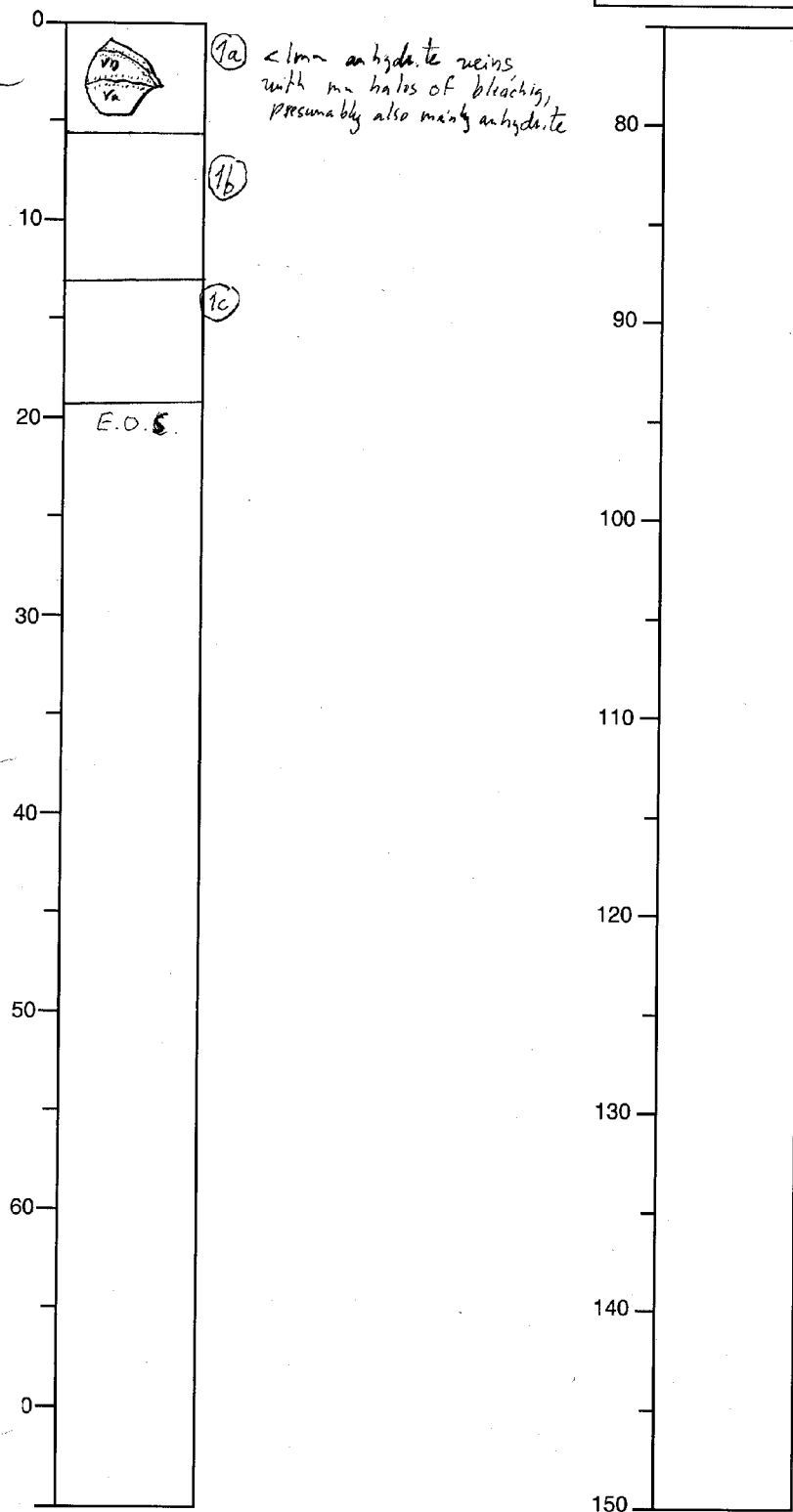
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188	142	1	BJE



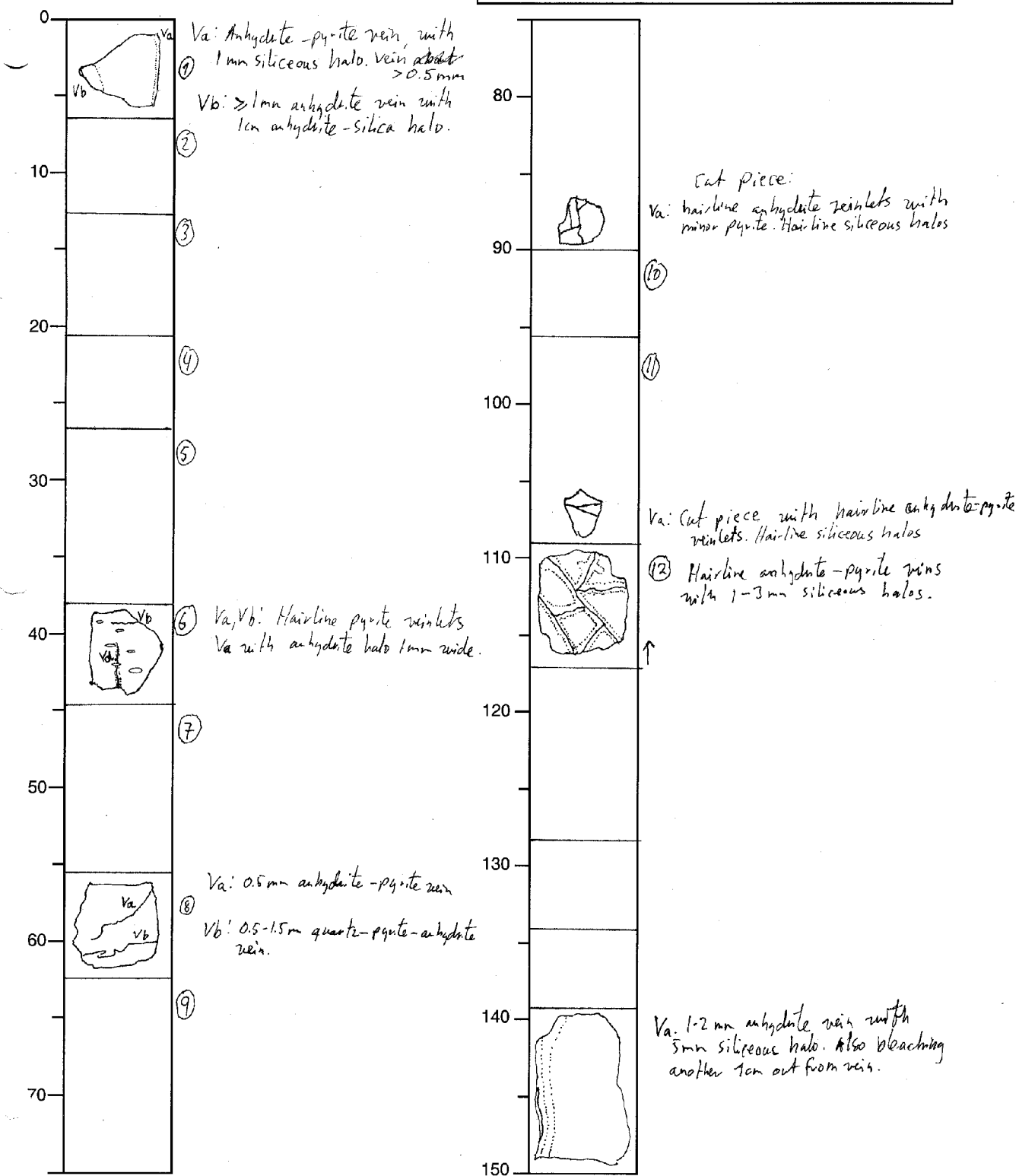
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	14Z	2	Bje



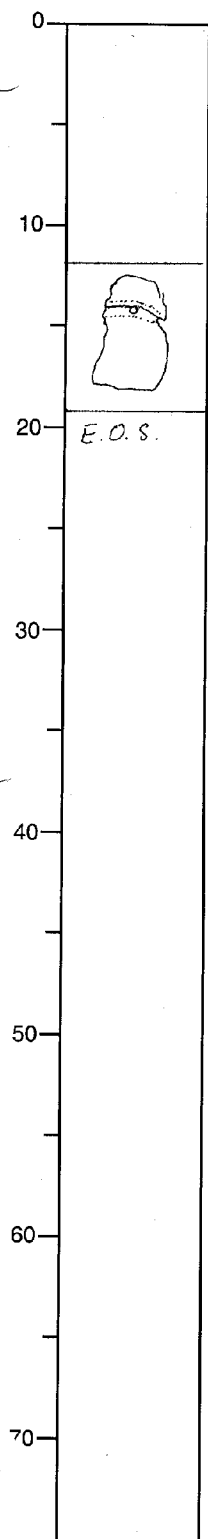
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	15 Z	1	BJE



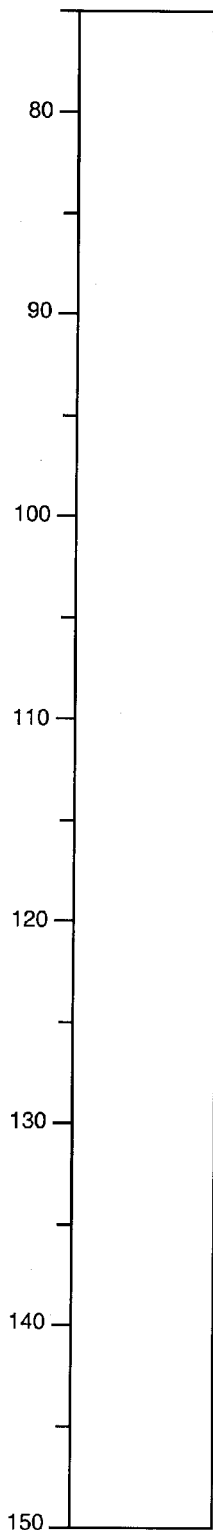
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	152	2	135E



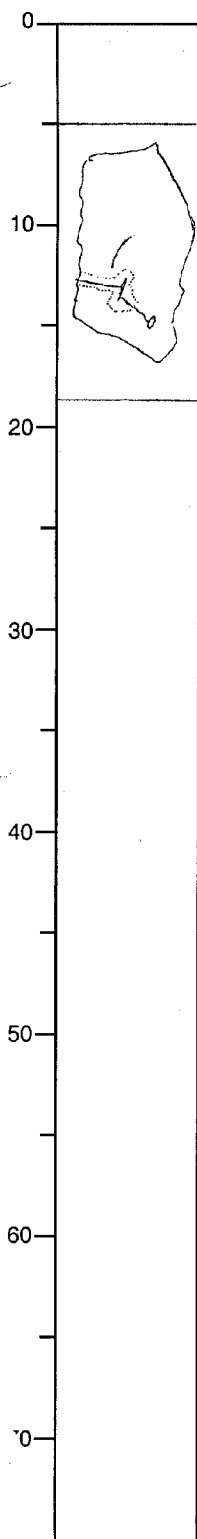
*Hair like pyrite-anhydrite nodule
with anhydrite halo 2mm growing
outwards into 5mm siliceous halo*

E.O.S.



STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	16Z	1	BJE



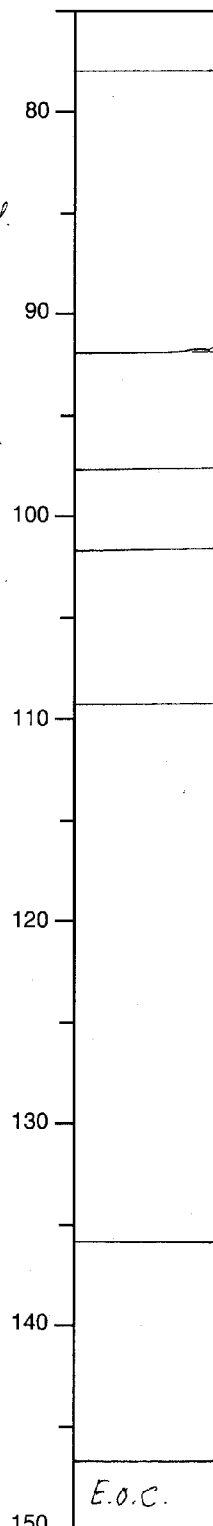
(1a)

Few hairline pyrite veins
with hairline anhydrite stringers.
Dark gray silica-clay matrix around.

(1b)

1c-3e: Volcaniclastic breccia
with few hairline veins
of pyrite, up to 2 cm long.
(mainly rubble throughout).

(1c)



(2)

(3a)

(3b)

(3c)

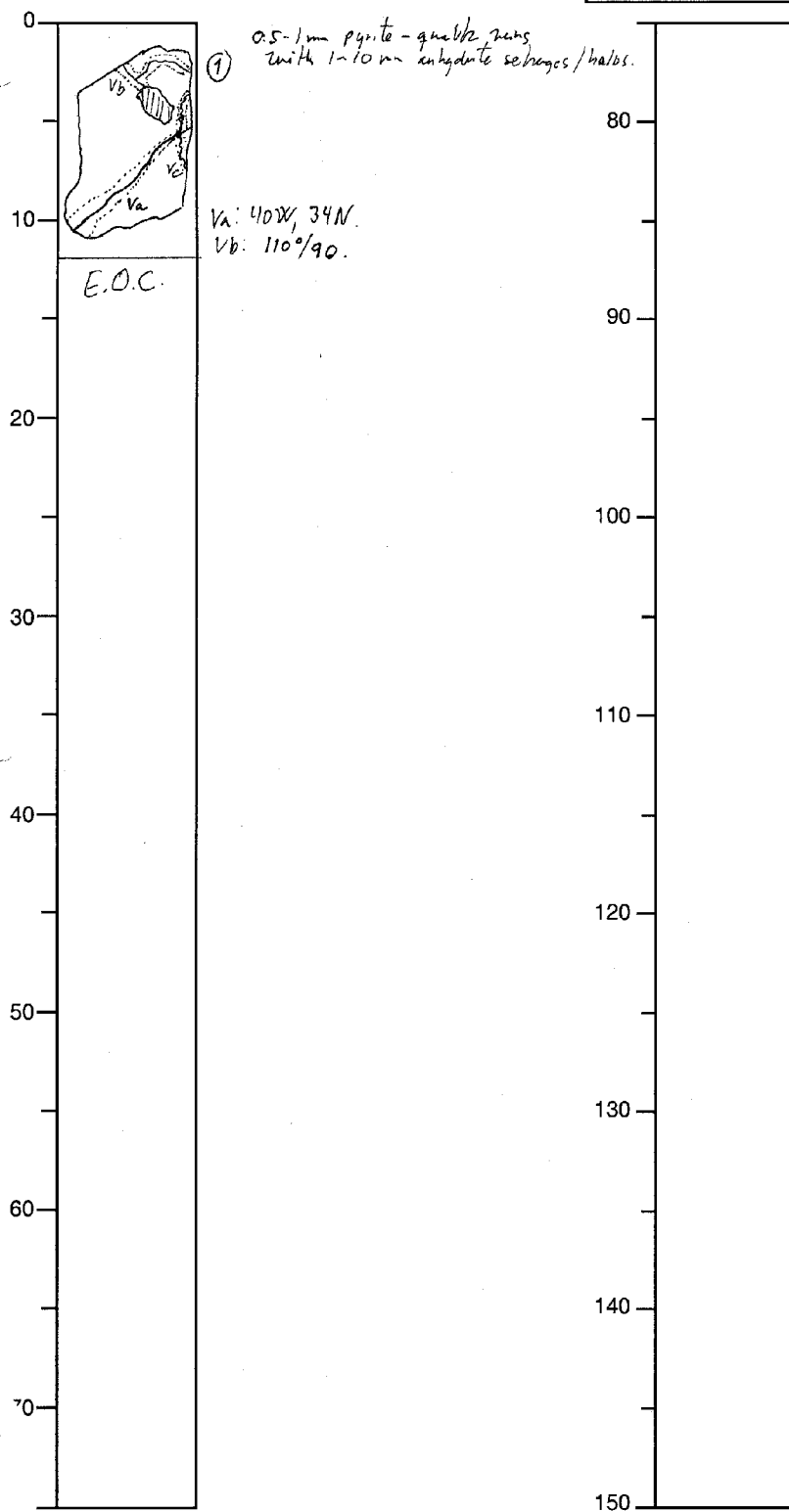
(3d)

(3e)

E.O.C.

