X345 ESS DEEP

345-U1415P-25G-1-A : SHLF 93231

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%)
-0-	1		2	(2) Serp 4 Clay 0 Py 0 tr 0	(2) Prem 3 2nd Pl 0 Chl 1 Ox 0	(2) amph 4						gabbroic rubble
-10-	2		2	(2) Serp 4 clay 0 Py 0 tr 0	(2) Prem 3 2npl 0 Chl 1 ox 0	(2) amph 4				Py 0 Oxides 0		abundant sulfide blobs.
-20-												Logged and entered by NEM.
-30-												Last Core of Exp 345!
-40-												
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

Logged 04.02.2013 (KJ)
DONE ✓
04.02.2013 (Kathi)

X345 [redacted]ESS DEEP **345-U1415P-23R-2-A : SHLF[redacted]92251**

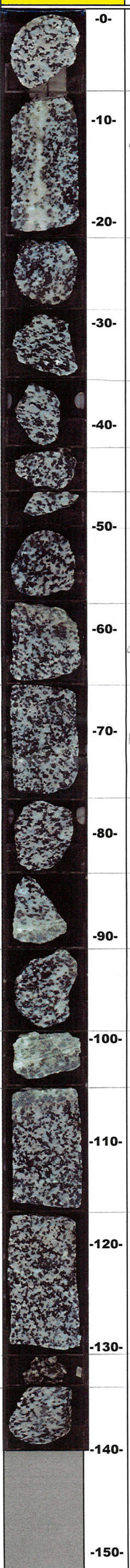
MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol	Pl	Cpx	Opx	OX & SULPH	Other	Veins & Halos	Vein Density	Comments
				Rank	Rank	Rank	Rank	(%)	(%)			Ranks: 0 = <10% 1 = 10 - 30% 2 = 30 - 60% 3 = 60 - 90% 4 = >90%
-0-	1		2, 2	(2) serp 4 pg 0	(3) preh 3 chl 1	–	–	–	–	–	–	
-10-	2		2 2	4	4	–	–	–	–	–	–	
-20- / -30-	3		2 2	4	4	–	–	–	–	–	–	
-40-	4		2 2	4	4	–	–	–	–	–	–	
-50-	5		2 2	4	4	–	–	–	–	–	–	
-60-	6		2 2	4	4	–	–	–	–	–	–	
-70-	7											
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol	Pl	Cpx	Opx	OX & SULPH	Other	Veins & Halos	Vein Density	Comments
				Rank	Rank	Rank	Rank	(%)	(%)			Ranks: 0 = <10% 1 = 10 - 30% 2 = 30 - 60% 3 = 60 - 90% 4 = >90%
-0-	1		2 2	(4) srp 3 clay 1 py 0 tlc 0	(1) prh 4 chl 0	(0) Am 4	(1) Am 2 tlc 2	—	—	—		ol — sp. clay tlc intensely. No corona pl — fracture, partial prh pseud
-10-												
-20-	2		2 2	(4) srp 3 clay 1 py 0 tlc 0	(1) prh 4 chl 0	(1) Am 3 chl 1	(1) Am 2 tlc 2	—	—	2		"
-30-	3		2 2	(4) srp 3 clay 1 tlc 0 py 0	(1) prh 4 chl 0	(1) Am 3 chl 1	(2) tlc 3 Am 1	—	—	—		"
-40-	4		2 2	(4) srp 3 clay 1 tlc 0 py 0	(1) prh 4 chl 0	(1) Am 3 chl 1	(1) tlc 2 Am 2	—	—	—		"
-50-												
-60-	5		2 2	(4) srp 2 clay 2 tlc 0 py 0	(1) prh 4 chl 0	(0) Am 4	(1) tlc 2 Am 2	—	—	—		"
-70-												
-80-	6		2 2	(4) srp 2 clay 2 tlc 0 py 0	(1) prh 4 chl 0	(2) Am 4	—	—	—	2		"
-90-	7		2 2	(4) srp 3 clay 1 tlc 1 py 0	(1) prh 4 chl 0	(1) Am 3 chl 1	(2) tlc 4	—	—	1		"
-100-	8		2 2	(3) srp 3 clay 1 tlc 0 py 0	(1) prh 4 chl 0	(1) Am 3 chl 1	(1) Am 2 tlc 2	—	—	—		" pl alt more intense in oliv-richer domains (layers)
-110-			3 3	(3) srp 2 tlc 2 clay 2 py 0	(1) prh 4 chl 0	(2) Am 4	—	—	—	—		oliv alt more intense near igneous contact.
-120-	9		2 2	(4) srp 2 clay 2 tlc 0 py 0	(1) prh 4 chl 0	(1) Am 3 chl 1	(1)(2) Am 2 tlc 2	—	—	—		"
	10		3 3	(4) srp 2 clay 2 py 0 tlc 0	(2) prh 4 chl 0	(1) Am 4	(2) tlc 4	—	—	—		" ~~py~~ sulfide rich
-130-	11		3 3	(4) srp 2 clay 2 tlc 0 py 0	(2) prh 4 chl 0	(2) Am 3 chl 1	-	-	—	—		"
-140-												
-150-												

MAJOR LITHOLOGY:

X34 HESS DEEP | 345-U1415P-23R-1-A : SHL 2221



MetPet Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
1		1	2 serp 2, tc 2, chl 0, mt 0, po 0	0 ct 2, prh 2	–						fresh, typical ol gabbro
2		3	3 serp 1, tc 2, ct 1, chl 1, pt 0, mt 0	2 ct 1, prh 3	–		py ~ 1%		4		[illegible]
3		2	3 serp 2, tc 2, chl 1, po 0, mt 0	1 prh 3, ct 1	–						[illegible]
4		2	3 serp 3, tc 1, mt 0, po 0	1 ct 1, prh 3	–				1		[illegible]
5		2	"	"	–				0		" [illegible]
6		"	"	"	–				"		"
7		"	3 serp 1, tc 2	"	–				"		[illegible]
8		"	3 serp 1, tc 2, chl 2, po 0, mt 0	2 ct 1, prh 2, zeolite ?	–						[illegible]
9		3	3 serp 2, tc 1, chl 2, ct 1, po 0, mt 0	2 ct 1, prh 3, zeo 0	–				1		[illegible]
10		2	3 serp 3, tc 0, po 0, mt 0, ct 1	1 ct 0, prh 3, zeo 1	–				2		[illegible]
11		1	1 serp 3, tc 1, po 0, mt 0	0 prh 4	–						[illegible]
12		3	3 serp 2, tc 1, chl 2, po 0, mt 0	2 zeo 1, prh 3, ct 1	–				1		[illegible]
13		1	2 serp 3, tc 1, ct 0, chl 0, po 0, mt 0	1 prh 3, zeo 1, ct 0					2		[illegible]
14		4	4 ct 2, chl 2	4 prh 3, zeo 2, ct 0	2 amph 2, ct 2				2 ct		[illegible]
15		2	2 serp 3, tc 0, chl 1, ct 1, po 0, mt 0	1 prh 3, zeo 1, ct 1	–				2		[illegible]
16		2	2 serp 2, tc 1, chl 0, ct 0, po 0, mt 0, amph 0	1 prh 3, zeo 1, ct 0	–				2		[illegible]
17		2	3	0	0						[illegible]
18		2	2 serp 2, tc 2, chl 1, mt 0, po 0	2 prh 3, ct 1	–				1		[illegible]

MAJOR LITHOLOGY:

Run

X345 ESS DEEP

345-U1415P-22R-1-A : SHLF 90961

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
 -0- -10- -20- -30- -40- -50- -60- -70- -80- -90- -100- -110- -120- -130- -140- -150-												

Done Feb 4, 2013

MAJOR LITHOLOGY:

Logged 04.02.2013 (KI)
DB ✓
04.02.2013

X345 [illegible]ESS DEEP | **345-U1415P-22R-3-A : SHLF [illegible]91021**

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol	Pl	Cpx	Opx	OX & SULPH	Other	Veins & Halos	Vein Density	Comments
				Rank	Rank	Rank	Rank	(%)	(%)			Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%
	1		2 2	(2) serp 4 clay 0 py 0	(3) preh 3 chl 1	(2) amph 4	–	–	–	1	–	
	2		2 2	"	"	"	–	–	–	–	–	
	3		2 2	"	"	"	–	–	–	–	–	
	4		3 3	(3) serp [illegible] clay 0 py 0	"	"	–	–	–	–	–	
	5		2 2	(2) "	"	–	–	–	–	–	–	

Scale (cm): -0- -10- -20- -30- -40- -50- -60- -70- -80- -90- -100- -110- -120- -130- -140- -150-

MAJOR LITHOLOGY:

PW

X345 ESS DEEP

345-U1415P-21G-1-A : SHLF 90771

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
												uploaded

-0-
-10-
-20-
-30-
-40-
-50-
-60-
-70-
-80-
-90-
-100-
-110-
-120-
-130-
-140-
-150-

Done Feb 4, 2013

MAJOR LITHOLOGY:

logged 03.02.2013 (KF)
DONE 03.02.2013 KatL

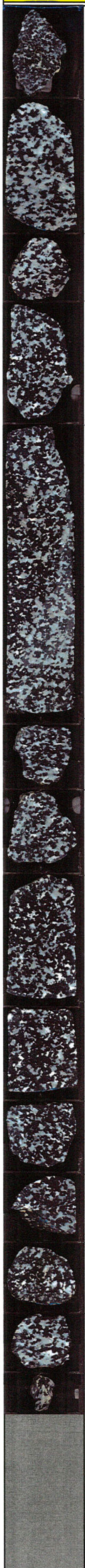
X345 ... ESS DEEP **345-U1415P-20R-2-A : SHLF ... 89881**

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments
-0- to -20-	1		3 3	(4) serp 4, clay 0, py 0	(3) preh 3, chl 1	(2) amph	—	—	—	—	—	
-30-	2		3 : 3	〃	〃	〃	—	—	—	—	—	
	3		3 : 3	〃	〃	〃	〃	〃	〃	〃	〃	
-40-	4		3 : 3	〃	〃	〃	〃	〃	〃	〃	〃	
-50- to -60-	5		3 : 3	〃	〃	〃	—	Ox 0	—	〃	〃	
-70-	6		3 : 3	〃	〃	〃	〃	Ox 0	〃	〃	〃	
-80-	7		3 : 3	〃	〃	〃	—	—	—	—	—	
-90-	8		3 : 3	〃	〃	〃	—	—	—	—	—	
-100-	9		3 : 3	〃	〃	〃	—	Ox	—	〃	〃	
-110-	10		3 : 3	〃	〃	〃	〃	〃	〃	〃	〃	
	11		3 : 3	〃	〃	〃	〃	〃	〃	〃	〃	
-120- -130- -140- -150-												

Ranks:
0 = <10%
1 = 10 - 30%
2 = 30 - 60%
3 = 60 - 90%
4 = >90%

MAJOR LITHOLOGY:

MetPet



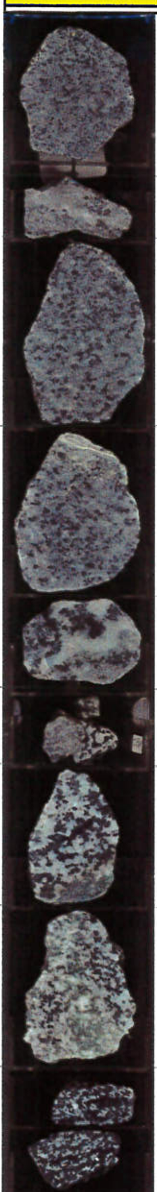
Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%

Depth	Piece #	SAMPLES	Alt. Intensity (rank & %)	Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments
-0-	1		3 3	(3) srp 2 clay 2 py 0	(2) prh 43 chl 1	(2) Am 4	–	py 0	–	7		al alt to srp, clay, 1/0 corona; uneven pl (frac prh, prh psd)
-10-	2		2 2	(4) srp 2 clay 2 py 0	(1) prh 34 chl 0	(0)	–	–	–	/		al intensely alt; "
-20-	3		2 2	(4) srp 2 clay 2 tlc 1 py 0	(1) prh 4 chl 0	–	–	–	–	–		tlc; "
-30-	4		2 2	(4) srp 2 clay 2 py 0	(1) prh 4 chl 0	(0) Am 4	(0) Am 4	–	–	/		"
-40- to -60-	5		2 2	(4) srp 3 clay 1 py 0	(1) prh 4 chl 0	(1) Am 4	–	–	–	–		"
-70-	6		2 2	(4) srp 3 clay 1 py 0	(1) prh 4 chl 0	(1) Am 4 tl 1	–	–	–	/		"
-80-	7		2 2	(4) srp 2 clay 2 py 0	(1) prh 4 chl 0	(1) Am 4	–	–	–	–		"
-90-	8		3 3	(4) srp 3 clay 1 py 0	(2) prh 4 chl 0	(1) Am 4	–	–	–	/ #		"
-100-	9		3 3	(4) srp 3 clay 1 py 0	(1) prh 4 chl 0	(1) Am 4	–	–	–	–		"
-110-	10		3 3	(4) srp 3 clay 1 py 0	(1) prh 4 chl 0	(1) Am 34 ~~clay~~ 4 chl 1	–	–	–	–		"
-120-	11		3 3	(4) srp 3 ~~chl~~ clay 1 py 0	(1) prh 4 chl 0	(1) Am 3 chl 1	–	–	–	–		"
	12		3 3	(4) srp 3 clay 1 py 0	(2) prh 4 chl 0	(1) Am 3 chl 1	–	–	–	–		"
-130-	13		2 2	(4) srp 3 clay 1 py 0	(1) prh 4 chl 0	(1) Am 3 chl 1	–	–	–			"
-140-	14		2 2	(4) srp 3 clay 1 py 0	(1) prh 4 chl 0	–	–	–	–	–		"
-150-												

failed to upload

MAJOR LITHOLOGY:

X345.__ESS DEEP **345-U1415P-19G-1-A : SHLF.__89481**



MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol	Pl	Cpx	Opx	OX & SULPH	Other	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%)
				Rank	Rank	Rank	Rank	(%)	(%)			
-0-	1		1	2 serp 2, tc 2, chl 1, [illegible]	0 prh 4	1 amph 4						relatively fresh ol -> serp + [illegible]; cpx green amph
-10-	2		2	3 serp 1, tc 0, chl 3, ct 1	1 prh 2, ct 0	1 amph 3, ct 1						moderately altered, ol -> chl and ct and ct patches after plg and [illegible] [illegible]
-20-	3		1	2 serp 2, tc 1, chl 2, ct 1, po 0, mt 0	1 ct 1, prh 3	0 amph 4				2		variably altered, probably prehnite, ol can be almost fresh or 100% chl/ct; ct [illegible] in plg, no coronas
-30-	4		2, 1 cm halo	2 serp 1, chl 2, ct 2, tc 0, pt 0, mt 0	2 ct 2, prh 2	1 4 amph				2		typically heterogeneous ol alteration from almost fresh with mesh, to 100% serp [illegible], 100% chl/ct; plg is [illegible] [illegible] [illegible] + [illegible] cpx + green and [illegible]
	5		2	2 serp 1, tc 0, chl 2, ct 2	2 ct 1, prh 3, silica 0	1 amph 3, ct 1						moderately altered, heterogeneous, olivine variable, plg -> prh + sulfide (minor) and [illegible] ct, [illegible] green
-40-	6		1	2 serp 2, tc 1, chl 1	1 prh 4	1 amph 4						small piece, typical alteration
	7		2	3 serp 2, tc 1, po 0, chl 2, ct 0, mt 0	2 prh 3, ct 0	1 amph 3, ct 1						[illegible] [illegible] [illegible] [illegible]; [illegible] cpx; small patch of ol is highly chloritized (isolated)
-50-	8		2	3 serp 1, tc 0, po 0, mt 0, chl 1, ct 2	2 prh 2, ct 2	1 amph 2, ct 2						2 steps [illegible] [illegible] alteration when the main olivine alteration is serpentine (reaching 100%) + tc/pt, all green [illegible] [illegible] [illegible] all of olivine; rank 3 is green zone, [illegible] [illegible] [illegible] TS
	9		1	2 serp 3, chl [illegible], tc 1, [illegible]	1 prh 4, ct 0	—						[illegible] [illegible]
-60-	10		1	2 serp 2, [illegible]	0 prh 3, ct 1	2 amph 2, ct 2						what is [illegible] [illegible] green [illegible] at end of the piece [illegible] sulfide ?? – [illegible] ct TS
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%)
-0-	1		1 1	① srp 2 clay 2 tlc 1 py 0	① prh 4 chl 0	① Am 4	–	–	–	1		ol → srp. clay. tlc. No corona pl → fractured fill, prh.
-10-	2		2 2	② srp 2 clay 2 py 0	① prh 4 chl 0	② Am 4	–	–	–	2		ol → srp. clay No corona pl → fracture, partially prh psd.
-20-	3		1 1	① srp 3 clay 1 py 0	①① prh 4 chl 0	③ Am 4	–	–	–	2		〃
-30-	4		1 1	① srp 3 clay 1 py 0	① prh 4 chl 0	① Am 4	–	–	–	–	–	〃
	5		2 2	② srp 2 clay 2 py 0	① prh 4 chl 0	② Am 4	–	–	–	~~3~~		〃
-40-			2 2	③ srp 2 cly 2 tlc 1 py 0	① prh 4 chl 0	③ Am 4	–	–	–	6		ol → srp. clay. tlc. No corona
-50-	6											〃
-60-												
-70-												
-80-	9		2 2	③ srp 2 clay 2 py 0	① prh 4 chl 0	① Am 4	–	–	–	2		ol → srp. clay. No corona pl → fractured.
-90-	8		1 1	② srp 2 clay 2 tlc 0 py 0	① prh 4 chl 0	–	–	–	–	3	–	ol → srp. clay. tlc. No corona pl fractured
-100-	9		2 2	② srp 2 clay 2 py 0	②① prh 4 chl 0	② Am 4	–	–	–	14		ol → srp. clay No corona pl fractured. prh psd partially
-110-	10		1 1	② srp 2 clay 2 tlc 2 py 0	① prh 4 chl 0	① Am 4	–	–	–	1	–	ol → srp. clay tlc. No corona pl fractured.
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

X34[illegible]ESS DEEP TN 2/1 345-U1415P-17R-1-A : SHL[illegible]88081

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
-0-	1		1 / 1	② srp 2 clay 2 py 0 tlc 1	① prh 84 zeo 0 chl 0	—	—	—	—	1		mesh, srp pervasive clay heterogeneous. No corona ol pl → a lot of fractures filled with prh.
-10-	2		2 2	④ tlc 3 srp 1 clay 1 py 0	④ prh 4 chl 0	② Am 4	—	—	—	2		al intensity alt to tlc pl fractured. No corona
-20-	3		2 2	③ tlc 2 srp 2 clay 2 py 0	④ prh 4 chl 0	④ Am 4	—	—	—	1		ol → tlc, srp. clay. No corona pl → fractured
	4		2 2	④ clay 2 srp 2 tlc 1 py 0	④ prh 4 chl 0	④ Am 4	—	—	—	1		"
-30-	5		2 2	② srp 2 clay 2 py 0	① prh 4 chl 0	⓪ Am 4	—	—	—	—		" Some pl → prh psd.
-40-												
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

good 01.02.2013 (KT)

01.02.2013 Kathi

X345 ESS DEEP **345-U1415P-16R-1-A : SHLF 37681**

Depth scale: -0- -10- -20- -30- -40- -50- -60- -70- -80- -90- -100- -110- -120- -130- -140- -150-

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments
	1		3, 3	(4) serp 3 clay 0 tc 0 py 0	(2) preh 3 chl 1	(2) amph	–	–	–	1	–	
	2		3, 3	"	"	(1) "	–	–	–	1	–	
	3		3, 3	"	"	(3) amph	–	Py 0 (0), 0	–	–	–	
	4		3, 3	(4) tc 2 chl 2	"	–	–	–	–	–	–	
	5		3, 3	(4) serp 2 clay 2 tc 0 py 0	"	–	–	–	–	–	–	
	6		3, 3	"	"	–	–	Py 0	–	–	–	
	7		3, 3	"	"	(2) amph –	–	Py 0	–	–	–	
	8		3, 3	"	"	"	–	–	–	–	–	
	9		3, 3	"	"	"	–	–	–	–	–	TS?
	10		3, 3	"	"	–	–	–	–	–	–	TS?
	11		3, 3	"	"	–	–	–	–	X	–	

Ranks: 0 = <10% 1 = 10 - 30% 2 = 30 - 60% 3 = 60 - 90% 4 = >90%

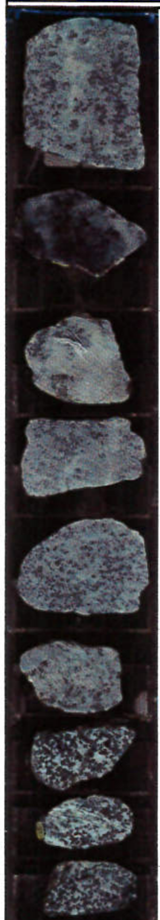
MAJOR LITHOLOGY:

Logged 01.02.2013 (KF)

X345 ESS DEEP — Done ✓ 01.02.2013

345-U1415P-15R-1-A : SHLF 87251

MetPet

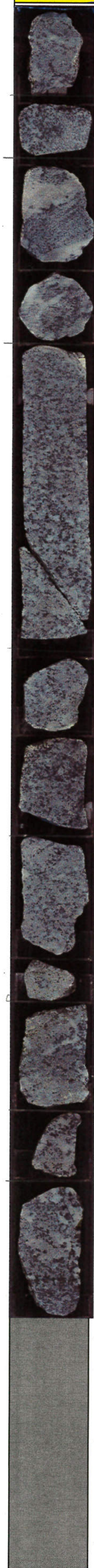


Depth	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments
-0-	1		1 : 1	(4) serp 3, tc 1, amph 0, clay 0	(1) preh 2, chl 2	(0) amph	–	–	–	–	–	
-10-	2		1 : 1	"	"	"	–	–	–	–	–	
-20-	3		1 : 1	"	"	"	–	–	–	–	–	
	4		1 : 1	"	"	"	–	–	–	–	–	
-30-	5		1 : 1	"	"	"	–	–	–	<	–	
	6		1 : 1	"	"	"	–	–	–	–	–	
-40-	7		3 : 3	(4) serp 4, clay 0, py 0	(2) preh 3, chl 1	(1) amph	–	–	–	1 –	–	change in lithology
	8		3 : 3	"	"	–	–	–	–	X	–	
-50-	9		3 : 3	(4) serp 2, clay 0, py 0, tc 1, chl 1	"	(1) amph	–	–	–	–	–	
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

Ranks:
0 = <10%
1 = 10 - 30%
2 = 30 - 60%
3 = 60 - 90%
4 = >90%

MAJOR LITHOLOGY:

