Redox-controlled selenide mineralisation in the Upper Old Red Sandstone Spinks et al. 2013.

Supplementary Information.

SEM Information

The SEM model used was an ISI-ABT55, equipped with an ED x-ray analyser, Link BSE detector & Oxford CL detector. The ED system used was a LINK ANALYTICAL AN10/55S with a LINK ANALYTICAL LZ5 ED Detector. Images were captured with an ISS – I-SCAN 2000 Digital Image Acquisition System running on a Windows XP PC.

Back-scattered electron imaging samples and samples used for quantitative analyses were prepared as polished stubs and coated with ~ 20-25nm carbon. Quantitative analyses were acquired and processed with Links ZAF4/FLS program.

The Instrument conditions for analyses were:

Accelerating voltage 15KV.

- Take off angle 30 degrees.
- Probe current approx. 1.0nA on Cobalt Standard.
- Beam diameter approx. 1 micron.
- Livetime 100 seconds.

Figure Captions

Figure S.I. 1. Energy-dispersive X-ray spectrum of berzelianite/bellidoite (Cu_2Se), showing minor background Si.

Figure S.I. 2. Energy-dispersive X-ray spectrum of clausthalite (PbSe) showing minor background Si.

Table S. I. 1. Data table for the quantitative EDS-SEM analyses of lead selenides. Pb/Se ratios are close to 1, similar to those of clausthalite (PbSe).

Table S. I. 2. . Data table for the control quantitative EDS-SEM analyses of a known sample of umangite. Cu/Se ratios are close to 3:2, similar to those of umangite (Cu_3Se_2).

Tables

Clausthalite (PbSe)	
	Pb Selenide
	Pt.1
Pb	67.451
Se	24.629
Ca	0.44
Si	0.301
Total	92.821
Formula (based on total of 4 atoms)	
Pb	1.975
Se	1.893
Ca	0.067
Si	0.065

Table S. I. 1

Umangite			
	Umangite	Umangite	
	Pt.1	Pt.2	Average
Cu	54.969	55.157	55.063
Se	47.623	47.944	47.784
Total	102.592	103.101	
Formula (based on total of 5 atoms)			
Cu	2.946	2.942	2.944
Se	2.054	2.058	2.056