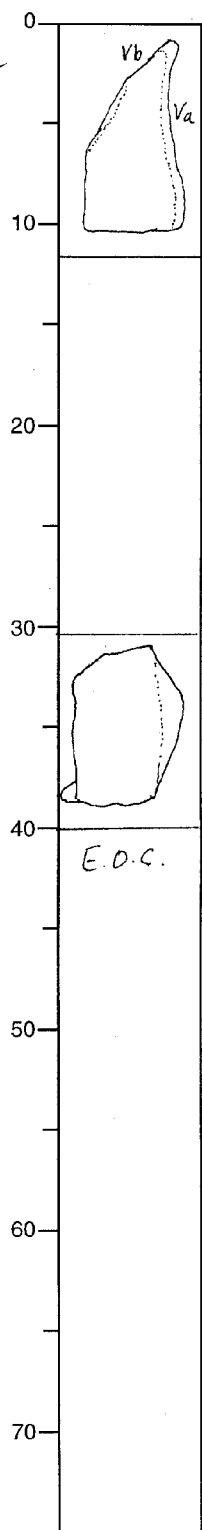
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188 F	172	1	BJE



STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
J93	1188F	18Z	1	BSE



Va, Vb, Anhydrite - pyrite veins,
cyclic siliceous halos 1-5 mm.

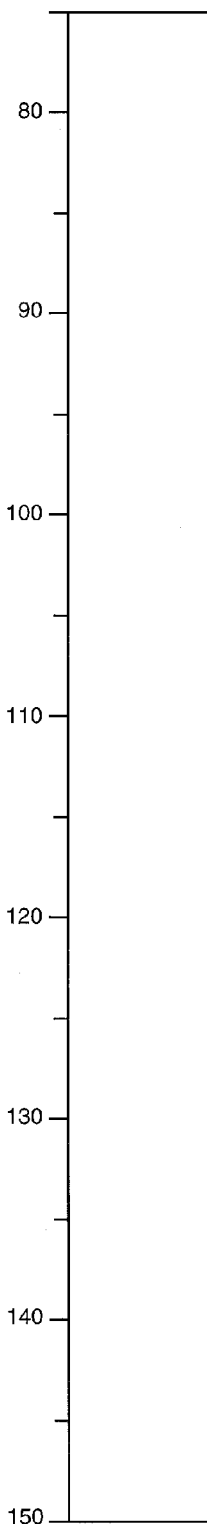
(1a)

(1b)

(1c)

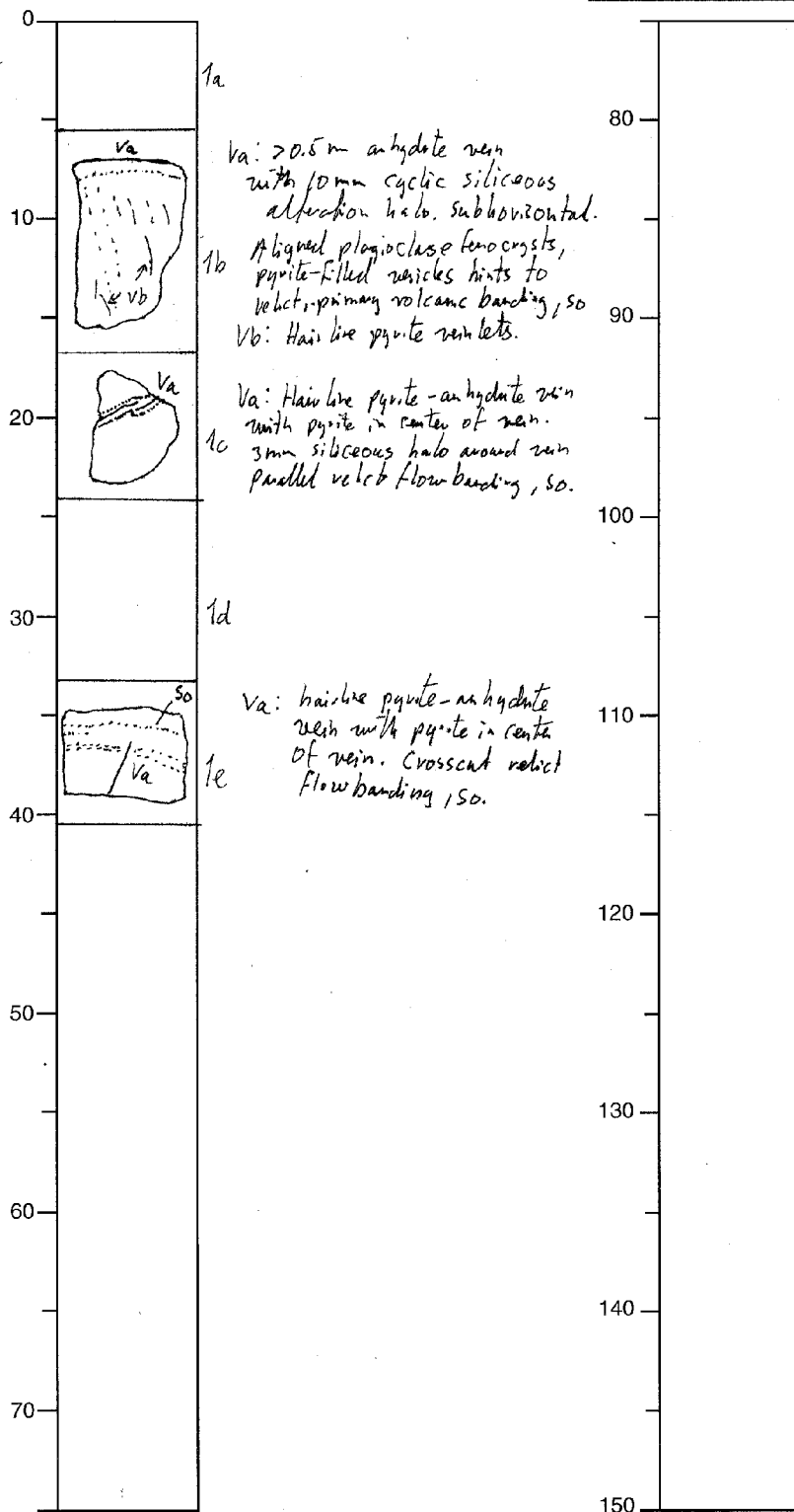
Siliceous halo in one
part of piece, up to
1.5 cm wide.

E.D.C.



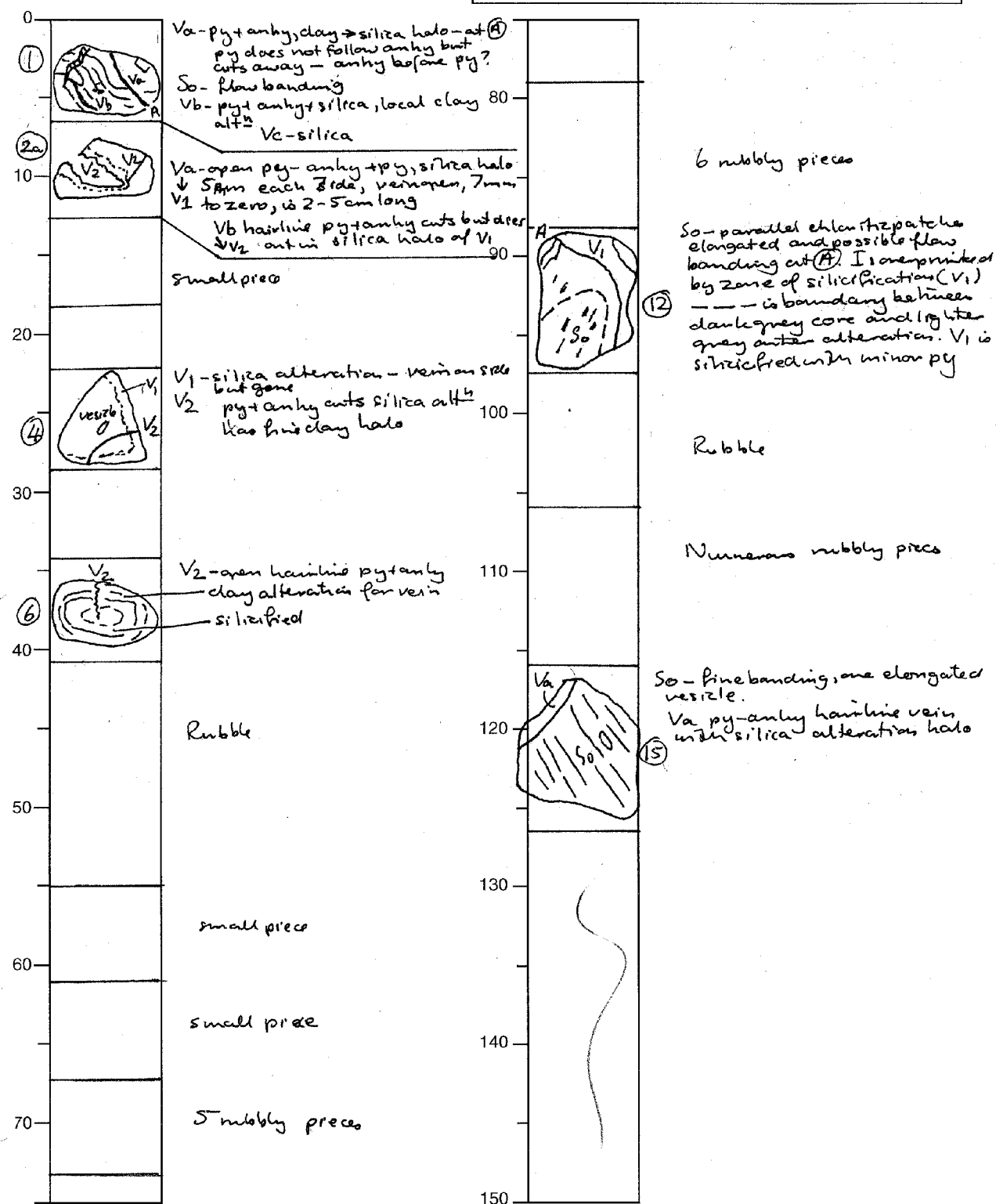
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	19Z	1	BSE



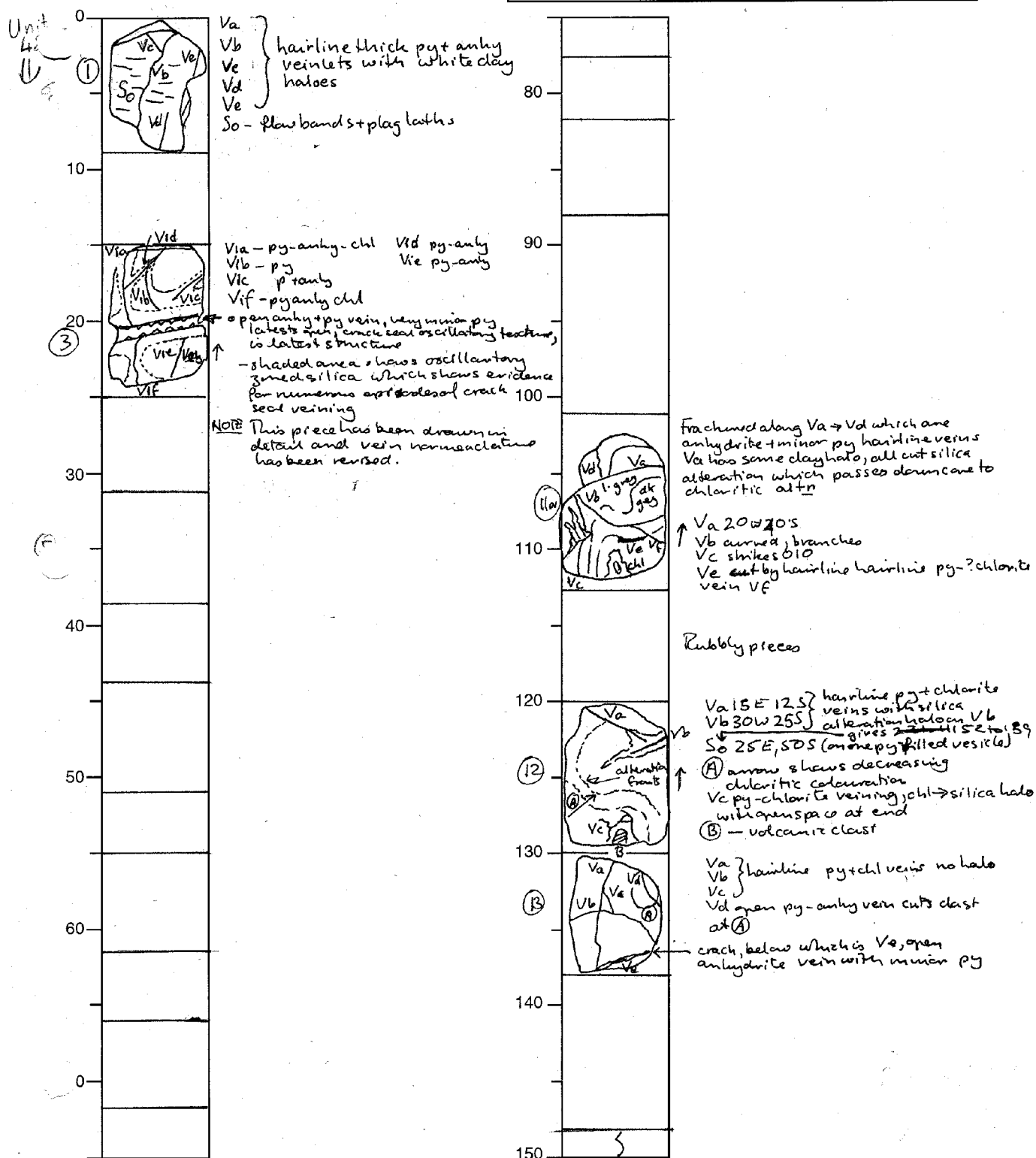
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	22Z	1	PRB