MetPet



Depth	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%)
-0-	1		1	2 serp 2, tc 2, py 0, mt 0	1 ct 1, prh 3	1 amph 3, ct 1	—					patchy alteration of plag → prehnite [illegible]
-10-	2		2	2 serp 3, tc 1, py 0, mt 0	2 ct 1, prh 3	1 amph 2, ct 2				1		[illegible]
-20-	3		1	2 serp 2, ct 1, chl 1, tc 0, py 0, mt 0	1 ct 2, prh 2	1 amph 3, ct 1		0.5 ? sulph				[illegible]
-30-	4		2	2 serp 2, ct 1, chl 1, tc 0	2 prh 3, ct 1	1 amph 4				1		[illegible]
-40- – -60-	5		1	2 serp 2, ct 1, chl 1, py 0, mt 0	1 prh 3, ct 0	1 amph 4				1		[illegible]
-70-	6		1	3 serp 1, chl 3, ct 1	1 prh 3, ct 1	1 amph 4						[illegible]
-80-	7		2	4 serp 2, tc 2, chl 2, py 0, mt 0	1 prh 4, ct 0	1 amph 4						[illegible]
-90-	8		1	2 serp 2, tc 2, chl 2	1 prh 3, ct 1	2 amph 4				1		[illegible]
	9		3	4 serp 0, chl 3, ct 1	2 prh 3, ct 1	1 amph 2, ct 2				1		[illegible]
-100-	10		2	serp 0, chl 3, tc 1, ct 1, sl 0	2 prh 3, ct 1	2 amph 4				3		[illegible]
-110-	11		1	2 serp 2, tc 1, chl 2	1 prh 3, ct 1	1 amph 4						[illegible]
-120-	12		1	2 serp 2, tc 0, chl 2	1 prh ?, ct 1	1 amph 4				2		[illegible]
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
												

X345 ...IESS DEEP — logged and entered by JM 1-31-13 — 345-U1415P-12R-1-A : SHLF ...85401

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
-0-	1		2 2	③ Serp 3 Mt 0 Py 0 tc 1	③ prehn 2 2pl 1 Chl 2	② green ④ amph		Py 0				moderately altd. Some chlorite rich zones with Ol. completely altd to tc + tr
-10-	2		2 2	③ Serp 2 Mt 0 Py 1 tc 1	② Chl 3 Prh 1 2pl 1	② green 4 amph		Py 0				highly altered. Acicular amphibole in small patches. Olivine highly altered and abundant pyrite in plag and in other places
-20-	3		2 2	③ Serp 3 Mt 0 Py 1	① Chl 3 Prh 1 2pl 1	② amph 4		Py 0				
-30-	4		1 1	① Serp 3 tc 1	① Chl 3 Prh 1 2pl 1	① amph 4						DL
	5		2 2	③ Serp 4 Py 0	① Chl 3 Prh 1	① amph 4		Py 0				
-40-	6		2 2	③ Serp 3 tc 1 tr	② prehn 3 chl 1	① amph 4		Py 0				
-50-	7											Logged directly to DESCLogik
-60-	8											
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

Logged 31.01.2013 (KF)

31.01.2013 Kat L

X345 ̲ ESS DEEP **345-U1415P-11R-2-A : SHLF ̲ 84601**

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%)
-0-	1		2 : 2	(3) serp 2, tc 1, clay 0, PY 0	(1) preh 2, chl 2	(2) amph	–	–	–	–		
-10-	2		2 : 2	(3) "	(1) "	(2) –	–	–	–	–		
-20-	3		2 : ?	"	"	"						
	4		? : ?	"	–	–						too small, no fresh cut face
-30-	5		? : ?	"	"	(1) amph						
-40-												
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

logged 31.01.2013 (KF)

X345 ESS DEEP DONE ✓ 31.01.2013 KatL **345-U1415P-11R-1-A : SHLF 84571**

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol	Pl	Cpx	Opx	OX & SULPH	Other	Veins & Halos	Vein Density	Comments
				Rank	Rank	Rank	Rank	(%)	(%)			Ranks: 0 = <10% 1 = 10 - 30% 2 = 30 - 60% 3 = 60 - 90% 4 = >90%
-0-	1		2:2	(1) serpt 2 tc 1 amph 0	(1) preh 2 chl 2	(2) amph	–	Py O	–	–		
-10-	2		2:2	"	"	"	–	Py	–			
-20-	3											Small; no fresh cut face
	4		2:2	"	"	"	–	Py	–	–		
-30-	5		2:2	"	"	(3) amph	–	Py O	–			patch of amphibole?
-40-	6		2:2	"	"	(2) amph	–	Py O	"	"		Some relict olivine?
-50-	7		2:2	"	"	"	"	Ox	"	1		
-60-	8		3:3	"	(2) "	"	–	Py	–	1		
-70-	9		2:2	"	(1) "	(2) amph	–	Py O	–	–		
-80-	10		2:2	"	"	"	–	Py	–	1		
-90-	11		2:2	"	(1) "	(2) amph	–	Py	–	1		
-100-	12		2:2	"	(2) "	(2) "	–	–	–			
-110-	13		3:3	"	(2) "	(3) "	–	–	–			
	14		2:2	"	(1) "	(2) "	–	–				
-120-	15		2:2	"	(2) "	(2) "	–	–	–	1		
-130-	16		2:2	"	"	"	–			–		
	17		2:2	"	"	"	–	–		–		
-140-	18		2:2	(3) serp tc chl	(1) "	(2) "						
-150-												

TS

MAJOR LITHOLOGY:

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol	Pl	Cpx	Opx	OX & SULPH	Other	Veins & Halos	Vein Density	Comments
				Rank	Rank	Rank	Rank	(%)	(%)			Ranks: 0 = <10% 1 = 10 - 30% 2 = 30 - 60% 3 = 60 - 90% 4 = >90%
 -0-			2	3 tc 3 sep 2 sulf 0 ox 0	1 hydrother	1 amph 4				1		Ol → sep mesh + amph tc + sulfide on contacts, to green ?talc with less sulphide. cpx to significant amphibole along cleavages. Plag sometimes gets prehnite
-10-			1	2 tc 2 sep 2 sulf 0 ox 0	0 hydrother	0 amph 4						Similar to pc 1 but [illegible] [illegible] [illegible]
-20-												
-30-												
-40-												
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

Logged 31.01.2013 (KF)

Described 31.01.2013 Kath

X345 ESS DEEP **345-U1415P-10R-1-A : SHLF 34021**

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
-0-	1		1 : 1	(3) serp 3 anph 0 tc 1 Py 0	(1) plag 2 chl 2	(1) anph	–	Py 0 Ox 0	–	–		
-10-	2		1 : 1	(4) serp 3 amphib tc 1 Py 0 clay 0	(1) "	(1) "	–	Py 0	–	4		
-20-	3		1 : 1	"	"	"	–	Py 0	–	1		
-30-	4		1 : 1	"	"	4	–	Py 0	–	1		
-40-	5		1 : 1	"	"	"	–	Py	–	1		
-50-	6		1 : 1	"	"	"	–	Py	–	–		
-60-	7		2 : 2	11	(2) "	(1) "	–	Py 0 Ox 0	–	–		
-70-	8		2 : 2	"	"	"	–	"	–	–		
-80-	9		3 : 3	"	(2) "	(3) "	–	–	–	–		
-90-	10		2 : 2	"	(1) "	(2) "	–	Py 0	–	–		
-100-	11		1 : 1	4	(1) "	(1) "	–	–	–	–		
-110-	12		2 : 2	"	(2) "	(3) "	–	–	–	–		
-120-	13		2 : 2	"	"	"	–	–	–	–		
-130-	14		3 : 3	"	(3) "	(3) "	–	–	–	–		
-140-												
-150-												

MAJOR LITHOLOGY:

boxed 31.01.2013 (KT)
DONE
31.01.2013 KeH

X345 LESS DEEP

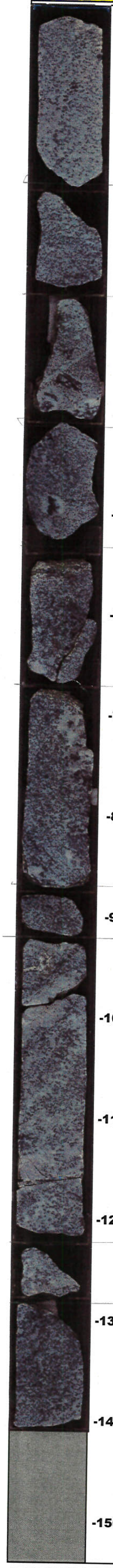
345-U1415P-9R-2-A : SHLF 83081

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments
-0-	1		1 : 1	④ serp 2 amph 1 tc 1 clay 0	① chl 2 preh 2	① amph	–	Py 0	–	–		Ranks: 0 = <10% 1 = 10 - 30% 2 = 30 - 60% 3 = 60 - 90% 4 = >90%
-10-	2		3 : 3	⑤ amph 2 tc 2	③ "	⑤ "	–	–	–			
	3		2 : 2	④ serp 1 tc 2 amph 1 clay 0	③ "	⑤ "	–	–	–			
-20-												
					②	①						
-30-	4		2 : 2	"	"	amph	–	–	–			
-40-												
	5		2 : 2	"	"	"	–	–	–			
-50-						②						
	6		2 : 2	"	"	amph	–	–	–			
-60-												
	7		2 : 2	"	① "	① amph						
-70-	8		2 : 2	"	"	–						
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

X345 ESS DEEP | **345-U1415P-9R-1-A : SHLF 83051**

MetPet



Depth	Piece #	SAMPLES	Alt. Intensity (rank & %)	Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%)
-0- to -10-	1		1	3 serp 1, tc 2, cly 1, sulph 0, mt 0, amph 0	1 ct 2, pth 2	1 2 ct, 2 amph	not fresh			2		dark bands and green bands seem to be alteration-related - can't see any cpx - all [illegible] green bands look like tc/ct alteration, and mesh corona, not much sulphide. - dark bands have serp mesh with fresh ol and tc + sulphide [illegible]. pale bands may have some [illegible]. v. little cpx. TS
-20-	2		1	2 serp 2, tc 2, amph 0, sulph 0, mt 0	0 ct 1, 1 pth 3	0						[illegible], ol mostly altered [illegible] mesh texture, [illegible] coronas, tc + sulfide
-30-	3		1	2 serp 3, tc 1, s 0, [illegible] 0, mt 0	1 ct 0, p 3	1 amph						seem to be clasts of websterite with [illegible] foliation surrounded by gabbro - the replacement texture could be igneous?? TS
-40- to -50-	4		1	3 serp 2, tc 2, py 0, [illegible] 0	0 prehnite 4	0						Xenocryst of olivine → serp mesh and [illegible] tc + sulphide - surrounded by fresh plg and interstitial gabbro. [illegible]
-60-	5		1	2 serp 3, tc 1, mt 0, sulph 0	0 prehnite 4	0 amph				2 / mi, 1 carbonate halo		[illegible] ol → serp mesh mainly with [illegible] tc + sulphide plg and cpx [illegible] ? [illegible] in cpx. mesh [illegible] at top of piece → altered to chlorite + sec plg? [illegible] TS
-70- to -80-	6		1	2 serp 2, tc 2, sulph 0, mag 0	0 prehnite 0	0				1		olivine → mesh texture with tc + sulfide rims against plg and cpx. No coronas. plg and cpx little altered [illegible], [illegible] 2.
-90-	7		1	3 tc 3, serp 1, clay 0	0 prehnite 2, [illegible] 2	1 amph 4				1		ol → tc ± sulphide [illegible] in veins [illegible] cpx [illegible]
-100- to -120-	8		1	2 tc 2, serp 2, sulph 0, mt 0	0 pth 4	0 amph 4				1 8a; 1 } 8b; 1; 1 8c		mostly quite fresh but with some patches of more intense alteration where ol → tc and plg → prehnite? mostly [illegible] of tc and ol and [illegible] corona texture
-125-	9		1	2 serp 1, tc 3, sh 0, [illegible]	0 prehnite 4	0				1		weakly altered with ol → mesh and [illegible] tc + sulfide plg + cpx fresh
-130- to -140-	10		1	2 serp 2, tc 2, cly 1, sulph 0, mt 0	0 4 prehnite	0						" [illegible] more altered zone at bottom of piece where ol → serp [illegible] ? clay or [illegible] tc [illegible] No sulfide

MAJOR LITHOLOGY:

X345 ...ESS DEEP

TN 1/31

345-U1415P-8R-2-A : SHLF4582851

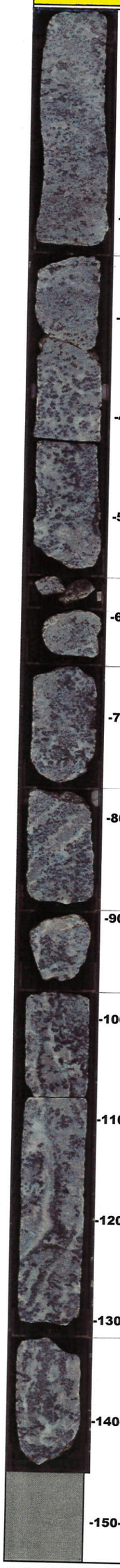
MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
-0-												
-10-	1		1 1	① Srp 2 clay 2 tlc 1 py 0 tr 0	ⓟ prh 3 chl 1	① Am 4	ⓞ Am 4	–	–	2		corona rare clay after ol in pl. fractured.
-20-												
-30-	2		1 1	① Srp 2 clay 2 py 0	ⓟ prh 2 chl 2	–	ⓞ Am 4	–	–			
-40-	3		1 1	① Srp 3 clay 1 tlc 1 tr 0 py 0	ⓟ prh 2 chl 2	ⓟ Am 4	ⓞ① Am 3 clay 1	–	–	2		corona rare. pl fracture
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

X345 ...ESS DEEP

TN V31

345-U1415P-8R-1-A : SHLF4582821



MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
-0-				① srp 2 clay 2 tlc 1 tr 0 py 0	① Am 4 ⓪ chl 2 prh 2	① Am 4	⓪ Am 4	—	—	—		alv. & anomalously alt to srp, clay, tlc and a small amount of coronitic tremolite. px relatively fresh and pl. pl fracture filled by chl and prh.
-10-	1		1 1									
-20-												
-30-			1 1	① srp 2 clay 2 tlc 0 tr 0 py 0	⓪ chl 2 prh 2	① Am 4	⓪ Am 4	—	—	4		"
-40-	2											
-50-												
-60-	3		2 2	④ srp 2 clay 2 py 0	~~④ Am 4~~ ② prh 2 chl 2	① Am 4	—	—	—	—		al pch → srp, clay
	4		1 1	② srp 2 clay 2 py 0	⓪ prh 2 chl 2	① Am 4	① Am 4	—	—	—		al is alt to srp and clay. pl fracture filled by chl, prh
-70-	5		1 1	① srp 2 clay 2 tlc 1 py 0	① prh 3 chl 1	⓪ Am 4	② ① Am 4	—	—	—		al is alt to srp, clay and tlc. No corona ~~st~~ found. prh replacing pl is more abundant than other previous pieces.
-80-	6		1 1	① srp 2 clay 2 tlc 1 py 0 tr 0	① prh 3 chl 1	① Am 4	① Am 4	py 0	—	—		corona is rare.
-90-	7		1 1	① srp 2 clay 2 tlc 1 py 0	① prh 3 chl 1	① Am 4	① Am 4	—	—	2		No corona.
-100-				① Srp 2 clay 2 tlc 1 py 0 tr 0	① prh 2 chl 2	① Am 4	① Am 3 tlc 1	—	—	1		corona rare. px ~~st~~ slightly altered pl. fractured.
-110-	8		1 1									
-120-												
-130-												
-140-	9		1 1	① Srp 2 clay 2 tlc 1 py 0	① prh 2 chl 2	① Am 4	⓪ Am 4	—	—	1		no corona px slightly alt pl fractured
-150-												

MAJOR LITHOLOGY:

X345: HESS DEEP

345-U1415P-7R-1-A : SHLF4582121

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%) RW, Jan 31 2013
-0-	1		1	2) serp 4 mt-0 talc 0, sulf	1) Pl 4	1) Am 4	—	1% mt 1/2% Sul				overall alteration moderate with olivine most altered mesh texture; plagioclase locally altered to prehnite
-10-	2		1	2) serp 4 mt -0	0)	1) Am 4	—	1% mt tr. sulf		Zeolite-filled fracture		moderate alteration with olivine with mesh texture.
-20-	3		1	2) Serp 4 mt - 0 Amp 0	1) 2nd Pl 3 chl -0 prh -0	1) Am 4						moderate alteration by mesh texture of serpentine + magnetite replacing olivine with minor talc + Sulfide and plag replaced by 2nd plag, and CPX replaced by minor Amph
-30-	4		1	2) Serp 4 mt 0 Amph 0	1) 2nd Pl 4	0) Am 4		1% magn				" "
	5		1	2) Serp 3 talc 1 mt 0	1) 2nd Pl 0 chl	0) Am 4	-					Moderate alteration of olivine to mesh texture and minor talc margins on some rims, while plag is replaced by 2nd plag irregularly.
-40-	6		1	2) serp 3 talc 1 mt 0	1) 2nd Plag	1) Amp 4				irregular fractures filled with prehnite		moderate alteration with olivine most completely and plagioclase locally
-50-	7		2	2) serp 3 talc 1 mag 0	1) 2nd Pl 4 prh 0	1) Amp 4 chl 0				thin fibrous chlorite veins present.		moderate alteration by olivine replacement by talc and serpentine in a mesh texture; plag by secondary plagioclase and local prehnite, and clinopyroxene by amphibole and locally by marginal chlorite
-60-	8		2	3) serp 2 mt 0 talc 2 sulf. 0 mesh	2) 2nd pl 3 prh 1	1) Amp 3 chl 1						"
-70-												
-80-	9		2	2) serp 3 talc 1 mt 0, py 0	2) 2nd pl 3 chl 1	2) Amp 4				trace fibrous chlorite vein		pervasively altered as background alteration olivine to serpentine and talc and plagioclase to secondary plagioclase
	10		2	2) serp 3 talc 1 py 0 mt 0	2) 2nd Pl 4 chl 0	1) Amp 4						" and clino - pyrox are to amph - ibole
-90-	11		2	2) talc 2 Serp 2 py 0 mt 0 clay 0	2) second plag 3 chl 1	1) Amph						background alteration to talc with sulfide and locally talc to clay serpentine with magnetite) plagioclase to secondary plagioclase, and clino pyroxene sparring by to amphibole
-100-												
-110-												
-120-	12		2	2) serp 2 talc 2 clay 0 mt 0 py 0	1) 2nd 4 plag chl 0	1) Amp 4				small fibrous chlorite veins		" "
-130-	13		2	2) serp 2 talc 2 clay 0 mt 0 py 0	1) 2nd Pl 4 chl 0	1) Amp 4						" "
-140-												
-150-												

MAJOR LITHOLOGY:

X345: HESS DEEP

345-U1415P-7R-2-A : SHLF4582151

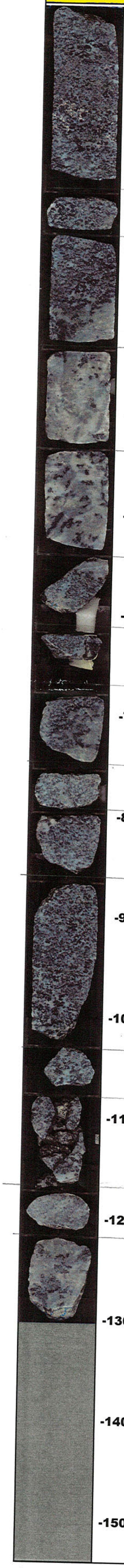
MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%) RW Jan 31, 2013
-0-	1		2	2) serp 3 talc 1 mt 0, Ag 0 0 Amph	2) 2nd 4 plag 0 chl	1) Amp 4				fibrous chlorite veins.		moderate alteration by olivine to serp and talc and plag relace to 2nd plag
-10-												
-20-	2		1	2) serp 2 talc 2 clay 0 mt 0 py 0	1) 2nd plag 4 chl 0	1) Amph 4						"
-30-												
-40-												
-50-												
-60-	3		1	3) talc 2 clay 2 serp 2	1) 2nd Pl 4 chl 0	1) amp 4						"
	4		2	2) serp 4 talc 0 mt 0	1) 2nd Pl 4 chl 0 mt 0	1) Amp 4						"
-70-	5		2	3) talc 2 serp 2 clay 2	0) 2nd pl	1) Amp 4						"
-80-	6		2	2) serp 2 talc 2	1) 2nd Plag	—						"
	7		1	3) serp 3 talc 2	1) 2nd plag 4	2) An 4						Moderate alteration with olivine replaced by a mesh texture of serpentine, and talc overprinting the residual olivine.
-90-	8		1	2) talc 2 serp 2 mt 0 py 0 clay 0	1) 2nd plag 4	1) Amp 4						moderate alteration with talc replacement of olivine more abundant than serpentine and clay replacing some mesh textures.
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

REFUSES TO UPLOAD

X345 HESS DEEP

345-U1415P-6R-2-A : SHLF 81331



MetPet (cm)	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%)
0	1		0	1 serp 4	0 prehnite 4	0 4 amph.	0 amph	~1% sulphid				pieces of opx unaltered. olivine is quite fresh and altered
-20	2		1	2 amph 0 serp 2 tc amph 2 ?? 0	1 chl 2 preh 2	1 amph 4	0 amph 4	·1% in pl				moderately altered [illegible] serp, amph + talc with a fine [illegible] cpx suggests [illegible]
	3		1	2 serp 2 tc 2 ?? 0 amph 0	1 chl 2 prehnite 2	1 amph 4	1 amph 4	·5%		2 crosscutting amph then clay		main part of piece is typical ol gabbro with
-30			2	3 tc 2 serp 2 ?? 0	1 preh 3 chl	1 amph 4	X	·5% ox 1% [illegible]				lower part of piece is more altered with clay and talc replacing ol, green cpx and [illegible] TS!
-40	4		1	4 tc 2 clay 2 sulf 0	chl 4 preh 3	1 amph 4		1% sulph 1% ox		2 sulfide white		very coarse texture for rest of piece. Oikocrysts of cpx are intergrown with olivine plag. all being altered and plag also [illegible] moderately altered. TS?
-50	5		2	2 serp 3 talc 1 sulf 0 mt 0	2 secphyllo 4 oxide 0	0						Irregular white patches [illegible] around large oxide grains appear to be replacing and are interpreted as secondary plagioclase. olivine is variably altered to mesh texture and talc + sulfide oxide. cpx fresh
-60	6		1	2 serp 2 tc 2 clay 2	1 prehnite 4 chl 0	0 amph 4		oxide 1% sulf <1%		1		patch of fine grained [illegible] appears to be fresh but white patch is replacing [illegible] oxide and [illegible]
	7		3	2 serp 3 tc 1 [illegible]	4 3 secphyllo 4	0						
-70	8		2	2 serp 3 tc 1 chl 0 mt 0	2 prehnite 4	0				2		[illegible] replacements by white material is interpreted as prehnite — need TS?
	9		3	2 serp 3 tc 1 ?? 0 mt 0	3 secphyllo	2 amph 4				X		[illegible] texture [illegible]
-80	10		2 amph 0	2 serp 2 tc 2 mt 0 s 0	2 prehnite 4 amph 0 chl 0	1 amph 4				1		white alteration interpreted as prehnite mineral [illegible]
-90	11		3	2 serp 3 tc 1 mt 0 sulf 0	3 secphyllo 3 prehnite 1	1 amph 4						plag is pervasively altered. Ol partially altered cpx slightly altered.
-100	12		2	2 serp 2 tc 2 sulf 0	2 prehnite amph 0	1 amph 4		ox [illegible] sul [illegible]				similar to 8, plag is quite [illegible]
-110	13		2	2 serp 3 tc 1 sulf 0	2 prehnite 3 chl 1	1 amph 4						similar to 12
-120	14		2	2 serp 3 tc 1 sulf 0	2 prehnite 4	2 amph 3 clay 1						similar to 13
	15		3	3 serp 2 tc 2 sulf 0	3 prehnite chl 1	1 amph 3 chl 1						intensely altered.
-130												
-140												
-150												

MAJOR LITHOLOGY:

Logged 30.01.2013 (KT) DONE ✓ 30.01.2013 [illegible]

