

DISTRIBUTION OF ARSENIC, SELENIUM, AND OTHER TRACE ELEMENTS IN PYRITE IN APPALACHIAN COAL BASINS IN ALABAMA, KENTUCKY, AND WEST VIRGINIA¹

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Abstract: Coals in Appalachian basins host pyrite that is enriched in trace elements, including As, Hg, and Se. A comparison study between coal basins in Alabama, eastern Kentucky and West Virginia reveals differences in concentrations of trace elements in the host pyrite. Although pyrite occurs in similar morphological forms such as framboids and pyrite-filled cells and veins, trace-element content differs between the basins as does their sequence of emplacement. Characterizing the emplacement processes that enriched coal in trace metals contributes to a better understanding of the progression of weathering of pyrite in coals, and release of acid and trace metals.

Additional Key Words: mine waste, laser ablation, metals, Black Warrior Basin

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