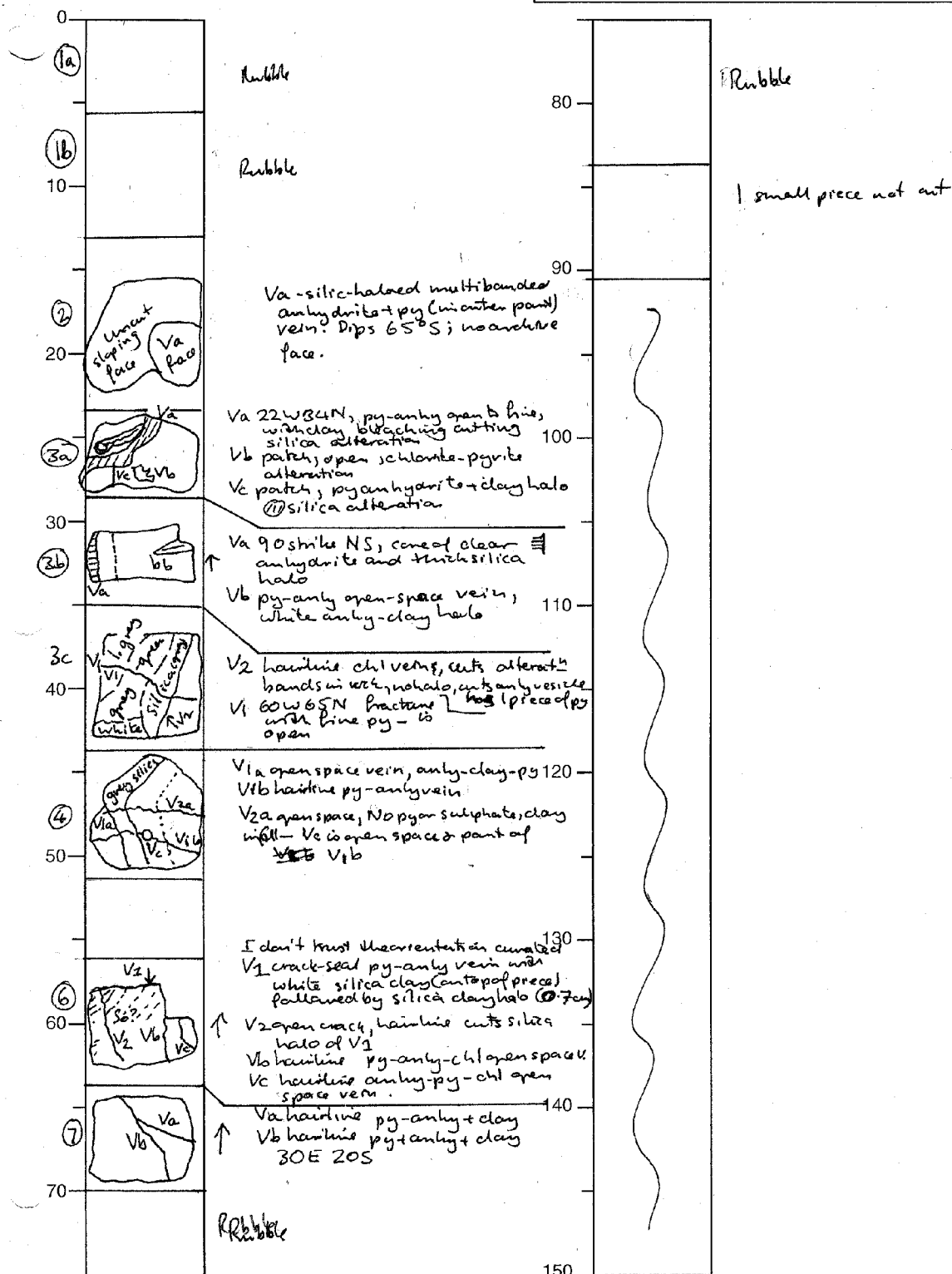
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	23Z	1	RFF



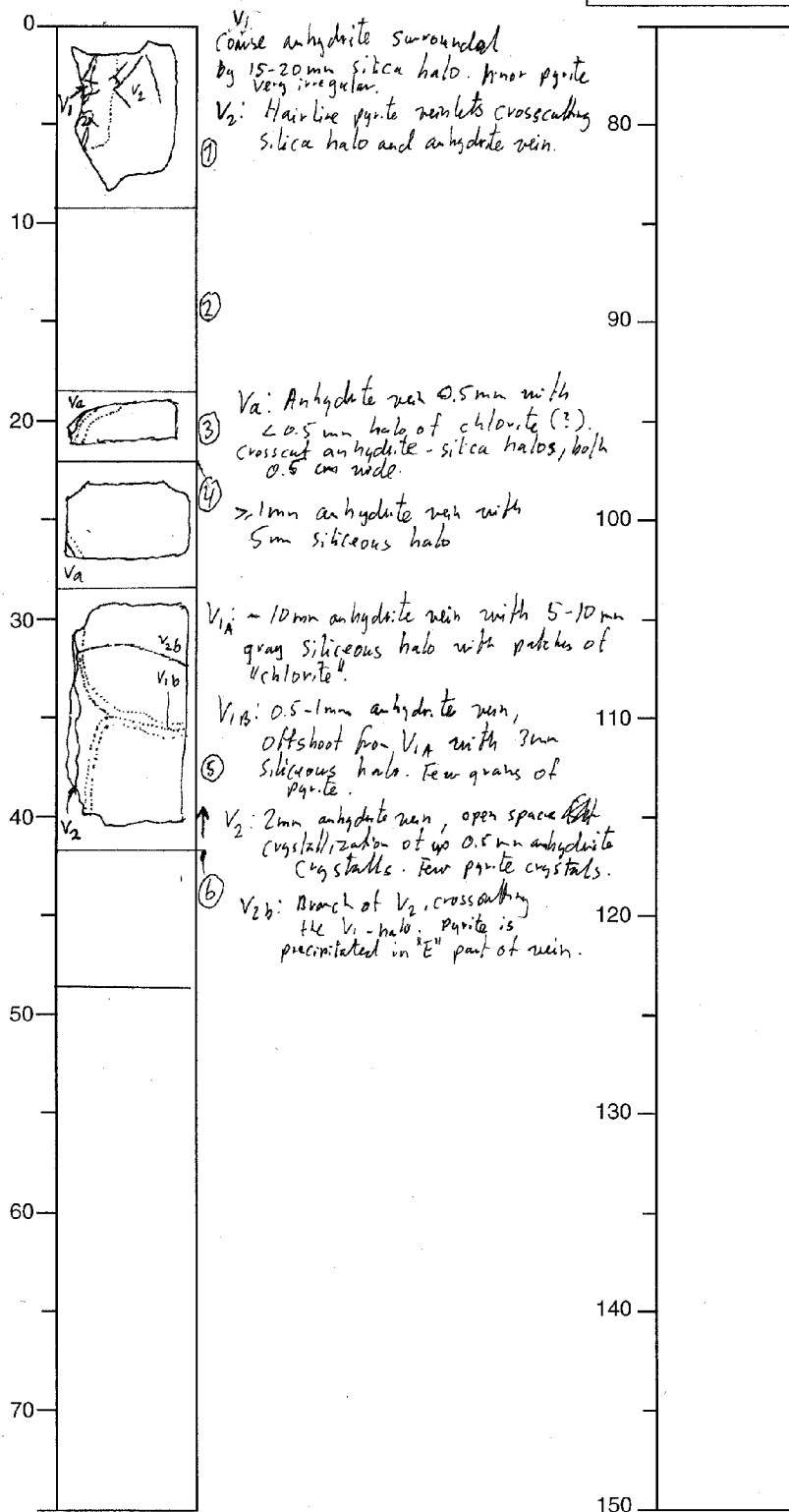
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	23Z	2	RJA



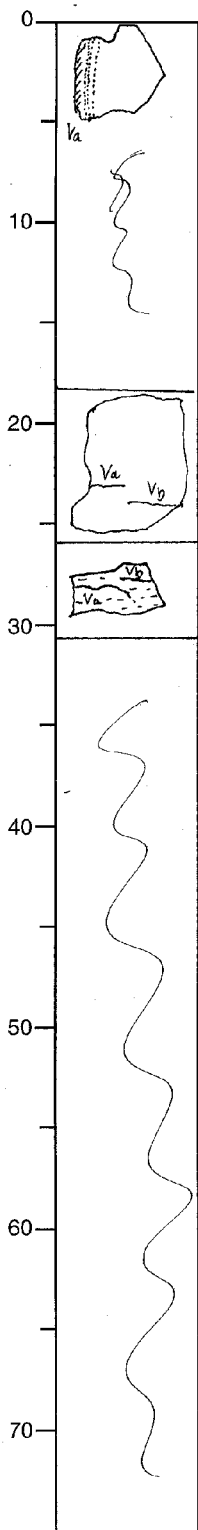
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	25Z	1	BJE



STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188 F	262	1	BSF

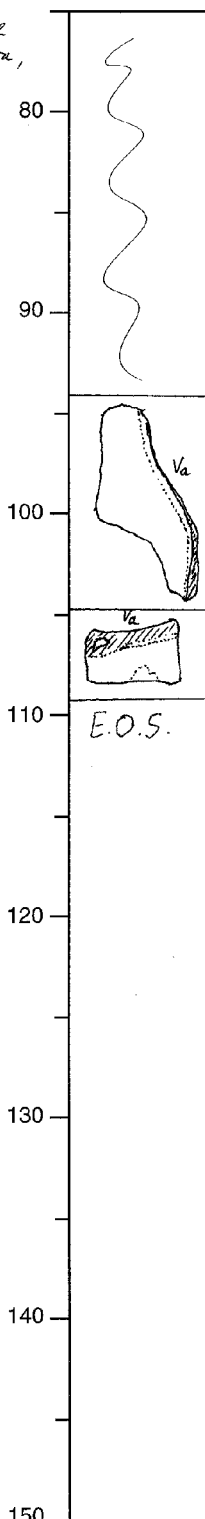


① Va: 10mm anhydrite vein with hair pyrite. Diffuse silica clay-laminate, mm-wide in outer part and as halos around vein.

② Va, Vb: Hairline pyrite veinlets with weak anhydrite halos, < 0.5mm wide. Magnetite overgrowth on pyrite in matrix, but not in vein.

③ Hairline pyrite-anhydrite veinlets (Va, Vb). Rebet flow banding.

④ Rubble with numerous pieces with 1-10 mm anhydrite veins, typically with siliceous halos.



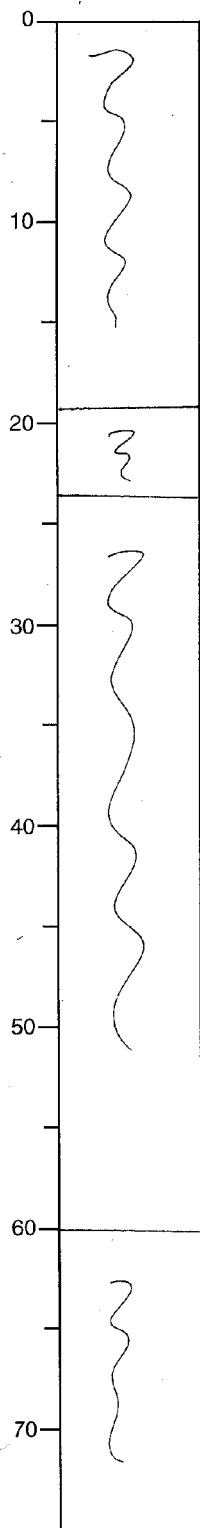
⑤ Va: 0.5-2mm anhydrite vein with minor pyrite, mainly in hairline veinlets, 0.5-2mm siliceous halo.

⑥ Va: 2-7mm anhydrite vein with very minor pyrite. Xenoliths of quartz with pyrite.

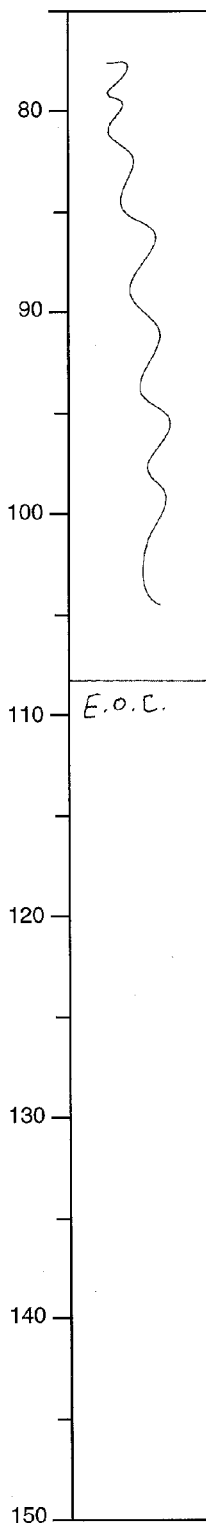
E.O.S.

STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	26Z	2	BJE

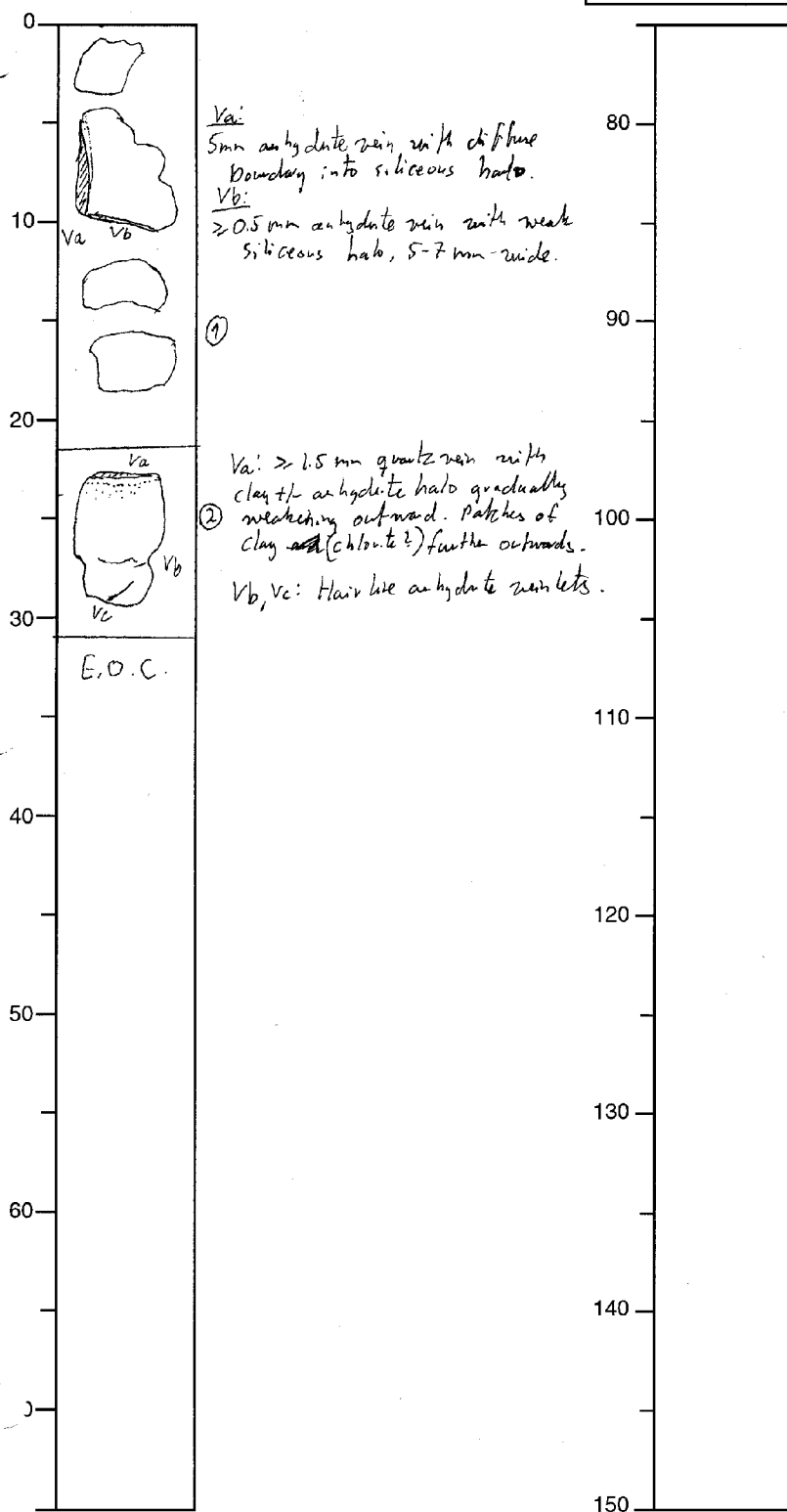


① All pieces (1-4):
Rubble containing many
pieces with 1-10 mm
anhydrite veins with trace
pyrite. Typically with
siliceous gray alteration
halos.



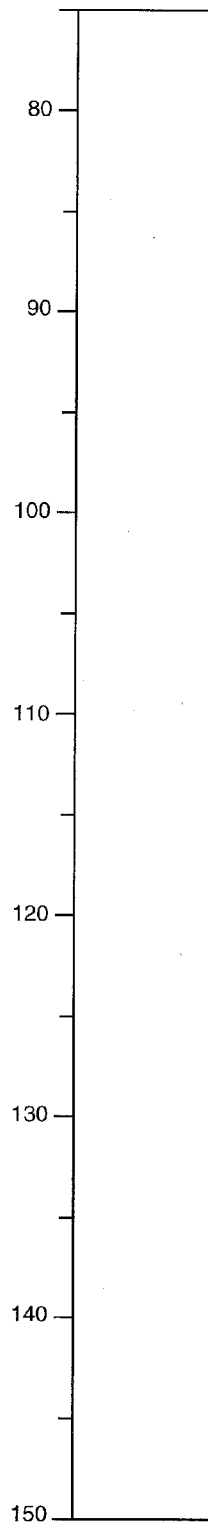
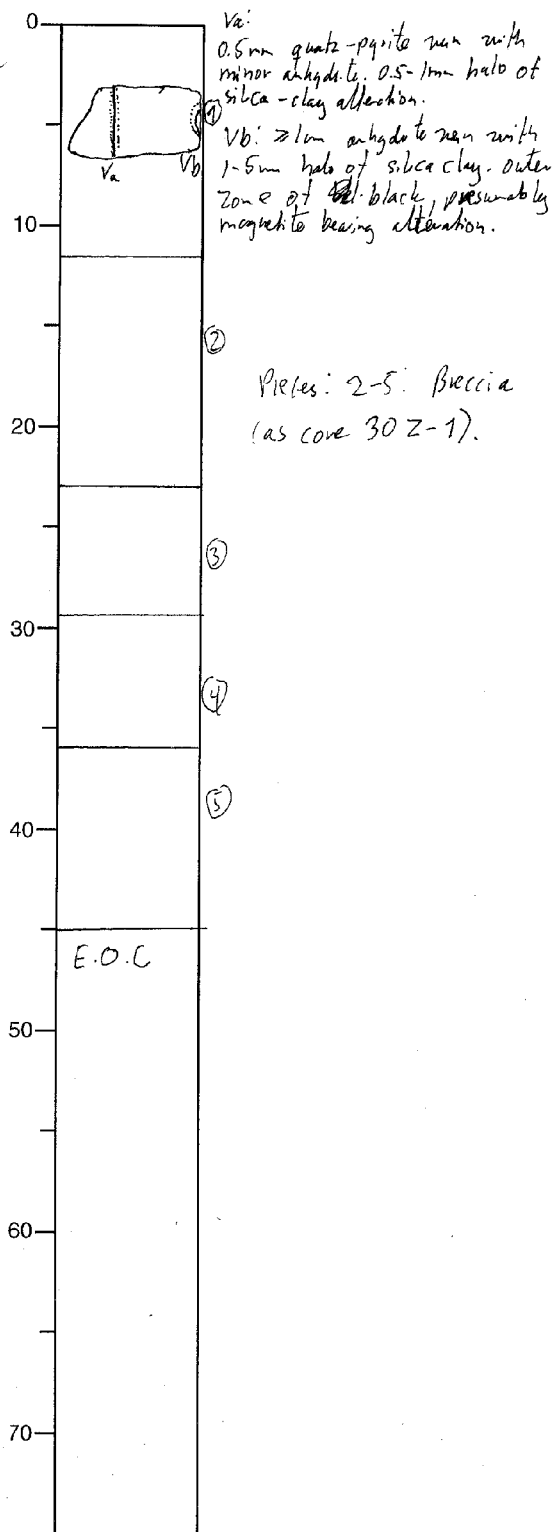
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188 F	27 Z	1	BJE



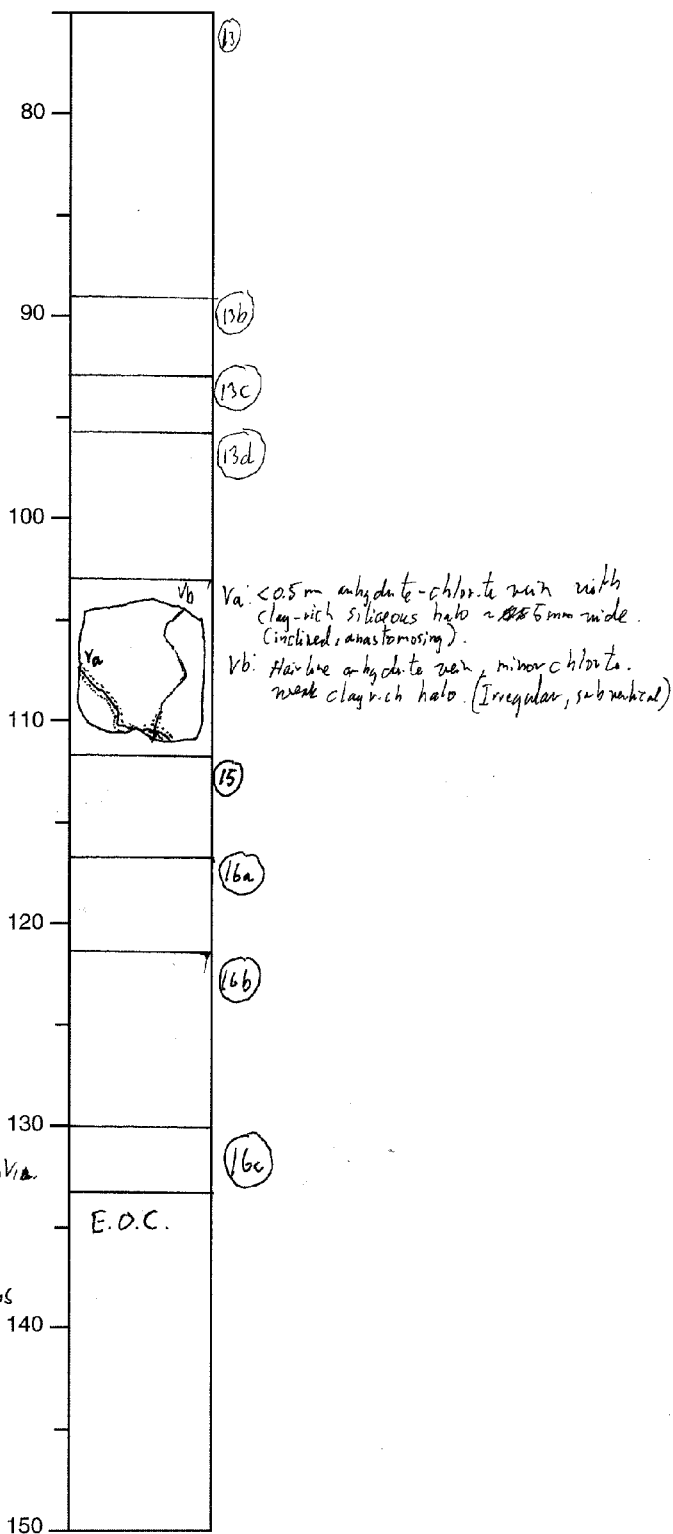
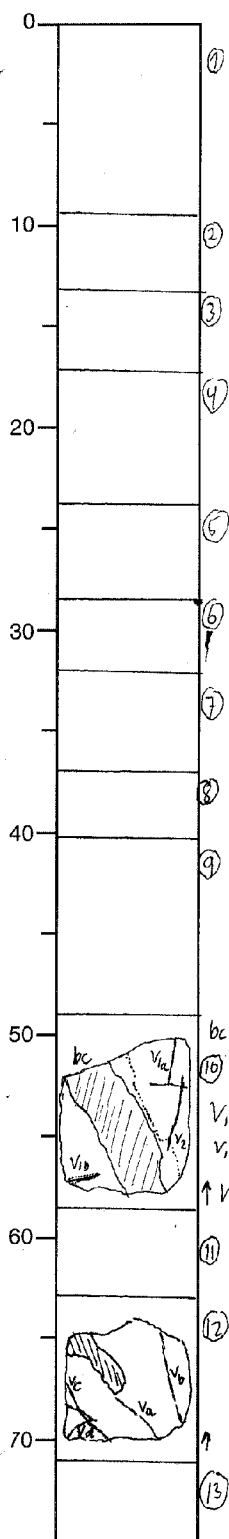
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188 F	31Z	1	BJE



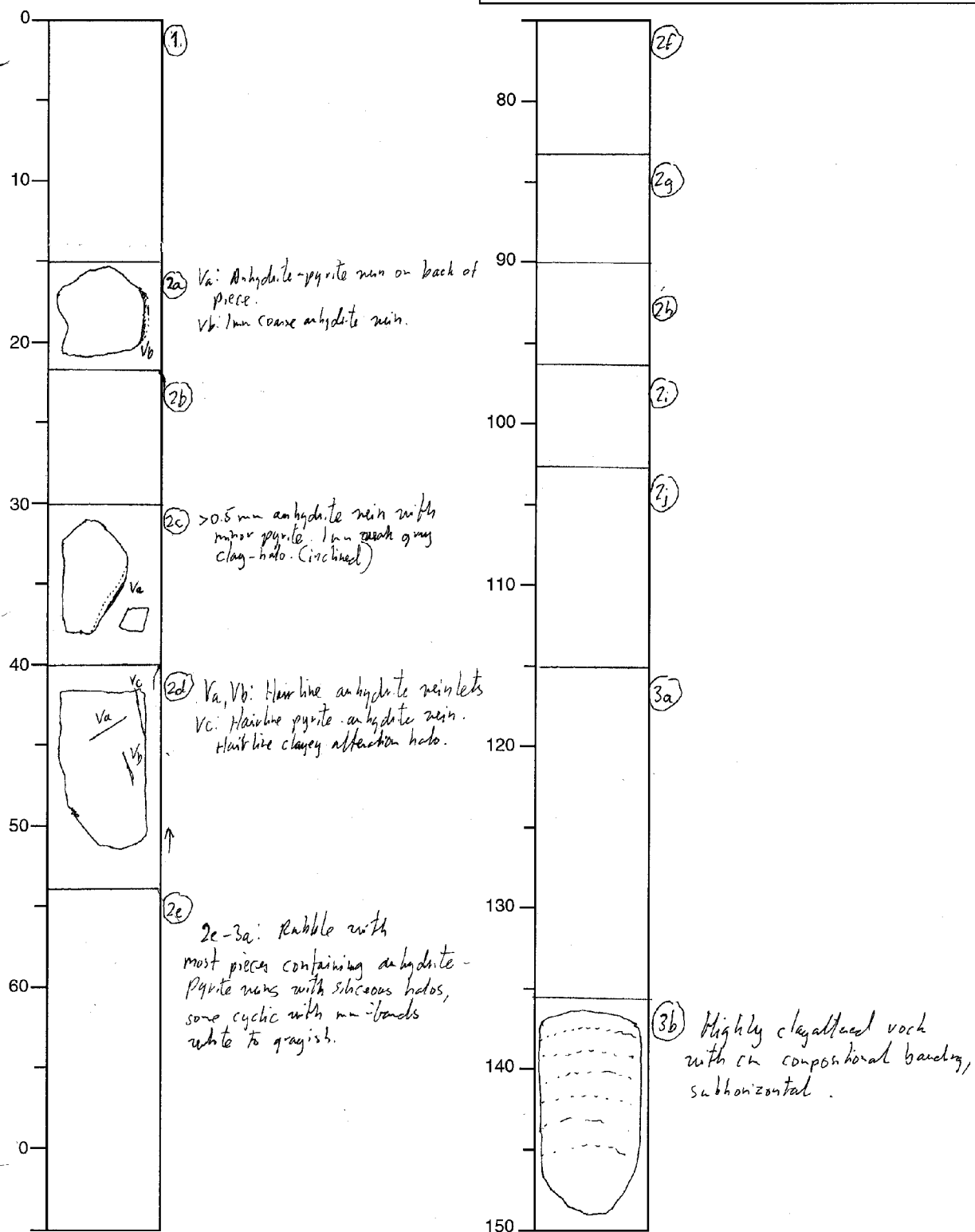
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	34Z	1	BJE