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%)
-0- to -10-	1		2 : 2	(4) serp 3 clay 1 Py 0	(1) prehn 1 2nd pl 1 chl 2	–	–	–	–	X		
-10- to -20-	2		1 : R	(4) "	"	(1) amph	(1) amph	–	–	–		
-20-	3		1 : 1	"	"	"	"	–	–	–		
-30-	4		2 : 2	"	"	"	–	–	–	–		
-30- to -40-	5		2 : 2	"	(2) "	"	(1) amph	–	–	–	–	
-40- to -60-	6		2 : 2	"	(2) "	"	"	Py 0	–	–	–	
-60- to -100-	7		2 : 2 / 2 : 2 / 2 : 2	"	"	"	"	" / Ox	–			
-100- to -120-	8		2 : 2	"	"	"	–	Ox	–	–		
-120-	9		2 : 2	"	"	(2) amph	(2) amph	–	–	–		
-130-	10		2 : 2	"	"	(1) amph	(1) amph	Ox	–			

-0- -10- -20- -30- -40- -50- -60- -70- -80- -90- -100- -110- -120- -130- -140- -150-

MAJOR LITHOLOGY:

MetPet (depth)	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%)
-0- to -10-			1 1	① Srp 2 tlc 2 clay 2 py 0	⓪ chl 2 prh 2	⓪ Am 4	⓪ Am 4	py 0	–	/		~~oliv is~~ relatively intense. alt corona is ~~rare~~ lacky ~~total~~. compared to other minerals. Plag has abundant fractures. (C.U.P. TS.)
-20-			0 0	① Srp #3 clay 2/1 py 0 tlc 1	⓪ chl 2 prh 2	⓪ Am 4	⓪ Am 4	py 0	–	–		corona around oliv. is lacky or little ~~was not found~~. ~~Total intensity is low.~~ ~~Instead of~~ regardless grain size alt. intensity not variable variable.
			1 1	① Srp 3 clay 1 py 0	⓪ chl 2 prh 2	⓪ Am 4	–	–	–	–		Ol is alt to srp to ~~show~~ form mesh tex. Pl becomes less translucent by micro crack.
-30-			1 1	① srp 2 clay 2 tlc 1 py 0	⓪ prh 3 chl 1	⓪ Am 4	–	–	–	–		Corona around ol is rare. plag less translucent.
-40-			0 0	① Srp 3 clay 1 py 0	⓪ prh 3 chl 1	⓪ Am 4	–	–	–	/	–	ol is serpentinized to form mesh texture, plag is locally milky by prh. corona is rare.
-50- to -60-			0 0	① Srp 3 clay 1 py 0 tlc 0	⓪ chl 2 prh 2	⓪ Am 4	⓪ Am 4	–	–	/		" px to alt is ~~very~~ low.
-70-			0 0	① Srp 3 clay 1. py 0	⓪ chl 2 prh 2	⓪ Am 4	–	py 0	–	–		"
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

Logged 30.01.2013 (KI)
DONE ✓ 30.01.2013

X345 ESS DEEP **345-U1415P-5R-~~2~~1-A : SHLF 80631**

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments
-0-	1		1 : 1	④ serp 3, py 0, amph 1	① chl 2, preh 1, 2nd pl 1	① amph	① amph	–	–	1	–	
-10-	2		1 : 1	"	"	"	"	0x0	–	–	–	
	3		1 : 1	④ serp 2, py 0, amph 0, chl/talc	"	"	"	0x0	–	2	–	
-20-	4		1 : 1	"	"	"	"	–	–	–	–	
-30-	5		1 : 1	"	"	"	"	–	–	–	–	
-50-	6		1 : 1	"	"	"	"	0x	–	1 chlorite vein		
-70-	7		1 : 1	"	"	"	"	–	–	X	–	
-90-	8		1 : 1	"	"	"	"	0x0	–	–	–	
-100-	9		1 : 1	"	"	"	"	0x0	–	–	–	too small no fresh cut face
	10		1 : 1	"	"	"	"	0x0	–	–	–	
-110-	11		1 : 1	"	"	"	"	0x0	–	–	–	
-120-	12		1 : 1	"	"	"	"	0x0	–	–	–	
-130-	13		1 : 1	"	"	"	"	–	–	–	–	
-140-	14		1 : 1	"	"	"	"	–	–	–	–	
-150-												

Ranks:
0 = <10%
1 = 10 - 30%
2 = 30 - 60%
3 = 60 - 90%
4 = >90%

MAJOR LITHOLOGY:

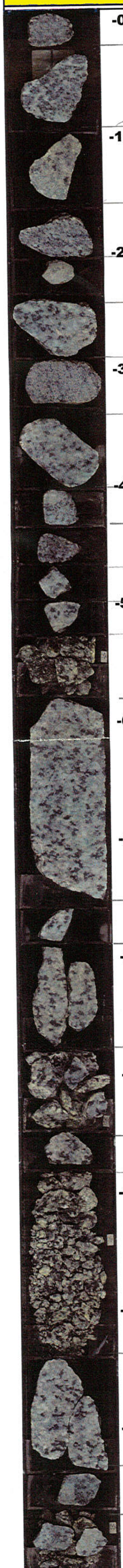
X345..ESS DEEP 1/30 TN 345-U1415P-4G-2-A : SHLF..80141

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments
-0-												Ranks: 0 = <10% 1 = 10 - 30% 2 = 30 - 60% 3 = 60 - 90% 4 = >90%
-10-	1		1 : 1	① srp 2 clay 2 tlc 1 tr 0 py 0	① chl 2 prh 2	① Amph 4 py 0	—	—	—	2		olivine is commonly replaced by serpentine to form mesh texture. Abundance of clay and talc and corona is variable. clinopyroxene alteration is heterogeneous. plag is relatively fresh.
-20-	2		1 : 1	② srp 2 clay 2	② chl 2 prh 2	① Amph 4	—	—	—	—		Alteration intensity is variable between piece to piece because of primary modal compo.
-30-	3		1 : 1	② srp 2 clay 2 tlc 1 py 0	① chl 2 prh 2	① Amph 4	① Amph 4	py 0	py 0	2		plag is relatively fresh compared with mafic minerals. olivine alteration is heterogeneous.
-40-												
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

X345 ESS DEEP

345-U1415P-3R-1-A : SHLF 79371

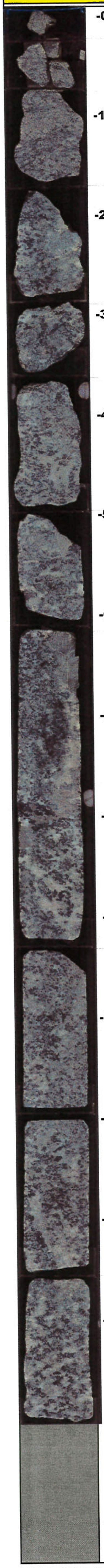


MetPet (depth, cm)	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%)
-0-	1		0	2 serp 2 amph/talc 1	0 ct 4	0 amph 4		sulfide <1 in amph				ol ~~[illegible]~~ altered all being [illegible] coronas plg and cpx v. fresh
	2		1	4 serp 2 talc 2 chl 1 pyx 0	1 prehnite 4	0 amph 4						ol highly altered, mainly to serpentine and talc + pyrite. cpx fresh, plagioclase [illegible] likely prehnite
-10-	3		2	4 amph 1 talc 2 serp 1 pyx 0	2 ct 1 preh 3	2 amph 4						heterogeneous olivine alteration with coronas in some grains, [illegible] talc + pyrite in others. heterogeneous prehnite in plg, and amph in cpx
	4		1	3 serp 2 tc 2 pyx 0	1 ct 0 preh [illegible]	1 amph 4				1 thin vein		ol altered to serp on edges, tc + pyrite inside [illegible] prehnite in plg, cpx little alt
-20-	5		1	4 amph 2 serp 2	1 preh 3 ct 0	1 am 4				1 thin vein		too small to see much
	6		1	3 amph 0 serp 2 ct 1 talc 2 pyrite 0	1 preh 3 ct 1	1 amph 4 - not much						[illegible] [illegible] in [illegible] [illegible] [illegible] (ol talc) [illegible] corona then talc after ol.
-30-	7		1	4 serp 3 tc 2 pyx 0	0 preh 4	1 amph 4						magnetite [illegible] [illegible] [illegible] of ol and cpx in [illegible] seams
	8		1	3 serp 2 amph 1 tc 2 pyx 0	1 ct 0 preh 3	1 amph 4						ol. strongly altered with minor coronas plg and cpx moderately altered
-40-	9		1	3 serp 4	0 ct 4	0						ol alt to serp mesh text cpx and plg fresh.
	10		1	3 serp 4 talc 1	1 preh 3 ct 0	1 amph 4						very small pyroxene poikilitic grains [illegible] clear. Ol → serp mesh [illegible]
	11		1	2 serp 4	2 preh 4	1 amph 4						ol is strongly alt cpx is v. green [illegible]
-50-	12		1	2 serp 2 tc 2 pyx 0 amph 0	1 preh 4 ct 0	1 amph 4						ol moderately altered to serpentine + [illegible] plg and cpx fresh [illegible]
	13		0	2 serp 4 amph 0	0 ct 4	0 amph 4						ol [illegible] alt to serpentine mesh plg and cpx [illegible] [illegible]
-60- -70-	14		1	1 serp 2 tc 2 py 0 amph 0	1 ct 2 ph 2	1 amph 4		pyrite in plg		1 diffuse green [illegible] vein		chlorite patches in plagioclase, [illegible] [illegible] olivine quite fresh minor coronas mesh texture [illegible] ol relics, tc [illegible] magnetite + pyrite. Some cpx is more altered
	15		0	2 serp 4	0	0		Mt in [illegible]				See pic 13
-80-	16		0	2 serp 4	0 4 ct	0 4 amph						serp mesh
-90-	17		0	1 serp 4	0	1 amph 4						broken pieces fresh shiny olivine in mesh texture cpx green
	18		1	2 serp 4	0 ct 4	0						serp mesh, not fresh
-100- -110-	19		0	2 serp 4	0	0						"
-120-	20		1	2 serp 1 amph 0 tc 1 chl 2 sulph 0	1 ct 3 ph 2	1 amph 4 chl 0						Ol very variably altered (ct patches), most with ol relics, some tc + pyrite, by [illegible] chl. minor coronas plg variably altered to ct, in some cpx looks green due to amph [illegible]
	21		1	2 serp 4	0 ct 4	0						[illegible] ct in plg [illegible] [illegible]
-130-	22		"	"	"	"						
-140-												
-150-												

MAJOR LITHOLOGY:

Logged 29.01.2013 (KI)
Done ✓ 29.01.2013 [illegible]

X345 [illegible]ESS DEEP **345-U1415P-4G-1-A : SHLF [illegible]80111**



MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol	Pl	Cpx	Opx	OX & SULPH	Other	Veins & Halos	Vein Density	Comments
				Rank	Rank	Rank	Rank	(%)	(%)			Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%
-0-	1		1 : 1	–	(3) preh 4	(1) amph 1	(3) amph	–	–	–	–	
	2		1 : 1	(3) serp 4, py 0	(3) preh 4	(1) amph	–	Py 0	–	–	–	
-10-	3		1 : 1	(3) serp 3, py 0, amph 1	(3) preh 4	(1) amph	(1) amph	Py 0	–	–		
-20-	4		2 : 2	(4) clay 1, serp 1, py 0, tc 1, chl 1, amph 1	(1) chl 2, preh 1, 2nd pl 1	(2) amph		Py 0				TS alteration [illegible]
-30-	5		2 : 2	(4) serp 2, py 1, amph 1	(1) chl 2, preh 1, 2nd pl 1	(2) amph	(3) amph	–	2			TS veins ?
-40-	6		2 : 2	(4) serp 2, py 1, amph 1	(2) chl 2, preh 1, 2nd pl 1	(2) amph	(3) amph	–	–	–		
-50-	7		1 : 1	(4) serp 2, py 1, amph 1	(1) chl 2, preh 1, 2nd pl 1	(1) amph	(1) amph					
-60- / -70-	8		1 : 1	(4) serp 2, py 1, amph 1	(1) chl 2, preh 1, 2nd pl 1	(0) amph	(1) amph	Py 0	–	–	–	
-100-	9		1 : 1	(4) serp 3, py 0, amph 1	(1) chl 2, preh 1, 2nd pl 1	(1) amph	(1) amph	–	–	–	–	
-110- / -120-	10		1 : 1	(4) serp 3, py 0, amph 1	(1) chl 2, preh 1, 2nd pl 1	(1) amph	(1) amph					
-130-	11		1 : 1	(4) serp 3, py 0, amph 1	(1) preh 1, 2nd pl 1, chl 2	(1) amph	(2) amph	Py 0, Ox 0	–	–	–	
-140-												
-150-												

MAJOR LITHOLOGY:

X345 ESS DEEP

345-U1415P-2G-2-A : SHLF 79151

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
	1											sand
-0-												
-10-												
-20-												
-30-	2											coarser sand
-40-	3											pebbles, matrix
-50-	4											
-60-	5											
-70-	6											
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

Logged 24.01.2013 (KF)
Done ✓ 24.01.2013 KF

X345 ...IESS DEEP **345-U1415N-5G-1-A : SHLF...78731**

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
 -0-	1		0 : 0	① sap 2 py 2	0	5 sample	-	py 0	-	2	-	
-10-	2		0 : 0	② sap 1 py 1 alt 1 tc 1	0	5	-	py 0	-	1	-	
	3		0 : 0	① sap 1	0	0	-	py 0				
-20-	4		0 : 0	① sap 1 py 1	5	5 sample	-	-	-	-	-	
-30-												
-40-												
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

logged 25.01.2013 (KT)

X345 ESS DEEP — **345-U1415N-4R-1-A : SHLF 78241**

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
-0-	1		0 : 0									
	2		1 : 1									
-10-	3		0 : 0									
	4		0 : 0									
-20-	5		0 : 0									
	6		0 : 0									
-30-	7		0 : 0									
	8		0 : 0									
	9		0 : 0									
-40-	10		0 : 0									
	11		0 : 0									
-50-	12		1 : 1									
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

[illegible] 24.01.2013 (KT)
[illegible] 24.01.2013 [illegible]

X345 ESS DEEP — **345-U1415N-3R-1-A : SHLF 77961**

MetPet (depth, cm)	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments
-0-	1		3 3	(3) serp2 chl2 [illegible]	-	-	-	Py 0	-	2	-	
	2		2 2	(2) serp3 chl1 tc1 py0	-	-	-	Py	-	+	-	
-10-												
	3		4 4	(4) chl2 tc2	-	-	-	Ox	-	1	-	
-20-	4		2 2	(2) serp2 chl1 tc1	-	-	-	-	-	+	-	
	5		4 4	(4) serp2 chl1 tc1	-	-	-	-	-	-	-	
-30-	6		3 3	(3) serp2 chl1 tc1	-	-	-	-	-	-	-	
	7		2 2	(2) serp2 chl1 tc1	-	-	-	-	-	-	-	
-40-	8		3 3	(3) serp1 chl1 tc1	-	-	-	-	-	-	-	
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

Ranks:
0 = <10%
1 = 10 - 30%
2 = 30 - 60%
3 = 60 - 90%
4 = >90%

MAJOR LITHOLOGY:

Logged 24.01.2012 (KF)
DONE ✓
24.01.2012 Kathi

X345 [illegible]ESS DEEP 345-U1415N-2R-1-A : SHLF [illegible]77801

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol	Pl	Cpx	Opx	OX & SULPH	Other	Veins & Halos	Vein Density	Comments
				Rank	Rank	Rank	Rank	(%)	(%)			Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%
-0-	1		1 : 1	(2) sep 4	(1) prh 4	–	–	–	–	–	–	phenocrysts only on outer rim of piece
	2		1 : 1	(3) sep 2 tc 2 py 1	(1) prh 4	–	–	–	–	–	–	small piece
-10-	3		1 : 1	(3) sep 4 py 0	(1) prh	–	–	–	–	1	–	phenocryst only on outer rim of piece
-20-	4		1 : 1	(3) sep 2 py 1 tc 1 chl 1	? prh	–	–	–	–	1	–	
-30-												
-40-												
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

Logged 23.01.2013 (KF)
DONE ✓ 23.01.2013 KetL

X345 _ESS DEEP | **345-U1415N-1R-1-A : SHLF _77371**

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol	Pl	Cpx	Opx	OX & SULPH	Other	Veins & Halos	Vein Density	Comments
				Rank	Rank	Rank	Rank	(%)	(%)			Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%
-0-	1		0 : 0	(0) serp 3 py 1	(0) preh 3 py 1	–	–	Py 1	–	–	–	very fresh, Ol slightly replaced by serp + py; plag translucent, some micro-fractures, matrix too fine grained to estimate alteration
	2		0 : 0					Py 0		–	–	very fine grained
-10-	3		0 : 0					Py 0		–	–	very fine grained
	4		0 : 0	(0) serp 3 py 1	(1) preh	–	–	Py 0		4		
-20-	5		2 : 2	(3) py 0 serp 2 tc 2 clay 0	–	–	–	clay	–	1	–	
	6		2 : 2	(3) serp 2 tc 3 py 0	–	–	–	Py 0	–	3	–	
-30-	7		1 : 1	(1) serp 3 py 1	(1) preh	–	–	Py 0	–	prehn-plag vein ?	–	
	8		2 : 2	(4) serp 2 chl 1 py 0	–	–	–	Py 0	–	ch1-tc veins	–	
-40-												
	9		2 : 2	"	–	–	–	"	–	"	–	
-50-	10		2 : 2	(2) "	–	–	–	Py 0	–	–	–	
	11		1 : 1	(2) serp 4 py 1	(1) preh	–	–	Py 0	–	–	–	
-60-	12		3 : 3	(4) tc 2 chl 2	–	–	–	Py 0 Ox 0	–	–	–	
	13		1 : 1	(3) serp 4 py 0	–	–	–	–	–	–	–	
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

logged 20.01.2013 (KI)

DONE ✓ 20.01.2013 Kell

X345 HESS DEEP **345-U1415K-2G-5-A : SHLF 76671**

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%)
-0-	1		3: 3	(4) serp 3, ox 0, py 0, trem 1	(1) preh 2, chl 2	(4) amph (green)	-	Py 1, Ox 1		multiple veins	–	different types of amph: needles and green amph replacing cpx
-10-	2		3: 3	(4) serp 3, trem 1, py 1	(1) preh 2, chl 2	(4) amph (green)		Py 1, Ox 1				
-20-	3		4: 4					Py 1, Ox				lost identity any former igneous phases, lots of green amph, clay, oxides
	4							Py 1				too fine grained, lots of pyrite
-30-												
-40-												
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

Logged 15.01.2012 (KF)
Done
15.01.2012 [illegible]

X345 [illegible]ESS DEEP **345-U1415J-26R-1-A : SHLF [illegible]74901**

MetPet

Depth (cm)	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments
-0-	1		3 : 3	(4) tc 2 trem 1 serp 1	(3) preh 1 chl 3	(3) amph 4	–	–	–	–	–	intensively altered, Ol completely gone to form corona textures, tc in core, trem outside surrounded by rim of chl, some Ol altered to serp mesh in core, Plag replaced by preh + chl
-10-	2		3 · 3	(4) tc 1 trem 2 serp 2 Py 0 Mgt 0	(3) preh 1 chl 3	–	–	–	–	–	–	textures similar to pc # 1, but this time more serp + trem in core of former Ol
-20-	3		3 : 3	(4) tc	(2) chl ? [illegible]	(4) amph 4	–	Ox 0	–	–	–	[illegible], cataclasite? lots of fractured plag, altered to chl, preh and 2nd Px, Ol compl. replaced by tc
	4		3 : 3	(4) tc	(3) chl ? preh ?	(2) amph	–	–	–	network of branching ep. veins	–	
-30-	5		3 : 3	(4) tc	(3) preh 2 chl 2	(4) amph	–	–	–	1mm wide Plag vein, several ep veins	–	
	6		3 : 3	(4) tc	(3) chl ? preh ?	–	–	–	–	tc filled fractures	–	cataclasite, plag looks fractured, "[illegible]" in tc + chl ?
-40-	7		:	–	(3) preh 4	(4) amph	–	–	–	–	–	small piece
	8		3 : 3	(4) tc 2 serp 1 py 1	(2) chl 2 preh ?	–	–	Py 0	–	–	–	Ol compl. altered to serp + tc + py, also disseminated pyrite, plag altered to preh + chl
	9		3 : 3	(4) tc	(3) chl 2 preh	–	–	–	–	–	–	see pc # 6
-50-	10		3 : 3	(4) tc 1 serp 2 trem 1	(3) chl 3/4 preh 0	–	–	–	–	vein of ep + [illegible] tc	–	Ol compl. altered to tc + sep in core, surrounded by trem, surrounded by mm-wide chl rim, Plag altered to form chl rims
	11		2 · 2	(3) tc 2 serp 2 py 1	(2) chl 2 preh 2	–	–	–	–	thin chl veins	–	
-60-	12		3 : 3	(4) tc	(3) chl 2 preh 2	(3) amph	–	–	–	see pc # 4 + 1cm wide Plag vein	–	see pc # 8
	13		3 · 3	(4) tc 2 sep 2 py 1	(2) chl 2 preh 2	(3) amph	–	–	–	–	–	see pc # 4, small piece
	14		3 : 2	(4) tc	(3) [illegible]	(3) amph	–	Py 0	–	–	–	network of ep(?) veins along foliation of [illegible]
-70-	15						–				–	} cataclasite
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

Ranks:
0 = <10%
1 = 10 - 30%
2 = 30 - 60%
3 = 60 - 90%
4 = >90%

MAJOR LITHOLOGY:

Logged 15.01.2013 (RW, TN, KF)

DONE 15.01.2013 Kat L

X345 HESS DEEP | **345-U1415J-25G-1-A : SHLF 74531**

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
-0-	1		0 0	4) Amph 4 serp 0	0) chl-rims 4	1) Amph (clear) py (0)		0)		1 vein - clinozoisite discontinuous with small splays - CZO locally replaces plag.		chl. replaces rims on Plag
-10-	2		1 1	③ Srp 2 clay 2 tlc 1 Am 0 py 0	⓪ Chl 4	② Am 4	–	Py 0	–		3	branching veins without visible halo. plagioclase is relatively fresh ~~showing a~~ in contrast to mafic minerals.
-20-	3		0 . 0	3) Serp 3 clay 0 oxide 0 Sulf 0	0) Chl 4	0) Amp 4						chl replaces plag only adjacent to olivine. olivine shows good mesh textures.
	4		① ①	3) serp 3 clay 1	⓪ chl 3 Preh 1	① amph 1	–	–	–	–		very fresh plag, slightly fractured and altered along fractures, Cpx also rather fresh, altered to amph. olivine altered to serp mesh, often surrounded by chl
-30-	5		① ①	④ serp clay	⓪ Chl 4	① amph	–	–	–	–	–	"
-40-	6											several clasts in cement from cementing the whole, clasts have different lithologies and different degree of alteration (ranging from rank 1 to 4)
	7											cement
-50-	8		3 3	④ tc	③ preh 2 chl 2	–	–	–		multiple tc-chl veins		cataclasite, almost no igneous textures preserved, ol completely altered to tc, plagioclase (strongly) altered to prehn and chlorite
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

Logged 14.01.2013 (RW, KT)

X345 [illegible]ESS DEEP 14.01.2013 | **345-U1415J-24G-1-A : SHLF [illegible] 74041**

