

The photomicrograph PDF filenames presented in the VOLUME\CORES\PHOTOMIC directory have been modified to conform to the 8.3 filenames convention. The underscore has been removed (e.g., the PDF file for photomicrograph ID# 1188A_100 has been changed to 1188A100.PDF). Please note that this log summarizes all photomicrographs taken during Leg 193, not just those included in this volume.

Leg 193 Digital Photomicrograph Log

Save image to USERVOL/Staff Scientist/TEMP PHOTOMICS with format 1188A_1 for image #1, 1188A_2 for image #2, etc.

Image#	TS#	Hole	Core	Sec	Interval	Piece	Light	Filter	Obj	Feature	Unit #	`
1	6	1188A	7R	2	39-41 cm	2	PPL	Blue and light gray	50x	Very fine pyrite in veins and disseminated	6	AP
2	6	1188A	7R	2	39-41 cm	2	RL	Blue	50x	Same aspect in refleted light	6	AP
3	6	1188A	7R	2	39-41 cm	2	RL	Blue	20x	Network veins with sbubhdral to euhedral pyrite crvstals	6	AP
4	6	1188A	7R	2	39-41 cm	2	PPL	Blue and light gray	10x	anhy-qz-py veins crosscut by later anhydrite vein.	6	AP
5	6	1188A	7R	2	39-41 cm	2	PPL	Blue and light gray	50x	Fluid inclusion within anhydrite	6	SR
6	24	1188A	20R	1	74-76 cm	9	RL	Blue and light gray	50x	Pyrite grain with inclusions including sphalerite?	23	SR
7	12	1188A	12R	2	48-51 cm	4	RL	Blue	50x	Pyrite grain with magnetite inclusions	10	AP
8	24	1188A	20R	1	74-76 cm	9	RL	Blue	50x	Magnetite, pyrite and anhydrite	23	AP
9	24	1188A	20R	1	74-76 cm	9	RL	Blue	50x	Magnetite + Anhydrite	23	AP
10	25	1188A	20R	1	92-95 cm	9	RL	Blue	50x	Extremely fine magnetite; inclusions of magnetite in pyrite.	23	AP
11	4	1188A	7R	1	62-64	12	RL	Blue	50x	Framboidal pyrite.	4	AP
12	4	1188A	7R	1	62-64	12	RL	Blue	50x	Another aspect of framboidal pyrite.	4	AP
13	3	1188A	5R	1	35-38	7	PPL	Blue/dk gray	5x	perlitic texture	2	HP
14	6	1188A	7R	2	39-41 cm	2	PPL	Blue	20x	Crosscutting Anhydrite veins	6	TB
15	2	1188A	3R	1	0-2 cm	1	XP	Blue and light gray	10x	Skeletal feldspar phenocryst	1	CY
16	9	1188A	9R	1	68-70cm	7	RI,PPL	Blue and light gray	5x	Multiple vein opening	8	TB
17	2	1188A	3R	1	0-2 cm	1	XP	Blue and light gray	2.5x	Silica filled vesicle and veinlet	1	CY
18	4	1188A	7R	1	62-64 cm	12	RF	Blue	20x	Dirty, subhdral chalcopyrite	4	CY
19	4	1188A	7R	1	62-64 cm	12	RF	Blue	50x	Magnetite	4	CY
20	4	1188A	7R	1	62-64 cm	12	RF	Blue	20x	Magnetite, set in vesicle with cristobalite - same grain as previous image	4	CY
21	2	1188A	3R	1	0-2	1	PPL	Blue	50x	Melt Inclusions	1	SR
22	8	1188A	8R	1	124-127	11	PPL	Blue	20x	Vein - silica-pyrite-anhydrite	6	SR
23	9	1188A	9R	1	66-70	7	PPL	Blue	10x	Silica showing wavy extinction	8	SR
24	9	1188A	9R	1	66-70	7	XP	Grey	5x	Realtionship between pyrite & Silica in veins	8	SR
25	11	1188A	12R	1	123-124	12	XP	Grey/Blue	50x	Pyrite and magnetite	10	SR
26	13-D	1188A	14R	1	47-51	7	XP	Blue	5x	Crosscutting veins	13	TB
27	4	1188A	7R	1	62-64	12	PPL	Gray/Blue	10x	Anhydrite replacing glass/altered glass	4	FB
28	14	1188A	14R	1	105-106	15	XP	Blue	20x	Vug with silicified wall, lined with "white mica" and partly filled with blocky anhydrite	14	WB
29	5	1188A	7R	1	120-124	18	PPL	Gray/Blue	20x	Anhy-Silica-Py along microcrack, partly replacing volc glass	5	FB
30	5	1188A	7R	1	120-124	18	XPL	Gray/Blue	20x	Ditto, crossed polars	5	FB
31	21	1188A	17R	2	33-37	6	RL	Blue	50x	Aggregate of thin magnitite grains	19	AP
32	5	1188A	7R	1	120-124	18	RL/PPL	Gray/Blue	5x	Anastomosing py-crystoballite vein network in fractures in spherulitic altered volcanic	5	CY
33	7	1188A	8R	1	66-69	8	PPL	Gray/Blue	10	isolated and coalesed microspherulites	6	HP
34	6	1188A	7R	2	39-41 cm	2	PPL	Gray/Blue	5x	silica-pyrite vein network cut by late irregular anhydrite vein. Same FOV as Image 35	6	CY
35	6	1188A	7R	2	39-41 cm	2	XP	Gray/Blue	5x	silica-pyrite vein network cut by late irregular anhydrite vein. Same FOV as Image 34	6	CY
36	5	1188A	7R1	1	120-124 cm	18	PPL	Gray/Blue	5x	perlitic texture and microspherulites	5	HP

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37	6	1188A	7R	2	39-41 cm	2	PPL	Gray/Blue	10x	spherulitic texture. Same FOV as Image 38	6	CY
38	6	1188A	7R	2	39-41 cm	2	XP	Gray/Blue	10x	spherulitic texture. Same FOV as Image 37	6	CY
39	6	1188A	7R	2	39-41 cm	2	PPL	Gray/Blue	5x	complex silica-py vein network with late anhydrite infill. Note concentration of vfg pyrite (opaque) around vein margin and coarser euhedra at margin of bleached vein halo. Images 40-41 show vein contents more clearly.	6	CY
40	6	1188A	7R	2	39-41 cm	2	PPL	Gray/Blue	10x	vein from image 39. Late anhydrite infil. Same FOV as image 41.	6	CY
41	6	1188A	7R	2	39-41 cm	2	RL	Blue	10X	vein from image 39. Py concentrated at vein margins. Same FOV as image 40.	6	CY
42	6	1188A	7R	2	39-41 cm	2	PPL	Gray/Blue	5x	Zonation of alteration from vein margin, showing proximal bleached halo and distal remnant spherulitic texture. Same FOV as Image 43.	6	CY
43	6	1188A	7R	2	39-41 cm	2	XP	Gray/Blue	5x	Zonation of alteration from vein margin, showing proximal bleached halo and distal remnant spherulitic texture. Same FOV as Image 42.	6	CY
44	9	1188A	9R	1	68-70 cm	7	PPL	Gray/Blue	2.5x	in-situ fragmented vesicular volcanic with broken vesicles continuing on either side of fracture	8	HP
45	9	1188A	9R	1	68-70 cm	7	PPL	Gray/Blue	5X	vitriclastic texture with clasts that don't fit together, axiolithic devitrification rims clasts overprinted by silicification on the outer margins	8	HP
46	9	1188A	9R	1	68-70 cm	7	PPL	Gray/Blue	2.5x	vitriclast with flow lamination defined by partially collapsed tube vesicles. Adjacent clast shows flow foliation defined by microlites. Different orientations suggest unsystematic orientation of clasts.	8	HP
47	8	1188A	8R	1	124-127 cm	11	PPL	Gray/Blue	10x	Late anhydrite-pyrite vein, x-cutting earlier silicification. Same FOV as Image 48.	6	CY
48	8	1188A	8R	1	124-127 cm	11	XP	Gray/Blue	10x	Late anhydrite-pyrite vein, x-cutting earlier silicification. Same FOV as Image 47.	6	CY
49	8	1188A	8R	1	124-127 cm	11	PPL	Gray/Blue	20x	Cristobalite lined vesicle with euhedral pyrite and drusy quartz overgrowth. This vesicle is visible at the bottom of Image 47. Same FOV as image 50.	6	CY
50	8	1188A	8R	1	124-127 cm	11	RL	Blue	20x	Cristobalite lined vesicle with euhedral pyrite and drusy quartz overgrowth. This vesicle is visible at the bottom of Image 47. Same FOV as image 49.	6	CY
51	8	1188A	8R	1	124-127 cm	11	PPL	Gray/Blue	50x	Detail of vesicle in image 49, showing quartz crystals.	6	CY
52	8	1188A	8R	1	124-127 cm	11	RL	Blue	50x	Subhedral pyrite grain with multiple growth history. An extremely fine grained early crystal (bottom left of grain) is overgrown by cristobalite, which is in turn overgrown by the bulk of the pyrite. Grain is visible at LHS of image 50.	6	CY
53	8	1188A	8R	1	124-127 cm	11	PPL	Gray/Blue	10x	Remnant spheroidal texture with spheroids replaced by clay. Same FOV as Image 54.	6	CY
54	8	1188A	8R	1	124-127 cm	11	XP	Gray/Blue	10x	Remnant spheroidal texture with spheroids replaced by clay. Same FOV as Image 53.	6	CY
55	11	1188A	12R	1	123-124 cm	12	PPL	Gray/Blue	2.5	Flow banding defined by variable abundance of clay-cristobalite altered spherulite.	10	HP
56	9	1188A	9R	1	67-70 cm	7	PPL	Gray/Blue	5x	"Ladder vein" of microcrystalline silica+pyrite cutting previous altered (silica-clay) flow banded volcanic clast. Flow-banding parallel veins are linked by a cross cutting structure. Same FOV as Image 57.	8	CY
57	9	1188A	9R	1	67-70 cm	7	RL	Blue	5x	"Ladder vein" of microcrystalline silica+pyrite cutting previous altered (silica-clay) flow banded volcanic clast. Flow-banding parallel veins are linked by a cross cutting structure. Same FOV as Image 56.	8	CY

