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POLLUTANT ELEMENT FORMS WITHIN SLUDGES GENERATED BY TREATMENT OF TWO ACID MINE WATERS WITH LIME, INORGANIC SULFIDE AND SULFATE REDUCING BACTERIA

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One of the research projects within the Mine WAste Technology Pilot Program conducted at Montana Tech under subcontract to MSE, Inc., Butte, MT is entitled "Formation, Properties and Stability of Sludge Generated During Treatment of Acid Mine Water." One area of study within this activity is the determination of the element-solid associations within the three sludges being studied, namely, a lime initiated sludge, an inorganic sulfide initiated sludge and a sulfate reducing bacteria initiated sludge. These sludges are formed from treatment of two acid mine waters; one from an abandoned metal sulfide open pit mine (the Berkeley Pit in Butte, MT) and another from an abandoned metal sulfide underground mine (the Crystal Mine NW of Basin, MT). A sequential leaching scheme has been used to determine the form of the pollutant elements (Cu, Zn, Cd, Fe, Mn, and As) within these sludges. Significant differences are observed between these pollutant elements for each sludge. These data are interpreted in terms of the potential for release of the pollutant elements within a sludge containment pond storage system.

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