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol	Pl	Cpx	Opx	OX & SULPH	Other	Veins & Halos	Vein Density	Comments
				Rank	Rank	Rank	Rank	(%)	(%)			Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%
-0-	1		0 0	4) 2 Am 2 talc 1 serp 0 clay	0)	–	–			3 veins 100 µm thick prehnite	1%	olivine forms subhedral phenocrysts, most altered completely
	2		3 3	4) Am 3 talc 1 chl 1	0) chl 3 preh 1	–	–			3 Epidote veins		rock is banded by stretched serp/talc-rich layers that also disaggregate one Epidote vein
-10-	3		3 3	(4) tc	(2) preh 1 ep 1 chl 2	(4) amph	–	–	–	ep veins		epidote veins, Cpx replaced by dark amph. Ol compl. replaced by tc, surrounded by chl. Plag altered to preh, chl and ep.
	4		3 3	(4) trem, tc, serp	(2) preh chl 2	–	–	–	–	–	–	Ol compl. altered to tc and serp and [illegible], surrounded by [illegible], plag altered to prehn. + chl.
	5		2 2	(3) serp 2 trem tc py	(2) preh 2 chl 2	–	–	–	–	–	–	[illegible]
-20-	6		0 0	(4) tc clay	(0)							very fine grained felsic matrix, in these very fresh laths of plag and completely altered olivine phenocrysts, olivine is altered to dark mixture of tc + clay(?) [illegible] multiple branching veins, filled with prehnite (and epidote ?), and zone where tc + clay fills area between two veins
-30-												
-40-												
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

logged 13.01.2013 (RW, TJJ)
DAVE
12.01.2013 Kath

X345 ESS DEEP | **345-U1415J-23R-1-A : SHLF 73761**

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol	Pl	Cpx	Opx	OX & SULPH	Other	Veins & Halos	Vein Density	Comments
				Rank	Rank	Rank	Rank	(%)	(%)			Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%
-0-	1		1 1	2) Serp 2 talc 2 Py 0	0) Chl 4 preh 0	1) Amp 4						
	2		2 2	2) Srp 3 clay 1 Py 0	1) prh 3 chl 1	–	–	–	–	–		
-10-	3			4) talc 4	4) 2nd 4 chl 0 ← Ep 0					one epidote vein		weakly foliated cataclasite w/ replacement (local) by epidote
	4		2 2	3) srp 2 tlc 2 clay 1 Py 0	1) prh 2 chl 2	–	–	–	–	2	–	
-20-	5		2 2	4) talc 4	1) 4 chl 0 preh	1) Amph 4		Py 0		1 - 4mm plagioclase vein. fractured. 1 - 1mm vein of plag + phyllosilicate		no mesh textures in olivine (now talc)
V#1 V#2 -30-												
	6		2 2	1) tlc 3 srp 1	1) prh 2 chl 2	–	–	–	–	2	–	fine-grained felsite
-40-	7		2 2	4) talc 3 Act 1	1) chl 4 prh 0	3) Am 4				1 Plag vein 2mm wide fractured		
	8	#2	2	4) tlc 4	1) chl 3 prh 1	1) Am 4	–	–	–	4	–	banding and rupture of vein
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

logged 13.01.2013 (KF)
DONE ✓
13.01.2013 Kathi

X345 [illegible]ESS DEEP **345-U1415J-22G-1-A : SHLF [illegible]73661**

MetPet

Depth scale: -0- -10- -20- -30- -40- -50- -60- -70- -80- -90- -100- -110- -120- -130- -140- -150-

Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol	Pl	Cpx	Opx	OX & SULPH	Other	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
			Rank	Rank	Rank	Rank	(%)	(%)			
		4 : 4	(4) amph 2 chl 2	–	–	–	Ox 1	–	1		very fine grained, matrix of relict olivine, altered to chl + amph, in these oxides with a ~~net~~ boxwork texture
		3 : 3	(4) chl 1 tc 3	(3) preh 3 chl 1	(3) amph 4	–	Ox 0	–	multiple		multiple veins, filled with chl + preh?

MAJOR LITHOLOGY:

logged 13.01.2013 (KF)

X345 ESS DEEP

345-U1415J-21R-2-A : SHLF 73021

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
 -0- -10-	1		B:B	(4) tc 3 trem 0 clay 0 py 0	(2) pxlu 3 chl 1	(3) amph 4	–			multiple		almost completely altered, almost no magmatic fabrics or textures left, not very well defined grain shapes, multiple clinkie-prehn. veins
	2		B:B	"	"	–	–	–	–	–	–	very small piece, but looks similar to piece #1
-20- -30-	3		B:B	(4) tc 3 trem 0 clay 0 py 0	(2) pxlu 3 chl 1	(3) amph 4	–	–	–	multiple		similar to piece #1, but slightly higher modal abundance of pyroxene
-40-												
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

Logged 13.01.2013 (TN, RW, KT)
DONE
13.01.2013 Kathi

X345 ...ESS DEEP — **345-U1415J-21R-1-A : SHLF ... 72991**

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
-0-	1		3 3	4) serp 3 Am 1	3) chl 4	4) Am 4	–	–	–			cataclasite - cut by veins + by more cataclasite
-10-	2		2 2	4) chl 2 Am 2 py 0	–	–	–	–	epidote			chromite (?) rich rock
	3		2 2	4) chl 2 Am 2	–	2) Am 4	–	–	–	2	–	two types of amphibole: hornblende (?) and tremolite. Significant amount of oxide
-20-	4		4 4	–	3) sec Pl 3 chl 2 preh 0	4) tale 4	–	–	–	–		mylonite with quartz?bands and bands of secondary plagioclase intergrown with phyllosilicate (TS) (XRD)
	5		3 3	4) tale 3 serp 1 py 0	2) chl 2 preh 1 sec Pl 1	3) amph	–	–	–	X	–	multiple calc. prh (?) veins
-30-	6		3 3	4) tale 3 serp 1 py 0	2) chl 2 preh 1 py 0	–	–	–	–	–	–	
	7		3 3	4) tc	2) prh 2 chl 2	2) ampb	–	–	–	–	–	
-40-	8		3 3	4) tc 4 serp 0	2) chl 2 preh 1	4) Amp 4						trace Cpx now brown = Amph?
-50-	9		3 3	4) tc 4 Srp 0 Am 0 py 0	3) prh 2 chl 2	3) Amph 4	–	–	–	1		cataclastic str.
-60-												
-70-	10		3 3	4) tc 4 py 0	2) prh 2 chl 1	3) amph 4	–	–	–	X	–	multiple chlorite + tc(?) veins
-80-												
-90-	11		3 3	"	"	"	–	–	–	–	–	no end face, but looks very similar to previous pieces
	12		3 3	4) Talc 4 serp 0	2) Chl 3 preh 1 2nd Pl 0	3) Amph 4						Trace mesh text in talc veins
-100-	13		3 3	4) tc 4 py 0	2) prh 3 chl 1	3) amph	–	–	–	–	–	one area, volume only plag/prehnite is present
	14		3 3	4) serp 0 tc 4 py 0	2) prh 3 chl 1	3) amph		0 x 0		X		cm-wide plag – chlorite vein, at the margin of piece some clasts of felsic gneissic rock with some oxides in them
-110-	15		3 3	"	"	"	–	–	–	X		elongated fine-grained felsic rock
-120-	16		3 3	4) tc 3 serp 1 trem 1 py 0	3) prh 3 chl 1	3) amph	–	–	–	X		
-130-	17		3 3	4) tc 4 clay 0 py 0	2) prh 3 chl 1	3) Amph	–	–	–	1		cataclastic str.
-140-												
-150-												

cataclasite

MAJOR LITHOLOGY:

Logged 12.01.2013

X345 [illegible]ESS DEEP 12.01.2013

345-U1415J-20R-1-A : SHLF [illegible]72841

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol	Pl	Cpx	Opx	OX & SULPH	Other	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%)
				Rank	Rank	Rank	Rank	(%)	(%)			
-0-			3 3	(3) clay 1 serp 3 mt 0	(3) preh 3 chl 1	(4) amph 4						
			4 4	(4) tc 4 mt 0	(3) preh 2 chl 2			Po 0 Mt 0				Chl veins are present.
-10-			4 4	(4) tc 2 mt 0 clay 2	(3) preh 2 chl 2	(4) amph 4						Cataclasite zone cut by prominent epidote? veins. Pervasive replacement by prehnite. Cpx Oikocryst? completely gone to amphibole
-20-												
-30-												
-40-												
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

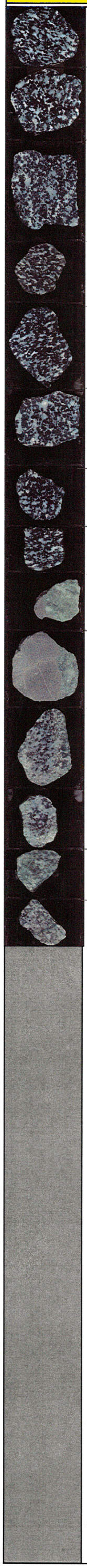
MAJOR LITHOLOGY:

Boxed 12.01.2013 (NH, TN, KF)
① DONE 12.01.2013 Katie

X345 HESS DEEP — **345-U1415J-19R-1-A : SHLF 72381**

MetPet

Ranks:
0 = <10%
1 = 10 - 30%
2 = 30 - 60%
3 = 60 - 90%
4 = >90%



Depth	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments
-0-	1		3 3	③ serp 3, Mt 0, clay 1, py 0, tc 0	② prh 3, chl 1	–	–	–	–	–		
-10-	2		3 3	② serp 3, Mt 0, tc 0, clay 1	② Pre 3, chl 1	–	–	–		–		
-20-	3		3 3	③ serp 3, Mt 0, cly 1	② prh 3, chl 1	④ amph 4						
	4		2 2	③ Srp 3, clay 2, py 0	① chl 2, prh 2	–	–	–	–	3		
-30-	5		2 2	"	① chl 2, Preh 2	–	–	–	–	2	–	
-40-	6		2 2	"	"							
-50-	7		2 2	"	"	② amph	–	–	–	–	–	
	8		2 2	"	"	"	–	–	–	–	–	
-60-	9		0 0 / 4 4	– / ④ tc 3, clay 1	⓪ preh 4 / ③ prehn 2, chl 2	–	–					Contact btwn dike and cataclasite. dike: Cut by many preh-chl veins. Contact btwn dike and cataclasite. cataclasite
	10		0 0 / 4 4	④ tc 3, cly 1	⓪ preh 4 / ③ preh 2, chl 2							Veins: epidote veins cut across dike and cataclasite and prehnite veins w/in the dike. Dike / cataclasite — TS + C.U. photo ☺
-70-	11		bg ② 50, halo ③ 50, ③ 20	② serp 3, clay 2, py 0, ④ tc	① preh 2, chl 2 / ① preh 3, chl 1	–	–	–	–	–	–	
-80-	12		2 2	③ serp 2, clay 1, py 0, tc 1	① preh 2, chl 2	⑤ amph						Cpx is restricted to one corner of the piece, in this area, olivine is completely replaced by tc
	13		3 3	④ tc	③ preh 2, chl 3	⑤ amph	–	ox 0	–	4		
-90-	14		① 2 / ③	② serp 3, clay 1, py 0	③ preh 3, chl 1	–	–	–	–	–	–	zone where Ol is more fresh and altered to serp
-100-			13	④ tc	② preh 2, chl 2	–	–	–	–	↗	–	(chlorite vein, ol completely replaced by tc
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

ORIGINAL
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X345 ESS DEEP — **345-U1415J-18R-1-A : SHLF4571801 t=270**

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)	
-0-	1		3 : 3	(4) amph 2 tc 2 py 0	(2) prh 2 chl 2	-	-	Py 0	-	2		highest degree of alteration close to chlorite veins	c.u.phs c.u.photo
-10-	2		3 : 3	(4) tr 3 tlc 1 clay 1 srp 0 py 0	(1) chl 4 prh 0	-	-	Py 0	-	—		corona is conspicuous.	c.u.photo
-20-	3		4 : 4	(4) tc 2 serp 1 clay 1 amph 2	(3) prh 2 chl 1	-	-	-	-	multiple parallel veins		multiple parallel veins, olivine close to vein tot. replaced by serp + amph and further away from vein tot. by tc	c.u. phot
-30-	4		1 : 1	(4) clay 4	(0)	(3) g Amph 4	-	-	-	5		fine-grained felsite.	c.u.pho
-40-	5		4 : 4	(4) serp 1 amph 3 clay 1 py 0	(4) prh 2 chl 2	-	-	-	-	-	-	corona texture around olivine	c.u.photo
	6		4 : 4	"	"	-	-	-	-	-	-	—	c.u.photo
-50-	7		4 : 4	(4) serp 1 amph 2 clay 1 tc 1	(2) prh 2 chl 2	-	-	-	-	2	-	lots of olivine in this sample	c.u phos
-60-	8		4 : 4	(4) amph 2 clay 0 tc 1 Py 0	(3) prh 3 chl 1	-	-	Py 0	-	-	-	lots of olivine in this sample	c.u.phot
-70-	9		4 : 4	(4) serp 0 clay 2 py 1 ~~decph 2~~	(3) prh 2 chl 2	-	-	Py 0	-	-	-	olivine is altered to mainly clay + pyrite in cor surrounded by - mixture of them and chl	c.u.p
-80-	10		3 : 3	(3) srp 3 clay 1 py 0 tr 0	(3) chl 1 prh 3	-	-	-	-	1			c.u.p
	11		3 : 3	(4) tc 2 amph 2	(2) prh 2 chl 2	-	-	-	-	multiple	-	multiple parallel veins at ~30° angle to major vein foliation	
-90-	12		3 : 3	(1) tc 0 amph 2 serp 1 clay 1 py 0	(2) prh 2 chl 2	(3) amph 1	-	-	-	-	-	olivine replaced by ~~amphibole~~ mixture of serp + chl in zones with more plag and by serp + clay + py + amph in zones with less plag	c.u.p
-100-	13		3 : 3	(2) srp 3 # clay 1 tr 0 py 0	(1) Chl 1 Prh 3	(0) Amph 4	-	—	—	1			
-110-	14		2 : 2	(2) serp 3 clay 1 amph 0 py 0	(2) prh 3 chl 1	(2) amph						olivine altered to serp mesh	c.u.p
-120-	15		2 : 2	(2) serp 3 amph 1 Mt 0	(3) prh 3 chl 1				Oxide			Vein of prehn-chl on margin of this piece ~~1~~ on 15.	c.u.p
	16		2, 2	(2) serp 3 amph 1 Mt 0	(3) prh 2 chl 1 2ndpl 1	(2) amph 4			oxide 0				c.u.p
-130-	17		2 : 2	(3) serp 3 amph 1 Mt 0	(3) prh 2 chl 2 2ndpl	(3) amph 4						Many ~~thin~~ thin veins of chl + clay Serp. vein appears ~~parallel~~ perpendicular to apparent magn foliation (i.e foliation appears vertical, mesh is horizontal	c.u.p
-140-													
-150-													

MAJOR LITHOLOGY:

Board 12.01.2013 (NM, TM, KT)
DONE
12.01.2013

X345 HESS DEEP — **345-U1415J-18R-1-A : SHLF 71801**

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%)	
-0-	1		3 3	(4) amph 2, tc 2, py 0	(2) preh 2, chl 2	–	–	Py 0	–	2		higher degree of alteration close to chl veins	c.u.p.
-10-	2		3 3	(4) amph 3, tc 1, clay 1, serp 0, pyo	(1) chl 4, preh 0	–	–	Py 0	–	–		corona is conspicuous	cup
-20-	3		4 4	(4) tc 2, serp 1, clay 1, amph 2	(3) preh 3, chl 1	–	–	–	–	multiple		multiple parallel veins, ol close to vein is more commonly replaced by serp + trem and further away from vein more commonly by tc	cup
	4		1 1	(4) clay 4	(0)	(3) amph 4	–	–	–	5		fine grained felsite	cup
-30-	5		4 4	(4) serp 1, amph 3, clay 1, py 0	(4) preh 2, chl 2	–	–	–	–	–		corona texture around olivine	cup
-40-	6		4 4	"	"	–	–	–	–	–		"	cup
-50-	7		4 4	(4) serp 1, amph 2, clay 1, tc 1	(3) preh 2, chl 2	–	–	–	–	–		lots of ol in this sample	cup
-60-	8		4 4	(4) amph 2, clay 0, tc 1, Py 0	(2) preh 3, chl 1	–	–	Py 0	–	–		"	cup
-70-	9		4 4	(4) serp 0, clay 2, py 1, amph 2	(3) preh 2, chl 2	–	–	Py 0	–	–		olivine is mainly altered to clay in core surrounded by a mixture of trem + chl	cup
	10		3 3	(3) serp 3, clay 1, py 0, tt 0	(3) chl 1, preh 3	–	–	–	–	|		–	cup
-80-	11		3 3	(4) tc 2, amph 2	(2) preh 2, chl 2	–	–	–	–	multiple		multiple parallel veins at ~30° angle to magm. foliation	–
	12		3 3	(4) tc 0, amph 2, serp 1, clay	(2) preh 2, chl 2	(3) amph 4	–	–	–	–		ol replaced by mixture of amph + chl in zones with more plag and by serp + clay + py + trem in zones with less plag	cup
-90-	13		3 3	(3) serp 2, clay 1, tc 0, py 0	(1) chl 1, preh 3	(0) amph 4	–	–	–	|		–	–
-100-	14		2 2	(2) serp 3, clay 1, amph 0, py 0	(3) preh 3, chl 1	(2) amph	–	–	–	–		olivine altered to serp mesh	cup
-110-	15		2 2	(2) serp 2, amph 1, Mt 0	(3) preh 3, chl 1	(3) amph 4	–	–	Oxide	–		veins of prehnite + chl on margin of this piece and	cup
-120-	16		2 2	(2) serp 3, amph 1, Mt 0	(3) preh 2, chl 1, 2nd Pl 1	(2) amph 4	–	–	Oxide	–		–	cup
-130- -140- -150-	17		2 2	(3) serp 2, amph 1, Mt 0	(3) preh 2, chl 2, 2nd Pl 1	(3) amph 4	–	–	–	–		many thin veins of chl + clay, serp veins in Ol appear perpend. to apparent mag. foliation (i.e. foliation appears vertical, mesh is horizontal) Leucocratic vein on margin of pieces 17a and b. Appears magmatic no halo.	TS to look at "en echelon" veins in 17b; cup

MAJOR LITHOLOGY:

X345 HESS DEEP Dave 12.01.2012 (Logged 12.01.2012 11h)

345-U1415J-17G-1-A : SHLF 71701

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
-0-	1		4 : 4	(4) tc 4	(3) preh 2 ep 1 2°d PC 2 chl 0	–	–	Ox 0	–	network of ep and prehnite veins X		almost completely replaced, network of epidote and prehnite veins
-10-	2		0 : 0	(2) serp 4	(0)	(0)		–	–	X		basalt, network of white veins

-20- -30- -40- -50- -60- -70- -80- -90- -100- -110- -120- -130- -140- -150-

MAJOR LITHOLOGY:

X345 HESS DEEP — 345-U1415J-15G-1-A : SHLF 70471

Angel Kathrin 08.01.2013 DONE 08.01.2013 Kathrin

MetPet (depth, cm)	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%)
-0-	1		1 : 1	(2) serp 3 clay 1 Py 0	(1) 2nd pl 2 chl 2	(1) amph	–	–	–	–	–	Plag a little fresher when in Cpx oikocrysts
-10-	2		1 : 1	"	"	"	–	Py 0	–	1	–	Ol completely altered in vein halo
-20-	3		4 : 4	(4) tc 0	(3) 2nd pl 1 Prh 3 chl 1	(4) amph	–	–	–	–	–	almost no igneous textures! primary minerals all over
-30-	4		3 : 3	(4) tc 3 Py 0 serp 1	(3) "	(3) amph	–	–	–	–	–	
-40-	5		2 : 2	(1) serp 3 clay 1	(2) 2nd pl 2 chl 1	(2) amph	–	–	–	–	–	
-50-	6		bg 90 2 : 2 halo 10 3	(2) serp 3 clay 1 (4) tc 3 serp 1	(1) 2nd pl 2 chl 2 (3) 2nd pl 2 Prh 2 chl	(1) amph (2) amph	– –	– –	– –	2	–	serp mesh textures after ol; tc after olivine but still some mesh texture visible
	7		3 : 3	–	(3) 2nd pl 1 Prh 1 chl 1	(3) amph	–	Py 0	chl + tc	lots		
-60-	8		3 : 3	–	(3) "	(3) amph	–	Py 0	"	lots		
-70-	9		1 : 1	(3) serp 3 clay 1 Py 0	(3) 2nd pl 2 chl 2	(1) amph	–	–	–	1	–	Ol altered to tc only in very localized part, probably along a vein
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY: Vein log done 8-1-2013 (Marie) — DC OK

logged 07.01.2013 (TN & RW)
SAMPLE 07.01.2013 Kat...

X345 .ESS DEEP

345-U1415J-14G-1-A : SHLF ..70071

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol	Pl	Cpx	Opx	OX & SULPH	Other	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%)
				Rank	Rank	Rank	Rank	(%)	(%)			
-0-	1		4 4	(4) tc 3 Sp 1	(3) zeo 2 pch 2 2nd Pl 1 chl 0 epid 0	(2) amph 1	–	–	–	5		cataclastic structure epidote and/or zoizite vein TN
-10-	2		0 0	(2) serp 3 tc 1 Py 0	(0) chl 4	(0)	(0) tc 4	0	–	–		one corona structure, serp rim with tc + clay core RW
	3		1 1	(1) amph 2 chl 2	(0) chl 2 2nd Pl 2	(1) chl 4	–	–	–	–		1 vein amph (0.2 mm) 2 veins, filled with zeo (0.4 mm) RW
-20-	4		1 1	(1) Sep 3 clay 1 Py 1	(0) chl 2 amph 2 2nd Pl	–	–	–	–	1		Ol is highly altered by clay along a vein TN
-30-												
-40-												
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY: Vein log Done 7-1-2013 (Marie) DL OK

ORIGINAL, but again copied on right sheet

J-14-G 41   14 G A1

X345 ESS DEEP   **345-U1415J-8R-1-A : SHLF 66191**

Depth scale: -0- -10- -20- -30- -40- -50- -60- -70- -80- -90- -100- -110- -120- -130- -140- -150-

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments
-0- to -10-	1		4	(4) tlc 3 srp 1	(3) zeo 2 prh 2 2nd pl 1 chl 0 epid 0 (zoi)	(3) pale g. Am 4	–	–	–	5		cataclastic str. epidote and/or zoisite vein TN
-10- to -20-	2		0	(2) serp 3 talc 1 pyo	(0) chl 4	0	(0) talc 4	0				One corona structure serp Rim, talc + clay core RW
-20- to -40-	3		(1)	~~(4)~~ tlc 3 chl 2 (4)	chl 2 2nd 2 (0)	(1) chl 4						1 vein Amph (0.2 mm) 2 veins, Zeo filled (0.4 mm) RW
-40- to -55-	4		1	(1) srp 3 clay 1 py 0	(0) chl 2 gAm 2 2nd pl 0	–	–	–	–	1		ol is highly altered by clay along a vein. TN

MAJOR LITHOLOGY:

Done

X345_ESS DEEP 06.01.2013 Kat… **345-U1415J-13R-1-A : SHLF_69631**

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments	
-0-	1		3:3	(3) sep 4 tc 1 clay 0	(3) 2nd pl 2 chl 2	(2) amph 4	–	–	–	1	–		
-10-	2		3:3	"	"	–	–	–	–	–	–		
	3		3:3	(4) clay sep 2 tc 2	(3) "	•	–	–	–	–	–	different types of ol replacement along w/ talc, corona textures	TS
-20-	4											?	TS XRD
-30-	5		3:3	(3) sep 3 clay 1 ? tc 1 (3)	(3) 2nd pl 2 chl 2	(2) amph	–	–	–	3	–		
-40-	6		3:3	"	"	–	–	–	–	3	–		
-50-	7		3:3	"	"	–	–	–	–	1	–	big vein	
-60-	8		3:3	(4) sep 2 clay 2 py 0 tc 1	"	–	–	–	–	–	–	different types of ol replacement w/ sep w/ talc, mesh textures, corona textures	TS
-70-													
-80-													
-90-													
-100-													
-110-													
-120-													
-130-													
-140-													
-150-													

MAJOR LITHOLOGY: Vein log Done 6-1-2013 (Marie) DL OK

Done

X345 ESS DEEP 06.01.2013 Kathi **345-U1415J-12R-2-A : SHLF 68941**

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol	Pl	Cpx	Opx	OX & SULPH	Other	Veins & Halos	Vein Density	Comments
				Rank	Rank	Rank	Rank	(%)	(%)			
-0-			4-4	(4) tc	(5) 2nd PE 2 Preh 1 chl 2	(5) amph	-	Pyr 0	-	-	-	-
-10-												
-20-												
-30-												
-40-												
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

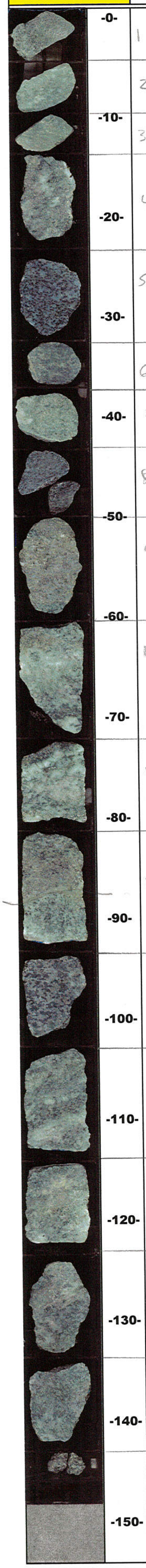
MAJOR LITHOLOGY: AAAh! Vein log Done 7-1-2013 (Marie) DL OK

Logged 06.01.2013 (Dragoni et al ?)