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58	9	1188A	9R	1	67-70 cm	7	PPL	Gray/Blue	10x	Early silica ("axiolitic devitrification") over printed by later silica-pyrite vein. This vein is the same generation as the one shown in images 56&57. Same FOV as images 59&60.	8	CY
59	9	1188A	9R	1	67-70 cm	7	XP	Gray/Blue	10x	Early silica ("axiolitic devitrification") over printed by later silica-pyrite vein. This vein is the same generation as the one shown in images 56&57. Same FOV as images 58&60.	8	CY
60	9	1188A	9R	1	67-70 cm	7	RL	Blue	10x	Early silica ("axiolitic devitrification") over printed by later silica-pyrite vein. This vein is the same generation as the one shown in images 56&57. Same FOV as images 58&59.	8	CY
61	10	1188A	11R	1	35-38 cm	3	PPL	Gray/Blue	20x	Euhedral barite vesicle fill. Note also the microcrystalline, acicular igneous plagioclase in this rock. Same FOV as Image 62.	9	CY
62	10	1188A	11R	1	35-38 cm	3	XP	Gray/Blue	20x	Euhedral barite vesicle fill. Note also the microcrystalline, acicular igneous plagioclase in this rock. Same FOV as Image 61.	9	CY
63	14	1188A	14R	1	105-108 cm	15	XP	Gray/Blue	5x	Intensely altered volcanic clasts rimmed by very fine ?quartz needles growing into intralast space.	14	HP
64	11	1188A	12R	1	124-124 cm	12	PPL	Gray/Blue	50x	Fine grained hematite and chlorite hosted in silica (cristobalite)	10	CY
65	11	1188A	12R	1	124-124 cm	12	PPL	Gray/Blue	20x	Chlorite with associated hematite. Same FOV as Image 66.	10	CY
66	11	1188A	12R	1	124-124 cm	12	XP	Gray/Blue	20x	Chlorite with associated hematite. Same FOV as Image 65.	10	CY
67	11	1188A	12R	1	124-124 cm	12	PPL	Gray/Blue	10x	Quartz-chlorite-hematite alteration (RHS) grading into weakly altered remnant spherulites. Same FOV as Image 68.	10	CY
68	11	1188A	12R	1	124-124 cm	12	XP	Gray/Blue	10x	Quartz-chlorite-hematite alteration (RHS) grading into weakly altered remnant spherulites. Same FOV as Image 67.	10	CY
69	19	1188A	16R	2	40-43 cm	7	XP	Gray/Blue	2.5x	sedimentary layering and grading.	18	HP
70	11	1188A	12R	1	124-124 cm	12	RL	Blue	50x	Late, clear quartz with rutile needles, fluid inclusions (mostly secondary). Same FOV as Image 71.	10	CY
71	11	1188A	12R	1	124-124 cm	12	PPL	Gray/Blue	50x	Late, clear quartz with rutile needles, fluid inclusions (mostly secondary). Same FOV as Image 70.	10	CY
72	11	1188A	12R	1	124-124 cm	12	PPL	Gray/Blue	20x	Late, clear quartz with hematite and rutile inclusions, fluid inclusions. Associated with chlorite. Same FOV as Image 73.	10	CY
73	11	1188A	12R	1	124-124 cm	12	RL	Gray/Blue	20x	Late, clear quartz with hematite and rutile inclusions, fluid inclusions. Associated with chlorite. Same FOV as Image 72.	10	CY
74	12	1188A	12R	2	48-51 cm	12	PPL	Gray/Blue	20x	Hematite-chlorite-quartz. Quartz hosts rutile needles.	10	CY
75	15	1188A	16R	1	31-38 cm	6	PPL	Gray/Blue	5x	Quartz filled and partially filled vesicles.	17	SR
76	18	1188A	16R	2	12-15 cm	2	PPL	Gray/Blue	5x	Broken up plagioclase phenocryst	18	SR
77	19	1188A	16R	2	40-43 cm	7	PPL	Gray/Blue	10x	Plag. Phenocryst -with plag laths in the groundmass	18	SR
78	19	1188A	16R	2	40-43 cm	7	XPL	Gray/Blue	10x	Plag. Phenocryst -with plag laths in the groundmass	18	SR
79	21	1188A	17R	2	33-37 cm	6	XPL	Blue	10x	Anhydrite vein with white mica (illite?) developed along it. Groundmass of rock is pervasively replaced by quartz, anhydrite, white mica, and trace chlorite. Dark patches are hematite with minor magnetite.	19	WB
80	22	1188A	19R	1	73-76 cm	15	PPL	Blue	40x	Colorless cubic crystals (halite?) lining a vesicle wall. R.I. Of crystals is <<1.54.	22	WB

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81	22	1188A	19R	1	73-76 cm	15	PPL	Blue	10x	Quartz overgrowing/replacing cristobalite in vesicle.	22	WB
82	19	1188A	16R	2	40-43 cm	7	XPL	Blue	10x	Euhedral feldspar xl with broken tips - note jigsaw fit of fragments and total lack of erosion	18	FB
83	13	1188A	14R	1	47-51 cm	7	RL	Gray/Blue	20x	Pyrite intergrown with magnetite (breaking down to 'leucoxene'. Timing unclear.	13	CY
84	13	1188A	14R	1	47-51 cm	7	RL	Gray/Blue	20x	Pyrite intergrown with magnetite (breaking down to 'leucoxene'. Note small pyrite inclusion in magnetite - breakdown product or does magnetite postdate pyrite?	13	CY
85	13	1188A	14R	1	47-51 cm	7	RL	Gray/Blue	20x	Pyrite inclusions in magnetite breakdown products. Same FOV as Image 86.	13	CY
86	13	1188A	14R	1	47-51 cm	7	XPRL	Gray/Blue	20x	Pyrite inclusions in magnetite breakdown products. Same FOV as Image 85.	13	CY
87	15	1188A	16R	1	31-38 cm	6	XP	Gray/Blue	10x	Quartz-pyrite vesicle infil. Same FOV as image 88.	16	CY
88	15	1188A	16R	1	31-38 cm	6	RL	Gray/Blue	10x	Quartz-pyrite vesicle infil. Same FOV as image 87.	16	CY
89	15	1188A	16R	1	31-38 cm	6	XP	Gray/Blue	20x	Quartz-pyrite-anhydrite vesicle infil. Same FOV as image 90.	16	CY
90	15	1188A	16R	1	31-38 cm	6	RL	Gray/Blue	20x	Quartz-pyrite-anhydrite vesicle infil. Same FOV as image 89.	16	CY
91	20	1188A	17R	1	90-93 cm	19	RL/PPL	Gray/Blue	40x	Igneous Titanomagnetite breakdown to leucoxene and euhedral pyrite	19	CY
92	21	1188A	17R	2	33-37 cm	6	RL	Gray/Blue	20x	Coroded magnetite	19	CY
93	21	1188A	17R	2	33-37 cm	6	RL	Gray/Blue	20x	Magnetite breaking down to leucoxene + pyrite. Detail in Image 94.	19	CY
94	21	1188A	17R	2	33-37 cm	6	RL	Gray/Blue	40x	Detail of pyrite grain in image 93. Note magnetite inclusions preserved in pyrite.	19	CY
95	22	1188A	19R	1	73-76 cm	15	PPL	Gray/Blue	10x	Vesicle with anhydrite-plagioclase fill. Same FOV as Image 96.	22	CY
96	22	1188A	19R	1	73-76 cm	15	XP	Gray/Blue	10x	Vesicle with anhydrite-plagioclase fill. Same FOV as Image 95.	22	CY
97	23	1188A	20R	1	43-48 cm	8	RL/PPL	Gray/Blue	20x	Hydrothermal magnetite (breaking down to "leucoxene", associated with quartz which has a hematite inclusion.	23	CY
98	9	1188A	9R	1	65-70 cm	7	PPL	Gray/Blue	2.5x	vitriclastic breccia with some jigsaw fit texture, one fragment shows lensoidal, quartz filled tube vesicles	8	HP
99	24	1188A	20R	1	74-78 cm	9	RL	Gray/Blue	20x	Pyrite intergrown with quartz. Has magnetite inclusions and appears to be overgrown by magnetite	23	CY
100	24	1188A	20R	1	74-78 cm	9	RL	Gray/Blue	20x	Pyrite with magnetite inclusions	23	CY
101	25	1188A	20R	1	92-95 cm	12	PPL	Gray/Blue	10x	"Ovoid spot" (HS logging) - filled with microcrystalline silica, clay and fine magnetite. Same FOV as Image 102.	24	CY
102	25	1188A	20R	1	92-95 cm	12	XP	Gray/Blue	10x	"Ovoid spot" (HS logging) - filled with microcrystalline silica, clay and fine magnetite. Same FOV as Image 101.	24	CY
103	26	1188A	21R	1	20-24 cm	3	RL/PPL	Gray/Blue	20x	Aggregate of pyrite and magnetite (centre of FOV)	25	CY
104	27	1188A	21R	1	68-70 cm	8	RL/PPL	Gray/Blue	20x	Aggregate of pyrite and magnetite (centre of FOV)	25	CY
105	25	1188A	20R	1	92-95 cm	12	XP	Gray/Blue	50x	Trellis-like exsolution/oxidation lamellae. The darker gray mineral may be magnetite and the lighter gray mineral could be either maghaemite or ilmenite.	24	WB

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106	25	1188A	20R	1	92-95 cm	12	RL	Gray/Blue	50x	Pyrite replacing quartz-magnetite association. The darker gray mineral is magnetite and the lighter gray mineral could be either maghaemite or hematite. Inside pyrite magnetite stays without oxidation (?) and the size of the magnetite inclusions decrease from the border to the center.	24	AP
107	23	1188A	20R	1	46-48 cm	8	RL	Gray/Blue	50x	Pyrite overprint magnetite in the darker area of the section.	23	AP
108	11	1188A	12R	1	123-124 cm	12	PPL	Blue	10x	Quartz vein rimmed by clay-cristobalite and further outwards band of hematite, rutile with minor pyrite.	10	TB
109	5	1188A	7R	1	120-124	18	PPL	Blue	10x	Anhydrite vein postdating silica-pyrite vein and alteration halo	5	TB
110	23	1188A	20R	1	43-48 cm	8	XPL	Blue	2.5x	Diffuse quartz vein-network, overgrown by chlorite-smectite-illite alteration	23	TB
111	12	1188A	12R	2	48-51 cm	4	PPL	Blue/Gray	10x	Quartz-pyrite veining with chl-silica halo, traces of hematite. Same FOV as Image 112.	10	CY
112	12	1188A	12R	2	48-51 cm	4	XP	Blue/Gray	10x	Quartz-pyrite veining with chl-silica halo, traces of hematite. Same FOV as Image 111.	10	CY
113	5	1188A	7R	1	120-124	18	PPL	Blue/dark gray	2.5x	General texture showing primary layering, alteration along this and pyrite+anhydrite veining	5	RHF
114	5	1188A	7R	1	120-124	18	PPL	Blue/dark gray	2.5x	General texture, silica-pyrite vein cuts layering, alteration and anhydrite-pyrite vein	5	RHF
115	5	1188A	7R	1	120-124	18	PPL	Blue/dark gray	2.5x	General texture showing primary layering, and pyrite-anhydrite vein+alteration terminates at vesicle which is filled with anhydrite	5	RHF
116	5	1188A	7R	1	120-124	18	PPL	Blue/dark gray	10x	Detail of 115; vesicle is flaw preventing propagation of vein?	5	RHF
117	5	1188A	7R	1	120-124	18	PPL	Blue/dark gray	10x	Detail of 115-perlitic cracks host pyrite	5	RHF
118	5	1188A	7R	1	120-124	18	PPL	Blue/dark gray	10x	Pyrite-silica vein alteration is overprinted by influx of anhydrite?	5	RHF
119	5	1188A	7R	1	120-124	18	PPL	Blue/dark gray	10x	Pyrite-silica vein alteration in 118, using conoscopic PPL	5	RHF
120	6	1188A	7R	2	39-41	2	PPL	Dark blue/gray	2.5x	General texture of altered area with islands of weakly altered glass in sea of veined and altered glass cemented by anhydrite and silica	5	RHF
121	6	1188A	7R	2	39-41	2	PPL	Dark blue/gray	10	Disaggregated glass fragments in anhydrite, flank of island forming "keystone texture" in developing vein	5	RHF
122	6	1188A	7R	2	39-41	2	PPL	Dark blue/gray	10	Disaggregated glass fragments in anhydrite seen in 121 using conoscopic light	5	RHF
123	6	1188A	7R	2	39-41	2	PPL	Dark blue/gray	10	Fragments of altered glass in silica from same area of slide as that shown in slide 122	5	RHF
124	6	1188A	7R	2	39-41	2	PPL	Dark blue/gray	10	Fragments of altered glass in silica showing same area as in slide 124 using conoscopic light	5	RHF
125	6	1188A	7R	2	39-41	2	PPL	Dark blue/gray	20	Enlargement of view seen in slide 124 under, conoscopic light	5	RHF
126	6	1188A	7R	2	39-41	2	PPL	Dark blue/gray	20	Anhydrite-filled vesicle cut by anhydrite+silica vein	5	RHF
127	6	1188A	7R	2	39-41	2	PPL	Dark blue/gray	20	Same vein as in 126, cut by anhydrite fill in vesicle	5	RHF
128	6	1188A	7R	2	39-41	2	PPL	Dark blue/gray	20	Fragments of altered glass in anhydrite and silica fill	5	RHF
129	6	1188A	7R	2	39-41	2	PPL	Dark blue/gray	20	Fragments of altered glass in anhydrite example of above, anhydrite fill is optically continuous	6	RHF
130	8	1188A	8R	1	124-127	8	PPL	Dark blue/gray	2.5	General alteration & veining texture showing displacement of glass pieces and invading "daggers" of anhydrite into perlitic altered margins	6	RHF