Table S. I. 2

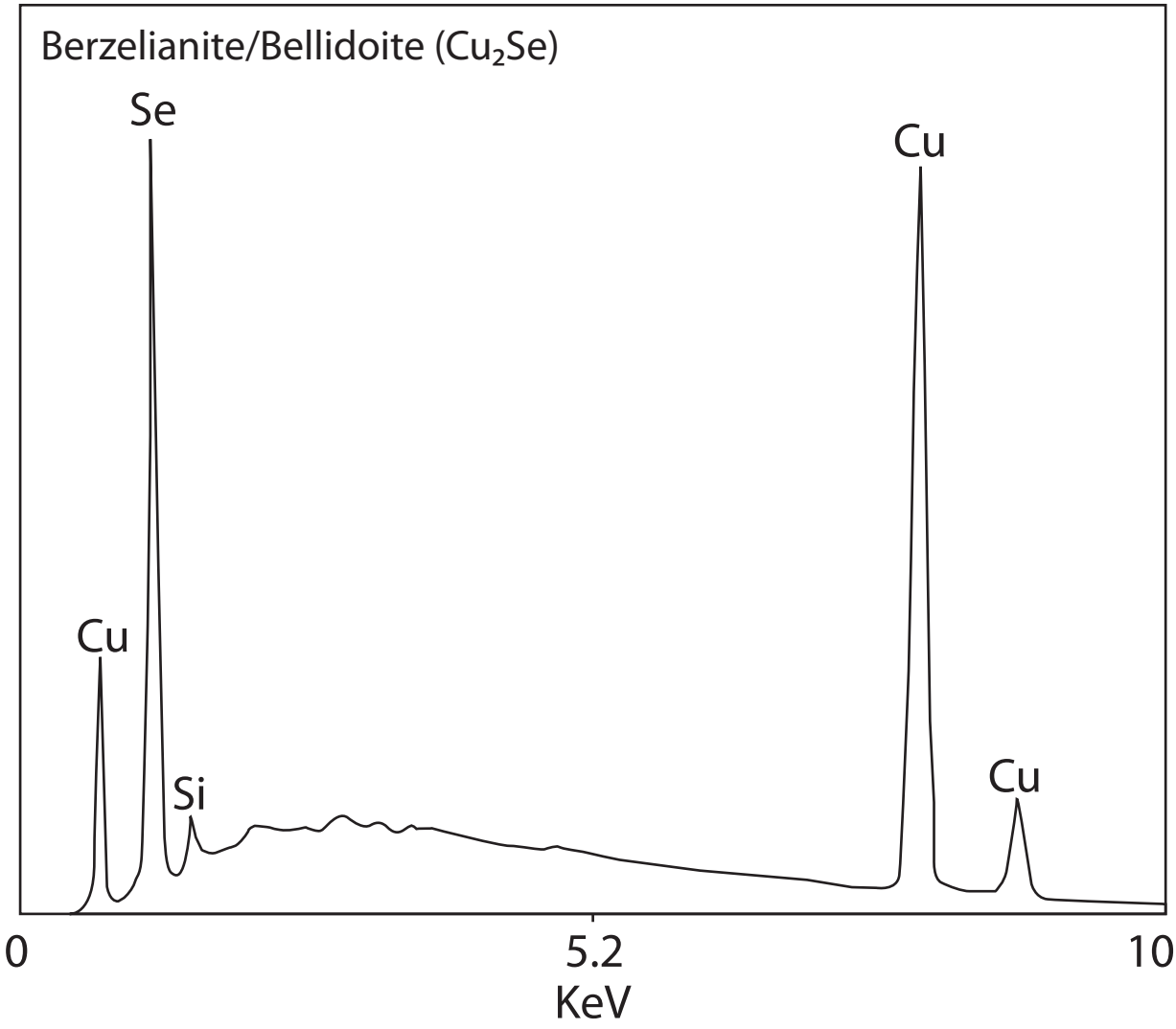

Figure S. I. 1

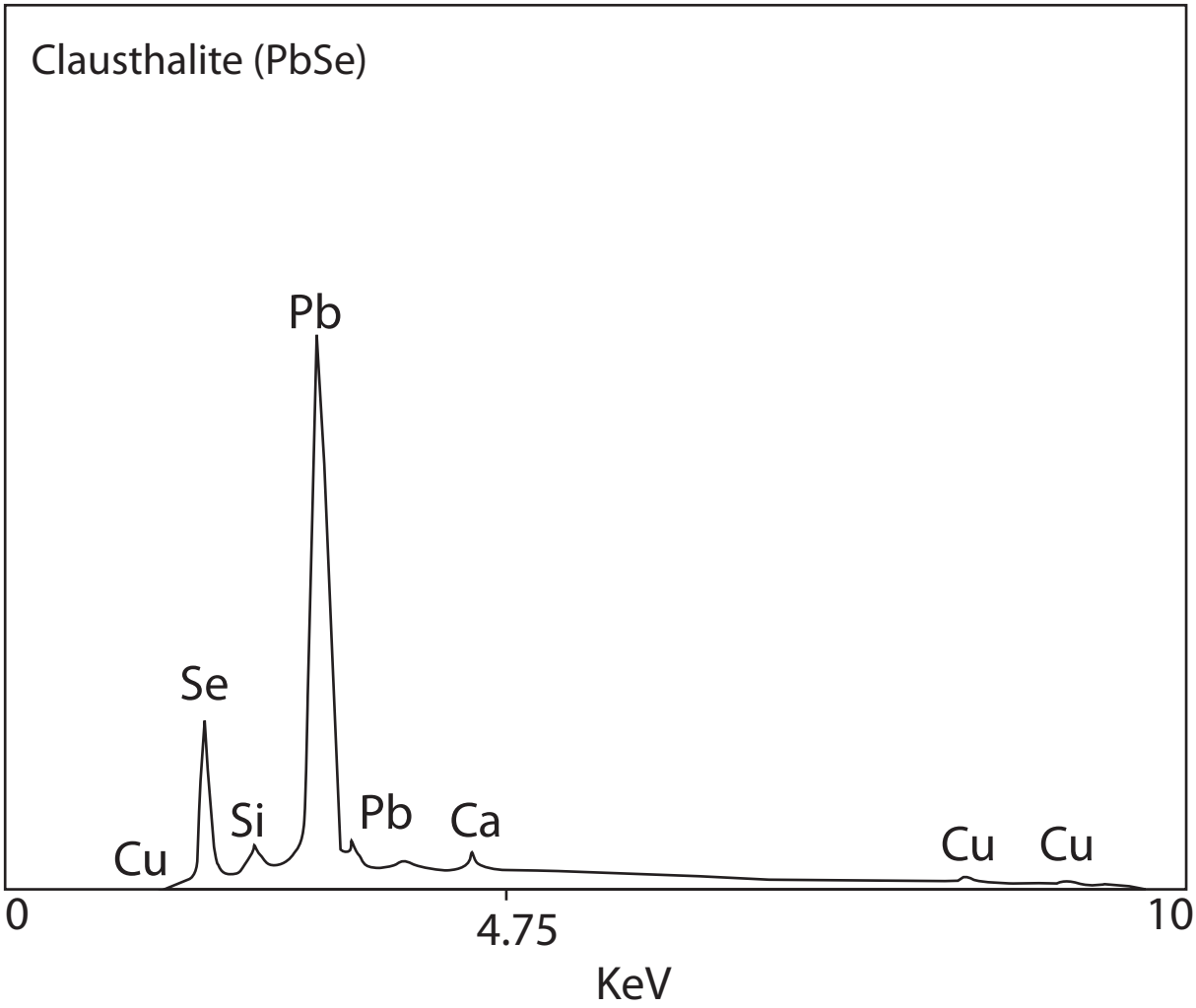

Figure S. I. 2