DONE 07.01.2013 Kathi

X345 HESS DEEP **345-U1415J-12R-1-A : SHLF 68911**

MetPet



Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments
1		4 4	(4) talc 4, Py 0	(4) Prol 1, 2 2nd Pl, 1 Chl	—	—	Py 0				Highly altd to talc, chlorite and secondary plag.
2		4 4		(4) 2nd Pl 2, chl 2			Mt 0	Qz ?			Highly altered, possible thin qtz veins w/ Mt in them.
3		4 4		(4) 2nd pl 3, prh 1, chl 0				Qz ?	4		cataclastic zone
4		4 4		(4) 2nd pl 2, zeo 2, prh 1, chl 0	(3) pale Amph 4			Zeolite	5		cataclastic zone
5		2 2	(2) srp 3, tlc 1, clay 1, py 0	(1) 2nd pl 2, prh 1, chl 1	-	-	-	-	/		highly altered alg vein
6		2 2	(3) srp 3, tr 1, tlc 0	(1) chl 2, 2nd pl 2	-	-	-	-	2		Chl fills fracture in pl
7		4 4		(4) zeo 2, 2nd pl 2, prh 1 chl 1	—	—	Mt ? 0	zeolite	>1		Cataclasite: Zeolite replacing fine grained matrix, protolith unclear
8		3 3	(3) srp 3, tlc 1, clay 1, Py 0	(3) 2nd pl 2, zeolite 2, chl 0			Py 0				
9		4 4	(4) tc 3, tr 1, Py 0	(3) 2nd pl 3, prh 1, zeo 1	(4) amph 4						
10		3 3		(3) 2nd pl 3, prh 1, zeo 2, chl 1	(3) amph 4	—	-	zeo	/		cataclastic str
11		4 4	(4) srp 2, clay 2	(3) 2nd pl 2, zeolite 2, prh 1, chl 1	(4) pale Am 4		—	zeo			cataclastic structure
12		1) 1 / 2) 2	0 talc 4 / (4) talc 3, serp 1	(0) 2nd Pl 3, preh 1 / 0 2nd pl replaces along cracks	(2) Am 4	(1) Am 4	0 / 0				3 veins / — vein fills fault.
13		3 3	(4) tc 2, Py 1, Clay 1	(2) 2nd pl 3, Chl 1	(3) amph 4	(1) amph 4	Py 0		1		Ol is replaced by talc, mesh texture remains. Abundant disseminated Py.
14		4 4	(4) tc 4	(4) 2nd pl 1, Zeolite 2, Preh 0, Chl 1	(4) amph 4		Py 0		3		Cataclasite: Zeolite replacing f.g. matrix, also abundant amph in matrix. Tension gashes filled with zeolite and amphibole, possibly zoisite.
15		4 4	(4) srp 2, clay 2	(4) 2nd pl 2, zeo 2, prh 2, chl 1	(4) g Am 4, tr	—					Cataclastic str.
16		4 4	—	(4) 2nd pl 2, prh 1, zeo 2	(4) amph 4						Cpx: Altered to brown and green amphibole
17		4 4	(4) srp 3, clay 1	(4) 2nd pl 2, zeo 2, prh 1, chl 0	(3) amph 4			zeo	2		
18		2 2	-	(3) 2nd pl 2, zeo 2, prh 1, chl 1	(3) amph 4	-	-	-	-		

TS difficult to determine mineralogy

MAJOR LITHOLOGY: vein log done 7-1-2013 (Marie)

DL OK

DONE

X345 .ESS DEEP 06.01.2013 Katie 345-U1415J-11R-1-A : SHLF 68661

MetPet (cm)	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments
-0-	1		3 : 3	(5) tc 4	(3) 2nd Pl 4	(1) amph 4	-	-	-	-	-	
			bg: 90 3	(2) Serp 4 Clay 0 Py 0	(3) 2nd Pl 2 chl 2	-	-	-	-	|	-	
-10-	2		3 : Halo 10 3	(4) tc	"	-	-	-	-	-	-	
-20-	3		3 : 3	-	(3) 2nd Pl [illegible]	(1) amph [illegible]	-	-	-	-	-	small piece, cataclasite zone ?
	4		3 : 3	(3) serp 4 clay 0 Py 0	(2) 2nd Pl 2 chl 2	(2) amph 4	-	-	-	-	-	
-30-	5		2 : 2	(3) serp 2 clay 0 Py 0 tc 1 trem	(1) 2nd Pl 2 chl 2	-	-	-	-	^	-	
-40-	6		3 : 3	(4) tc 3 tre 1	(3) 2nd Pl 2 chl 2	-	-	-	-	^	-	
	7		4 : 4	-	(4) 2nd Pl 2 [illegible] 2	-	-	-	-	-		vein filling ? / cataclasite zone vugs
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY: Vein log done 6-1-2013 (Marie) DC OK

X345. .ESS DEEP 06.01.2013 Kathi

345-U1415J-10R-1-A : SHLF. 56921

DONE

MetPet (depth)	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments
-0-	1		3 3	(4) serp 3 clay 1 Py 0	(3) 2nd pl 1 chl 3	(2) amph	-	-	-	-		beautiful Ol mesh textures
-10-	2		3 3	(4) serp 2 clay 0 tc 0 tremol Py 0	(3) 2nd pl 1 fib 2 chl 2	(2) amph	(2) amph	Py 0	-	-	-	
-20-	3		3 3	(3) serp 4 clay 0 Py 0	"	(2) amph	-	Py 0	-	1	-	
-30-	4		3 3	"	"	"	-	Py	-	-	-	
	5		4 4	(4) serp 1, tc 1, clay, Py 0	(4) 2nd pl 2, fib, chl 0	(3) amph	-	-	-	-	-	cataclasite zone
-40-			2	(3) serp	(0) 2nd pl? chl 2	(3) amph	-			1		contact between gabbro and Ol-gabbro (+ fracture?)
	6		2 gabbro 1		(0) 2nd pl	(3) amph	-			1		
-50-												
-60-	7		3 3	(2) serp 4 clay 0 Py 0	(3) 2nd pl 4	(3) amph	-	-	-	-	-	
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

☆ RW: Potential cataclastic flow TS

MAJOR LITHOLOGY: Vein log done 6-1-2013 (Marie) DC OK

X345 ESS DEEP RW (logged) 06.01.2013 345-U1415J-9R-1-A : SHLF 36291

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol	Pl	Cpx	Opx	OX & SULPH	Other	Veins & Halos	Vein Density	Comments
				Rank	Rank	Rank	Rank	(%)	(%)			
-0-	1		1 1	(2) 4 serp 0 talc Ø clay	0	0	0 talc 4					
-10-	2		0 0	(2) serp 4	(0)	(0)	0 talc 4					
-20-	3		1 1	(3) serp 4 talc 0	0 chl 4	0	—			ø round crack oli→ trem chl		
-30-	4		1 1	(2) serp 3 clay 1 py 0	0	0	0 — serp 4					
	5		2 2	(2) serp 4	(3) 2nd Pl prch 2 chl 1	(2) Amp 4	0 talc 4	-				
-40-	6		2 2	(3) serp 4 talc 0	(1) 2nd Pl 3 chl 1	0 -						poorly developed corona structures
-50-	7		1 1	(3) serp 4 talc 0	prch 3 zeo 1 (0)	0 Amp 4	0 talc 4					Amphibole fibrous after cpx
-60-												
-70-	8		1 1	(4) chl 2 Act 2 corona	0	0 Amph 4	—	py? 0				corona structures
-80-	9		1 1	—	0	(2) Amp 4	0					
	10		2 2	4 serp 4 py 0	(1) 2nd pl 4	(2) Amp 4	0					mesh texture after Ol
	11		2 2	4) talc 4	(3) chl 2 2nd pl 2	—	—					Brecciated gabbro
-90-	12		2 2	4 talc 4	1 2nd 3 chl 1	—	0 serp 4					
	13		1 1	4 serp 2 Amp 2	(0) chl 4							
	14		0 0	2 serp 4	0	0	—	py 0				
-100-	15		0 0	4) serp 2 talc	0 chl 4	0 -	—					
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY: Vein log done 6-1-2013 (Marie) D< OK

DONE

X345 ESS DEEP 06.01.2013 Kathi **345-U1415J-8R-3-A : SHLF 66251**

MetPet

Depth (cm)	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments
0 – 10	1		2 : 2	(2) serp 4, py 0	(1) chl 3, 2nd pl 1	–	–	–	–	1		heterogeneous degree of ol. alteration halo (ol altered to tc) — TS?
	2		2 : 2	"	"	–	–	–	–	1		higher degree of alteration towards vein
10	3		2 : 2	(5) tc "	"	(1) amph	–	Py 0	–	–	–	large Cpx-oikocryst
20	4		2 : 2	(4) tc, serp 2, clay 0	(2) chl 3, 2nd pl 1, preh 1	"	–	Py 0	–	–	–	Picture (B/W) localized deformation along talc rich zone next to Cpx-oikocryst — TS
	5		2 : 2	"	(1) chl 3, 2nd pl 1	"	–	Py 0	–	–	–	" — TS?
30 – 40	6		1 : 1	(3) serp 3, tc 1, clay 1, Py 0	(0) chl 2, 2nd pl 2	(0) amph	–	Py 0	–	–	–	band of ol, in this different degrees of ol. alteration — TS
40 – 60	7		bg 85; (1) 1; halo 10; 2 : 2	(4) tc; –	" ; (3) 2nd pl 2, preh 2	" ; (1) amph	–	–	–	3	–	
60 – 75	8		bg 85; (1) 1; halo 10; 2 : 2	(4) tc'; (4) tc'	(0) chl 2, 2nd pl 2; (3) 2nd pl 2, preh 2	(3) amph; (1) amph	–	–	–	3		
80 – 90	9		2 : 2	(3) serp 3, clay 0, Py 0	(1) 2nd pl 2, chl 2	(0) amph	–	–	–	–	–	large Cpx-oikocrysts
95 – 100	10		bg 90; (1) 1; halo 10 3	(0) tc; –	(1) 2nd pl, chl; (4) preh	(1) amph; (2) amph	–	–	–	1	–	vugs, cataclasite?
100 – 105	11		2 : 2	(1) tc	(3) 2nd pl 2, chl 2	(2) amph	–	–	–	–	–	
110 – 120	12		1 : 1		(1) 2nd pl 2, chl 2	(1) amph	–	–	–	3	–	
125	13		2 : 2	(4) tc 2 serp 2	(2) 2nd pl, chl	(1) amph	–	–	–	–	–	
130	14		3 - 3	(5) tc 3 serp ?	(3) 2nd pl 2, preh 2	(2) amph	–	–	–	–	–	cataclastic zone
135 – 140	15		3 - 3	–	(3) preh 3, chl 1	(3) amph	–	–	–	–	–	locally highly altered

MAJOR LITHOLOGY: Vein log done 6-1-2013 (Marie) DL OK

X345 ESS DEEP 06.01.2012 Bab RW 345-U1415J-8R-2-A : SHLF 36221

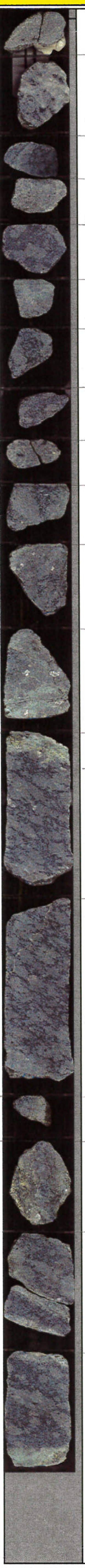
MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments
-0-												
-10-	1		1	2 serp 4 py ø	(1) 2nd plag	(2) (1) Amph 4	(2) Amp 4	0 py	–	–		serpentine in mesh text. is foliated creates ol-serp aggregates 1 x 0.2 mm. ★ TS!
-20-	2		1	(2) serp 4 py 0	0 2nd pl	0 Amp H	0 Amp 4	0 py				serp. mesh texture rarely foliated
-30-	3		0	(2) Serp 3 clay 1 py ø	0	0	(1) Serp 4	0 py				serp. in mesh texture some olivine is a 4.
	4		1	(3) Serp 3 py 0 talc 1	0	0	(0) serp 4	py 0				2 small veins
-40- Alt rank 4	5		1	(4) (2) serp 3 talc 1 (4)	0	0 tops 0 0 base	1 serp 4	0 py				oliv = 4 @ altered top; mesh = 100 % oliv mesh texture @ 50 % mesh = 100 % halo alteration @ base of = 4
-50- Alt	6		0	(3) Serp 4	0	0	–	0 py				oliv = (1) in middle of sample.
-60-	7		1	Serp 3 (2) talc 2	0 chl 4)	(0) –	(0) Serp (1)	0	–	2 halos		Serp alters all oliv in halos
-70-												
-80-	8		0	(2) Serp ★ talc 2	0 chl 4	0		p.y ø				serp forms mesh texture, not foliated
-90-												
-100-												
-110-	9		0	3 Serp 2 py 0 talc 2	0	0	–	py 0		halos		halos contain talc interiors + sept. mesh after olivine
-120-	10		1	3 Serp 2 talc 2	0	0		py 0				
-130-	11		0	3 serp 2 talc 2	0	0						talc replaces cores of mesh text. oliv.
	12		1	(4) talc 2 serp 2	0	0						
-140-	13		1	(3) Serp 3 talc 2	0	0		py 0				
-150-												

MAJOR LITHOLOGY: vein log done 6-1-2013 (Hasie) DL ox

logged by Tsuchi (06.01.2013)
Done 07.01.2013 Kathi

X345 … ESS DEEP | **345-U1415J-8R-1-A : SHLF …66191**

MetPet



Depth	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments
-0-	1		1	(4) trem 0, serp. 3, talc 1 then clay 0	(1) secphy 2, prehnite 2, chlorite 0	(2) 4 pale green amph	—	—		1		coronas; plagioclase alteration high near vein
-10-	2		2	(4) srp 3, tlc 1, py 0, tr 0	(1) prh 3, zeo 1, chl 0	(3) 4 gr Am	—	—	—	—		variable olivine alteration
	3		1	(2) serp 4, trem 0, sulfide 0, clay 0	(0) 4 ct. 1 green amph	(1) 4 pale green	—	0 pyrite	—	—		—
-20-	4		1	(4) tr 0, srp 0, clay 3, tlc 1	(1) chl 0, zeo 2, prh 2, 2nd pl 0	(2) gAm 4	—	—	—	2		a vein is branching
	5		0	(1) srp 3, clay 2, py 0	(0) chl 4	OgAm 4	—	—	—	—		oliv highly rep. altered around cpx oikocryst; this section interesting; some very white fpar
-30-	6		3	(4) tlc 4, py 0	(3) prh 2, 2nd pl 2, chl 0	(3) pale Am 4	—	—	—	—		oliv replaced by talc, at poikilitic tx in pl oiko?
	7		2	(2) srp 2, tlc 2, clay 2	(1) prh 2, 2nd pl 2, chl 0	(1) pale Am 4	—	py 0	—	2	—	gradational change of oliv. alteration degree.
-40-	8		1	(2) tlc 1, srp 2, clay 2, py 0	(0) prh 2, chl 2	(1) pale Am 4	—	—	—	1		high alt near vein
	9		1	(4) srp 2, clay 2, py 0	(0) prh 2, 2nd pl 2	(1) pale Am 4	—	py 0	—	1		
-50-	10		1	(3) srp 2, clay 2, tlc 1, py 0	(0) prh 1, chl 3	(1) pale Am 4	—	py 0	—	1		high alt of pl around cpx oikocryst
	11		1	(4) srp 1, tlc 3, clay 1, py 0	(0) prh 2, chl 1, 2nd pl 1	(1) pale Am 4	—	py 0	—	1		variable alt. oliv.; highly alt near cpx oiko.
-60- -70-	12		2	(4) tlc 3, clay 1, srp 1, py 0	(1) prh 2, 2nd pl 2, chl 1	(2) gAm 4	—	py 0	—	4		highly altered around veins.
-80-	13		1	(3) tlc 2, clay 2, srp 2, py 0	(1) chl 2, 2nd pl 2	(1) pale Am 4	—	py 0	—	2	—	(halo → vein log)
-90- -100-	14		1	(2) tlc 3, srp 2, clay 1, py 0	(0) chl 4	(1) pale Am 4	—	py 0	—	—		variable of alt.
-110-	15		2	(3) clay 2, srp 2, tlc 2, py 0	(1) prh 2, 2nd pl 2	(1) pale Am 4	—	—	—	1		high alt along a branching vein
-120-	16		3	(3) py 0, clay 2, srp 2, tlc 2	(3) prh 2, 2nd pl 2	(2) pale Am 4	—	—	—	3		high alt along veins
-130-	17		1	(2) tlc 2, srp 2, clay 2, py 0	(1) prh 2, 2nd pl 2, chl 0	(1) pale Am 4	—	py 0	—	2		high alt along vein
-140- -150-	18		1	(2) tlc 2, srp 2, clay 1, py 0	(0) prh 2, 2nd pl 2	(1) pale Am 4	—	py 0	—	2		high alt. along vein; variable alt ol.

Comments key: rank 0 <10%; 1 10–30%; 2 30–60%; 3 60–90%; 4 >90%

Margin notes: to be requested; close up photo; TS interest; c.u. photo; c.u. photo; c.u. pl; TS; TS; CU photo

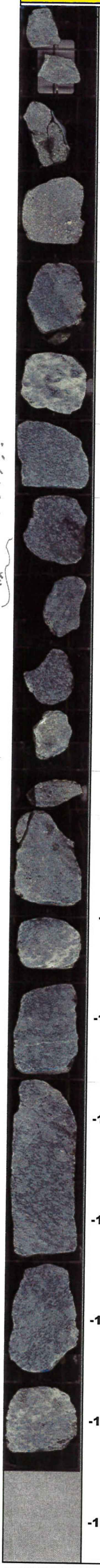
MAJOR LITHOLOGY: vein log done 5-1-2013 (Marie)

DC OK

X34[illegible] HESS DEEP NEM (entered) Jan 5, 2013

345-U1415J-7G-1-A : SHLF [illegible]65371

fix in curation . . .