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131	8	1188A	8R	1	124-127	8	PPL	Dark blue/gray	10	Detail of dagger-like invasion	6	RHF
132	8	1188A	8R	1	124-127	8	PPL	Dark blue/gray	20	Deatail ofdagger-like invasion; shows , crack forms with altyeration and on other side crack opens and is pursued by anhydrite fill	6	RHF
133	9	1188A	9R	1	67-70	7	PPL	Dark blue/gray	5	Invasions of anhydrite 'daggers'	8	RHF
134	9	1188A	9R	1	67-70	7	PPL	Dark blue/gray	5	Invasions of silica "daggers" into glass	8	RHF
135	9	1188A	9R	1	67-70	7	PPL	Dark blue/gray	5	Fragments of glass spalled off into silica "daggers"	8	RHF
136	9	1188A	9R	1	67-70	7	PPL	Dark blue/gray	10x	Fragments of glass spalled off into silica "daggers"	8	RHF
137	9	1188A	9R	1	67-70	7	PPL	Dark blue/gray	10x	Invasion of silica-caly "daggers" into glass	8	RHF
138	9	1188A	9R	1	67-70	7	PPL	Dark blue/gray	5x	More general photo of silica-clay "daggers" shown in 137	8	RHF
139	14	1188A	14R	1	105-106	15	PPL	blue/light gray	20x	Relic anhydrite surrounded by epoxy I and epoxy II. Note air-filled bubble (12 hours) and small vesicle @ 4 hours		FB
140	14	1188A	14R	1	105-106	15	XP	blue	20x	Relic anhydrite surrounded by epoxy I and epoxy II. Note air-filled bubble (12 hours) and small vesicle @ 4 hours		FB
141	14	1188A	14R	1	105-106	15	XP	blue	10x	Holes in matrix of altered rock matrix. Note relic anhydrite in bottom of image		FB
142	14	1188A	14R	1	105-106	15	PPL	blue/dark gray	10x	Holes in matrix of altered rock matrix. Note relic anhydrite in bottom of image		FB
143	14	1188A	14R	1	105-106	15	PPL	blue/gray	20x	Coarse anhydrite replacing rock matrix. Note pits where mostly anhy is missing		FB
144	14	1188A	14R	1	105-106	15	XP	blue	20x	Coarse anhydrite replacing rock matrix. Note pits where mostly anhy is missing		FB
145	21	1188A	17R	2	33-37	6	XP	blue/light gray	10x	Abundant, relatively fine grained anhydrite replacing rock matrix		FB
146	21	1188A	17R	2	33-37	6	XP	blue/light gray	10x	Very abundant, relatively fine grained anhydrite replacing rock matrix		FB
147	21	1188A	17R	2	33-37	6	XP	blue/light gray	2.5x	Anhydrite-rich alteration halo around hairline crack replacing previously silicified rock matrix. Note rounded shapes in material being replaced		FB
148	26	1188A	21R	1	20-24 cm	3	RL oil immersion	Gray	100x	Magnetite been replaced by hematite. Hematite shows red internal reflections.	25	AP

Field of View : 2.5x = 5.5 mm
5x = 2.75 mm
10x = 1.40 mm
20x = 0.7 mm

40x = 0.35 mm
50x = 0.275 mm
80x = 0.175 mm
100x = 0.14 mm

RL = reflected light
PPL = plane-polarized light
XP = crossed polarized light

Leg 193 Digital Photomicrograph Log

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Image#	TS#	Hole	Core	Sec	Interval	Piece	Light	Filter	Obj	Feature	Unit #	~
1	70	1188F	7Z	1	104-107cm	2A	PPL	Blue/Gray	10x	Relict skeletal plagioclase phenocryst replaced by clay (illite?) rimmed with microcrystalline silica. Same FOV as Image 1188F_2.	35	CY
2	70	1188F	7Z	1	104-107cm	2A	XP	Blue/Gray	10x	Relict skeletal plagioclase phenocryst replaced by clay (illite?) rimmed with microcrystalline silica. Same FOV as Image 1188F_1.	35	CY
3	70	1188F	7Z	1	104-107cm	2A	PPL	Blue/Gray	20x	Dark brown clay (?) intergrown with colorless high birefringence clay (illite?). Same FOV as Image 1188F_4.	35	CY
4	70	1188F	7Z	1	104-107cm	2A	XP	Blue/Gray	20x	Dark brown clay (?) intergrown with colorless high birefringence clay (illite?). Same FOV as Image 1188F_3.	35	CY
5	60	1188F	1Z	3	35-38 cm	2	XP	Blue	20x	Amygdale filled with illite, anhydrite, quartz (with fluid inclusions) and pyrite.	27	WB
6	61	1188F	1Z	3	86-89 cm	3	RL oil immersion	Blue	100x	Pyrrhotite (?) - (6 microns across) and magnetite inclusions in Pyrite.	28	AP
7	62	1188F	1Z	4	55-57 cm	1	PPL	Blue	5x	Phyllosilicates (illite?) developed in halo along anhy-py vein.	28	WB
8	64	1188F	2Z	1	105-107 cm	2H	PPL	Blue / Gray	5x	0.6 mm quartz aggregate possibly replacing a plagioclase phenocryst.	29	WB
9	65	1188F	2Z	1	133-135cm	3B	RL oil immersion	Blue / Gray	100x	Leucoxene	29	AP
10	56	1188F	1Z	1	36-38	2	XPL	Blue / Gray	10x	Silicified volcanic rock. Macro quartz clusters, probably replacing previous vesicles	27	SR
11	58	1188F	1Z	2	8-10cm	1	PPL	Blue / Gray	5	Very fine grained clasts in a matrix consisting of altered, isolated or coalesced microspherulites (?) separated by wispy, irregularly shaped brown clay domains, clast margin outlined by pyrite crystals.	27	HP
12	61	1188F	1Z	3	86-89cm	3	PPL	Blue / Gray	5	quartz +/- pyrite filled vesicles (amygdales)	28	HP
13	62	1188F	1Z	4	55-57 cm	1	PPL	Blue	10x	Quartz clay anhydrite altered groundmass	28	SR
14	64	1188F	2Z	1	105-107cm	2H	PPL	Blue / Gray	5x	Altered plagioclase pseudomorphed by clay and microcrystalline quartz.	29	HP
15	65	1188F	2Z	1	133-135cm	3b	PPL	Blue / Gray	5x	Altered , anhydral plagioclase phenocryst.	29	HP
16	67	1188F	6Z	1	45-47cm	2	PPL	Blue / Gray	2.5x	isolated and coalesced altered spherulites (clay, silica, remnant plagioclase?) in microcrystalline quartz-rich matrix.	31	HP
17	67	1188F	6Z	1	45-47cm	2	PPL	Blue / Gray	10x	internal texture of altered spherulites (clay, silica, remnant plagioclase?)	31	HP
18	67	1188F	6Z	1	45-47cm	2	PPL + cond.	Blue / Gray	20x	internal texture of altered spherulites (clay, silica, remnant plagioclase?) with remnant of radiating plagioclase needles in the centre	31	HP
19	67	1188F	6Z	1	45-47cm	2	XP + cond.	Blue / Gray	20x	internal texture of altered spherulites (clay, silica, remnant plagioclase?) with remnant of radiating plagioclase needles in the centre	31	HP
20	74	1188F	11G	1	108-111cm	9	PPL	Blue	50x	Hematite inclusions in quartz, adjacent to a pyrite crystal on the margin of a 1cm quartz-pyrite-(anhydrite) amygdale. Same FOV as images 1188F_21 and 1188F_22.	39	CY
21	74	1188F	11G	1	108-111cm	9	RL	Blue	50x	Hematite inclusions in quartz, adjacent to a pyrite crystal on the margin of a 1cm quartz-pyrite-(anhydrite) amygdale. Same FOV as images 1188F_20 and 1188F_22.	39	CY
22	74	1188F	11G	1	108-111cm	9	XPRL	Blue	50x	Hematite inclusions in quartz, adjacent to a pyrite crystal on the margin of a 1cm quartz-pyrite-(anhydrite) amygdale. Same FOV as images 1188F_20 and 1188F_21.	39	CY
23	74	1188F	11G	1	108-111cm	9	RL	Blue	50x	Pyrite crystals with pyrrhotite (upper grain) and magnetite (lower grain) inclusions	39	CY
24	82	1188F	15Z	1	111-114	12	RL	Blue	20x	Pyrite with magnetite-hematite and chalcocopyrite inclusions	43	TB
25	67	1188F	6Z	1	45-47cm	2	PPL	Blue	10x	Circular domains of microlitic plagioclase - volcanic glass, overgrown by radiating cristobalite. Same FOV as 1188F_26	31	CY
26	67	1188F	6Z	1	45-47cm	2	XP	Blue	10x	Circular domains of microlitic plagioclase - volcanic glass, overgrown by radiating cristobalite. Same FOV as 1188F_25	31	CY
27	67	1188F	6Z	1	45-47cm	2	XP + cond	Blue	10x	Mosaic textured chalcedony aggregate with pyrite and chalcocopyrite. Same FOV as 1188F_28.	31	CY
28	67	1188F	6Z	1	45-47cm	2	RL	Blue	10x	Mosaic textured chalcedony aggregate with pyrite and chalcocopyrite. Same FOV as 1188F_27.	31	CY
29	90	1188F	26Z	1	20-23cm	2	RL	Blue	20x	Pyrite overgrown by magnetite. Same FOV as 1188F_30.	49	CY
30	90	1188F	26Z	1	20-23cm	2	PPL+RL	Blue	20x	Pyrite overgrown by magnetite. Same FOV as 1188F_29.	49	CY
31	75	1188F	11G	1	138-141 cm	12	PPL	Blue/Gray	20x	Phyllosilicates replacing plagioclase microlites. Colorless phyllosilicate is probably illite, the brown phyllosilicate is unidentified.	39	WB