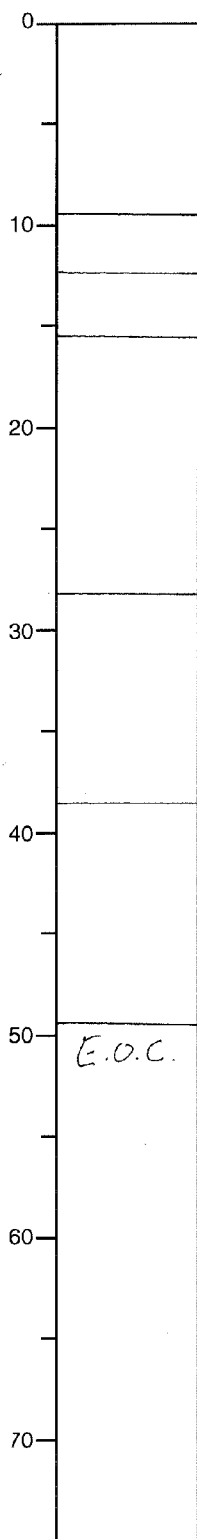
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188 F	35 Z	1	BSE



STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	35Z	2	BDE



(1a)

1a-1c: some coarse
anhydrite with pyrite,
however only small rubble
impossible to see any definite
structures.

(1b)

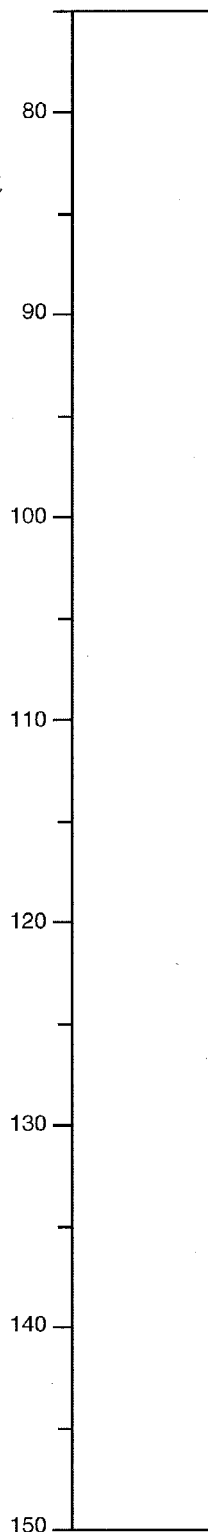
(1c)

(1d)

(2a)

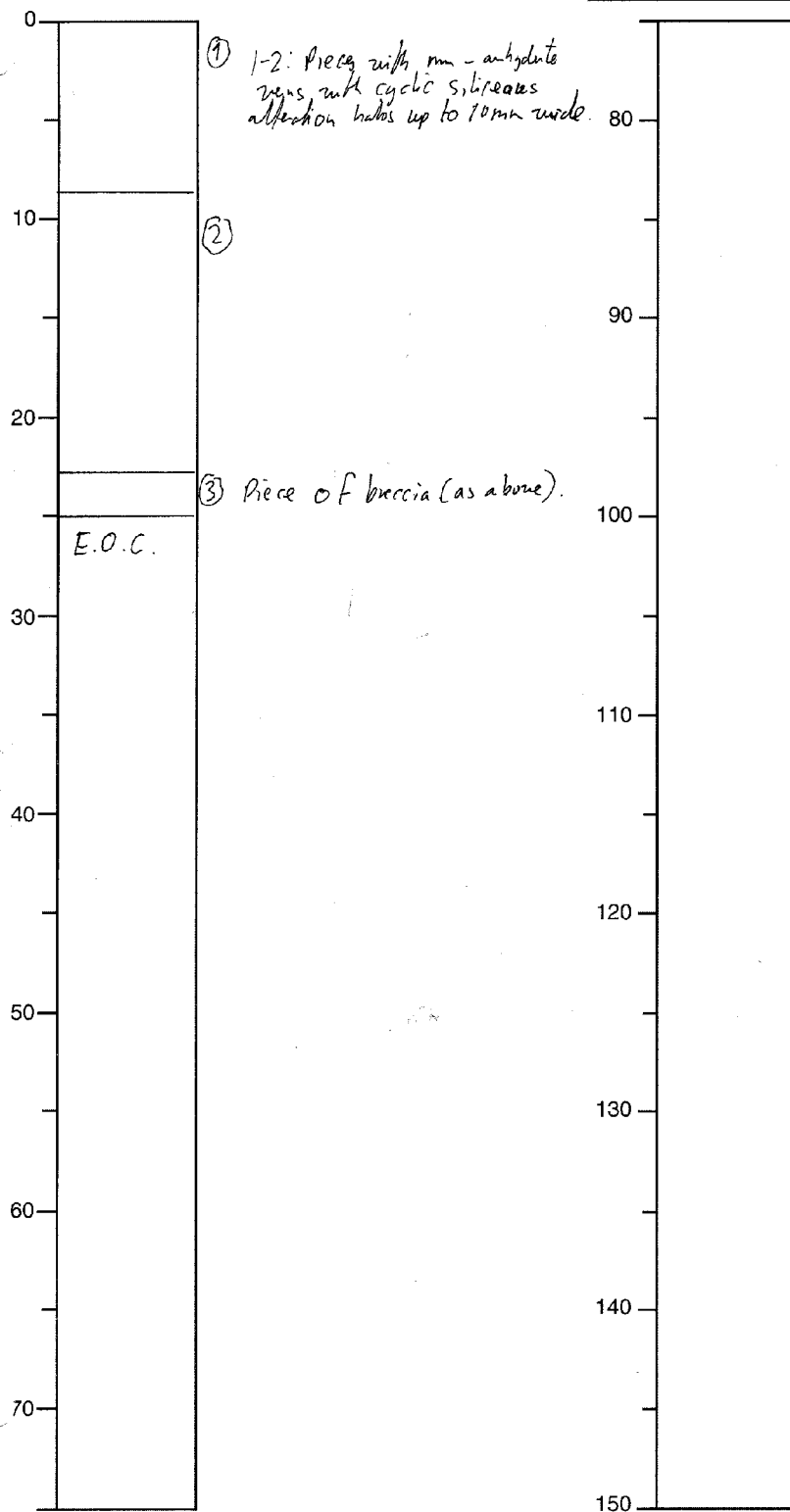
(2b)

E.O.C.



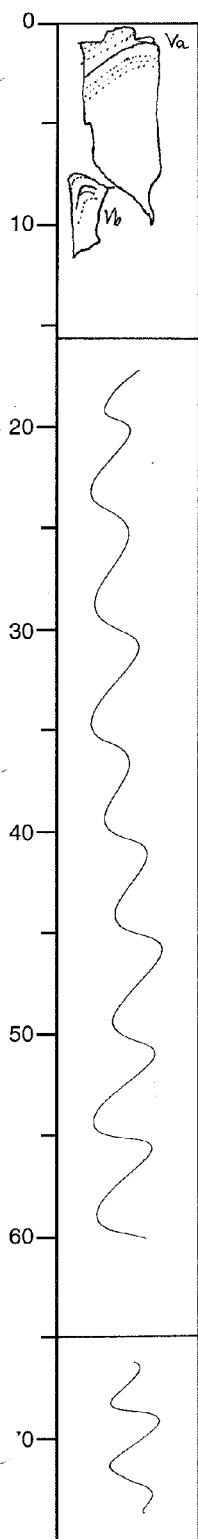
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	366	01	BJE



STRUCTURAL GEOLOGY DESCRIPTION

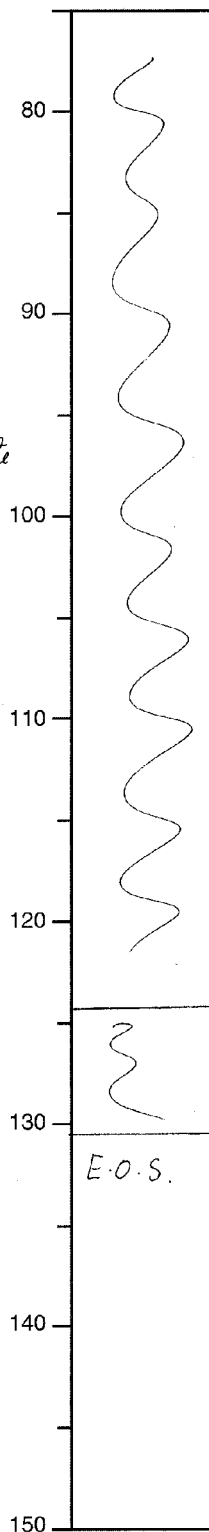
Leg	Hole	Core	Section	Observer
193	1188F	37Z	01	BJF



① *Va, Vb: mm thick silica ren
with diffuse cyclic siliceous
habos.*

② *Rubble.
few pieces with anhydrite-pyrite
veins with siliceous habos*

③ *As 2*

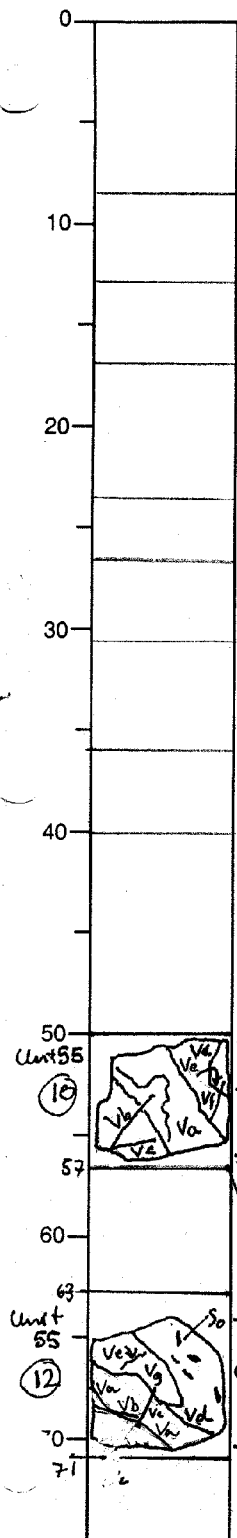


④ *As 2 and 3*

E.O.S.

STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
195	1188 F	37Z	1	RH

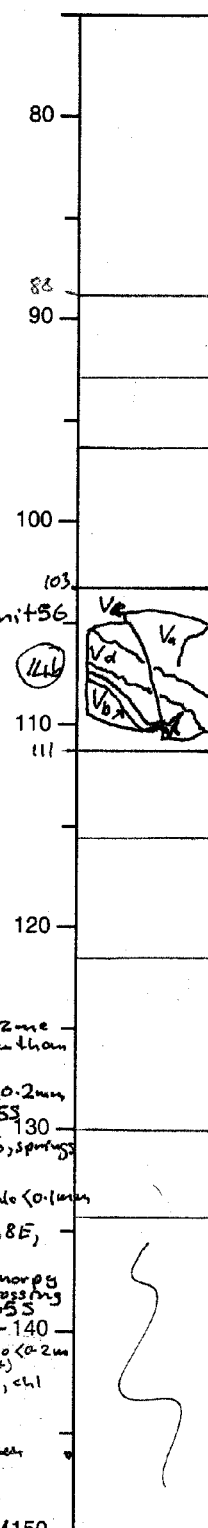


small mobby bits

($V_a = V_r, V_b = V_{2.6}$
 $V_c = V_{2.6}$)

Va 55E 57N, 2.5 cm x 6 cm, black zone of int + py + sil, diffuse selvage softer than in zone - more clay
Vb 0.1 mm x 1.2 cm py + mt, chl halo < 0.2 mm + diffuse silica halo beyond 02E, 153
Vc 0.1 mm x 3 cm py + mt + sil, 6.2 W, 15 S, springs off Vb and cuts Va
Vd 0.1 mm x 2.5 cm, py + mt, chl halo < 0.1 mm 83 W, strike 010
Ve 0.1 mm x 2 cm py + mt no halo 18E, 06S
VF 0.1 mm x 1.5 cm anty clay + minor py cut by Ve as int + pseudo in VF at crossing 65S
So 42 S, no outcrop 65S
Va 0.1 mm x 1.5 cm, py + sil, chl halo < 0.2 mm cuts Vb 45E 58N (minor mt in west)
Vb 0.2 x 2 cm, py overgrows mt, sil, chl halo + sil 1 mm 10E 30N
Vc cuts Vb and Vg, < 0.1 mm x 2.5 py + mt, sil, chl clay halo, cuts ~~east~~ ~~west~~
Vd 0.1 mm x 3 cm, py + sil, 35E
Ve 0.1 mm x 1 cm, crack cuts all 150
Vg 2.5 cm x 5 cm mt + py-silica
? possible transition gash? 30E 45N
So 40E, 7S

⑫ effectively
py-silica
cuts py-mnt
silica-chlorite



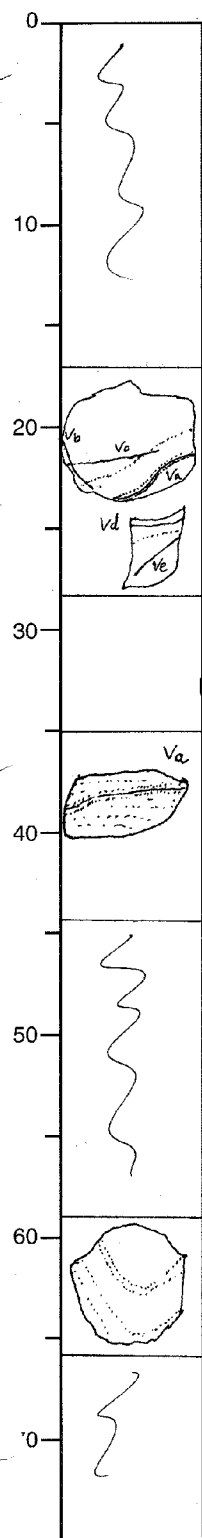
small mobby bits

small mobby bits

Unit 56
⑪
Va 0.1 mm x 3 cm py-silica-clay 46W 63N
Vb silica → clay asymmetric alteration zone no vein, 0.75 cm x 8 cm 40E, 14N
Vc 0.1 mm x 7 cm py-sil-clay no halo 86E strike 33S
Vd alteration zone 1.5 cm x 9 cm 22E 32S, silica + clay + chl pseudomorphs.

STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188 F	37Z	02	BSJE



① Rubble

②

Va: 0.5-2mm quartz vein with minor magnetite. Surrounded by 10-14mm zone of bleaching.
Vb: Hairline pyrite-anhydrite vein
Vc: Hairline anhydrite veinlet with very minor pyrite. Hairline bleaching.
Vd: 1mm anhydrite-pyrite vein with 3mm silica halo
Ve: Hairline pyrite veinlet

③

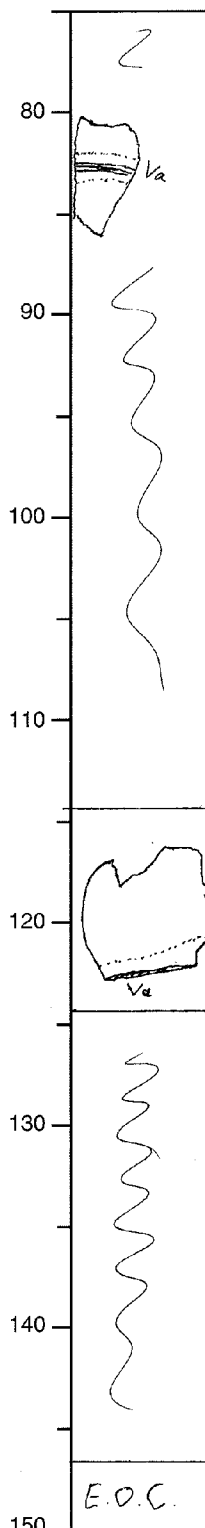
④ 1mm anhydrite-pyrite vein with 1mm siliceous halo. Pyrite occupies the center of the vein. Vein crosscuts compositional (primary overprinted by alteration?) banding.

⑤ Rubble

Preces with compositional banding on mm-cm scale. Couple of preces with anhydrite veins surrounded by siliceous halos.

⑥ 1-3 cm banded rock with various shades of gray.

⑦ Same as ⑤



Va: Anhydrite-pyrite vein with siliceous zoned halo with fine grained magnetite. Pyrite in center of vein.

⑦

1cm
py anhy
mt
anhy-qz-clay

⑧

≤ 1mm anhydrite vein with minor pyrite. 1-1.5 cm halo of bleaching, clays +/- silica/quartz.

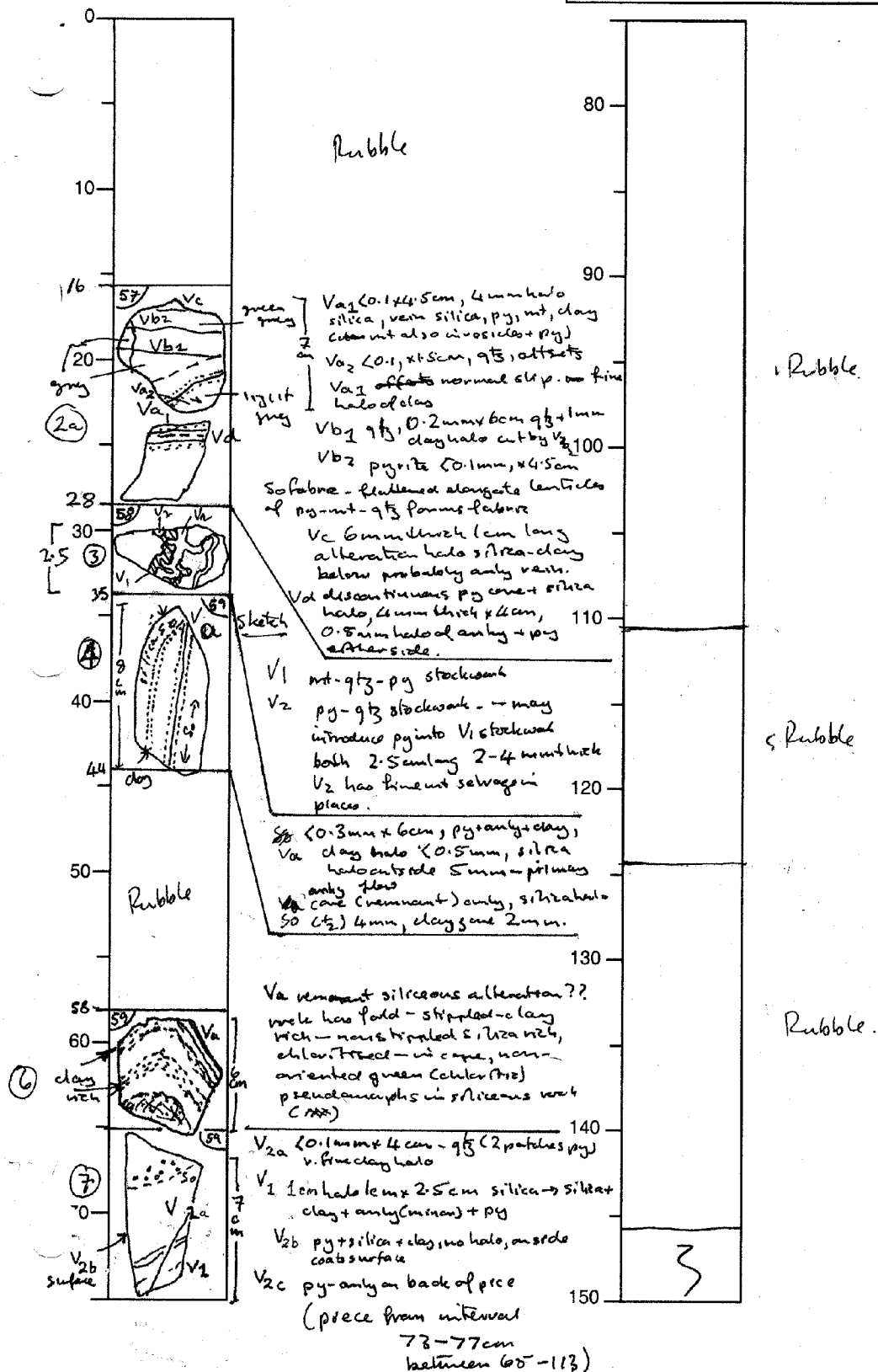
⑨

Same as ⑤ and ⑦
Some with up to mm anhydrite crystals.

E.O.C.

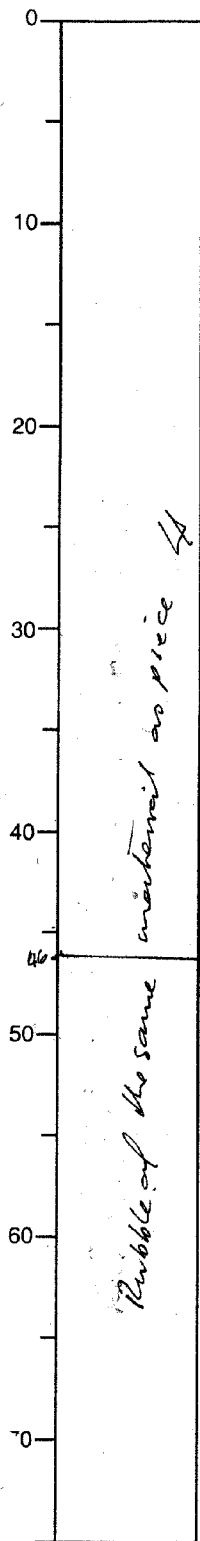
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	372	2	RITF

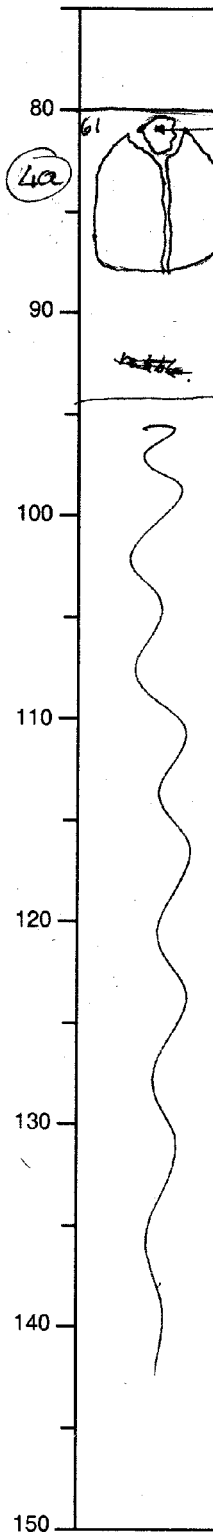


STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	38Z	02	RBF



silicified, cut by py-anhy veins

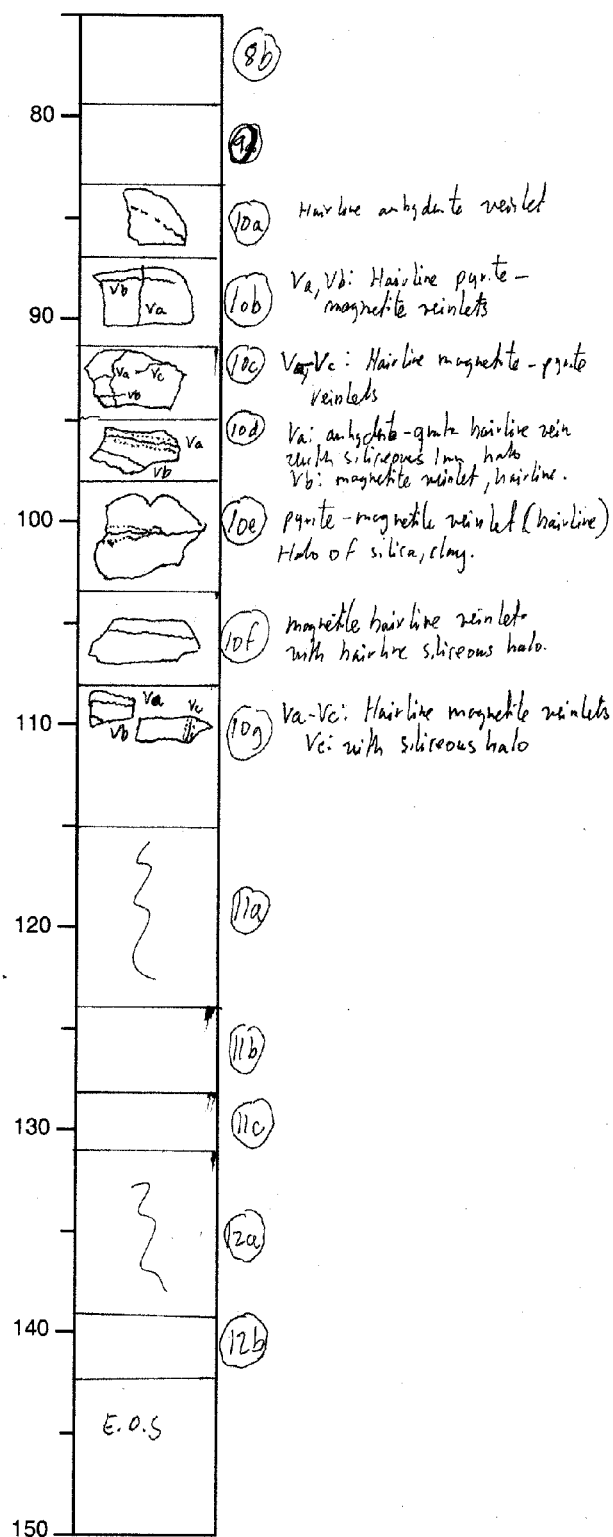
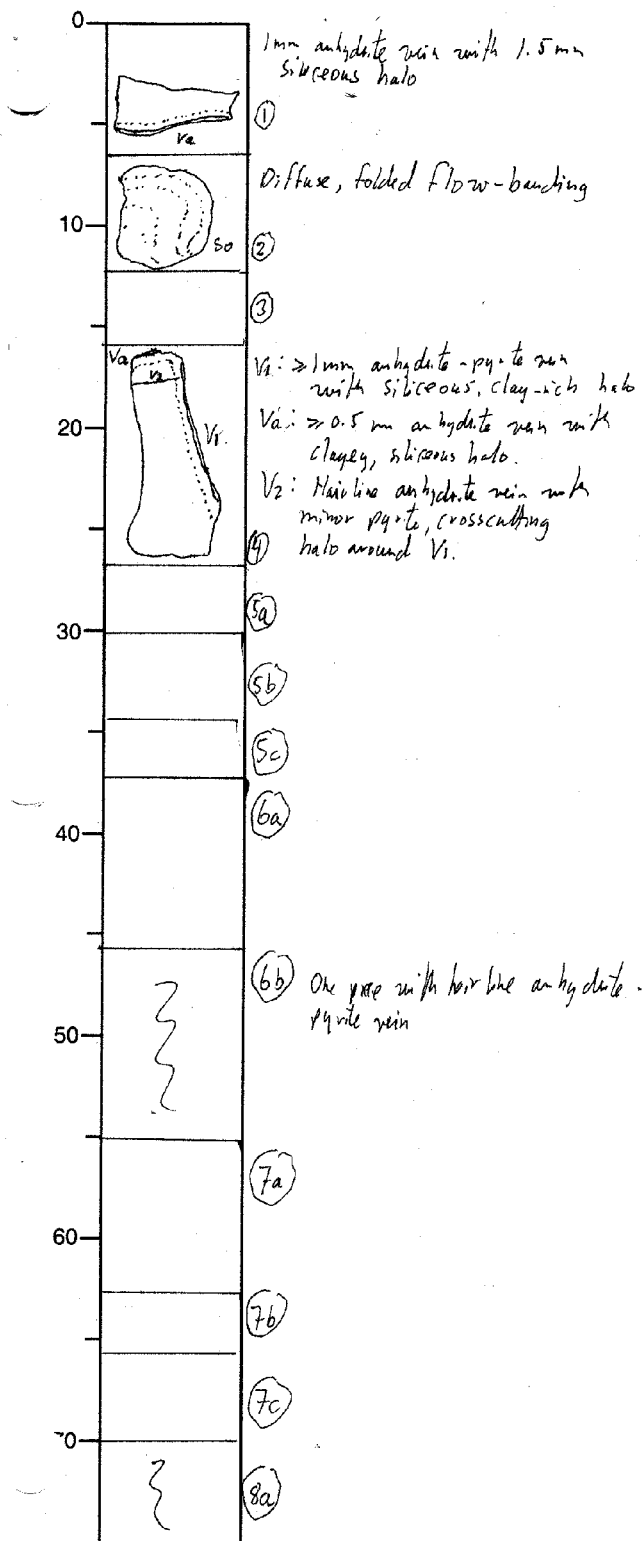


highly siliceous unit with chlorite amygdaloids.