MetPet (cm)	Piece #	SAMPLES	Alt. Intensity (rank & %)	Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
-0-	1		2 2	④ serp 1, tc 3, clay 2	⓪ 2nd pl 4	② amph 4	② amph 4	–	–	1	–	only 1 Ol grain
	2		0 0	① serp 4, talc 0	0 preh 3, chl 2	① Amp 4	–	–	–			plag alt. only on margin; open crack w/ euhedral xls H>6 (a22)
-10-	3		2 2	–	② 2nd pl 2, preh 1, chl 3	③ amph 4	③ tc 2, amph 2	Py 0	–	–	–	Opx altered to [illegible] tc and green amph
-20-	4		0 0	–	0 chl 4	⓪ Amp 4	④ talc 4	–	–	–		Single alteration spot of talc rimmed by chl
	5a		troctolite 2 2	③ serp 1, tc 3, clay 1, Py 0	① 2nd pl 2, chl 2	–	–	Py 0	–	–	–	contact between gabbro and troctolite; troctolite;
-30-	5 / 5b		gabbro 2 2	–	"	② amph 4, clay 0	–	–	–	1	–	contact between gabbro and troctolite; gabbro;
	6		2 2	④ tc 3, clay 0, serp 0, Py 1	② 2nd pl 2, preh 2, chl 1	② amph 4	–	–	–	–	–	Bits of pyrite in Ol replacement; heterogeneous [illegible]
-40-	7		0 0	② serp mesh	0 chl	0 –	–	–	–			plag altered to chl near old oliv
-50-	8		3 3	③ serp 2, tc 1, clay 1	① 2nd pl 4	③ amph 3, chl 1	–	Py 0	–	–	–	Plag highly fractured
-60-	9		0 0	② 4 serp	0 chl 4	0	–					plag replaced by chl adjacent to oliv
	10		2 2	⓪ serp 4, Py 0	① 2nd pl 4	② amph 4	–	Py 0	–	–	–	Plag highly fractured
-70-	11		2 2	④ serp 2, clay 2, Am 0	② preh 4, chl 0	0 preh 4, Amp 0		Py				Veins with large halo
-80-	12		1 1	④ serp 2, clay 2, Py 0	① 2nd pl 3, chl/clay	③ amph 4	③ amph 4	–	–	–	–	
	13		2 2	② serp 2, tc 1, clay 1	① 2nd pl 2, chl 2	③ amph	① tc 2, chl 1, amph 1	Py 0	–	2	–	Opx replaced [illegible] talc surrounded by chl, but also fibers of talc and green amph [illegible]
-90-	14a		troct 2	③ serp 1, Py 0, tc 2, clay 1	① 2nd pl 2, chl 2	–	–	Py 0				TS (Tochi); contact between troctolite and gabbro: troctolite
	14 / 14b		gabbro 2		③ 1	② amph 4	–	–	–	2	–	contact between troctolite and gabbro: gabbro. Plag more altered close to veins
-100-	15		1 1	② serp 2, tc 2, clay 1, Py 1	① 2nd pl 1, chl 3	① amph 4	② amph 4	Py 0	–	2	–	
-110-	16		1 1	③ serp 2, clay 3	⓪ 2nd pl	⓪ amph 4	⓪ amph 4	Py 0	–	–		large phenocrysts of opx, cpx relatively unaltered
-120-												
-130-	17		1 1	③ serp 2, tc 2, clay 1, Py 0	① 2nd pl 1, chl 3	① amph 4		Py 0	–	–	–	Some phenocrysts of [illegible] fractured and more altered along fractures
-140-	18		2 2	④ serp 2, tc 2, clay 1, Py 0	② 2nd pl 4, preh 0, zeo 0	① amph 4	③ amph 2, tc 2	Py 0	–	3	–	
-150-												

MAJOR LITHOLOGY: Vein log done 5-1-2013 (Marie) DC OK

X34[illegible]ESS DEEP — Jan 5, 2013 NEI — 345-U1415J-7G-2-A : SHLF [illegible]65401

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
-0-	1		2 2	② Serp 3 Py 1	① Prch 3 Chl 1	② Amph 3 chl 1		Py 0	—	—		Serpentine mesh texture after Ol, Pyrite rims Ol
-10-	2		2 2	③ serp 3 clay 1 Py 0	① Chl 0 prch 2 2nd Plag 2	② amph 4	⓪ amph 4	Py 0 ccp 0	Pink phase Zoisite? after plag	—		radial fractures in plag ner Ol — Thin Section?
-20-	3		1 1	② Py 0 Serp 3 Clay 1 tc 0	⓪ Chl 0 pce 2 2nd plag 2	① amph 4	① amph 4			1		Plag laths in oikocrysts are fresh
-30-	4		3 3	④ serp 3 clay 1 tc 1	① prh 0 2nd pl 1 chl 3	③ amph 3 chl 1	④ amph 4	cpo 0 Py 0		—		Olivine coronas, more alteration in cataklasite zone
	5		3 3	④ Serp 3 clay 1 tc 0	② chl 2pl 2 prch	③ amph 4		Py 0				Intensely altered mafic minerals in Cataclasite zone — T.S. Cataclasite
-40-	6		1 1	② Serp 4 Py 0 Mt 0	① 2nd Ply 1 prch 3	⓪ amph 4	—	—	—			
-50-	7		1 1	② Serp 3 clay 1 trem 0	① chl 4 prch 0	⓪ amph 4	—	—	—			Chl. corona surrounding Ol
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY: Vein log done 5-1-2013 (Marie) DC JK

DONE

X345 ESS DEEP 05.01.2013 Kathi **345-U1415J-6G-1-A : SHLF 64901**

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol	Pl	Cpx	Opx	OX & SULPH	Other	Veins & Halos	Vein Density	Comments
				Rank	Rank	Rank	Rank	(%)	(%)			Ranks: 0 = <10% 1 = 10 - 30% 2 = 30 - 60% 3 = 60 - 90% 4 = >90%
-0-	1		1 : 1	(2) serp 4 tc 0 Py 0	(0) chl 4	(1) amph 4	-	Py 0	–	1		Plag more altered close to the vein
	2		2 : 2	"	(1) 2nd Pl 4	(2) amph 4	-	Py 0	–	–	–	Small piece
-10-	3		3 : 3	(3) serp 3 tc 1 Py 0 clay 0	(3) 2nd Pl 4	(2) amph 4	–	Py 0	–	1		very heterogenous degree of Pl alteration (very fresh (rank 0) in Cpx, but intense in Pl)
	4		3 : 3	"	(2) 2nd Pl 3 chl 1	"	–	Py 0	–	1	–	"
-20-	5		2 : 2	(3) serp 2 tc 2 clay 0	(0) 2nd Pl 3 chl 1	(2) amph 4	–	Py 0	–	2	–	
	6		4) : 4	–	(4) 2nd Pl & Preh 4	–	–	–	–	–	–	cataclasite
	7		(4) (4)	–	(3) Preh 2 2nd Pl Preh	(1) amph 3	chl 1	–	–	2		vugs
-30-	8		2 : 2	(4) serp 2 tc 2 Py 1 clay 0	(1) Preh 2nd Pl	(2) amph 4	–	Py	–	1	–	modal abundance of alteration phases after Ol very different in different grains
	9		2 : 2	(4) serp 2 tc 2 Py 0	(1) 2nd Pl 1 chl 3	(2) amph 4	–	–	–	1	–	
-40-	10		2 : 2	(4) serp 2 Py 0 tc 1 clay 1	(1) 2nd Pl	(2) amph 4	–	–	–	–	–	
	11		0 : 0	4) serp 3 clay 1	0 –	0 –		py 0				serp mesh texture
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY: Vein log done 4-1-2013 (Marie) DC OX

X345 ‿ESS DEEP 05.01.2013 Kathi

Done

345-U1415J-5R-2-A : SHLF ‿64241

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%)
-0- to -10-	1		1 1	(1) serp 4, tc 0, Py 0	(0) 2nd pp 4, Prehn 0, Chl 0	(1) amph 4	(3) amph 3, clay 1	Py 0	–	2	–	Ol mesh texture; Plag mainly [illegible] altered
-30-	2		"	"	"	"	"	"	–	0	0	"
-40- to -50-	3		1 1	(2) serp 4, tc 0, Py 0, clay 0	(0) 2nd pp 4, Prehn 0, Chl 0	(1) amph	(3) amph, clay 1	Py 0	–	2	–	more [illegible] a little more altered than pieces 1 and 2

-0- -10- -20- -30- -40- -50- -60- -70- -80- -90- -100- -110- -120- -130- -140- -150-

MAJOR LITHOLOGY: Vein log done 4-1-2013 (Maria)

DC OK

X345_ESS DEEP TN (measure center) Jan 5, 2013 **345-U1415J-5R-1-A : SHLF_54211**

MetPet

Depth scale: -0- -10- -20- -30- -40- -50- -60- -70- -80- -90- -100- -110- -120- -130- -140- -150-

Piece #	SAMPLES	Alt. Intensity (rank & %)	Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments
1		Ø	—	⓪ chl 4	② Amp 4 clay 0	④ Am 4 tlc 0 clay Ø	py Ø		1		py + chl in crack chl fills fractures in plag. vuggy fracture Possible opx Amp 4 - medium veins
2		1	② 4/Serp 0/py	Ø 4/2nd pl 0 chl	① 4/Amp	—	—	—	—		olivine with mesh texture
3		1	② Srp 4	⓪ 2nd pl 4	⓪ Am 4	—	py 0	—	1		
4		1	④ Srp 3 tlc 1 Am 0 py 0	⓪ 2nd pl 2 Prh 2 chl 1	⓪ Am 4	② Am 2 Tlc 2	py 0	—	~~2~~ 3		highly altered along veins corona around
5		1	④ Srp 3 clay 2 py 0	⓪ 2nd pl 2 prh 2 chl 0	⓪ Am 4	—	—	—	2		cataclastic vein
6		2	—	⓪ 2nd pl 2 prh 2	② Am 4	—	—	—	3		
7		1	② srp 3 tlc 1 Am 0 py 0	⓪ 2nd pl 2 prh 2 chl 0	⓪ Am 4	—	—	—	—		
8		1	② Srp 2 clay 2 py 0	⓪ chl 0 2nd pl 4	⓪ Am 4	—	py 0	—	2	—	olivine is unevenly replaced by clay.
9		1	—	⓪ 2nd pl 2 prh 2, chl 2	② Am 4	—	py 0	—	—	—	
10		1	—	⓪ 2nd pl 2 prh 2 chl 0	⓪ Am 4	—	py 0	—	2	—	some pl grains ~~show~~ alteration looks like the psd. after opx.
11	BG cata cla stic	1 2	—	⓪ 2nd pl 2 prh 2 ② 2nd pl 2 prh 1 zeo 1	⓪ Am 4 ② Am 4 clay 0	—	—	~~zeolite~~	1 2	—	clasts matrix invaded by zeolites
12		⓪	② srp 3 clay 1 Am 0 py 0	⓪ 2nd pl 2 chl 2	⓪ Am 4	—	py 0	—	1	—	ol is unevenly altered by clay
13		1	⓪ srp 3 clay 1 Am 0 py 0	⓪ chl 2 2nd pl 2	⓪ Am 4	—	py 0	—	1	—	ol is unevenly altered by clay corona is incipient.
14		1	⓪ srp 3 clay 1 py 0	⓪ 2nd pl 4	⓪ Am 4	—	py 0	—	—	—	ol is unevenly alt by clay.
15		1	② srp 2 clay 2 py 0	⓪ chl 4 Am 0 2nd pl 0	⓪ Am 4	—	py 0	—	2	—	ol is unevenly alt by clay.
16		1	④ srp 2 clay 2 py 0	⓪ 2nd pl 4	⓪ Am 4	—	py 0	—	3	—	
17		1	⓪ Srp 2 clay 2 py 0	⓪ 2nd pl 4 chl 0 Am 0	⓪ Am 4	—	—	—	2		ol is unevenly alt by clay.
18		1	⓪ srp 3 clay 2 py 0	⓪ 2nd pl chl 2 Am 2	⓪ Am 4	—	py 0	—	—		ol is unevenly alt by clay

Ranks:
0 = <10%
1 = 10 - 30%
2 = 30 - 60%
3 = 60 - 90%
4 = >90%

MAJOR LITHOLOGY: Vein log done 4-1-2013 (Marie)

DC OK

X345 ...ESS DEEP

345-U1415J-4R-1A : SHLF ...4011

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments
-0-	1		2 2	(3) Serp 2 talc 2	(1) 2 Prch. 2 Chl	(2) 4amph		Oxidize (disseminated)		6		very fresh, although cut by many veins, alt assoc. w/ cataclastic zone
-10-	2		2 2	—	(1) 2 pre 2 chl	(3) amph 4						sm. cataclastic zone
			2	(1) Serp 2 clay 2	(1) chl 3 Prch 1	(1) amph 4		Py o disseminated				heterogeneous degree of alteration
-20-			3		(3) 2nd pl 2 Prch 1 chl 1 clay 1					2 halo		large zoisite vein The whole piece appears to be vein and vein halo
-30-												
-40-												
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

Ranks:
0 = <10%
1 = 10 - 30%
2 = 30 - 60%
3 = 60 - 90%
4 = >90%

MAJOR LITHOLOGY: Vein logg done (Marie)

DL OK

Done
4.01.2013

MetPet (depth)	Piece #	SAMPLES	Alt. Intensity (rank & %)	Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%)
-0-	1		1 1	(3) tlc 0 amph 0	(0) chl 0 2nd plag	(1) amph	(1) chl 1 tlc 2	–	–	–	–	
	2		1 1	(4) srp 4 tlc 0, Py 0	(2) ... 2nd Pl 2	(1) amph 4	–	–	–	2	–	[illegible]
-10-	3		1 1	(4) srp 4 clay 0	(1) 2nd pl 4	(1) amph 4	–	Py 0	–	–	–	weathered from the outside; 1 piece has more strongly altered cpx and some altered ops (1 grain was found, altered to clay). Heterogeneous degree of alteration. Remnant ol and cpx (low clay)
	4		2 2	(3) tlc 0 serp 2 Py 0 tr 0 clay 1	(1) 2nd pl 2 prehn 1 chl 1	(2) amph	–	Py 0	–	1	–	Opx cracks texture
-20-	5		2 2	(4) srp 2 tlc 2 clay 0 tr 0	(1) 2nd pl 2 chl 0 preh 2	(3) amph 4 chl 0	–	Py 0	–	4	–	
	6		2 2	"	(1) 2nd pl 3 preh 1 chl 0	"	–	Py 0	–	2	–	
-30-	7		1 1	(1) clay 0 Py 0 serp 4 amph 0	(1) chl 2 2nd plag 2	(1) amph 4	–	Py 0	–	0	–	
	8		1 1	(1) serp 4 amph 0 Py 0	(1) 2nd plag 4 chl 0	(1) amph 4	–	Py 0	–	–	–	
-40-	9		1 1	(3) srp 3 tlc 2 amph 0 clay 0	(1) 2nd pl 4 chl 0	(1) amph 4	–	Py 0	–	1	–	
	10		1 1	(1) serp 4 Py 0 tlc 0, clay 0	(1) 2nd pl 3 chl 2	(1) amph 4		Py 0	–			
-50-	11		1 1	(2) serp 3 Py 0 tlc 1, clay 0	(1) 2nd pl 3 chl 2	(1) amph 4			–	4		
-60-	12		1 1	(3) serp 3 Py 0 clay 0 trem 0	(1) 2nd pl 3 chl 2	(2) amph 3 chl 1		Py 0	–	1		Cataclastic zone resulting in fractured minerals
	13		0 0	(1) serp 4 clay 0	(0) chl 3 2nd pl 1	(0) amph 4		Py 0		1		Pyrite disseminated, very fresh
-70-	14		1 1	(3) serp 2 Py 0 clay 2	(1) 2nd Pl 2 chl 2	(0) amph 4				1		
	15		1 1	"	"	"		"				
-80-	16		1 1	(3) serp 1 clay 3	(0) preh	(1) amph 4	(2) amp 4	Py 0				one localized zone where plag is more altered. Prehnite replacing plag near vein.
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY: vein log done (Mafic)

DL OK

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
 -0-												(logged by Maria)
-10-												
-20-												
-30-												
-40-												
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY: vein log OK + DL

done: Dec 31, 2012 NEM

changed to new [illegible] 05.01.2012 [illegible]

X345 [illegible]ESS DEEP **345-U1415I-5G-1-A : SHLF [illegible]2511**

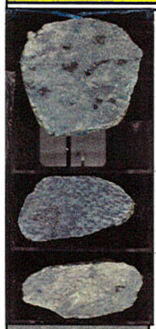
MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol	Pl	Cpx	Opx	OX & SULPH	Other	Veins & Halos	Vein Density	Comments
				Rank	Rank	Rank	Rank	(%)	(%)			Ranks: 0 = <10% 1 = 10 - 30% 2 = 30 - 60% 3 = 60 - 90% 4 = >90% cataclastic texture:
-0- 	1		2, 2	(4) serp 3 trem 1 tc 0 py 0	(1) 2nd pl 1 prehn 3 chl 1	(2) amph 4		Py 0	–	–	–	3 types of plag: (a) very fresh in Cpx, (b) slightly altered to 2nd pl; (c) strongly altered to prehnite with [illegible]; different degrees of px alteration, some completely altered to amph, others still [illegible] px
-10-	2		4, 4			(4) amph 4						vuggy texture, ~~completely replaced~~, maybe vein filling? ol altered to mesh
	3		bg 2 70 (2) halo 3 30	(3) serp 2 Py 0 tc 1 clay 1 "	(2) 2nd pl (3) chl 0 2nd pl 2 Pr 2	(1) amph 4 "						difference between bg and halo only [illegible] stronger alteration of pl in halo
-20-	4		2, 2	(4) clay Py serp	(1) 2nd pl 2 Prehn 1 chl 0	(2) amph 4		Py 0				ol altered to mesh texture TS something that looks like pyrite mesh texture in reaction rim around ol
-30-												
-40-												
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

X345 ESS DEEP 31.12.2019 Kelli

changed to new Desc Logik 05.01.2020 Kelli

345-U1415I-4R-2-A : SHLF 61961



MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol	Pl	Cpx	Opx	OX & SULPH	Other	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%)
				Rank	Rank	Rank	Rank	(%)	(%)			
-0-	1		3 / 1	(4) Serp 4, talc Ø, py Ø, tr Ø	(3) 4/2nd pl 0/chl	(1) Am 4, chl Ø		py Ø	–	–	-	olivine shows corona structure; " " mesh "; Mesh center = Ø clay; 4, serp.
-10-	2		3 / 4	(3) Serp 4, trem 0, py 0	(3) 2nd pl 4, chl 0, Preh 0	(3) Am 4, chl 0		sulf Ø				oikocryst and mesh texture; oliv. w/ corona texture w/chl outer rim
	3		3 / 3	(4) Srp 3, chl 4	(2) 2nd pl 4, chl 0	(2) Amph 4		–	–	2		ovoid PL in cataclastic vein; with concentric overgrowths of vein material.
-20-												
-30-												
-40-												
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

Done 30.12.2012 Kathi

changed to new Desk logic 05.01.2013 Kathi

X345 HESS DEEP **345-U1415I-4R-1-A : SHLF 01931**

MetPet

Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%

Piece #	SAMPLES	Alt. Intensity (rank & %)	Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments
1		2 2	—	(2) 2nd Pl 4 Preh 0	(2) amph 4		—	—	3		patchy alteration, Plag fresher when in Cpx
2		3 3	(3) Serp 4 Py 0	(3) 2nd plg 4	(2) amph. 4		Py 0		4		Igneous layering: gabbro and troctolite
3		2	Serp 4	2nd Pl 4	amph 4		Py 0	—	3		Ol mesh texture [illegible]
		2	(4) clay 4	2nd Pl 4	amph 4		—				Ol mesh [illegible]
4		4 4	(4) talc 3 serp 1	(4) 2nd plag 4 chl 0	(2) amph. 4		—		—		
5		2 2	(4) Serp 4 talc 0 Py 0	(1) 2nd Pl 4	(3) Amp 4	—	0				
6		4 4	(2) Srp 3 Py 0 clay 1	(1) 2nd Pl 4	(1) amph 4		Py 0	—	—	—	
7		2 2	(4) Serp 4	(1) 2nd Pl 4	(4) gn Am 4		0				
8A		1 1	(2) Serp 4 with Py 0	(0) 2nd Pl 4 Py 0	(1) gn Amph	(1) amph					lacks corona texture olivine with mesh text. many small veins
8B		2 2	2 Serp mesh 4 Py 0	1 2nd Pl 4 Py 0	3 gn Amph						
8C		2 2	(4) Serp 4 Py 0 talc 0	(2) 2nd plag 4	(3) amph 4		0 Py		1		minor rank (0) disseminated Pyrite. Olivine replaced by serp and lacks corona texture.
9		3 3	(4) serp 4 Py 0 tc 0	(2) 2nd Pl	(3) amph 4		Py 0	—	—	—	Ol altered to mesh texture
10		3 3	(4) Serp 3 Py 1	(2) 2nd plag 3 Chl 1 Clay 0	(3) amph 4				—		
11		4 4	(4) Serp 4	(2) 2nd plag 4	(4) amph 4						
12		2 2	~~(4) Ac 3 trem/chl 0 Py 0~~	(1) 2nd Plag 2 Preh 2 Py 0	(3) amph	(4) amph 3 chl 1 tc 0	Py 0 Ox 0	—	3		

MAJOR LITHOLOGY:

DONE

changed to new DESC logic 05.01.2013 Kathi

30.12.2012 Kathi

X345-HESS DEEP **345-U1415I-3R-4-A : SHLF-61731**

MetPet (cm)	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
-0- to -10-			3 3									Well sorted pebble sized gravel. Alteration appears similar to other units in this core section. Amphibole and secondary plagioclase are present, modal comp. varies from piece to piece.
	2		2 2	(4) ~~serp 4~~ ~~Py 0~~ ~~Prehn 0~~	(3) 2nd plg 4 chl 0	(2) amph 4	(4) tc 3 cl 1	Py 0		—	—	
-20-	3		3 3		"	"	"	"				Similar to piece #1
-30-	4		3 3	(4) Serp 2 talc 1 Py 0 amph 0	(3) chl 0 2nd plag 3 preh 1	(2) amph 4 ~~serp~~ clay 0		0 Py		—	—	Py associated w/ relict ol.
-40- to -150-												

MAJOR LITHOLOGY:

DONE

X345 HESS DEEP 30.12.2012 2014

345-U1415I-3R-3-A : SHLF 61701

MetPet (depth, cm)	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%)
-0-												granules at base of por at 153 cm
-70-			2	4) Serp 4 clay Ø	2) 4 2nd plag Ø chl	1) Amph 4						
-140-			3	4 Serp 4 MH Ø	3 2nd Pl 4 chl Ø	2) gn (4) Amph						granules @ base

Depth scale: -0-, -10-, -20-, -30-, -40-, -50-, -60-, -70-, -80-, -90-, -100-, -110-, -120-, -130-, -140-, -150-

MAJOR LITHOLOGY:

DONE

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol	Pl	Cpx	Opx	OX & SULPH	Other	Veins & Halos	Vein Density	Comments
				Rank	Rank	Rank	Rank	(%)	(%)			Ranks: 0 = <10% 1 = 10 - 30% 2 = 30 - 60% 3 = 60 - 90% 4 = >90%
-0-												
-10-												
-20-			2	4) 3 Serp Slicken lines present	2) 2nd 3 Chl 1	Ø) Am Ø						
-30-												
-40-												
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-			2	4 Ser 4 clay 0	2) 2nd Pl 4 Ø / chl Ø	1 2Br Am / 2 Gr. Amph		Ø py				
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

X345. .IESS DEEP Done 20.12.2012 [initials]

345-U1415I-3R-1-A : SHLF..61641

Depth	MetPet Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
-0-												
-10-												
-20-												
-30-												
-40-												
-50-												
-60-												
-70-			2	3 {Serp 3, Talc 1, py 1}	2 {2nd Plag 4, Chl ∅}	0 - chl 4	-	0				
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-			2	3 - Serp 4	2 - 2nd pl 4, chl ∅, Preh ∅	∅ Amph 4						
-150-												

MAJOR LITHOLOGY:

X345. .ESS DEEP Changed to Downstream logic

345-U1415I-2R-1-A : SHLF. .0951

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
-0-	1		3 3	(4) Py 0 serp 2 clay 2 talc 0	(1) 2nd pl 1 chl 3	(2) amph 4	4 tc 3 amp 1	Py 0	–	1		Ol altered to green mesh. Py associated with Ol, but also disseminated
	2		2 2	(4) srp 3 talc 0 Py 0 amph 1	(1) 2nd Plag 4 0 chl	(1) amp 4		0 Py	–	2		Pyrite assoc. w/ Olivine rpl.
-10-	3		2 2	(4) amph 1 serp 3 Py 0 tc 0	(1) 2nd Plg 4 Chl 0	(1) amph 4		0 Py	–	–		
	4		2 2	(1) serp 2 tc 1 clay 1 chl 1 Py 0	(1) 2nd pl 4 chl 0	(1) amph 4		–	–	–	–	Ol altered to 2 types: (a) serp + tc (b) mesh with serp + clay and rim of chl, associated with Py
	5		3 3	(4) srp 2 Py 0 tc 2	(3) preh ~~2nd Plag~~ 3 chl 1	(3) amph 4		0 Py		2 - filled Veins		–
-20-	6		3 3	(4) Srp 4 Py 0	(4) preh ~~2nd pl 2~~ chl 2	(3) amph 4		0 Py	–	4		Cataclastic texture
	7		3 3	(4) serp 2 clay 2	(3) 2nd pl 4 chl 0	amph 2 chl 1 clay 1	(3)	Py 0	–	6		Pyx is altered to brown amph and a mixture of chl and clay, cataclastic rock
-30-	8		2 2	(4) serp 3 clay 2	(2) 2nd pl 4 chl 0	(2) amph 2 clay 2	chl 2	–	–	[illegible]	–	cataclastic rock
	9		2 2	(4) srp sc 4 Py 0	(2) 2nd pl 4 chl 0	(2) amph 4 chl 0		0 Py		6 veins		
-40-	10		2 2	(4) srp 4	(2) 2nd pl 4 chl 0	(2) amph 4 chl 0		–	–	2		
-50-	11		2 2	(4) serp 2 clay 2 chl 0	(2) 2nd pl 4 chl 0	(2) amph 4		–	–	4	–	core of Ol altered to mixture of serp and clay with rim of chl
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

X345 ESS DEEP — 345-U1415I-1R-1-A : SHLF 60781

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
-0-	1	+s	2, 2	4 Py 0 Serp 2 Talc 2	2nd Plag 4	1 amph. 4 Py 0		—	—	—	—	alteration process of olivine is visible in this piece
	2		2 2	4 Py 0 to 0 serp 0	3	0 amph 4		Py 0	—	1	—	
-10-	3		1 1	4 sap 3 to 1 Py 2	Sm Plag 2 Chl 2	0 amph 4		Py 0	—	2	—	Py associated with sept, but also disseminated
	4		0 0	2 Serp. 4 Py 0	0 2nd pl 4	0 amph 4		Py 0 Oxide 0	—	—		
-20-												
-30-												
-40-												
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