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Image#	TS#	Hole	Core	Sec	Interval	Piece	Light	Filter	Obj	Feature	Unit #	~
32	75	1188F	11G	1	138-141 cm	12	RL	Blue	20x	Same FOV as 1188F_31. Brown phase appears bright in reflected light.	39	WB
33	75	1188F	11G	1	138-141 cm	12	PPL	Blue/Gray	20x	Phyllosilicates and silica replacing a plagioclase phenocryst.	39	WB
34	75	1188F	11G	1	138-141 cm	12	RL	Blue	20x	Phyllosilicates and silica replacing a plagioclase phenocryst. Same FOV as 1188F_33.	39	WB
35	90	1188F	26Z	1	20-23cm	2	RL	Blue	50x	Magnetite inclusions in quartz crystals. Pyrite outside of quartz.	49	AP
36	90	1188F	26Z	1	20-23cm	2	RL	Blue / Gray	50x	Qz1 overgrown by mt, overgrown by Qz2, overgrown, partial replaced by py.	49	AP
37	90	1188F	26Z	1	20-23cm	2	RL	Blue / Gray	20x	Qz1 overgrown by mt, overgrown by Qz2, overgrown, partial replaced by py. Later anhydrite crosscut the qz2.	49	AP
38	90	1188F	26Z	1	20-23cm	2	XPL	Blue / Gray	20x	Anhydrite and pyrite surrounded by Qz1 --> mt, --> Qz2.	49	AP
39	90	1188F	26Z	1	20-23cm	2	RL	Blue / Gray	20x	Same FOV as 1188F_38.	49	AP
40	72	1188F	9Z	1	9-12cm	1B	RL	Blue / Gray	20x	hematite inclusions in pyrite	37	AP
41	77	1188F	13Z	1	47-50 cm	2B	RL	Blue / Gray	20x	Partial to complete replacement of Ti-magnetite by leucoxene.	39	WB
42	79	1188F	14Z	1	62-64 cm	3	RL	Blue / Gray	20x	Partial replacement of a previously euhedral Ti-magnetite crystal by leucoxene.	41	WB
43	67	1188F	6Z	1	45-47cm	2	XP	Blue / Gray	2.5	coarse, radiating quartz crystal aggregates, round plagioclase-rich nodules ('spherulites') and fine grained, silic-rich intra-nodule matrix	31	HP
44	83	1188F	15Z	1	142-144	16	PPL	Blue / Gray	10x	Vesicle lined with anhydrite, quartz and pyrite	43	SR
45	83	1188F	15Z	1	142-144	16	XPL	Blue / Gray	5x	Vesicle lined with anhydrite, quartz and pyrite	43	SR
46	91	1188F	30Z	1	5-7cm	2	PPL	Blue / Gray	2.5x	Gradational contact between dominantly siliceous domain and clay-rich domain with isolated siliceous apparent clasts.	51	HP
47	91	1188F	30Z	1	5-7cm	2	PPL	Blue / Gray	5x	siliceous apparent clasts in clay-rich apparent matrix with rectangular and irregular shapes.	51	HP
48	91	1188F	30Z	1	5-7cm	2	PPL	Blue / Gray	20x	Plagioclase microcrystals cross the boundary between siliceous apparent clast and clay-rich apparent matrix.	51	HP
49	90	1188F	26Z	1	20-23cm	2	XP	Blue / Gray	5x	Fresh plagioclase phenocryst, plagioclase microcryst, quartz (-anhydrite) amygdale	50	HP
50	84	1188F	16Z	1	41-43cm	1c	PPL	Blue / Gray	5x	Faint (flow) banding is locally recognizable which, in hand specimen, appears clastic.	44	HP
51	84	1188F	16Z	1	41-43cm	1c	PPL	Blue / Gray	20x	Detail of photo 1188F_50, Faint (flow) banding is defined by aligned aggregates of cryptocrystalline brown clay.	44	HP
52	91	1188F	30Z	1	5-7cm	2	PPL	Blue / Gray	2.5x	Granular to skeletal magnetite aggregate/crystal.	51	CY
53	91	1188F	30Z	1	5-7cm	2	RL	Blue	5x	Granular to skeletal magnetite aggregate/crystal. The strongly reflectant spots are pyrite (+/- chalcopyrite +/- magnetite). Higher magnification view of the aggregate featured in Image 1188F_54.	51	CY
54	91	1188F	30Z	1	5-7cm	2	RL	Blue	50x	Rim of magnetite aggregate from image 1188F_53.	51	CY
55	91	1188F	30Z	1	5-7cm	2	RL	Blue	50x	Core of magnetite aggregate from image 1188F_53.	51	CY
56	91	1188F	30Z	1	5-7cm	2	RL	Blue	20x	Pyrite-chalcopyrite-magnetite intergrowth within a granular magnetite crystal. This is the coarser intergrowth visible in image 1188F_53.	51	CY
57	91	1188F	30Z	1	5-7cm	2	RL	Blue	50x	Pyrite-chalcopyrite-magnetite intergrowth within a granular magnetite crystal. This is the coarser intergrowth visible in image 1188F_53 and a higher magnification shot of the intergrowth featured in image 1188F_56.	51	CY
58	91	1188F	30Z	1	5-7cm	2	PPL	Blue/Gray	20x	Granular to skeletal magnetite aggregate/crystal with chalcopyrite inclusions. Same FOV as 1188F_59.	51	CY
59	91	1188F	30Z	1	5-7cm	2	RL	Blue	20x	Granular to skeletal magnetite aggregate/crystal with chalcopyrite inclusions. Same FOV as 1188F_58.	51	CY
60	93	1188F	31Z	1	39-42cm	5	PPL	Blue/Gray	10x	Remnant microlitic plagioclase surrounded by quartz and dirty brown clay alteration. Same FOV as 1188F_61.	53	CY
61	93	1188F	31Z	1	39-42cm	5	XPRL	Blue	10x	Remnant microlitic plagioclase surrounded by quartz and dirty brown clay alteration. The clay has a white waxy appearance in XPRL. Same FOV as 1188F_60.	53	CY

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Image#	TS#	Hole	Core	Sec	Interval	Piece	Light	Filter	Obj	Feature	Unit #	~
62	77	1188F	13Z	1	47-50 cm	3B	RL	Blue	50x	Magnetite inclusions in pyrite of same size and morphology as magnetite in quartz of the groundmass.	39	AP
63	79	1188F	14Z	1	62-64 cm	3	RL	Blue	50x	Inclusion of magnetite, quartz and hematite in Pyrite.	41	AP
64	82	1188F	15Z	1	111-114 cm	12	RL	Blue/Gray	50x	Inclusion of magnetite and hematite (?) in pyrite.	42	AP
65	91	1188F	30Z	1	5-7 cm	2	RL oil immersion	Blue	100x	Ti- Magnetite aggregate.	51	AP
66	56	1188F	1Z	1	36-38 cm	2	PPL	Blue/Gray	2.5x	Alternating clay-dominated and quartz dominated halos around anhydrite-pyrite vein	27	TB
67	80	1188F	14Z	1	102-105 cm	6	PPL	Blue / Gray	2.5x	Anhydrite-pyrite vein crosscutting alternating silica- and clay-dominated bands in halo around major anhydrite-pyrite vein.	41	TB
68	80	1188F	14Z	1	102-105 cm	6	XPL	Blue	2.5x	Anhydrite-pyrite vein crosscutting alternating silica- and clay-dominated bands in halo around major anhydrite-pyrite vein.	41	TB
69	80	1188F	14Z	1	102-105 cm	6	XPL	Blue	2.5x	Crosscutting relationships between anhydrite-pyrite veins	41	TB
70	80	1188F	14Z	1	102-105 cm	6	PPL	Blue	2.5x	Crosscutting relationships between anhydrite-pyrite veins	41	TB
71	89	1188F	25Z	1	24-26 cm	4	RL	Blue/Gray	50x	Magnetite inclusions in pyrite of same morphology as magnetite in quartz of the groundmass. Magnetite inclusion in pyrite decrease in size deeper inside the crystal.	46	AP
72	89	1188F	25Z	1	24-26 cm	4	RL	Blue/Gray	50x	Late fractures crosscutting quartz and pyrite.	46	AP
73	95	1188F	34Z	1	45-47 cm	9A	RL	Blue	50x	Pyrite replace quartz magnetite. Magnetite stay longer as inclusions in pyrite.	55	AP
74	95	1188F	34Z	1	45-47 cm	9A	PLL	Blue/Gray	20x	Gahnite(?), clear green crystal occasionally octahedrons. Some with stepped growth surfaces.	55	AP
75	101	1188F	37Z	2	31-33 cm	3	PLL oil immersion	Blue/Gray	100x	Hematite - plain polarized light.	57	AP
76	101	1188F	37Z	2	31-33 cm	3	RL	Blue	20x	Hematite - reflected light.	57	AP
77	101	1188F	37Z	2	31-33 cm	3	RL	Blue/Gray	20x	Pyrite, magnetite and Hematite in groundmass.	57	AP
78	92	1188F	31Z	1	1-3cm	1	XP	Blue/Gray	5x	Fresh plagioclase phenocryst and microphenocryst in microcrystalline matrix	52	HP
79	101	1188F	37Z	2	31-33 cm	3	PPL	Blue/Gray	10x	Relatively coarse hematite crystals.	57	HP
80	80	1188F	14Z	1	102-105cm	6	XP	Blue/Gray	20x	Concentrically zoned illite pseudomorphing plagioclase.	41	CY
81	96	1188F	34Z	1	108-110cm	14A	RL	Blue/Gray	50x	Magnetite inclusions in quartz, overgrown by pyrite.	56	CY
82	81	1188F	15Z	1	55-58 cm	8	XPL	Blue	5x	Dust- and fluid inclusion trails in quartz suggesting crack-seal veining	41	TB
83	82	1188F	15Z	1	111-114 cm	12	XPL	Blue	2.5x	Conjugate fracture pattern in groundmass	42	TB
84	92	1188F	31Z	1	1-3cm	1	PPL	Blue/Gray	2.5x	Quartz-anhydrite-pyrite-magnetite vein with halo of dark clay minerals	52	TB
85	95	1188F	34Z	1	45-47 cm	9A	PLL oil immersion	Blue/Gray	20x	Spinel, clear green crystal occasionally octahedrons.	55	AP
86	100	1188F	37Z	2	16-20cm	2	RL	Blue	50x	Fine composite magnetite-ilmenite inclusion in pyrite.	57	CY
87	101	1188F	37Z	2	31-33cm	3	PPL + cond.	Blue/Gray	20x	Vesicle fill: hematite-chlorite-alunite/brucite. Same FOV as 1188F_88.	58	CY
88	101	1188F	37Z	2	31-33cm	3	XP + cond	Blue/Gray	20x	Vesicle fill: hematite-chlorite-alunite/brucite. Same FOV as 1188F_87.	58	CY
89	101	1188F	37Z	2	31-33cm	3	PPL + cond.	Blue/Gray	50x	Vesicle fill: hematite-chlorite-alunite/brucite. Same FOV as 1188F_90.	58	CY
90	101	1188F	37Z	2	31-33cm	3	XP + cond	Blue/Gray	50x	Vesicle fill: hematite-chlorite-alunite/brucite. Same FOV as 1188F_89.	58	CY
91	101	1188F	37Z	2	31-33cm	3	XP + cond	Blue/Gray	20x	Remnant plagioclase replaced by alunite.	58	CY
92	101	1188F	37Z	2	31-33cm	3	RL	Blue	50x	Magnetite and spinel. Note the fine magnetite rims on spinel. A golden yellow (out of focus) grain of chalcopyrite is also visible.	58	CY
93	101	1188F	37Z	2	31-33cm	3	RL	Blue	50x	Fine magnetite rims on spinel.	58	CY
94	106	1188F	40Z	1	3-5cm	1A	PPL/RL	Blue/Gray	10x	Quartz-pyrite-chlorite-"magnetite" amygdale.	65	CY
95	106	1188F	40Z	1	3-5cm	1A	RL	Blue	50x	High magnification view of the "magnetite" from the amygdale in Image 1188_94. It consists of fine acicular remnant magnetite in a matrix of clay (white) and dark opaque material (more clay?).	65	CY
96	106	1188F	40Z	1	3-5cm	1A	RL/PPL	Blue/Gray	20x	Pyrite replacing a magnetite-clay aggregate.	65	CY
97	101	1188F	37Z	2	31-33cm	3	RL	Blue	20x	Hematite intergrown with pyrite.	58	SR
98	102	1188F	37Z	2	65-68	7	PPL/RL	Blue	20x	Magnetite within brown clay (White in reflected light) in proximity to quartz anhydrite, pyrite vein	59	SR
99	102	1188F	37Z	2	65-68	7	PPL/RL	Blue	20x	Magnetite (phenocrysts?) within altered volcanic groundmass	59	SR

