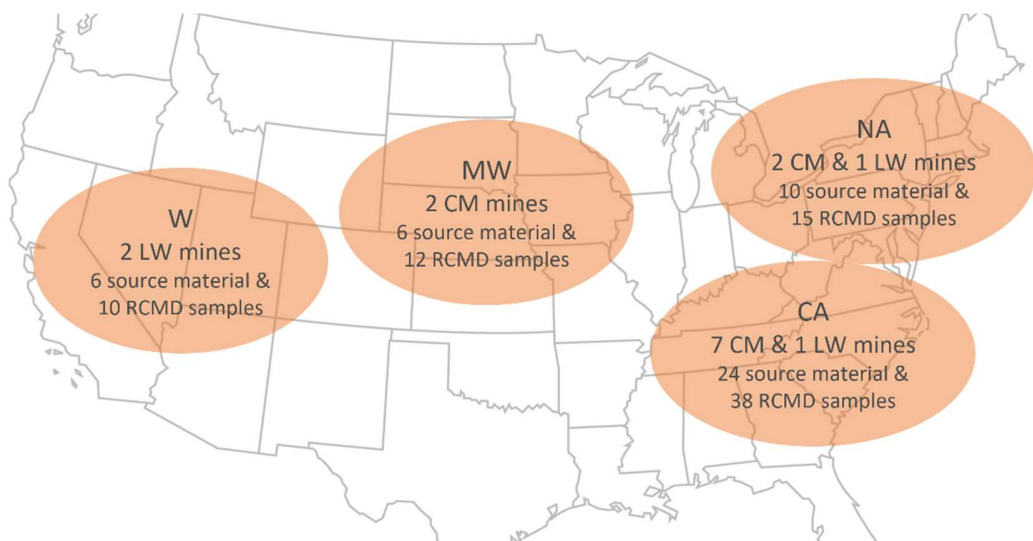
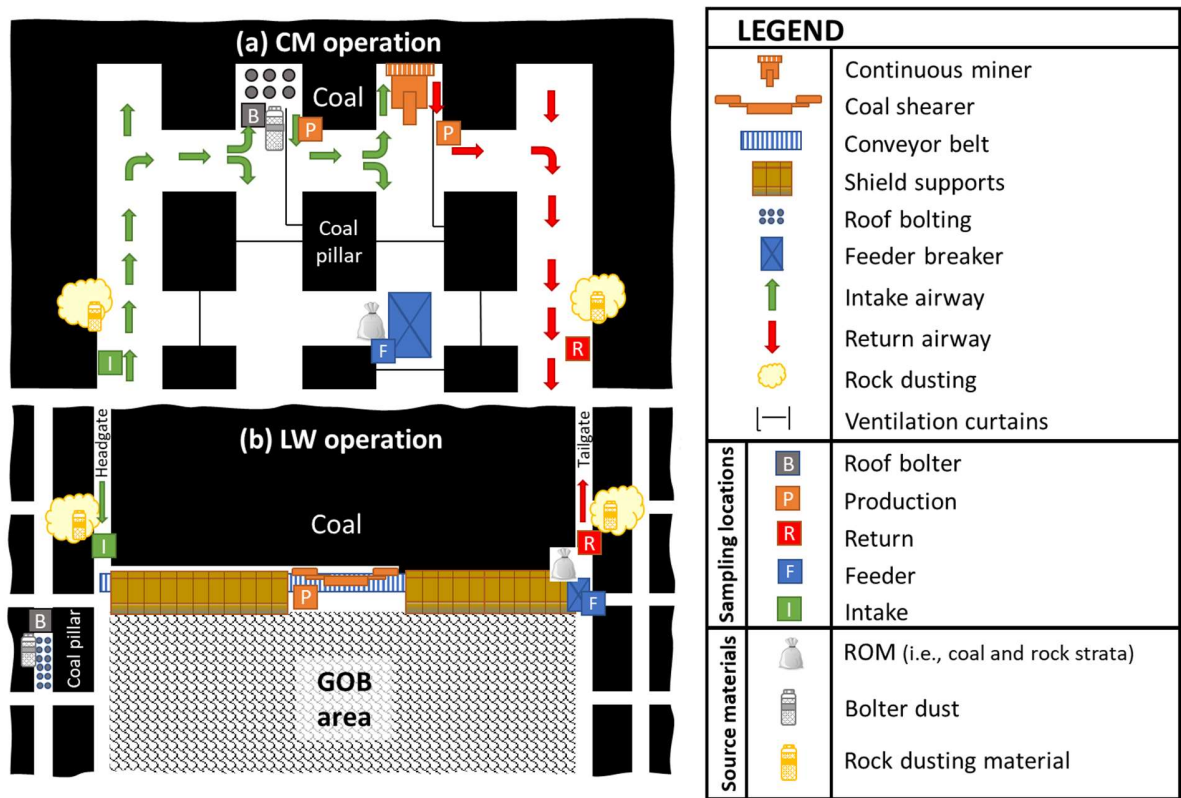