core py+anhy
py+anhy
silica clay
halos

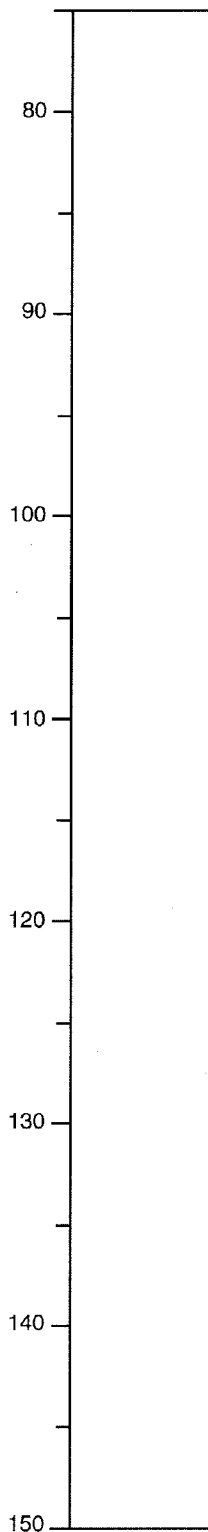
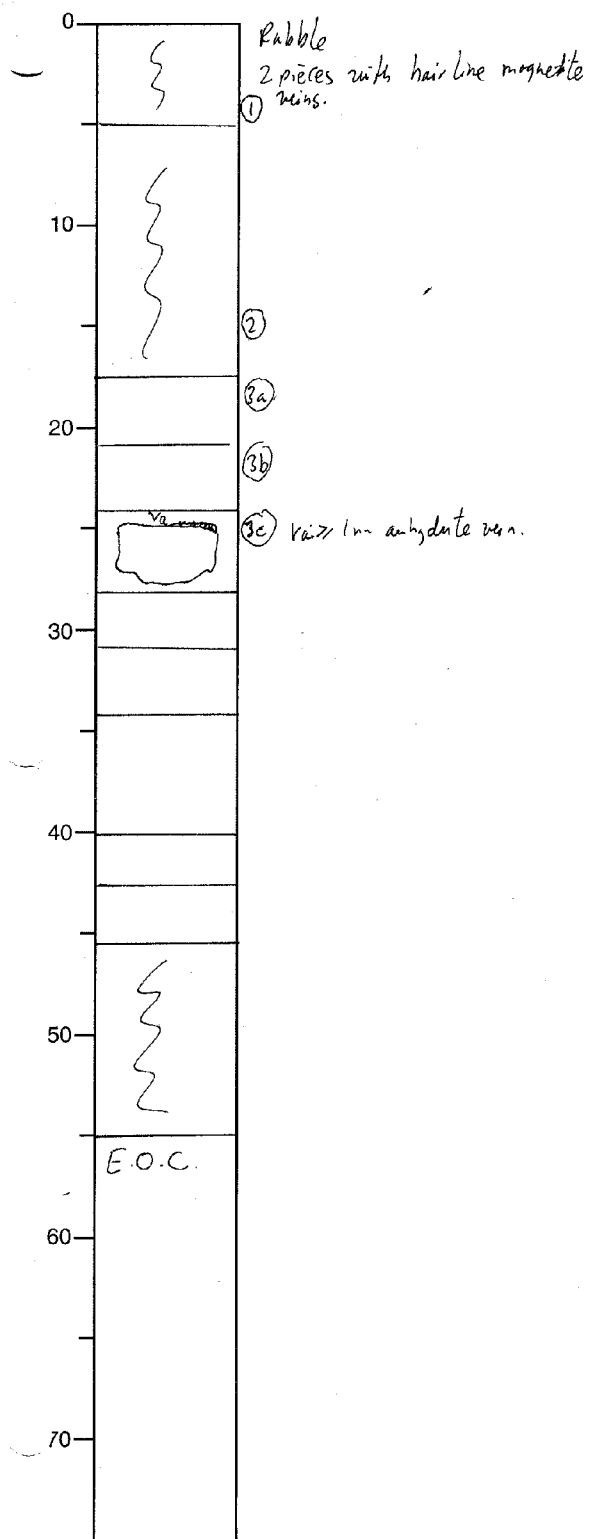
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	39Z	1	BJE



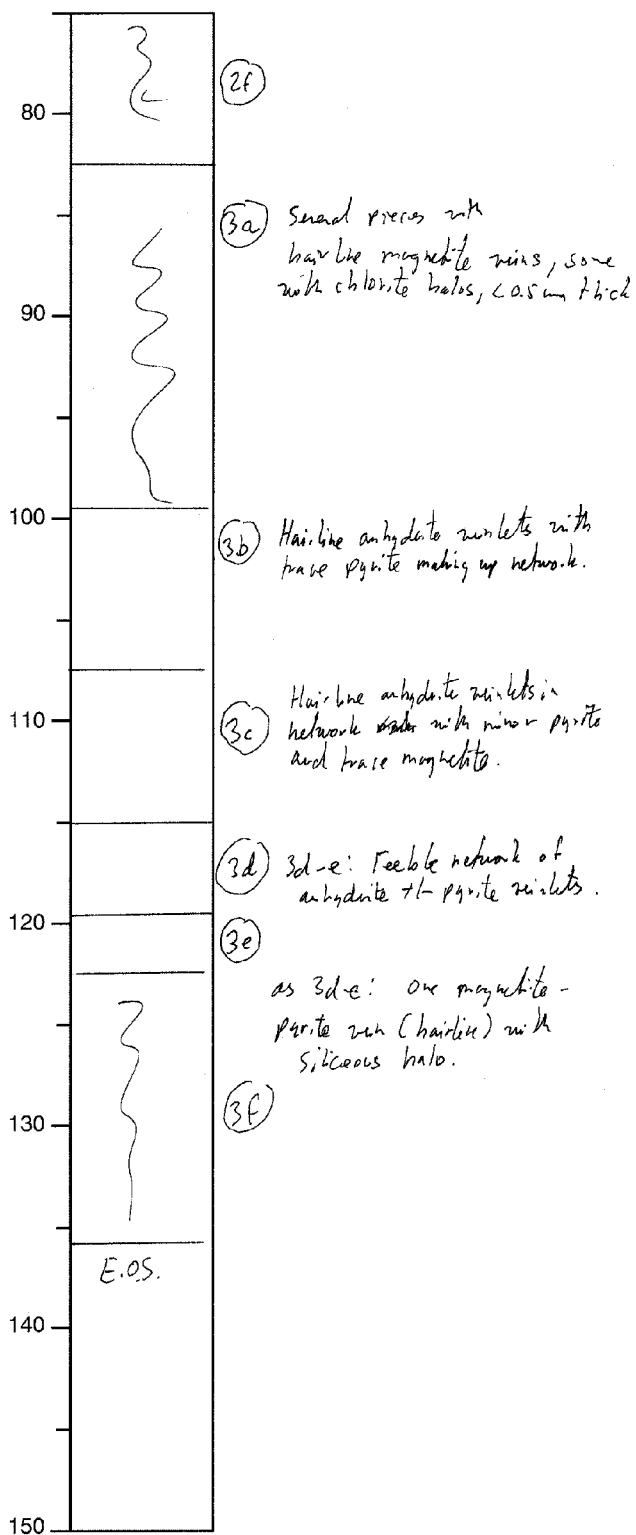
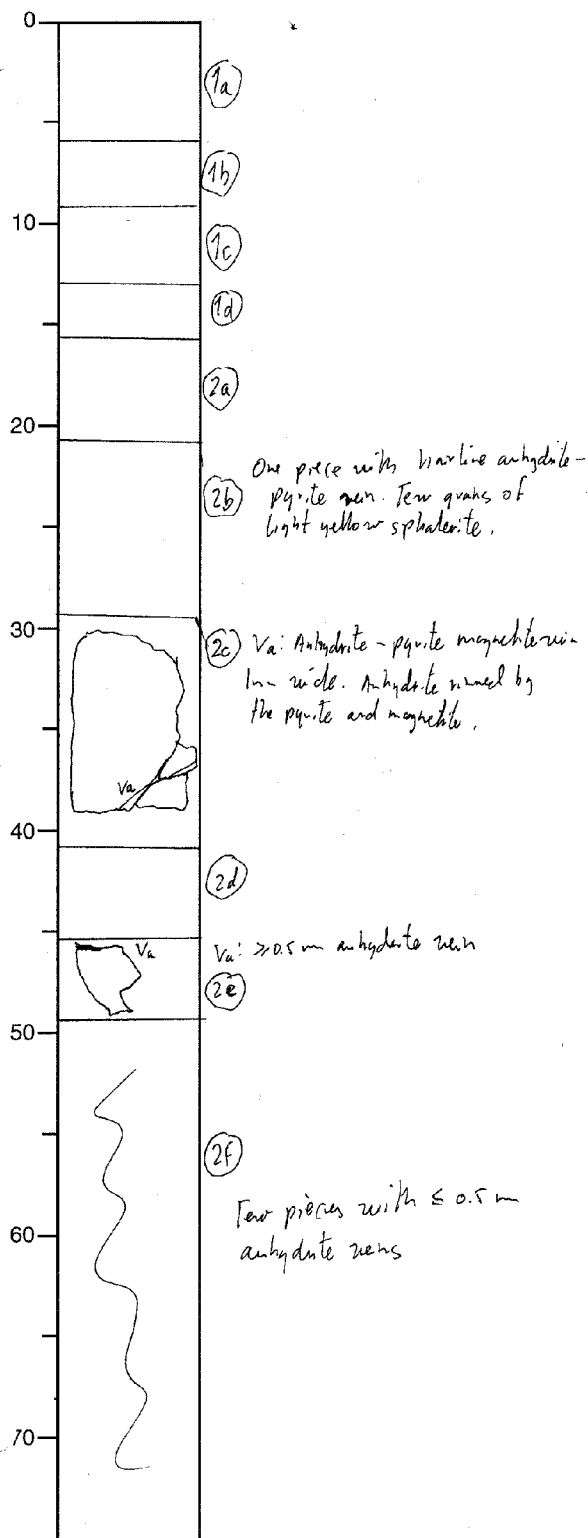
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188 F	39 Z	2	BSE



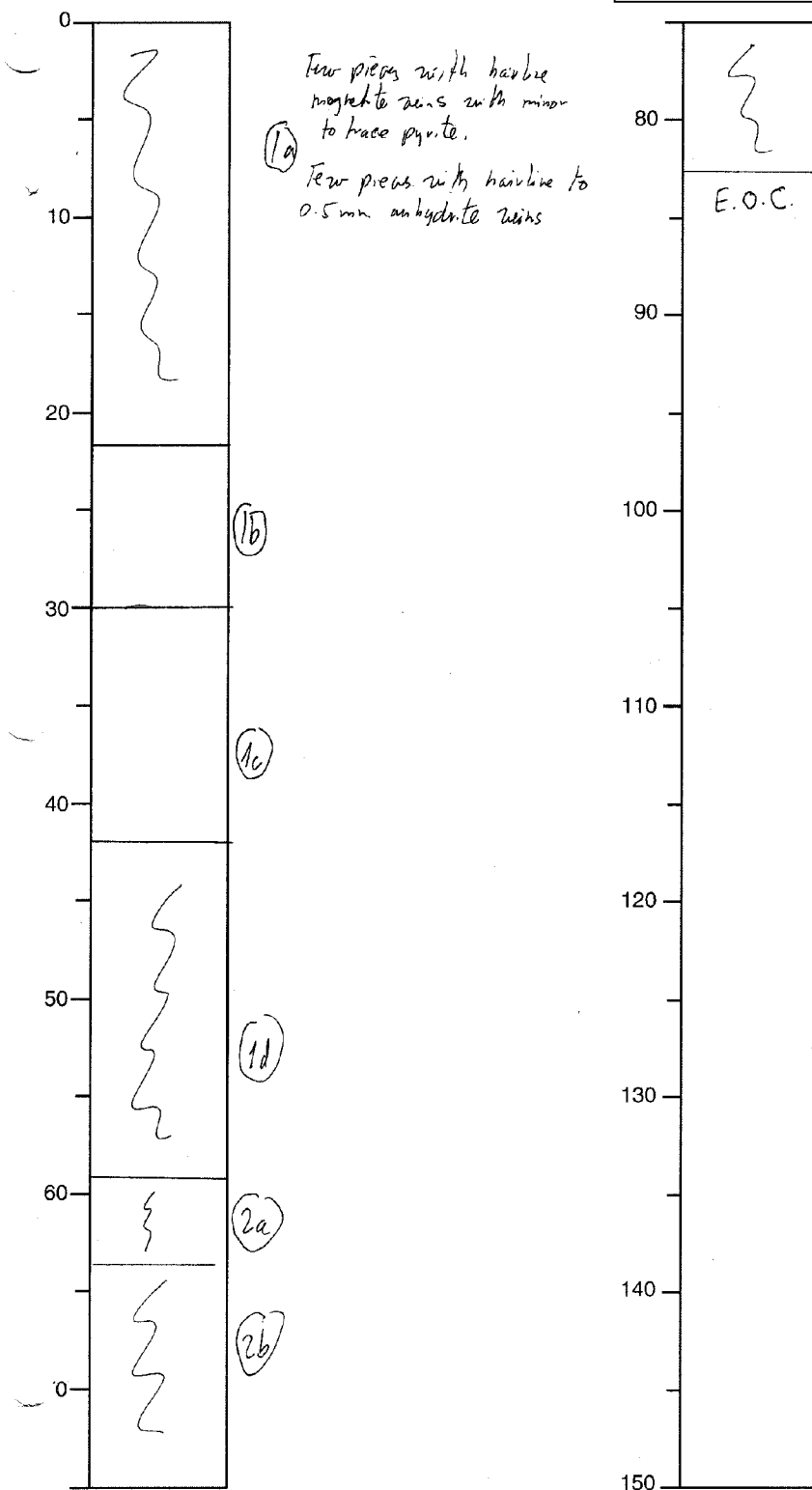
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188 F	402	1	BJE