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Image#	TS#	Hole	Core	Sec	Interval	Piece	Light	Filter	Obj	Feature	Unit #	`
100	103	1188F	43Z	1	87-91	4A	RL	Blue	10x	Magnetite within volcanic groundmass undergoing alteration and replaced by Pyrite	72	SR
101	101	1188F	37Z	2	31-33cm	3	RL oil immersion	Blue	100x	Spinel, Magnetite and Hematite. There are a fine magnetite rims on spinel, and magnetite has hematite inclusions.	58	AP
102	87	1188F	19Z	1	13-15cm	1b	PPL	Blue/gray	5x	Plagioclase microphenocryst altered to clays (kaolinite?), relic microlitic fabric in groundmass	45	RB
103	87	1188F	19Z	1	13-15	1b	XN	Blue/gray	5x	Plagioclase microphenocryst altered to clays (kaolinite?)	45	RB
104	101	1188F	37Z	2	31-33cm	3	RL oil immersion	Blue	100x	Ilmenite intergrown with magnetite in the spinel, magnetite, hematite assemblage.	58	AP
105	101	1188F	37Z	2	31-33cm	3	RL oil immersion	Blue	100x	Ilmenite intergrown with magnetite surrounding the spinel. Hematite occurs as inclusions in magnetite. Spinel shown exsolution of magnetite (?).	58	AP
106	98	1188F	35Z	1	44-46cm	2D	RL oil immersion	Blue	100x	Magnetite inclusion in Hematite that occurs as an inclusion in pyrite. Red internal reflections in hematite. Small ilmenite inclusion in hematite.	57	AP
107	100	1188F	37Z	2	18-20	2	PPL	Blue/gray	10x	Pilotaxitic plagioclase in matrix, and quartz-filled vesicles	57	RB
108	100	1188F	37Z	2	18-20	2	XN	Blue/gray	10x	Pilotaxitic plagioclase in matrix, and quartz-filled vesicles	57	RB
109	101	1188F	37Z	2	31-33cm	3	RL	Blue	50x	Chalcopyrite replacing pyrite.	58	AP
110	102	1188F	37Z	2	65-68	7	XPL	Blue	2.5x	Anhydrite-pyrite vein with minor quartz surrounded by clay-quartz-magnetite halo. The halo show zonation from quartz-rich in inner part to dark clays (partly kaolinite?) in middle part to illite-dominated in outer part.	59	TB
111	111	1188F	43Z	1	67-69cm	3a	XPL	Blue/gray	2.5x	Quartz-rich patch with sharp margin to microlitic volcanic groundmass.	72	HP
112	111	1188F	43Z	2	67-69cm	3a	XPL	Blue/gray	2.5x	Xenolithic clast with quartz amygdale. Plagioclase microlites of the hosting volcanic groundmass are aligned and wrapped around the margin of the xenolith.	72	HP

Field of View : 2.5x = 5.5 mm
5x = 2.75 mm
10x = 1.40 mm
20x = 0.7 mm

40x = 0.35 mm
50x = 0.275 mm
80x = 0.175 mm
100x = 0.14 mm

RL = reflected light
PPL = plane-polarized light
XP = crossed polarized light

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Image#	TS#	Hole	Core	Sec	Interval	Piece	Light	Filter	Obj	Feature	Unit #	Who?
1	42	1189A	12R	1	122-125 cm	16	RL	Blue	20x	Pyrite, Chalcopyrite, quartz association.	20	AP
2	42	1189A	12R	1	122-125cm	16	RL	Blue	50x	Sphalerite inclusions in Pyrite.	20	AP
3	31	1189A	3R	1	59-63 cm	10	RL	Blue	50x	Chalcopyrite in Quartz.	6	AP
4	31	1189A	3R	1	59-63 cm	10	RL	Blue	50x	Sphalerite inclusions in Pyrite.	6	AP
5	31	1189S	3R	1	59-63 cm	10	RL	Blue	20x	Association Quartz + Pyrite + very fine Magnetite.	6	AP
6	32	1189	3R	1	06-10 cm	2	PPL	Blue and Dark Gray	20x	Very fine pyrite dissemination in cristobalite.	5	AP
7	33	1189	2R	1	113-115 cm	15	RL	Blue	20x	Very fine film of pyrite filling voids.	4	AP
8	30	1189	3R	1	70-73 cm	12	RL	Blue	10x	Quartz-Anhydrite vein with minor pyrite and chalcopyrite.	6	AP
9	36	1189	7R	1	83-86 cm	13	RL	Blue	10x	Chalcopyrite in center of quartz structure.	12	AP
10	36	1189	7R	1	83-86 cm	13	RL	Blue	20x	Pyrite with cristobalite (?) inclusions. Small inclusion of sphalerite.	12	AP
11	30	1189A	3R1	1	70-73 cm	12	PPL	Gray/blue	2.5x	Partially quartz-pyrite lined vesicles => geopedal texture.	7	HP
12	32	1189A	3R	1	6-10 cm	2	PPL	Gray/blue	10x	Pilotaxitic texture and clinoptilolite (radiating aggregate) on vesicle wall	5	HP
13	33	1189A	2R	1	113-115 cm	15	PPL	Gray/blue	5x	Spectacular perlitic texture + hydrofractures + 'blocky' anhydrite	4	HP
14	34	1189A	5R	1	14-16 cm	3	PPL	Gray/blue	2.5x	2 generations of silica veins.	9	HP
15	34	1189A	5R	1	14-16 cm	3	PPL	Gray/blue	2.5x	Flow laminated clast with silicified margin in contact with quartz vein. Flow lamination by light gray and dark gray clays.	9	HP
16	40	1189A	10R	1	75-77 cm	9	XP	Gray/blue	2.5x	Contacts between plagioclase-phyric clasts are quartz-anhydrite veins are sharp but irregular	19	HP
17	41	1189A	12R	1	67-69 cm	8	RL	Gray/blue	10x	Pyrite: disseminated in the groundmass and in the centre of quartz lined vesicle.	20	HP
18	42	1189A	12R	1	122-125 cm	16	PPL/RL	Gray/blue	10x	Pyrite/chalcopyrite - growing within fractures of silica clasts	21	SR
19	42	1189A	12R	1	122-125 cm	16	RL	Gray/blue	20x	Chalcopyrite enclosing pyrite and intergrown with quartz	21	SR
20	30	1189A	3R	1	70-73 cm	12	XP	Blue	5x	Zoned quartz-anhydrite vein	7	TB
21	31	1189A	3R	1	59-63 cm	10	XP	Blue	2.5x	Relict flow banding, crosscut by quartz veins	6	TB
22	31	1189A	3R	1	59-63 cm	10	XP	Blue	2.5x	Anhydrite cement, and quartz veining between altered volcanic fragments	6	TB
23	31	1189A	3R	1	59-63 cm	10	RL	Blue	2.5x	Quartz-vein crosscutting volcanic fragments and anhydrite cement	6	TB
24	38	1189A	8R	1	42-44 cm	6	XP	Blue	2.5x	Quartz veins with pyrite, crosscut by late quartz-filled joints	15	TB
25	41	1189A	12R	1	67-69 cm	8	RL	Blue	10x	Chalcopyrite and pyrite filling the central part of quartz lined vesicles	20	AP
26	40	1189A	10R	1	75-77 cm	10	RL	Blue	20x	Magnetite aggregate.	19	AP
27	31	1189A	3R	1	59-63 cm	10	RL	Blue	5x	Quartz veins with pyrite - Mineralization type 2	7	AP
28	29	1189A	4R	1	21-24cm	3	PPL	Gray/blue	2.5x	Anastomosing qtz-py-anhy vein. Same FOV as Image 29.	8	CY
29	29	1189A	4R	1	21-24cm	3	XP	Gray/blue	2.5x	Anastomosing qtz-py-anhy vein. Same FOV as Image 28.	8	CY
30	29	1189A	4R	1	21-24cm	3	XP	Gray/blue	10x	Vesicle filled with microcrystalline quartz, dirty brown clay and sulfide (py-cp). Same FOV as Image 31. See Image 32 for detail of sulfides.	8	CY
31	29	1189A	4R	1	21-24cm	3	XP	Gray/blue	10x	Vesicle filled with microcrystalline quartz, dirty brown clay and sulfide (py-cp). Same FOV as Image 30. See Image 32 for detail of sulfides.	8	CY