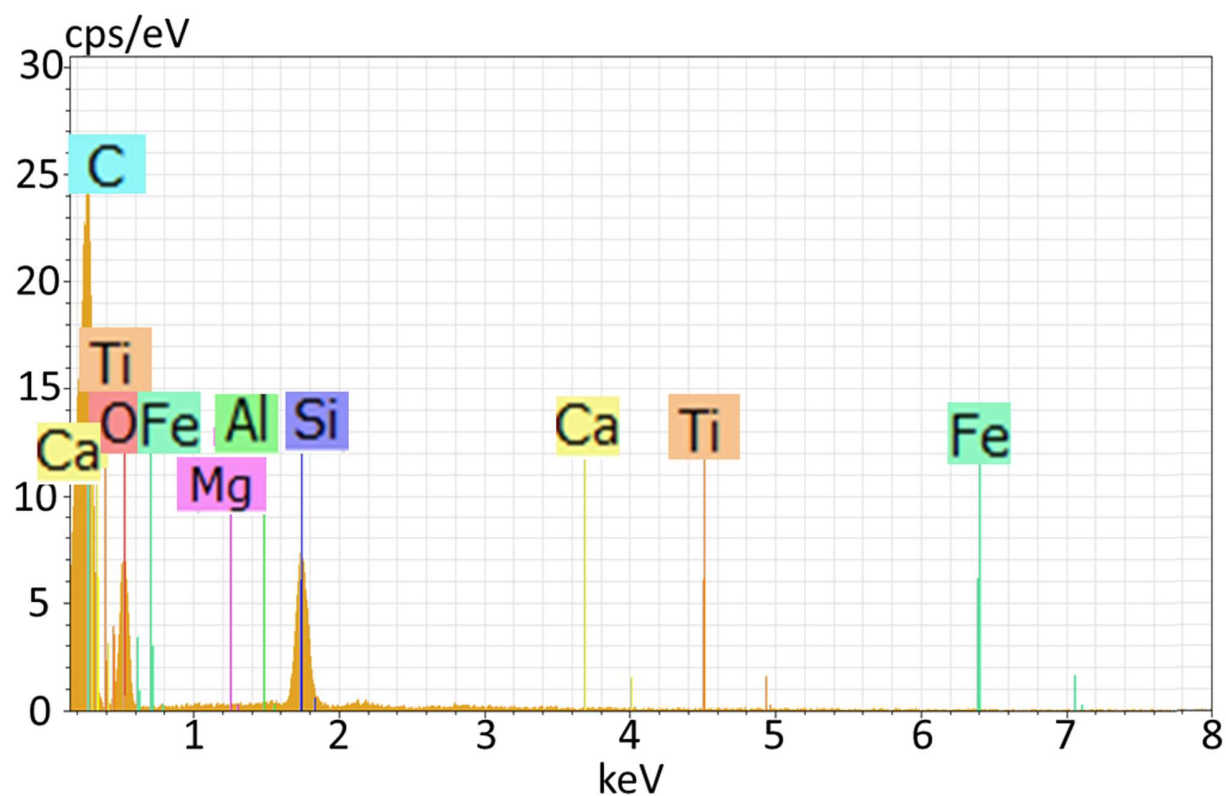
Supplementary Materials - Figures:



**Figure S1.** General geographic regions of the sampled mines (CA=central Appalachia; NA=northern Appalachia; MW=mid-west; W=west). For each region, the number of mines with each mining method is shown (LW=longwall, CM=continuous miner), as are the total number of source material and RCMD samples.



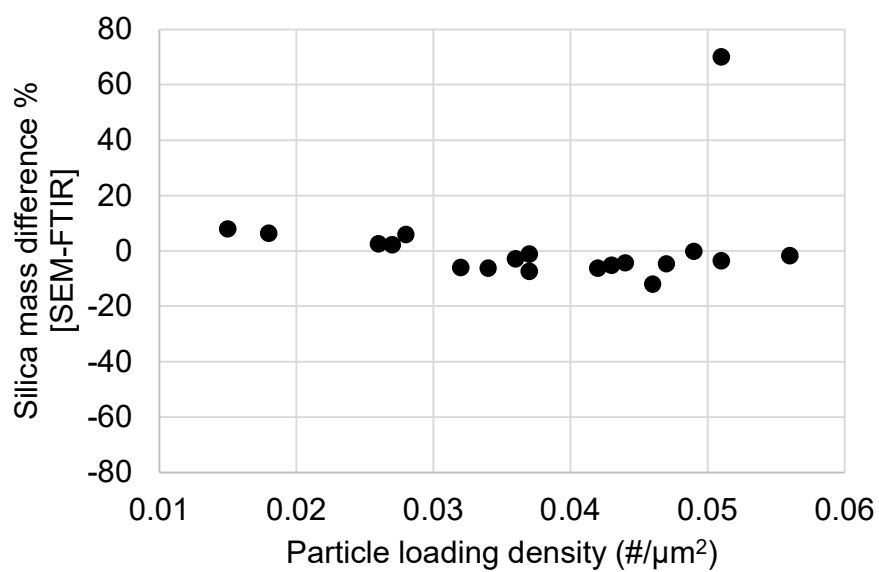
**Figure S2.** Schematic diagrams illustrating approximate sampling locations for RCMD samples and source materials in (a) continuous miner, and (b) longwall mine operations.



**Figure S3.** Example elemental spectrum obtained during SEM-EDX analysis of a silica particle on PC filter.



**Figure S4.** Example infrared spectrum on a pure silica dust sample using the portable Bruker Alpha II FTIR instrument and OPUS software (Version 8.2.28, 32 bit).



**Figure S5.** Difference between the silica mass % derived from SEM-EDX and FTIR results versus particle loading density for the RCMD samples with FTIR result > LOD (n=19).