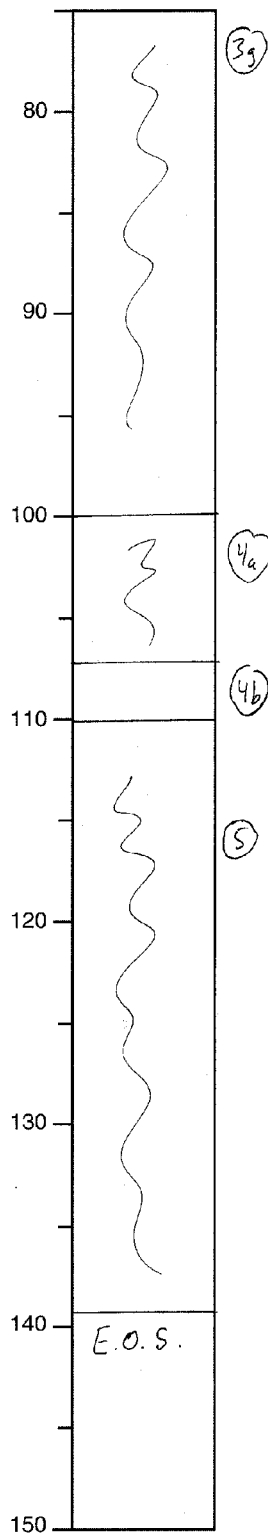
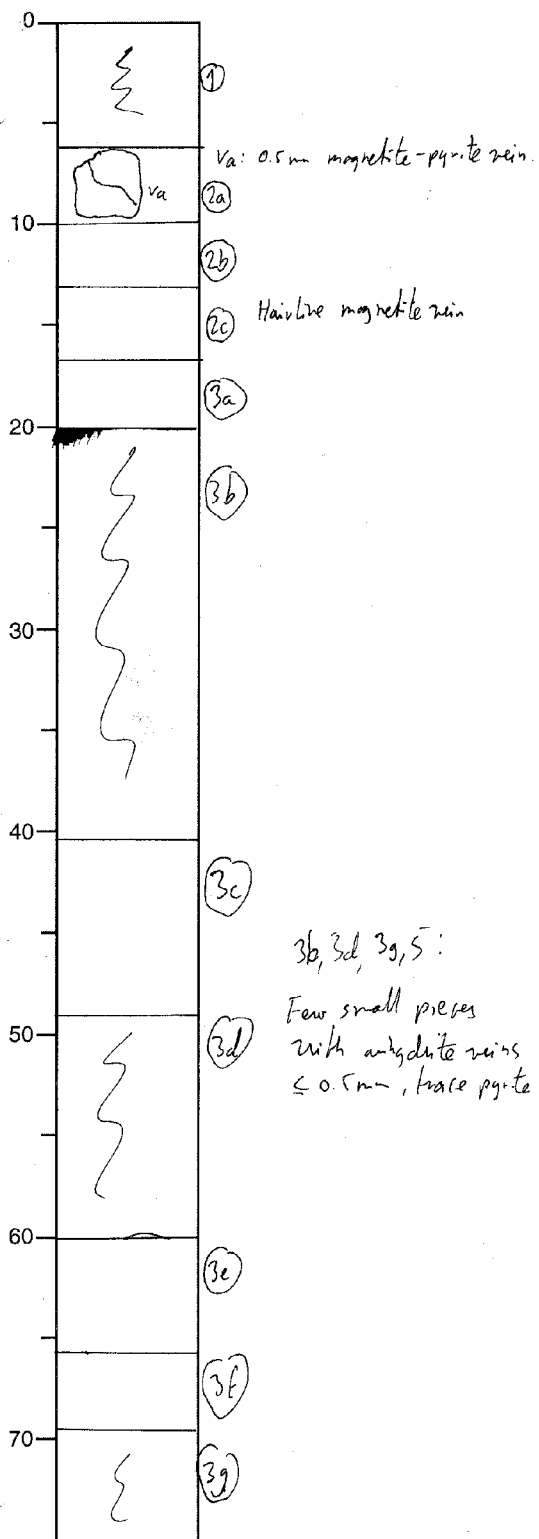
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
1A3	1188F	40 Z	2	BSE



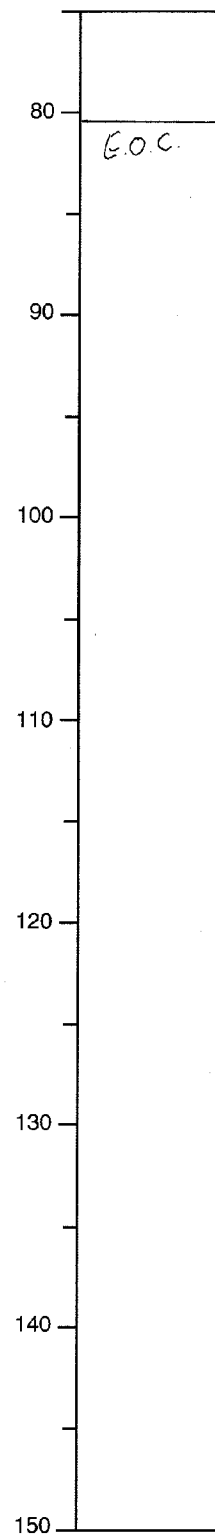
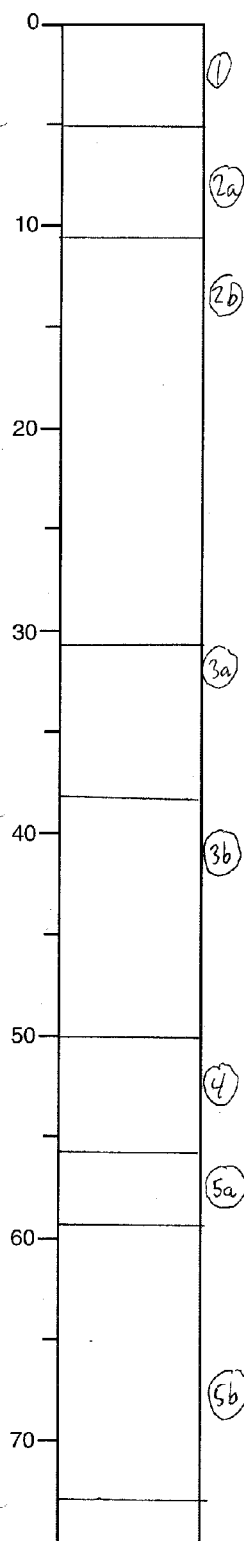
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
188 193	1188F	41Z	1	BSE



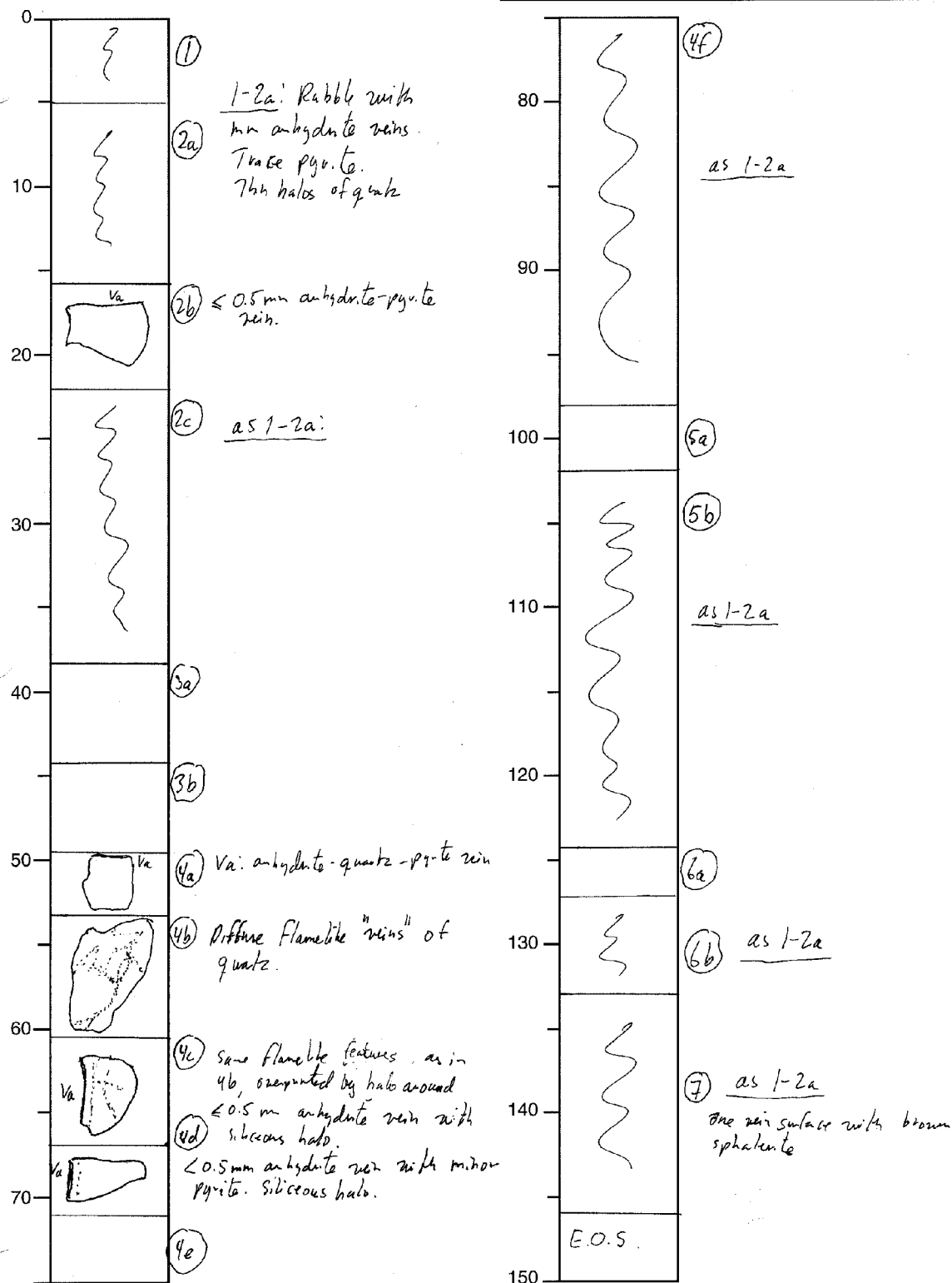
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	41Z	2	BSB



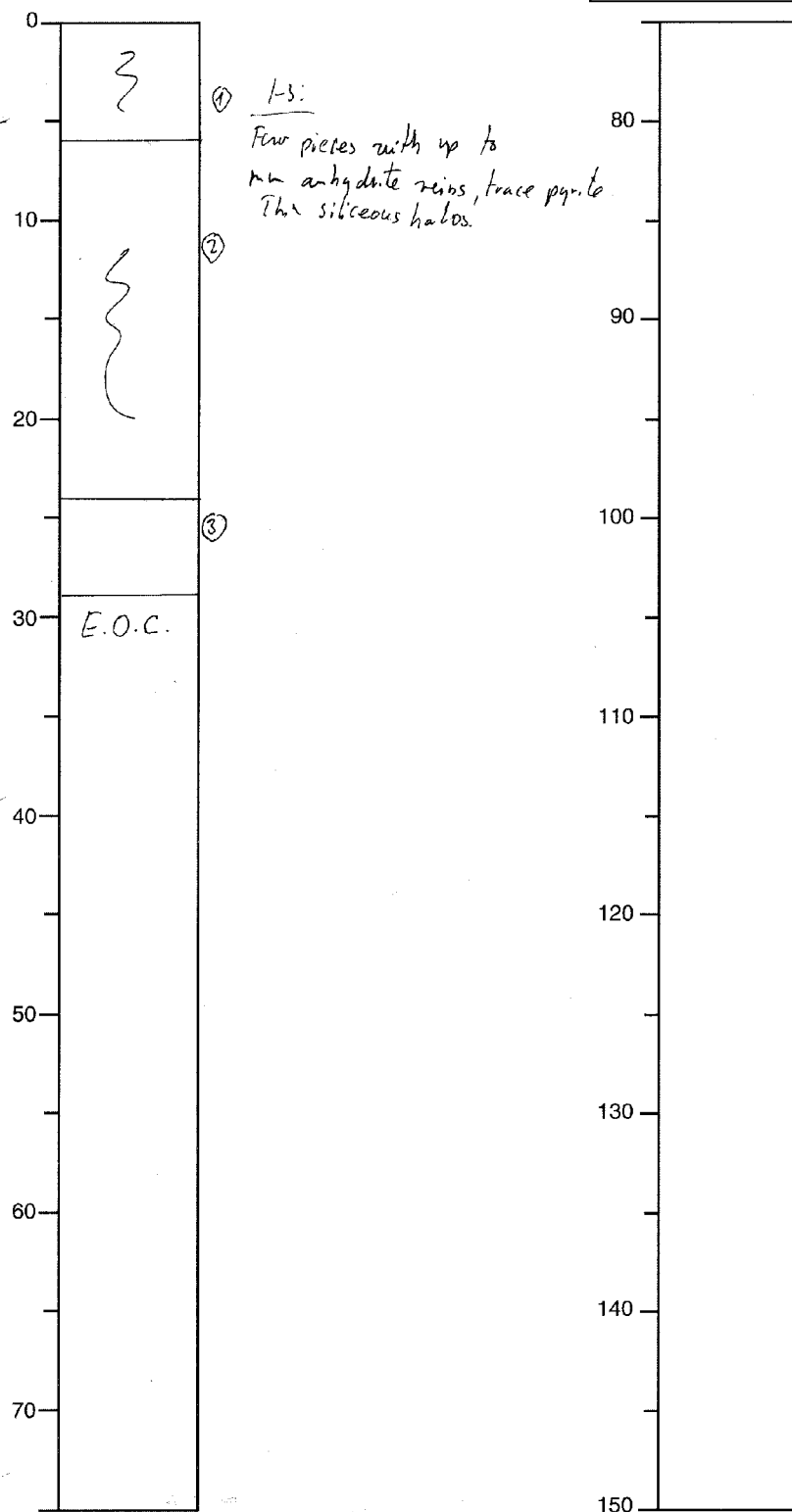
STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188 F	41Z	01	RJE



STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188F	42Z	02	BJE



STRUCTURAL GEOLOGY DESCRIPTION

Leg	Hole	Core	Section	Observer
193	1188 F	44 Z	01	BJE