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Image#	TS#	Hole	Core	Sec	Interval	Piece	Light	Filter	Obj	Feature	Unit #	Who?
32	29	1189A	4R	1	21-24cm	3	XP	Gray/blue	50x	Detail of sulfides from Image 30/31. Vuggy anhedral cp is overgrown by eu- to subhedral py.	8	CY
33	31	1189A	3R	1	59-63cm	10	PPL	Gray/blue	10x	Rounded anhydrite crystal (vesicle fill?) intersected and rimmed by vein quartz from qtz-py vein. Same FOV as Image 34.	6	CY
34	31	1189A	3R	1	59-63cm	10	XP	Gray/blue	10x	Rounded anhydrite crystal (vesicle fill?) intersected and rimmed by vein quartz from qtz-py vein. Same FOV as Image 33.	6	CY
35	32	1189A	3R	1	6-10cm	2	PPL	Gray/blue	20x	Cristobalite lined vesicle.	5	CY
36	32	1189A	3R	1	6-10cm	2	PPL	Gray/blue	20x	Cristobalite lined vesicle, with a py-cp aggregate	5	CY
37	32	1189A	3R	1	6-10cm	2	RL	Gray/blue	50x	Py-cp aggregate. Closeup of opaques in Image 36.	5	CY
38	33	1189A	2R	1	113-115cm	15	PPL	Gray/blue	10x	Perlitic texture with clay altered patches and hairline cristobalite veins (better visible on XP Image 39).	4	CY
39	33	1189A	2R	1	113-115cm	15	XP	Gray/blue	10x	Perlitic texture (better visible on PPL Image 38) with clay altered patches and hairline cristobalite veins .	4	CY
40	34	1189A	5R	1	14-16cm	3	PPL	Gray/blue	5x	Pervasively altered flow-banded volcanic fragments cut by quartz-pyrite veining. Same FOV as images 41&42	9	CY
41	34	1189A	5R	1	14-16cm	3	XP	Gray/blue	5x	Pervasively altered flow-banded volcanic fragments cut by quartz-pyrite veining. Same FOV as images 40&42	9	CY
42	34	1189A	5R	1	14-16cm	3	RL	Gray/blue	5x	Pervasively altered flow-banded volcanic fragments cut by quartz-pyrite veining. Same FOV as images 40&41	9	CY
43	36	1189A	7R	1	83-86cm	13	PPL	Gray/blue	20x	Euhedral pyrite overgrowing a quartz crystal. Inclusion in pyrite is optically continuous with the crystal it cuts.	12	CY
44	36	1189A	7R	1	83-86cm	13	XP	Gray/blue	20x	Euhedral pyrite crystal which is apparently cut by a quartz-filled amygdale, with a final fill of pitted chalcopyrite.	12	CY
45	36	1189A	7R	1	83-86cm	13	XP	Gray/blue	20x	Subhedral pyrite-pitted chalcopyrite intergrowth in a quartz filled fractured amygdale (resulting in a short vein).	12	CY
46	37	1189A	7R	1	27-31cm	5	RL	Gray/blue	10x	Quartz amygdale with late euhedral chalcopyrite. Note the pale blue-gray sphalerite crystals scattered around the rim of the amygdale. (Detail on Image 47).	10	CY
47	37	1189A	7R	1	27-31cm	5	PPL	Gray/blue	50x	Detailed view of the rim of the amygdale from Image 46, showing red-brown sphalerite.	10	CY
48	37	1189A	7R	1	27-31cm	5	RL	Gray/blue	20x	Euhedral pyrite with plagioclase (darker, elongate) and magnetite (paler, equant) inclusions.	10	CY
49	38	1189A	8R	1	42-44cm	6	XP	Gray/blue	10x	Original quartz phenocryst (possibly with melt inclusion?) overgrown by optically continuous poikiloblastic quartz with abundant microclitic plagioclase inclusions.	15	CY
50	38	1189A	8R	1	42-44cm	6	XP	Gray/blue	20x	Quartz-opaque vesicle fill overgrown by optically discontinuous poikiloblastic quartz.	15	CY
51	38	1189A	8R	1	42-44cm	6	XP	Gray/blue	20x	Feldspar phenocryst with optically continuous poikiloblastic overgrowth. The phenocryst contains a large inclusion of ??mica??	15	CY
52	38	1189A	8R	1	42-44cm	6	XP	Gray/blue	10x	Quartz-pyrite vein with poikiloblastic quartz halo	15	CY
53	38	1189A	8R	1	42-44cm	6	PPL	Gray/blue	20x	Quartz vesicle fill with pyrite infill	15	CY

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Image#	TS#	Hole	Core	Sec	Interval	Piece	Light	Filter	Obj	Feature	Unit #	Who?
54	38	1189A	8R	1	42-44cm	6	PPL/RL	Gray/blue	10x	Hairline silica vein with py euhedra up to .2mm	15	CY
55	39	1189A	8R	1	90-92cm	14	RL	Gray/blue	20x	Chalcopyrite and pyrite in poikiloblastic quartz	15	CY
56	40	1189A	10R	1	75-77cm	9	PPL	Gray/blue	5x	Zoned quartz-anhydrite-pyrite vein with quartz-pyrite adjacent to the wallrock and coarse anhydrite infill in the centre. Same FOV as Image 57.	19	CY
57	40	1189A	10R	1	75-77cm	9	XP	Gray/blue	5x	Zoned quartz-anhydrite-pyrite vein with quartz-pyrite adjacent to the wallrock and coarse anhydrite infill in the centre. Same FOV as Image 56.	19	CY
58	40	1189A	10R	1	75-77cm	9	PPL	Gray/blue	5x	Qtz-anhy-py vein intersected and apparently offset by late fracture.	19	CY
59	40	1189A	10R	1	75-77cm	9	RL	Gray/blue	10x	Plagioclase glomerocryst: one of the individual crystals has a chalcopyrite inclusions. The equant opaque is magnetite. Same FOV as Image 60.	19	CY
60	40	1189A	10R	1	75-77cm	9	PPL	Gray/blue	10x	Plagioclase glomerocryst: one of the individual crystals has a chalcopyrite inclusions. The equant opaque is magnetite. Same FOV as Image 59.	19	CY
61	40	1189A	10R	1	75-77cm	9	RL	Gray/blue	50x	Chalcopyrite inclusions in plagioclase. Close up of part of image 59. Same FOV as Image 62.	19	CY
62	40	1189A	10R	1	75-77cm	9	PPL	Gray/blue	50x	Chalcopyrite inclusions in plagioclase. Close up of part of image 59. Same FOV as Image 61.	19	CY
63	40	1189A	10R	1	75-77cm	9	PPL	Gray/blue	50x	Chalcopyrite inclusions in plagioclase. Close up of part of image 59. Same FOV as Image 62 (deeper focus).	19	CY
64	33	1189A	2R	1	113-115 cm	15	RL	Gray/blue	50x	Pyrite, chalcopyrite, sphalerite and galena assemblage in quartz vein.	4	AP
65	33	1189A	2R	1	113-115 cm	15	RL	Gray/blue	50x	The same as 64, different location.	4	AP
66	33	1189A	2R	1	113-115 cm	15	RL XPL	Gray/blue	50x	Small inclusions of marcasite in pyrite.	4	AP
67	33	1189A	2R	1	113-115 cm	15	RL	Gray/blue	50x	Small inclusions of marcasite in pyrite.	4	AP
68	31	1189A	3R	1	59-63 cm	10	RL	Gray/blue	50x	Sphalerite and chalcopyrite (chalcopyrite disease) inclusions in pyrite filling a vein.	6	AP
69	29	1189A	4R	1	21-24 cm	3	RL	Gray/blue	50x	Probable bornite (?) irregular grain with fine lattice-like lamellae of chalcopyrite.	8	AP
70	33	1189A	2R	1	113-115 cm	15	RL	Gray/blue	50x	Pyrite - marcasite with cp inclusions	4	CY
71	41	1189A	12R	1	67-69cm	8	PPL	Gray/blue	50x	Sphalerite inclusion in quartz	20	CY
72	33	1189A	2R	1	113-115 cm	15	RL oil immersion	Blue	100x	Pyrite, chalcopyrite, sphalerite and galena assemblage in quartz vein.	4	AP
73	29	1189A	4R	1	21-24 cm	3	RL oil immersion	Gray/blue	100x	Probable bornite (?) irregular grain with fine lattice-like lamellae of chalcopyrite.	8	AP
74	42	1189A	12R	1	122-126	16	PPL	Gray/blue	5x	Tube pumice clasts, delicate, fibrous tube vesicles are outlined by dark clay?	21	HP
75	42	1189A	12R	1	122-126	16	PPL	Gray/blue	10x	fibrous tube vesicles in pumice clast preserved by infill with dark clay?, detail of 1189A_74	21	HP
76	42	1189A	12R	1	122-126	16	PPL	Gray/blue	10x	fibrous tube vesicles in pumice clast preserved by lining of inner vesicle walls with dark clay?; adjacent clast is non-vesicular and shows zoned palagonite? Alteration.	21	HP
77	42	1189A	12R	1	122-126	16	PPL	Gray/blue	2.5x	Clast supported texture (tube pumice and non-vesicular clasts) in sulfide-poor part of thin section	21	HP

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Image#	TS#	Hole	Core	Sec	Interval	Piece	Light	Filter	Obj	Feature	Unit #	Who?
78	42	1189A	12R	1	122-126	16	PPL	Gray/blue	2.5x	Matrix supported texture in sulfide-rich part of the thin section; pumiceous and non-vesicular clasts + pyrite-rich clasts?	21	HP
79	42	1189A	12R	1	122-126	16	PPL	Gray/blue	10x	Platy tube pumice clast in sulfide-rich matrix.	21	HP
80	42	1189A	12R	1	122-126	16	PPL	Gray/blue	20x	Fibrous, delicate vesicles outlines by brown clay?; detail of 1189 79.	21	HP
81	31	1189A	3R	1	59-63 cm	10	PPL	Gray/blue	2.5x	Relict flow banding, crosscut by quartz veins. Same picture as 1189A_21 with XP.	6	HP
82	31	1189A	3R	1	59-63 cm	10	XP+	Gray/blue	20x	Detail of picture 1189a_21 and 81, flow banding defined by dark and bright cryptocrystalline material	6	HP
83	34	1189A	5R	1	14-16 cm	3	PPL	Gray/blue	2.5x	Flow banded clast with silicified margin in contact with quartz vein. Flow banding defined by light gray and dark gray clays.	9	HP
84	34	1189A	5R	1	14-16 cm	3	PPL	Gray/blue	20x	Detail of flow banding shown in 1189A_83	9	HP
85	41	1189A	12R	1	67-69cm	8	PPL	Gray/blue	10x	Silica-clay altered groundmass	20	CY
86	42	1189A	12R	1	122-126 cm	16	RL oil immersion	Blue	100x	Pyrite 1 surrounded by magnetite (?) or sphalerite (?). Pyrite 2 growing around.	21	AP
87	53	1189A	8R	1	17-20cm	5	XPL	Blue/gray	5X	Unusually elongate plagioclase crystals	15	SR
88	53	1189A	8R	1	17-20cm	5	XPL	Blue/gray	5X	Quartz as vein and vesicle fill -top right	15	SR
89	54	1189A	8R	1	103-105	17	PPL	Blue/gray	5X	Elongate partially replaced plagioclase laths	15	SR
90	54	1189A	8R	1	103-105	17	PPL	Blue/gray	10X	Replaced plagioclase laths with magnetite cores	15	SR
91	54	1189A	8R	1	103-105	17	RL	Blue/gray	20X	Pyrite and magnetite within cores of replaced feldspar laths. Chalcopyrite within clay	15	SR
92	38	1189A	8R	1	42-44cm	6	PPL	Blue	2.5X	Quartz-pyrite veins with poikiloblastic quartz halos	15	TB
93	54	1189A	8R	1	103-105 cm	17	PPL	Blue/gray	2.5X	Promontory of black patch into Unit 15 volcanic rock.	15	DAV
94	54	1189A	8R	1	103-105 cm	17	RL	Blue	50x	Small inclusions of magnetite in hematite.	15	AP
95	54	1189A	8R	1	103-105 cm	17	RL oil immersion	Blue	100x	Hematite replace magnetite and pyrite replace both.	15	AP
96	31	1189A	3R	1	59-63 cm	10	RL oil immersion	Gray/blue	100x	Sphalerite and chalcopyrite (chalcopyrite disease) inclusions in pyrite filling a vein.	6	AP
97	32	1189A	3R1		6-10	2	PPL	Gray/blue	5	Ovoid vesicles with subparallel microcrystallites and incipient isotropic silica +clay veining forming alteration fabric oblique to vesicles.	5	RHF
98	54	1189A	8R	1	103-105	17	PPL	Blue/gray	10X	Finer-grained margin of black patch with oriented microlites in host and plumose feldspars and oriented opaques in the patch.	15	DAV
99	54	1189A	8R	1	103-105	17	PPL	Blue/gray	5X	Coarser-grained interior of black patch with relict acicular crystals, presently granular feldspar(?) and magnetite, set in a chlorite-rich matrix.	15	DAV
100	54	1189A	8R	1	103-105	17	PPL	Blue/gray	5X	Black patch within Unit 15 has a coarse-grained interior (right) and a finer grained margin (left). Same FOV as Image# 1189A_101.	15	DAV
101	54	1189A	8R	1	103-105	17	XPL	Blue/gray	5X	Black patch within Unit 15 has a coarse-grained interior (right) and a finer grained margin (left). Same FOV as Image# 1189A_100.	15	DAV
102	42	1189A	12R	1	122-126	16	RL	Blue/gray	20x	Partial replacement of clasts by the sulfide matrix (?).	21	AP
103	42	1189A	12R	1	122-126	16	RL	Blue/gray	10x	Partial replacement of clasts by the sulfide matrix (?).	21	AP
104	29	1189A	4R	1	21-24cm	3	PPL	Gray/blue	2.5x	Anastomosing qtz-py-anhy vein. NB! Same as #28, but sharper image!	8	TB
105	37	1189A	7R	1	27-31cm	5	PPL	Blue	2.5x	Pyrite lining vug and overgrown by euhedral quartz	10	TB