X34_ HESS DEEP   changed to new Definitions ... — ... DONE ✓

345-U1415H-1R-1-A : SHL_60371

MetPet depth (cm)	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments
-0-	1		3 3	4 serp 4 clay 0	3 zeolithe 3 [illegible] 3 clay 1 [illegible]	2 amph	–	–	zeolite 3 prehn 0	–		[illegible] texture cataclastic veins
	2		0 0	–	0	–	–	–	cement of 2nd clay	–	–	[illegible], connected by [illegible]
-10-	3		1 1	4 serp 3 clay 1	0 2nd pl 4	1 [illegible] 4	–	Py 0	–			
-20-	4		0 0	–	0 2nd pl 4	0 amph 1	–	Py 0	–	–		Cpx is going to different types of amph (brown and green)
	5											too small
-30-	6		1 1	3 serp 4 tc chl 0	2 2nd pl 1	1 amph 4 chl 0	–	Py 0	–	–		heterogeneous degree of alteration
	7		2 2	–	2 2nd plag 3 chl 1	2 amph 4 clay 0	4 tc 3 clay 1	Py 0		1		Pyx is altered to 2 types of amph (green and brown) altered cataclastic seam
-40-	8		0 0	–	0- 2nd plag 4 + amph	4 Amph 4 clay 0		–	–	—	–	Vug with zeolite in WM. also clay minerals [illegible]
	9		1 1	2 serp 4 clay 0 Mag 0	0 2nd pl 1 chl 3	1 amph	–	Py 0	–	–		heterogeneous degree of alteration
-50-	10		0 0	2 trem 0 serp 3 Mt 0 sulfide 0	0 Ct 4 zeolite prehn 0	0 Amph 4	–	–	–	1 thin smectite.	–	serpentinization is concentrated in oriented domains ~ 8mm thick and spaced ~ 2cm. No preferred [illegible] observed weakly developed [illegible] textures
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%

MAJOR LITHOLOGY: Veins OK + DL

X34 HESS DEEP — 345-U1415G-1R-1-A : SHL 58791

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
-0-	1		1 1				—		—	—	—	
	2		1 1				—		—	—	—	too small
-10-	3		2 2				—		—	2	—	2 chlorite filled veins
	4a		2 2				—		—	—	—	too small
-20-	5		2 2	—			—	—		—	—	
-30-												
	4b		1 1	—	0	1	—	Py 0 Ox	—	—	—	lighter piece, fine grained, very fresh, Plag and Cpx, clear data (Ox?)
-40-												
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY: Veins OX + DC

X34 HESS DEEP

345-U1415E-2R-1-A : SHL 558491

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%)
-0-	1		1 1	(4) Amph 0	2nd Pl 4	Amph 4	—	—	—	1	—	alteration in localized around vein. Milky appearance of Pl is possibly caused by crack.
	2		4 4	—	4 Pl 4	4 Amph 3 Talc 1		—	preh 0	1	—	all the pieces may be fragments of a large vein; surface might be weathered to clay
-10-	3		3 3	—	1 2nd Pl 4	3 Amph 4	—	—	—	—	—	Pl could be secondary origin (crystallized from fluid)
	4		1 1	—	1 2nd 4	4 Amph 4	—	—	—	—	—	
	5		3 3	4 Serp 4 clay 0	1 2nd Pl 3 Preh 1	4 Amph 4 clay 0	—	—	—	2	—	olivine and cpx are highly altered whereas pl is relatively fresh.
-20-	6		1 1	—	0 2nd Pl 4	4 Amph 4	—	—	—	—	—	milky appearance in probably caused by cracks of Pl
	7		1 1 / 4 2	1 Srp 4 tlc 0 clay 0	1 2nd Pl 3 chl 2	3 Amp 4	—	PY 0	—	—	—	oliv. relatively fresh. but some grains completely altered almost to tlc srp or
-30-	OTHR		0 0	—	0 2nd 4 chl 0	0 Amph 4	—	—	—	1	—	micro-cracks in pl cause milky appearance

Comments (margin notes): ol. cpx alt complete; pl alt variable. difficult to see because small pieces. not cut. modal comp. different piece by piece

Depth scale: -0- -10- -20- -30- -40- -50- -60- -70- -80- -90- -100- -110- -120- -130- -140- -150-

MAJOR LITHOLOGY: vein OX + DL

DONE and in DeskLogic
changed to plenum 22.12.2012
changed to New Desk Logic 02.01.2013 Kadl

X34_ HESS DEEP | **345-U1415E-1R-1-A : SHL_558241**

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%)
-0- to -10-	1		Ø Ø / 1 1	④ srp 2, 4 clay 2, Am 0	⓪ 2nd plag 4	1 amph 4	–	–	–	2	–	lg Manganese crust on the outside; ol intensely altered to clay along vein. In contrast, pl is fresh.
-10- to -20-	2		2 2 / 4 4	④ srp 2, clay 2, Py 0	⓪ 2nd plag 4	2 amph 4, clay 0	–	Py 0	–	⓪	–	cpx altered to 2 different types of amph (dark and brown), manganese crust on the outside; ol is completely decomposed, whereas pl is fresh.
-20- to -30-	3		1 1 / Ø Ø	④ srp 4, ##, Py 0	⓪ 2nd plg 4	Ø 1 amph 4	–	Py 0	–	3	–	"
-30- to -40-	4		3 3	~~3~~ 4 tc 2, serp 2, clay 0, mag 0, py 0	1 2nd plag 4, chl 0, Prh 0	4 amph 4	–	Py 0		1		TS to see if plag is altered to ... ; strongly serpentinized; oriented mesh texture; ~~manganese crust on the outside~~; clay after ol; brown & red
-40- to -50-	5		1 1	–	⓪ 2nd pl 4	1 amph 4	⓪	Py 0	–	2	–	lg pyx surrounded by ~~dark~~ pale amph; plag is fresher than mafic minerals, much; vein shows no intense halo.
-50- to -60-	6		0 0	–	⓪ 2nd pl 4	1 amph 4	–	Py 0	–	1	–	lg thin alteration rims around pyx; intense halo around vein is invisible; ~~Alt. col.: dark grey~~
-60-	7		3 3	–	2 2nd plag 4	3+ amph 4	–	Py 0	–	–	–	lg patchy alteration, milky feldspar, pale green amph; Alt. col.: pale green
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY: veins OK +DL

X 5: HESS DEEP

147-U894G-2R-3-A : S. 4527981

DONE?

Depth	Piece #	SAMPLES	Alt. Intensity (rank)	Ol Mode (%)	Pl Mode (%)	Pyx (cpx) Mode (%)	Opx Mode (%)	OX & SULPH Mode (%)	Other Mode (%)	Veins & Halos	Vein Density	Comments
			± %	[rank]	[rank]	[rank]	[rank]	[rank]	[rank]			Ranks: 0 <10%, 1 10-30%, 2 30-60%, 3 60-90%, 4 >90%
-0-	1		50% 2	—	2; 2nd plag 4; chl 0	1 amph (brown) 2; amph (black) 2		Py 0		—	—	heterogeneous degree of alt. ↳ 2 distinguish zones
	2		70% 3	—	3; 2nd plag 4; chl 0	1 amph (brown) 1; amph (black) 3		Ox 0	—	1		
-10-	3		50% 2	—	2; 2nd plag 4; chl 0	3 amph (brown) 1; amph (black) 3		Py 0	—	2 amph; 1 ep, amph		halo →
			20% 1	—	0; 2nd plag 4	1 amph (black) 2; amph (brown) 2		Py 0	—	—		background
-20-	4		50% 2	—	3; 2nd plag 4; chl 0	2 amph (black) 3; amph (brown) 1		Py 0	clay 0	3 amph; 1 clay		heterogeneous degree of alteration maybe due to vein?
-30- / -40-	5		90% 4	—	4; 2nd plag 4; chl 0	4 amph (black) 3; amph (brown) 1		Py 0	chl 1	1 zeolith (no halo)		piece is a halo out source of (halo (vein) remains) cataclastic zone
-50-	6		90% 4	—	4; 2nd plag 4; chl 0	4 amph (black) 3; amph (brown) 1		Py 0	chl 1	1 zeolith (prehnite?)		zeolite veins cuts the cataclastic zone; * see above
-60-	7		90% 4				✓		✓	2 zeolite		*↑
	8		✓	✓	✓	✓	✓	✓	✓	2 zeolithe		small piece that contains much of the cataclastic zone
-70-	9		✓	✓	✓	✓	✓	✓	✓			*↑
	10		✓	✓	✓	✓	✓	✓	✓			*↑
-80-	11		✓	✓	✓	✓	✓	✓	✓	1 zeolithe		*↑
-90-	12		✓	✓	✓	✓	✓	✓	✓	2 zeolithe		*↑
-100-	13		40% 2	—	0	1 amph (black)		Py 0	red mineral after amph	—	—	black amph replaced by red minerals, probably related to low T veins
-110-	14		40 2	—	0	1 amph (black)		Py 0	✓	1 2 (amph)		red mineral associated with amph vein
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY: veins OK + DL

Done Really Really Done delete data 345 6R-1A

Done (Kathi 26.12.)

X_5: HESS DEEP

147-U894G-8R-1-A : S_F4528341

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (0 <10, 1 10-30, 2 30-60, 3 60-90, 4 >90)
-0-			2	–	–	2 Chlorite Epidote	2 chl					Need epidote column
			1	–	–	1 Chlorite	2 chl					~~% of background intensity~~
-10-			3	–	–	3 ep>chl	5 chl					
-20- / -30- / -40-			3		2	3 Chl> Amp	2 chl					instead of background alteration abundance say "proportion" area background & alt intensity switch to rank (get rid of words) → proportions can be %
-50- / -60-			3		2 Alb	3 Chl>Am	2 chl					
-70-			3		2 Alb	3 chl>Am	2 chl					
-80- / -90-			2		3 Alb	2 chl>Am >	2					
-100-			2		2 "	3 "	2 "					
-110- / -120-			3		2 "	2 "	2 "					
			2		3 Alb	2 chl	2 chl					
-130-			2		3 Alb	2 chl >Am	2 chl					
-140-												
-150-												

MAJOR LITHOLOGY: veins ok + Dc

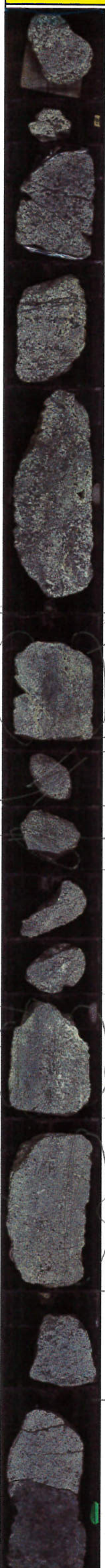
X345: H[illegible]S DEEP

147-U894G-6R-2-A : SHLF45[illegible]201

MetPet (depth)	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol (Rank)	Pl (Rank)	Cpx (Rank)	Opx (Rank)	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%, 1 = 10 - 30%, 2 = 30 - 60%, 3 = 60 - 90%, 4 = >90%)
-0-		background 30%	0 10%	—	0	0 amph (black)		Py 0	—	—	—	background refers to top 1/3 of the overall piece
-10- -20-	1	halos 70%	60% 2	—	2 2nd plag (4) chl (0)	2 black amph (4) brown amph (0)		Py 0	—	8	—	lower 2/3 of the piece are described as "halo"; 2 sets of veins with a high angle of intersection
-30-	2	background 80%	80% 3	—	3 2nd plag (4) chl (0)	3 bl. amph (?) br amph 3		Py 0	clay 0 Epidot 0	5	—	2 sets of veins with a high angle of intersection
	3	-	70% 3	—	3 2nd plag	3 black amph		Py 0	—	—	—	hard to describe because no fresh cut face
-40-	4	bg 80%	15% 1	—	1 2nd plag	1 amph		Py 0	—	—	—	
	4	halo 15%	70% 3	—	3 2nd plag	3 amph		Py 0	—	4		set of parallel veins
	4	brec 5%	95% 4	—	4 2nd plag Epidot	4 amph		—	—			at the very top of piece
-50-	5	bg 95%	3% 0	—	0	0 amph		Py 0	clay	3		patches of black amph together with reddish clay and pyrite
-60-	5	halo 5%	65% 3	—	1 2nd plag chl	3 amph		Py 0	—	2		the two different veins have different types of halos 1) rather patchy 2) not patchy, [illegible]
-70-	6	bg 95%	5% 0	—	0 2nd pe	1 amph		Py 0	clay	1		patches of black amph together with reddish clay and pyrite less than 5%
-80-	6	brec 5%	80% 3	—	4 2nd plag Epidot	3 amph		—	—	2		weakly brecciated (?)
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY: veins OK +DL

X_5: HESS DEEP **147-U894_2R-3-A : SHLF4527981**



Veins & Halos (depth)	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Mode [%]	Pl Mode [%]	Cpx Mode [%]	Opx Mode [%]	OX & SULPH (%)	Other (%)	∠ interval	width (mm)	color	texture	mineralogy	Vein Density X/10cm	Comments
-0-																— none
										?	1-2	tan	vug	Zeo	5	cataclasite w/ chl. cement zussy Zeo lined fractures
-10-											0.5-1 0.1 0.5 0.2		fine fine	chl chl Zeo chl	5	14.5 w/ catacl. frags 16 - chl - coated fracture 17 - Zeo 0.5mm } R+ stepping 17.5 chl 0.2mm } pullapart pair } oblq
-20-										horiz	1-3	DK gn	mass	chl - 70 CZO? 30 py 2	3	-27, 27.3
-30-																intensely fractured breccia 5-10 mm angular w/ chl cement.
-40-										vert vert	2-5 mm 0.5-4 mm	pale green pale tan	[illegible] vine	chl Zeol	1	-39 cuts breccia, locally foliated -43 vuggy w/ open euhedral xls
-50-										vert vert	0.5 1-3	pale tan pale tan	vuggy vug	Zeo -49 Zeo -56	4	vert (B) chlorite fault zone multiple movements brecciates early chl lining ultramylonite ↕ (A+C) cataclasite grains 0.5-2 mm chl. cement (vert) -49 vuggy -56 vuggy
-60-										vert			catacl.		<1	vert A+C catacl. } as above
										vert	0.5-1.5	tan gn	catacl	Zeo	<1	chl vein shear zone \ cataclasite ← Zeol cut all structure } as above (piece 2)
-70-										vert			catacl		<1	catacl. } as above
										vert			catacl.		<1	chl vein foliated
-80-										vert vert	3-5 .5-1.0	pale & dark grn tan	fol vein cataclasite	chl +?% py Preh ←	B <1	vertical 78-85 (A)+(C) cataclasite Zeo cement; vert cuts catacl. (B) chl vein foliated, cuts cataclasite
-90-										hor	0-.5				1	(A) cataclasite as above; foliated chl. vein. pale gn core 4 mm sheared on margins filled w/ dk gn chl 0.5 mm; -94 Pull apart 0.1-0.2 grains Zeolite ← Fault
-100-															<1	——
-110-										hor	0.5	DK gn	mass	chl	<1	-112
-120-																
-130-																
-140-																
-150-																

LITHOLOGY: Veins OK ⊥DC

1417 U895E 1R3A

MetPet

Piece #	SAMPLES	Alt. Intensity (rank) +	Replacement minerals for: Ol Mode (%) [Rank]	Pl Mode (%) [Rank]	~~Pyx~~ (Cpx) Mode (%) [Rank]	Opx Mode (%) [Rank]	OX & SULPH Mode (%) [Rank]	Other Mode (%) [Rank]	Veins & Halos	Vein Density	Comments
1		4	4 serp	—	3 serp	4 serp 4	—	clays	serp.	mesh texture	Ranks 0 <10% 1 10-25 2 25-60 3 60-90 4 >90% (bastite) Serp after Opx / magnetite in
2		4	4 serp. talc	—	4	4 bastite talc.					
3		4	4 serp	—		4 bastite					
4		4	4 serp.	—	3 serp	3 bastite	<5% rare magnetite		in pc. C, D E, talc (tremolite?) Vein at least 1cm. Oxide aggregate concentration on vein margin	1 vein	Vein Contact pervasive (not sharp) oxidation of serpentine in
5		4	4 Serpentine	—	3 serp.	3 serp (bastite)	<5% rare magnetite		1mm Serp.		
6		4	4 serp.	—	3 serp	tr	tr				
7											Contact blurs pod at gabbro
8		3	4	1-2 ndary plag + Chlorite	—	—	5% Mt		—	—	
9		3	4	1-2	—	—	5% Mt		—	—	—
10		3	—	1	3 Amph						Bdy corona structure
10		2	4	1	3 chlorite	—					
		2	4	1	—						corona
		2	4 chl + tc Act	1 chl							corona

-0- -10- -20- -30- -40- -50- -60- -70- -80- -90- -100- -110- -120- -130- -140- -150-

talc

MAJOR LITHOLOGY: veins OK + DL

MetPet	Piece #	SAMPLES	Alt. Intensity (rank)	Replacement minerals for: Ol Mode (%)	Pl Mode (%)	Pyx (cpx) Mode (%)	Opx Mode (%)	OX & SULPH Mode (%)	Other Mode (%)	Veins & Halos	Vein Density	Comments
												147-U894G-6R-1-A
-0-									1	—		
-10-									2	albitized halo chl		1mm vuggy core
									3	—		pr on Ab on Act ill cataclasite
-20-												-15.5 chl -16.5 chl -21.5 - chl:80/Alb:20 -22 chl:80/Ep:20
-30-			opening						4	1mm Albitized Alb 2mm		-31.5 - chl w/open crack -32.5->38 - chl - 1mm - 35 1/4 mm chl branching -38 -2mm chl
-40-												
-50-									5			-47 chl branching fracture fill -49 " -52 1/4-1/2 m² " " -57.5 chl coat on fracture } 2mm albitized
-60-												-62 chl w/vuggy zeolite
-70-									6			-65 chl -68 - chl cemented cataclasite 1 m² branching
-80-									7			-72 - chlorite coated fracture -72.5 - 0.5 m² chl 72.5 - 74.5 " 77 chl 0.5 m²
-90-									8			-86 0.5m² chl 90.5 1/2 m²
-100-												-99 - 0-1 m² chl 90, Ab 10, tr. Py, cPy
-110-									9	—		109-114 chl
									10			-114 chl - 0.5-2.0 m² -114-122 - 1/4-1/2 m² chl - branching
-120-												
-130-									11	—		—
									12			-135 chl 60, Ep 40
-140-												136 fracture coated chl 95, py 5
-150-												

MAJOR LITHOLOGY: vein ok +DC

X__.5: HESS DEEP

147-U894G-8R-1-A : S__F4528341

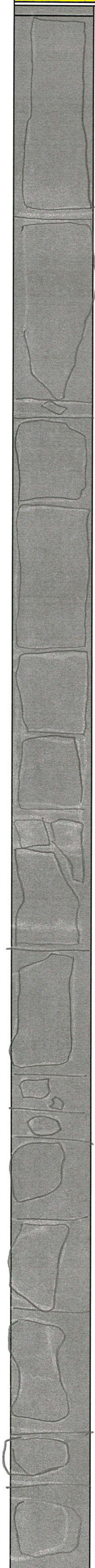
MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10%; 1 = 10 - 30%; 2 = 30 - 60%; 3 = 60 - 90%; 4 = >90%)
 -0- -10- -20- -30- -40- -50- -60- -70- -80- -90- -100- -110- -120- -130- -140- -150-												

MAJOR LITHOLOGY: veins OK + DL

MetPet	Piece #	SAMPLES	Alt. Intensity (rank)	Replacement minerals for: Ol Mode (%)	Pl Mode (%)	Pyx (cpx) Mode (%)	Opx Mode (%)	OX & SULPH Mode (%)	Other Mode (%)	Veins & Halos	Vein Density	Comments
-0-								1mm	0.5-0.6	smectite		~~one~~ piece at inclined, branching network
								1mm avg	13.-13.1	"		
								0.2mm	13.1-13.1	"		"
								0.2	16-16	"		" stepped
-10-								0.5	18-18	"		inclined.
								0.2	21-21	"		
								0.2	23-23	"		"
								3mm	28.8-29.1	altered amphibole + ? qtz.		Large soft pseudomorphed ... inclined vein ... earlier dark clay/ct. cut ... late
-20-								2mm	29-29.2	smectite		branching network.
								1.5mm	38.5-40			cataclastic seam, green amphibole after cpx, milky plag, clay + ct in halo (variable, ~5mm)
-30-								1mm	~~41-46.5~~			
-40-								1mm	44-46.5			
									48-51			
-50-									53			
-60-									64-65			
-70-									70.5-72			
									75-85			
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY: veins OK +DC

MetPet



Depth	Piece #	SAMPLES	Alt. Intensity (rank) + %	Ol Mode (%) (rank)	Pl Mode (%) (rank)	Pyx (cpx) Mode (%) (rank)	Opx Mode (%) (rank)	OX & SULPH width Mode (%)	Other Mode (%)	Veins & Halos	Vein Density	Comments 147 U 895 E 1R3A
-0-								<1	0-1mm	slip fibre calcite		included
								2	38-40	serpentine banded		included. whole piece has unoriented mesh texture at various scales
								7	85-92	serpentine banded		included
								4	112-117	serpentine talc		
-10-								<1	261	chrysotile		X-fibre 1cm long low L
-20-												whole piece contains mesh texture
-40-								<1	410-411			CO_3 infilled slip fibre L>3cm
								<1	410-411			⊥ CO_3 L1cm vein massive.
								<1	455			CO_3 L1cm massive
-50-								4mm	450-471			crossfibre talc vein lies at internal core surface. Focusing array of <1mm CO_3 veins, avg spacing 2.5mm L~3cm
								<1	480-490			slip fibre vein in edge of core chrysotile.
-60-								>1cm	640-895			slip fibre composite talc vein vertical on edge of core. isotropic marginal zone, may contain some tremolite. Some dark serpentine bits and possesses <1mm CO_3 veins spacing ~2.5mm.
-70-								<1mm	640-895	array.		
-80-								<1mm	830			oblique carbonate + tc vein.
								2mm	935-937	} ses		composite serp - tc vein oblique, part of mesh texture
								7mm	940-992			
-90-								<1mm	930-1040	CO_3 + serp.		cross fibre., vertical
								<1mm	1300	serpentine		massive
-100-								<1mm.	1310			
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

MetPet	Piece #	SAMPLES	Alt. Intensity (rank)	Replacement minerals for: Ol Mode (%)	Pl Mode (%)	Pyx (cpx) Mode (%)	Opx Mode (%)	OX & SULPH Mode (%)	Other Mode (%)	Veins & Halos	Vein Density	Comments
-0-												
-10-												
-20-												
-30-												
-40-												
-50-												
-60-												
-70-												
-80-												
-90-												
-100-												
-110-												
-120-												
-130-												
-140-												
-150-												

MAJOR LITHOLOGY:

MetPet	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Rank	Pl Rank	Cpx Rank	Opx Rank	OX & SULPH (%)	Other (%)	Veins & Halos	Vein Density	Comments (Ranks: 0 = <10% 1 = 10 - 30% 2 = 30 - 60% 3 = 60 - 90% 4 = >90%)
												

MAJOR LITHOLOGY:

X 5: HESS DEEP 147-U894 6R-2-A : SHLF4528201

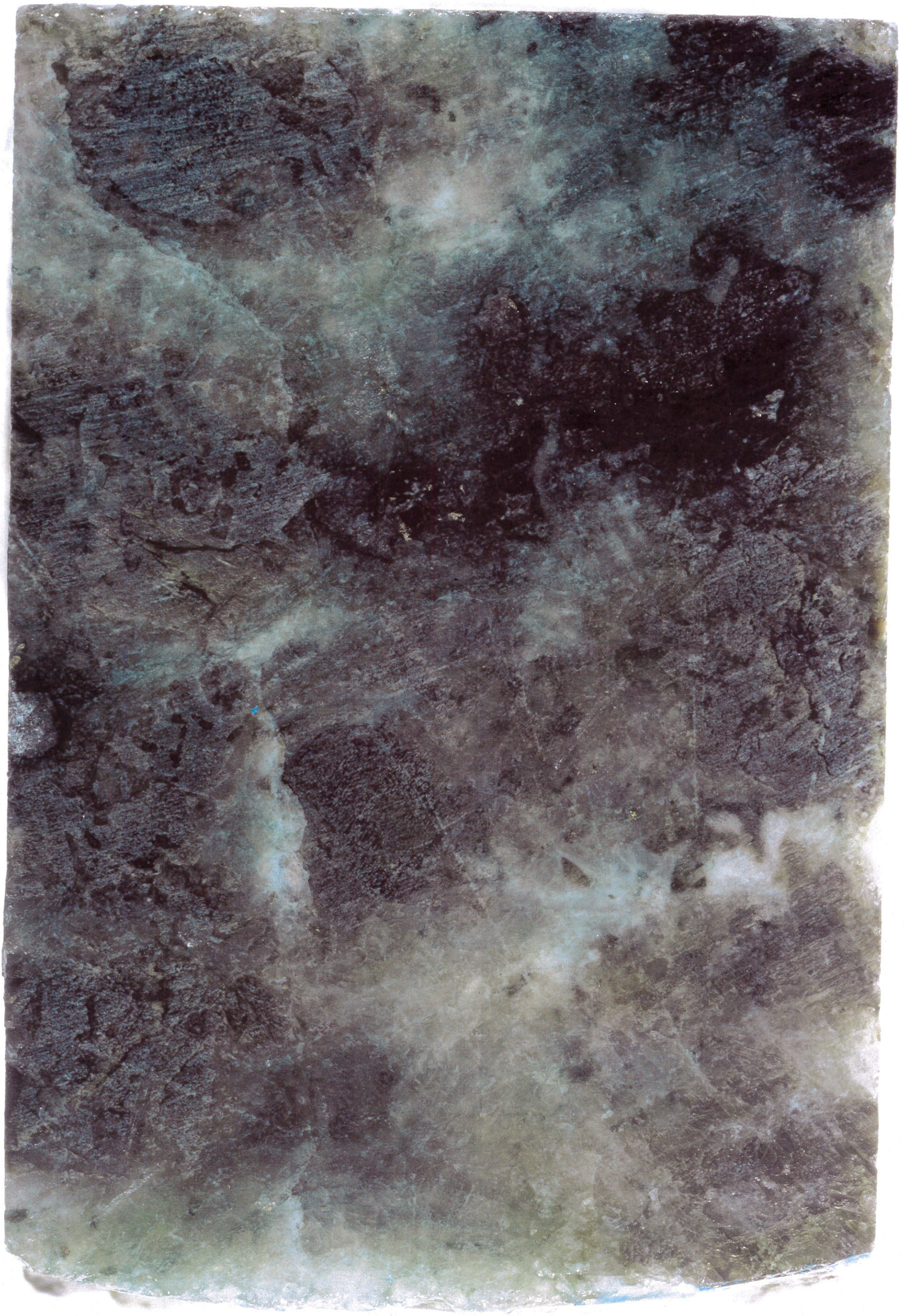
Veins & Halos	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Mode [%]	Pl Mode [%]	Cpx Mode [%]	Opx Mode [%]	OX & SULPH (%)	Other (%)	interval	width	color	texture	mineralogy	Vein Density	Comments
-0-																
-10-																
-20-																-14.5 -16 -17 -17.5
-30-																
-40-																
-50-																
-60-																
-70-																
-80-																
-90-																
-100-																
-110-																
-120-																
-130-																
-140-																
-150-																

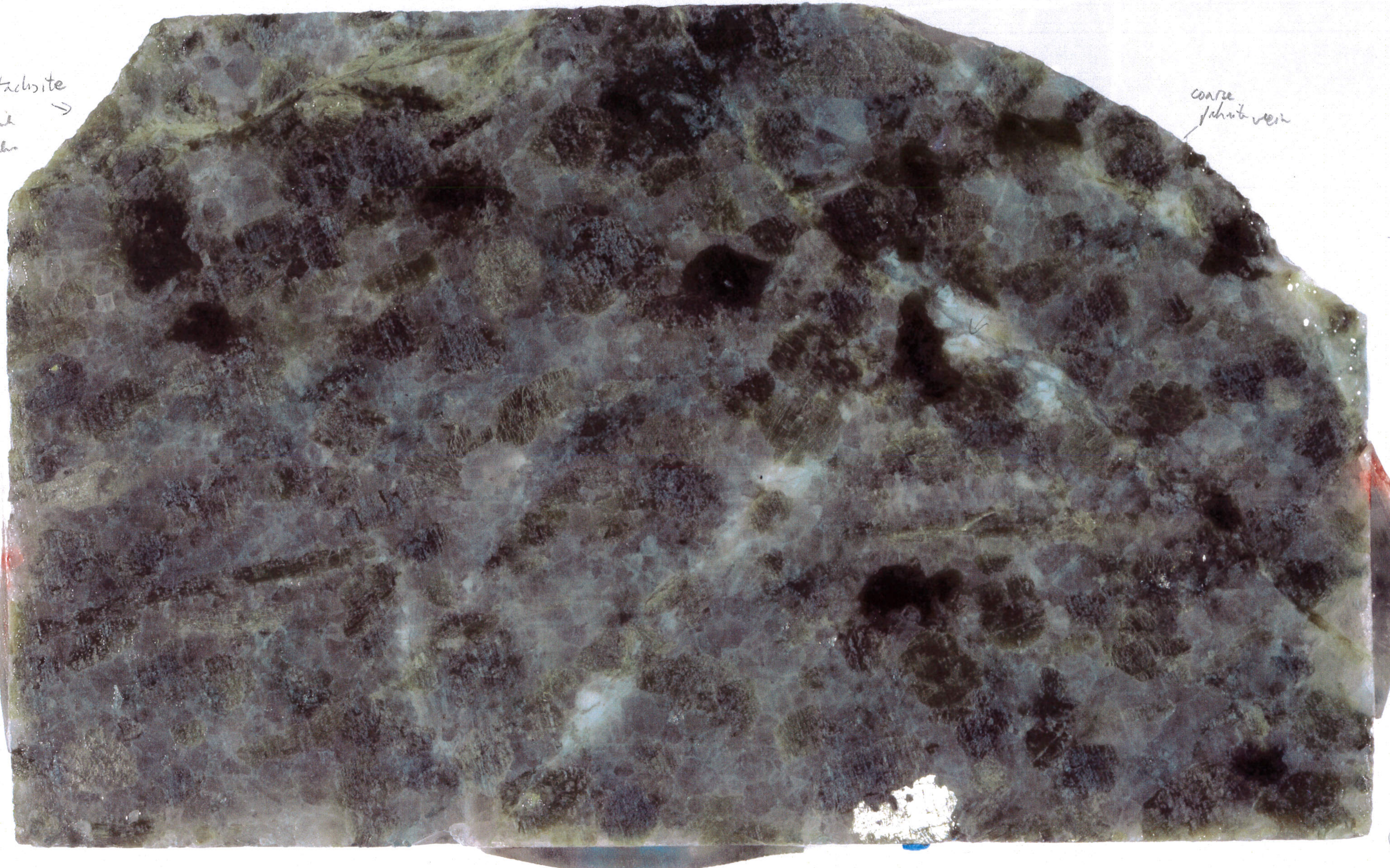
MAJOR LITHOLOGY:

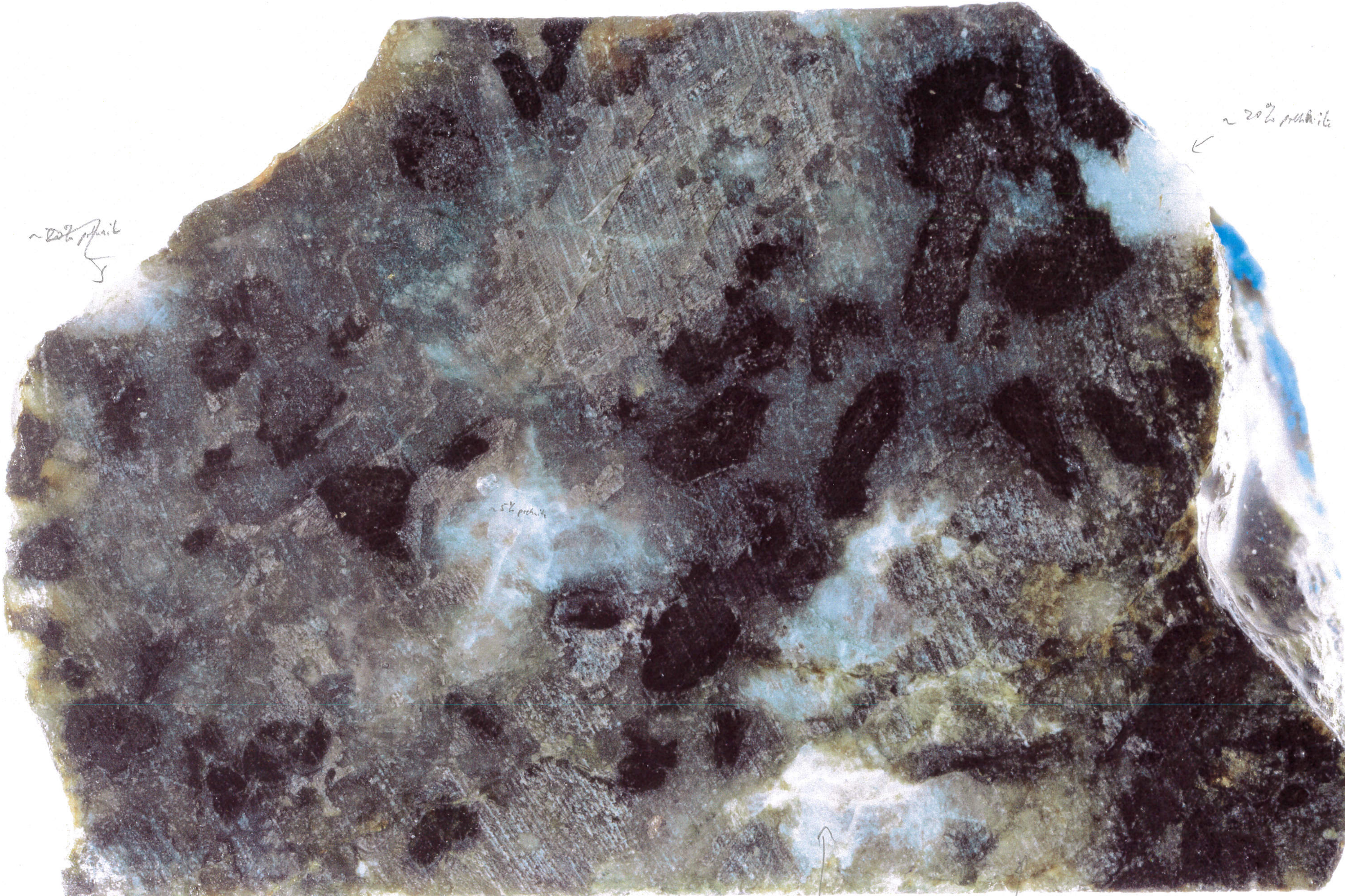
X 5: HESS DEEP 147-U894 6R-2-A : SHLF4528201

Veins & Halos	Piece #	SAMPLES	Alt. Intensity (rank & %)	Replacement minerals for: Ol Mode [%]	Pl Mode [%]	Cpx Mode [%]	Opx Mode [%]	OX & SULPH (%)	Other (%)	interval	width	color	texture	mineralogy	Vein Density	Comments

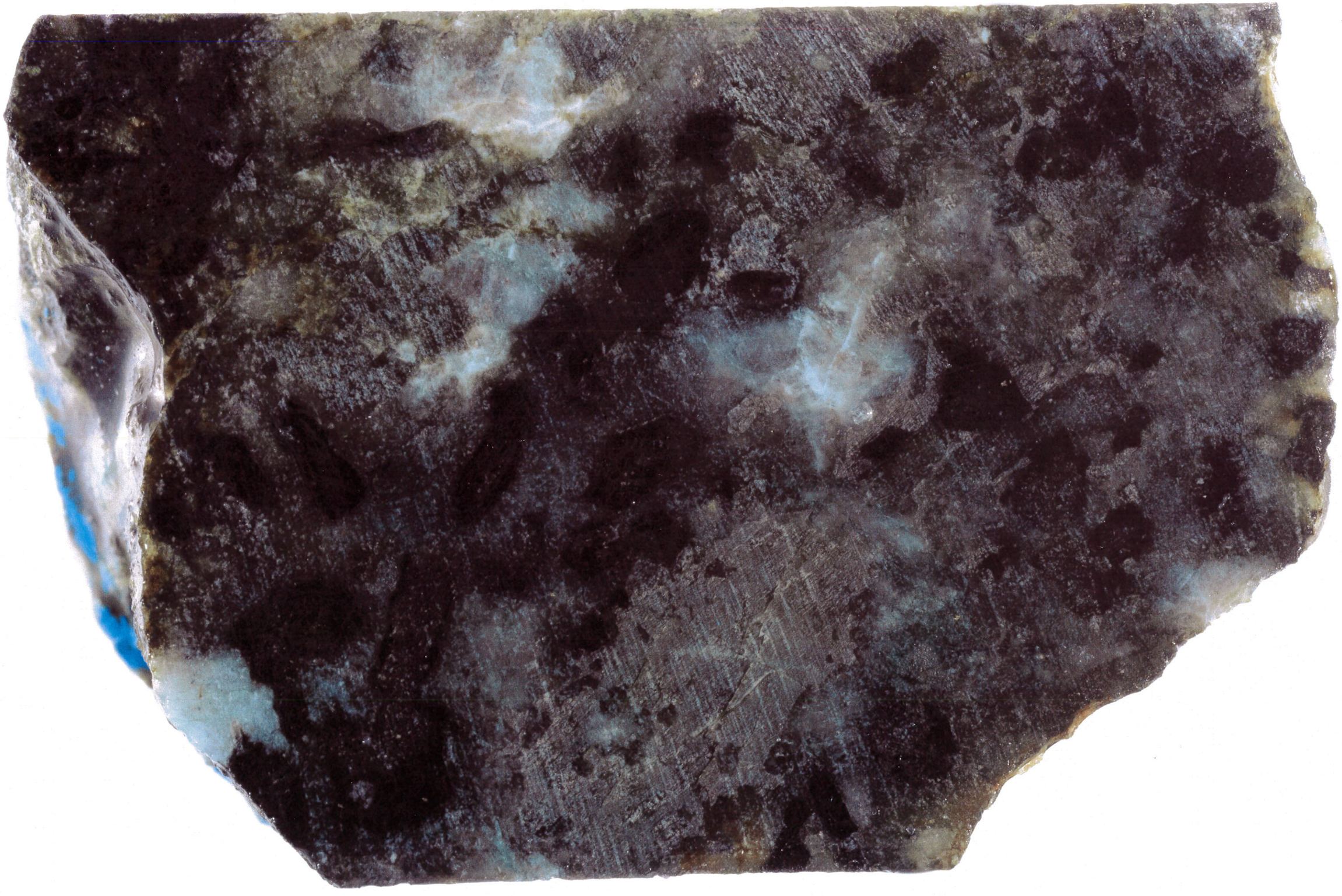
MAJOR LITHOLOGY:

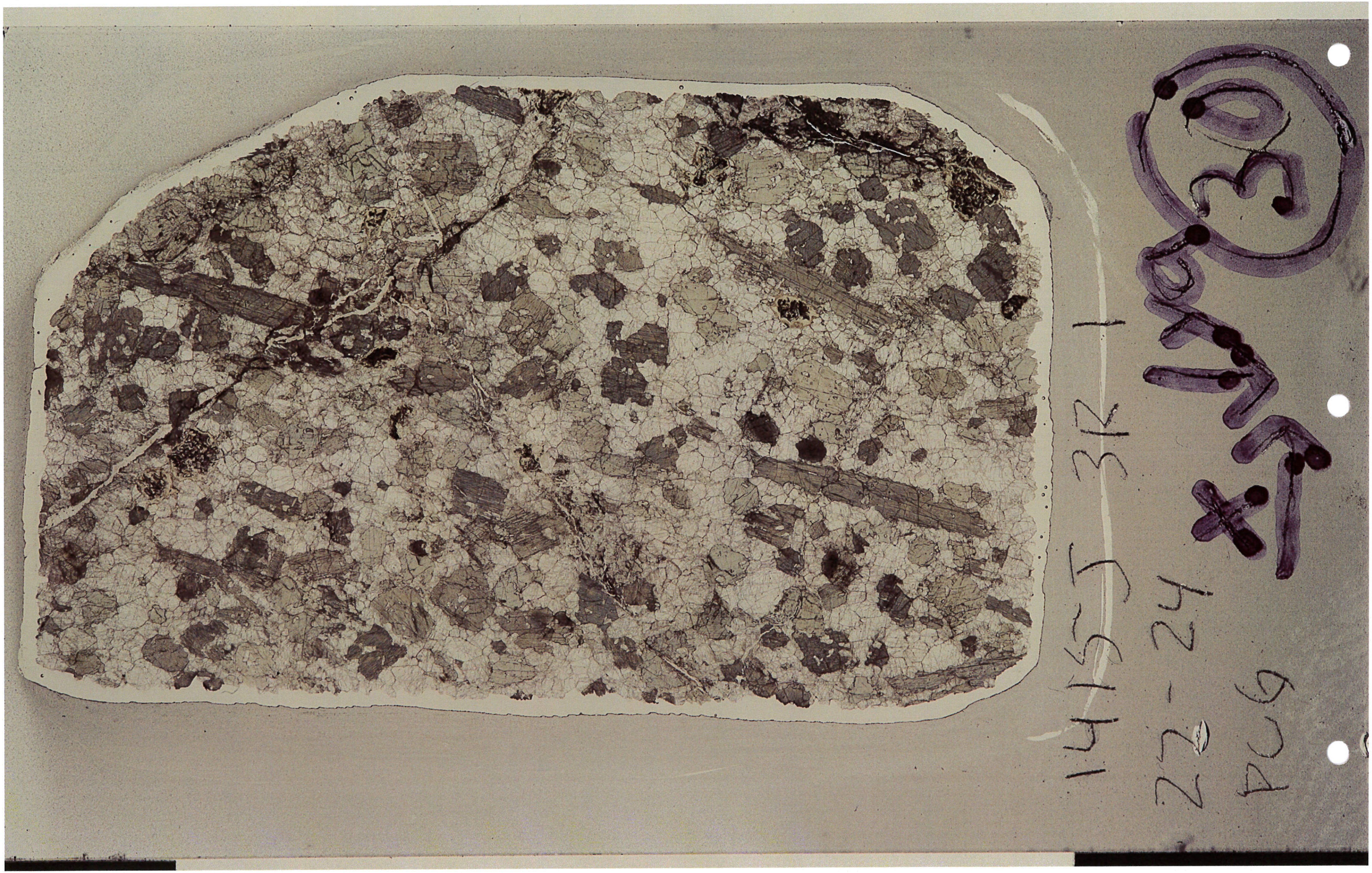



cataclasite
coarse white vein

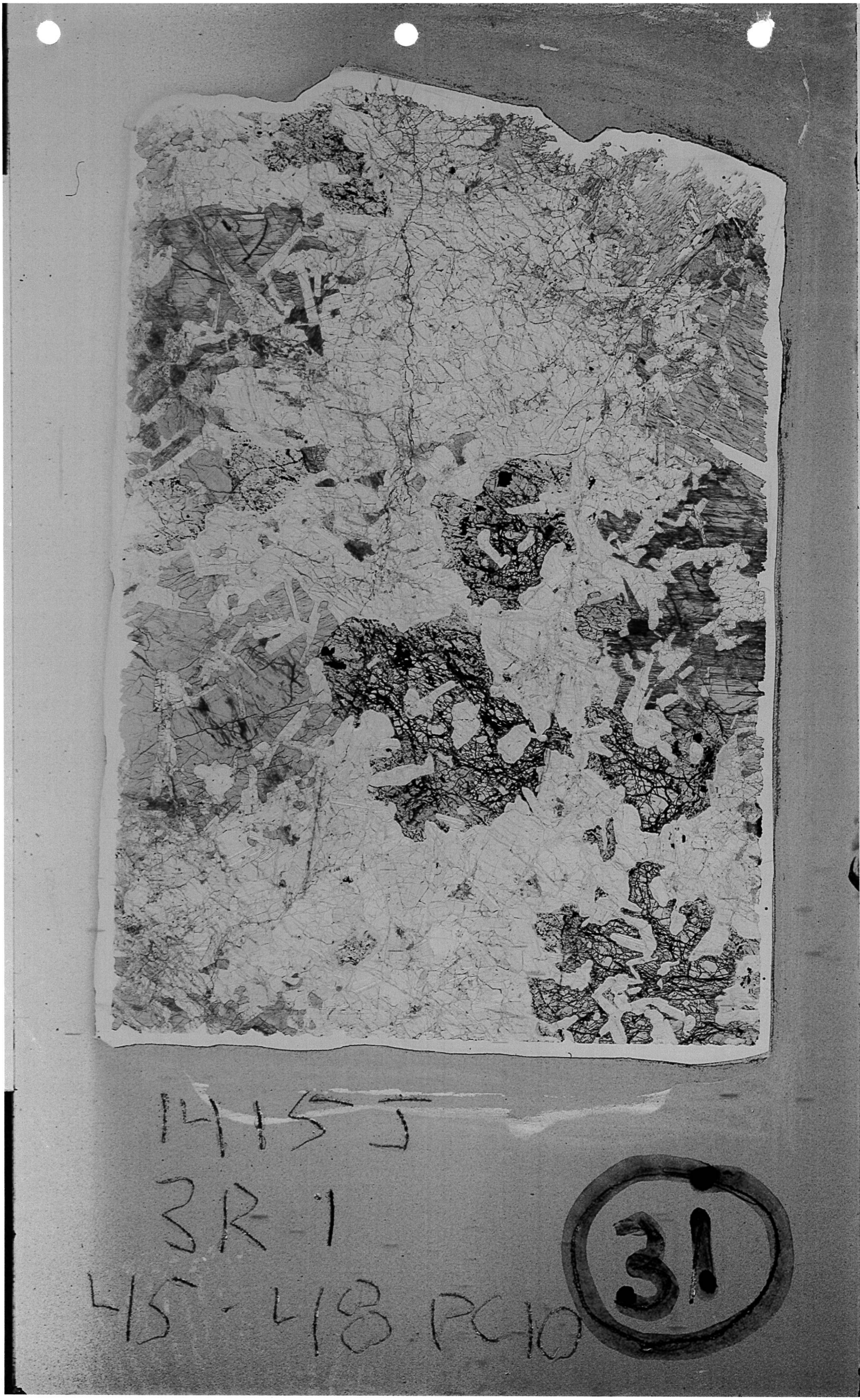


62




14155 3R1
22-24
PC6


1415J
3R1
11-13 PCH
29



1415J
3R-1
45-48 PC10
31