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Image#	TS#	Hole	Core	Sec	Interval	Piece	Light	Filter	Obj	Feature	Unit #	Who?
106	40	1189A	10R	1	75-77cm	9	RL	Blue	5x	Quartz+pyrite replacing anhydrite in a thick vein	19	TB
107	40	1189A	10R	1	75-77cm	9	RL	Blue	5x	Quartz+pyrite replacing anhydrite creating "embayments" in the anhydrite	19	TB
108	40	1189A	10R	1	75-77cm	9	RL	Blue	10x	Quartz+pyrite+chalcopryrite replacing anhydrite	19	TB
109	42	1189	12R	1	122-125 cm	16	RL + PPL	Blue/gray	10x	Tube pumice in a pyrite-chalcopryrite-silica matrix.	21	AP

Field of View : 2.5x = 5.5 mm
 5x = 2.75 mm
 10x = 1.40 mm
 20x = 0.7 mm

40x = 0.35 mm
 50x = 0.275 mm
 80x = 0.175 mm
 100x = 0.14 mm

RL = reflected light
 PPL = plane-polarized light
 XP = crossed polarized light

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Image#	TS#	Hole	Core	Sec	Interval	Piece	Light	Filter	Obj	Feature	Unit #	
1	113	1189B	01R	1	0-4cm	1	PPL	Blue/Gray	10x	Sulphides within a matrix of anhydrite and chalcedony	1	SR
2	113	1189B	01R	1	0-4cm	1	RL	Blue/Gray	5x	Chalcopyrite rimmed with a pyrite mantle	1	SR
3	115	1189B	02R	1	11-14cm	2	PPL	Blue/Gray	10x	Relict glass- replaced by anhydrite which in turn is replaced by gypsum	3	SR
4	115	1189B	02R	1	11-14cm	2	PPL	Blue/Gray	10x	Anhydrite surrounded by and replaced by gypsum. Opaques are pyrite. Same FOV as 1189B_5.	3	CY
5	115	1189B	02R	1	11-14cm	2	XPRL	Blue	10x	Anhydrite surrounded by and replaced by gypsum. Opaques are pyrite (note abundant internal reflections due to inclusions). Same FOV as 1189B_4.	3	CY
6	115	1189B	02R	1	11-14cm	2	XPRL	Blue	10x	Anhydrite surrounded by and replaced along cleavage planes by gypsum. Pyrite (black) contains abundant internal reflections due to fine inclusions.	3	CY
7	116	1189B	06R	1	13-15cm	2	XP	Blue/Gray	20x	Poikiloblastic silicification of an altered volcanic clast.	5	CY
8	116	1189B	06R	1	13-15cm	2	PPL	Blue/Gray	5x	Remnant perlitic fracture.	5	CY
9	116	1189B	06R	1	13-15cm	2	PPL	Blue/Gray	10x	Quartz phenocrysts. Green fibrous chlorite is also visible as ellipsoidal vesicle fill. Same FOV as 1189B_10.	5	CY
10	116	1189B	06R	1	13-15cm	2	XP	Blue/Gray	10x	Quartz phenocrysts. Same FOV as 1189B_9.	5	CY
11	116	1189B	06R	1	13-15cm	2	PPL	Blue/Gray	10x	Jasperoidal silica (quartz-hematite). Same FOV as 1189_12 & 1189_13.	5	CY
12	116	1189B	06R	1	13-15cm	2	XP	Blue/Gray	10x	Jasperoidal silica (quartz-hematite). Same FOV as 1189_11 & 1189_13.	5	CY
13	116	1189B	06R	1	13-15cm	2	XPRL	Blue	10x	Jasperoidal silica (quartz-hematite). Same FOV as 1189_11 & 1189_12.	5	CY
14	116	1189B	06R	1	13-15cm	2	XPRL	Blue	10x	Jasperoidal silica: hematite included in quartz.	5	CY
15	118	1189B	08R	1	37-40cm	10	XP	Blue/Gray	50x	Very fine grained illite amygdale with a pyrite crystal in the center	11	CY
16	120	1189B	10R	1	28-31cm	3	RL	Blue/Gray	50x	Pyrite and fine sphalerite with microscopic chalcopyrite and on covellite inclusion.	14	CY
17	120	1189B	10R	1	28-31cm	3	RL	Blue	50x	Chalcopyrite diseased sphalerite.	14	CY
18	121	1189B	10R	1	57-60 cm	7	XPL	Blue	10x	Coalesced spherulites	14	DAV
19	121	1189B	10R	1	57-60 cm	7	PPL	Blue/gray	10x	Coalesced spherulites	14	DAV
20	122	1189B	11R	1	63-65 cm	10	PPL	Blue/gray	20X	Euhedral zeolite(?) and radial aggregate of nearly-isotropic silica(?) enclosed by anhydrite that occupies a stretched vesicle within aphyric	19	DAV
21	123	1189B	11R	2	89-91 cm	8	PPL	Blue/gray	5x	Xenolith of skeletal plagioclase and acicular pyroxene occurring within an aphyric vesicular volcanic rock. XPL.	19	DAV
22	123	1189B	11R	2	89-91 cm	8	XPL	Blue/gray	5x	Xenolith of skeletal plagioclase and acicular pyroxene occurring within an aphyric vesicular volcanic rock. PPL.	19	DAV
23	115	1189B	2R	1	11-14cm	2	PPL	Blue/gray	2.5x	Altered perlitic clast in a matrix of anhydrite and gypsum.	3	HP
24	115	1189B	2R	1	11-14cm	2	PPL	Blue/gray	5x	Detail of altered perlitic clast with disseminated pyrite and plumose replacement textures along rectangular fractures and perlitic cracks.	3	HP
25	115	1189B	2R	1	11-14cm	2	PPL	Blue/gray	10x	Replacement front on the margin of perlitic clast where altered volcanic glass is being replaced by gypsum.	3	HP
26	116	1189B	6R	1	13-15cm	2	PPL	Blue/gray	2.5x	Perlitic volcanic clast with abraded plagioclase phenocryst and amygdale at the clast margin hosted in jasperoidal matrix.	5	HP
27	131	1189B	14R	1	108-110	15	RL	Blue/gray	10x	Sphalerite with chalcopyrite diseased - at 10x mag!!	23	SR
28	118	1189B	8R	1	37-40cm	10	PPL	Blue/gray	5x	Quartz amygdaloids and 'spotty' volcanic groundmass.	11	HP
29	118	1189B	8R	1	37-40cm	10	XP	Blue/gray	5x	Quartz amygdaloids and 'spotty' volcanic groundmass under crossed polarizers.	11	HP
30	121	1189B	10R	1	57-60cm	7	PPL	Blue/gray	5x	Altered microspherulites forming linear clusters which define flow banding on hand specimen scale.	14	HP
31	127	1189B	13R	1	22-24cm	4	PPL	Blue/gray	5x	Aphanitic, laminated clasts and large amygdaloidal clast.	20	HP
32	127	1189B	13R	1	22-24cm	4	PPL	Blue/gray	10x	Detail of aphanitic, laminated clasts with aligned, elongate, cryptocrystalline black aggregates.	20	HP
33	127	1189B	13R	1	22-24cm	4	PPL	Blue/gray	2.5x	Aphanitic, laminated clasts and brown, glassy clasts.	20	HP
34	128	1189B	13R	1	34-36cm	6	PPL	Blue/gray	2.5x	Perlitic clast and quartz-rich groundmass.	20	HP
35	128	1189B	13R	1	34-36cm	6	PPL	Blue/gray	2.5x	Perlitic texture in pumiceous clast with chlorite filled stretched, very fine vesicles.	20	HP
36	113	1189B	1R	1	0-4 cm	1	RL	Blue/Gray	1.25x	Ring of pyrite with chalcopyrite, anhydrite and gypsum (?) inside. Probable chimney structure (?).	1	AP
37	140	1189B	18R	2	65-67 cm	8	RL	Blue	50x	Euhedral magnetite crosscut by later pyrite	35	AP
38	140	1189B	18R	2	65-67 cm	8	XPL	Blue	10x	Radiating aggregates of cristobalite replacing clast of volcanic rock in breccia. Quartz along margin of clasts. Plagioclase phenocrysts in center is partly replaced by quartz and hematite.	35	WB
39	134	1189B	15R	2	61-64 cm	10	PPL	Blue	20x	Completely altered olivine crystal with fresh Cr spinel in mafic xenolith in moderately plagioclase-phyric altered volcanic rock	26	WB

Leg 193 Digital Photomicrograph Log											
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Image#	TS#	Hole	Core	Sec	Interval	Piece	Light	Filter	Obj	Feature	Unit #
40	134	1189B	15R	2	61-64 cm	10	PPL	Blue/Gray	10x	A reaction rim of quench-growth plumose plagioclase aggregates surrounding a mafic xenolith.	26
41	132	1189B	15R	1	86-88cm	11	PPL	Blue/Gray	2.5x	Rotated, flow banded aphyric volcanic clasts with devitrified bands consisting of coalesced microspherulites and glassy (now chloritic) bands with isolated mirospherulites.	25
42	133	1189B	15R	1	131-134cm	15	PPL	Blue/Gray	2.5x	Flow banding defined by bands consisting of coalesced microspherulites and chlorite (ex-glass?) -rich bands	25
43	140	1189B	18R	2	65-67cm	8	XP	Blue/Gray	10	Spherulites (high-T devitrification) impinging on each other and being replaced by quartz	35
44	140	1189B	18R	2	65-67cm	8	XP	Blue/Gray	20	Spherulites (high-T devitrification) impinging on each other and being replaced by quartz	35
45	140	1189B	18R	2	65-67cm	8	PPL	Blue/Gray	5	Spherulites (high-T devitrification) in a clast with vesicle broken off at the margin	35
46	140	1189B	18R	2	65-67cm	8	XP	Blue/Gray	5	Spherulites (high-T devitrification) in a clast with vesicle broken off at the margin.	35
47	133	1189B	15R	1	131-134 cm	10	XPL	Blue	10	Fresh plagioclase and clay-altered clinopyroxene phenocrysts in a flow-banded volcanic rock.	25
48	133	1189B	15R	1	131-134 cm	10	RL	Blue	20	Mass of bladed hematite crystals embedded in quartz together with pyrite, magnetite and chalcovpyrite. Pyrite and hematite are intergrown.	25
49	135	1189B	16R	1	11-14 cm	2	RL	Blue/Gray	50x	Framboidal pyrite.	26
50	138	1189B	16R	2	31-33 cm	4	RL	Blue/Gray	50x	Magnetite, hematite, pyrite assemblage in the groundmass	27
51	136	1189B	16R	1	36-39 cm	6A	PPL	Blue/Gray	10x	Sphalerite filling a quartz vesicle.	26
52	136	1189B	16R	1	36-39 cm	6A	RL	Blue/Gray	20x	Sphalerite filling a quartz vesicle.	26
53	119	1189B	8R	1	7-9 cm	3	RL	Blue/Gray	50x	Pyrite cube (not the point of the image) adjacent magnetite subhedron included in quartz with very fine lath-like highly reflectand inclusions with white internal reflections (What is it? - coords 78.3, 17.5))	9
54	128	1189B	13R	1	34-36 cm	6	XP	Blue/Gray	10x	Anhydrite overgrown and replaced by barite in a quartz vein.	20
55	128	1189B	13R	1	34-36 cm	6	XP	Blue/Gray	10x	Anhydrite overgrown and replaced by barite in a quartz vein. Note the non-orthogonal cleavage in the barite.	20
56	128	1189B	13R	1	34-36 cm	6	RL	Blue	10x	Spahlerite-tennantite(?) intergrowth	20
57	131	1189B	14R	1	108-110cm	15	RL	Blue/Gray	20x	Pyrite (with fine sphalerite inclusions) over grown by chalcovpyrite and chalcovpyrite-diseased sphalerite.	23
58	129	1189B	13R	1	54-56 cm	10	PPL	Blue/Gray	5x	Relict perlitic textures, replaced by quartz and chlorite-clay minerals	21
59	132	1189B	15R	1	86-88cm	11	PPL	Blue/Gray	50x	Radiating aggregate of epidote (?) Same FOV as image 1189B_60.	25
60	132	1189B	15R	1	86-88cm	11	XP	Blue/Gray	50x	Radiating aggregate of epidote (?) Same FOV as image 1189B_59.	25
61	139	1189B	17R	1	98-100cm	19	XP	Blue/Gray	10x	Volcanic clast containing chalcovpyrite and sphalerite (opaques).	31
62	139	aa89B	17R	1	98-100cm	19	RL	Blue/Gray	20x	Closup view of chalcovpyrite and sphalerite in clast shown in Image 1189B_61.	31
63	128	1189B	13R	1	34-36cm	6	PPL	Blue/Gray	10x	Detail of perlitic groundmass texture. Acruate cracks are filled with chlorite or a dark gray, fine grained mineral.	20
64	128	1189B	13R	1	34-36cm	6	XP	Blue/Gray	10x	Detail of perlitic groundmass. The glassy groundmass has been replaced by microcrystalline quartz.. Acruate perlitic cracks are filled with chlorite or a dark gray, fine grained mineral.	20
65	137	1189B	16R	1	75-78 cm	11	RL	Blue/Gray	50x	Chalcovpyrite / pyrite association in the groundmass. Chalcovpyrite partially replaces the pyrite.	27
66	128	1189B	13R	1	34-36cm	6	RL oil immersion	Blue	100x	Probable galena with triangular scratches.	20
67	139	1189B	17R	2	98-100cm	19	PPL	Blue/Gray	2.5x	Glassy, perlitic and porphyritic clasts in volcanoclastic sandstone.	31
68	135	1189B	16R	1	11-14 cm	2	RL oil immersion	Blue/Gray	100x	Framboidal pyrite.	26
69	135	1189B	16R	1	11-14 cm	2	RL oil immersion	Blue/Gray	100x	Framboidal pyrite.	26
70	136	1189B	16R	1	36-39	6	PPL	Blue/gray	5x	Rounded plagioclase phenocrysts in altered volcanic rock from Unit 27, Hole 1189B.	27

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Image#	TS#	Hole	Core	Sec	Interval	Piece	Light	Filter	Obj	Feature	Unit #	`
71	136	1189B	16R	1	36-39	6	XPL	Blue/gray	5x	Rounded plagioclase phenocrysts in altered volcanic rock from Unit 27, Hole 1189B.	27	DAV
72	135	1189B	16R	1	11-14 cm	2	XPL	Blue	2.5X	Brecciated volcanic rock, infilled by quartz-pyrite, and crosscut by quartz vein. Note the poikiloblastic quartz crystals in the fragments and surrounding wallrock.	26	TB
73	135	1189B	16R	1	11-14 cm	2	XPL	Blue	2.5X	Network of hairline quartz veins with halos of poikiloblastic quartz crystals, crosscut by later quartz vein.	26	TB
74	131	1189B	14R	1	108-110cm	15	PPL	Blue	20x	Paragenetic sequence from quartz+hematite to sphalerite+pyrite=chalcovrite to anhydrite fillig open space in breccia/vein	23	CY
Field of View : 2.5x = 5.5 mm 40x = 0.35 mm 5x = 2.75 mm 50x = 0.275 mm 10x = 1.40 mm 80x = 0.175 mm 20x = 0.7 mm 100x = 0.14 mm <div style="text-align: center;"> RL = reflected light PPL = plane-polarized light XP = crossed polarized light </div>												

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Image#	TS#	Hole	Core	Sec	Interval	Piece	Light	Filter	Obj	Feature	Unit #	Who?
1	43	1190A	1R	1	0-2	1	PL	Blue/gray	10X	Phenocryst cluster with plag, cpx, magnetite, vesicle, and clear glass	1	DAV

Field of View : 2.5x = 5.5 mm	40x = 0.35 mm	RL = reflected light
5x = 2.75 mm	50x = 0.275 mm	PPL = plane-polarized light
10x = 1.40 mm	80x = 0.175 mm	XP = crossed polarized light
20x = 0.7 mm	100x = 0.14 mm	

Leg 193 Digital Photomicrograph Log												
Save image to USERVOL/Staff Scientist/TEMP PHOTOMICS with format 1191A_1 for image #1, 1191A_2 for image #2, etc.												
Image#	TS#	Hole	Core	Sec	Interval	Piece	Light	Filter	Obj	Feature	Unit #	Who?
1	44	1190B	2R	1	40-43	7	PPL	Blue/Gray	10X	Plag-cpx-magnetite cluster with microlite-free glass.	1	DAV
2	44	1190B	2R	1	40-43	7	RL	Blue	50x	Plagioclase (?) replaced by magnetite and magnetite partially replaced by pyrite	1	AP
Field of View : 2.5x = 5.5 mm				40x = 0.35 mm				RL = reflected light				
5x = 2.75 mm				50x = 0.275 mm				PPL = plane-polarized light				
10x = 1.40 mm				80x = 0.175 mm				XP = crossed polarized light				
20x = 0.7 mm				100x = 0.14 mm								

Save image to USERVOL/Staff Scientist/TEMP PHOTOMICS with format 1191A_1 for image #1, 1191A_2 for image #2, etc.

Image#	TS#	Hole	Core	Sec	Interval	Piece	Light	Filter	Obj	Feature	Unit #	Who?
1	44	1190B	2R	1	40-43	7	PPL	Blue/Gray	10X	Plag-cpx-magnetite cluster with microlite-free glass.	1	DAV
2	44	1190B	2R	1	40-43	7	RL	Blue	50x	Plagioclase (?) replaced by magnetite and magnetite partially replaced by pyrite	1	AP

Field of View : $2.5\times = 5.5\text{ mm}$
 $5\times = 2.75\text{ mm}$
 $10\times = 1.40\text{ mm}$
 $20\times = 0.7\text{ mm}$

$$\begin{aligned} 40x &= 0.35 \text{ mm} \\ 50x &= 0.275 \text{ mm} \\ 80x &= 0.175 \text{ mm} \\ 100x &= 0.14 \text{ mm} \end{aligned}$$

RL = reflected light
PPL = plane-polarized light
XP = crossed polarized light

Leg 193 Digital Photomicrograph Log

Save image to USERVOL/Staff Scientist/TEMP PHOTOMICS with format 1190C_1 for image #1, 1190C_2 for image #2, etc.

Image#	TS#	Hole	Core	Sec	Interval	Piece	Light	Filter	Obj	Feature	Unit #	Who?
1	46	1190C	3R	1	7-9cm	3	PPL	Gray/blue	2.5x	Flow lamination defined by variable abundance of fsp microlites. Plag and Cpx phenocrysts.	1	HP
2	46	1190C	3R	1	7-9cm	3	PPL	Gray/blue	20x	Detail of flow lamination shown in 1190C_1. Fsp microlites wrapping around cpx phenocryst.	1	HP
3	45	1190C	2R	1	3-5cm	1	PPL	Gray/blue	20x	Glomerophytic aggregate of plag, cpx and mag with microlite-free groundmass	1	HP

Field of View : 2.5x = 5.5 mm	40x = 0.35 mm
5x = 2.75 mm	50x = 0.275 mm
10x = 1.40 mm	80x = 0.175 mm
20x = 0.7 mm	100x = 0.14 mm

$$\begin{aligned} 40x &= 0.35 \text{ mm} \\ 50x &= 0.275 \text{ mm} \\ 80x &= 0.175 \text{ mm} \\ 100x &= 0.14 \text{ mm} \end{aligned}$$

RL = reflected light
PPL = plane-polarized light
XP = crossed polarized light

Leg 193 Digital Photomicrograph Log

Save image to USERVOL/Staff Scientist/TEMP PHOTOMICS with format 1191A_1 for image #1, 1191A_2 for image #2, etc.

Image#	TS#	Hole	Core	Sec	Interval	Piece	Light	Filter	Obj	Feature	Unit #	Who?
1	47	1191A	1R	1	5-7cm	2	PPL	Gray/blue	10x	Microcrystalline, aligned feldspar needles in glassy groundmass.	1	HP
2	48	1191A	1R	1	42-46cm	7	PPL	Gray/blue	5x	Remnants of unaltered groundmass in pervasively altered groundmass.	1	HP
3	48	1191A	1R	1	42-46cm	7	PPL-Cond	Gray/blue	20x	Remnants of unaltered groundmass with volcanic glass, rimmed by dark gray material. Surrounding groundmass is pervasively devitrified.	1	HP
4	49	1191A	2R	2	103-106	16	RL oil immersion	Blue		Aggregate of framboidal Pyrite. Small crystals forming the framboid have 0.5 - 1 micron.	1	AP
5	52	1191A	3R	1	51-54cm	9	PPL	Gray/blue	5x	Unaltered groundmass domains as islands in altered/devitrified domain.	1	HP
6	50	1191A	3R	1	4-7cm	1	PPL	Gray/blue	10x	Remnant domains of unaltered groundmass appear like xenoliths in altered groundmass.	1	HP
7	49	1191A	2R	2	103-106cm	16	PPL	Blue	20x	Patchy silica-clay alteration (colorless) of brown volcanic glass. Same FOV as Image 8.	1	CY
8	49	1191A	2R	2	103-106cm	16	XP	Blue	20x	Patchy silica-clay alteration of volcanic glass (isotropic regions). Same FOV as Image 7.	1	CY
9	52	1191A	3R	1	51-54cm	9	PPL	Gray/blue	2.5X	Unaltered groundmass domains as islands in altered/devitrified domain.[Contrast enhanced.]	1	DAV
10	50	1191A	3R	1	4-7cm	1	PPL	Gray/blue	10x	Remnant domains of unaltered groundmass appear like xenoliths in altered groundmass.[This is 1191A_6 modified with contrast and brightness enhanced.]	1	DAV

Field of View : 2.5x = 5.5 mm
5x = 2.75 mm
10x = 1.40 mm
20x = 0.7 mm

40x = 0.35 mm
50x = 0.275 mm
80x = 0.175 mm
100x = 0.14 mm

RL = reflected light
PPL = plane-polarized light
XP = crossed polarized light