

Assessment of Selected Contaminant Concentrations and Loads in Streams Draining the Stibnite Mining District, 2011-2012

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The historical Stibnite Mining District, located along a 5-km stretch of central Idaho's Meadow Creek and the East Fork of the South Fork of the Salmon River, has been heavily mined for gold and antimony since the 1930s. Public and private entities have performed extensive reclamation in the area of Stibnite, but discrete sources of potential contaminants such as metals, arsenic, and cyanide still exist in the area's soil, groundwater, seeps, and stream sediments. Any further remediation will require a detailed understanding of the location and magnitude of contaminant sources contributing to the area's streams. The U.S. Geological Survey, in cooperation with the Idaho Department of Lands, is conducting a two-part study to provide insight into the sources, location, magnitude, and timing of contaminants to surface water in the district. Part one of the study (conducted in September 2011) involved synoptic stream sampling and a simultaneous tracer-dilution study conducted to quantify trace metal concentrations and loads during a period of base flow. These data were used to develop spatially-detailed profiles of metal loading along the study reach; although most metal concentrations increased with inputs from tributaries, antimony and arsenic concentrations appeared to increase as a result of more diffuse groundwater inflow. In part two of the study, the USGS placed a series of continuous water-quality monitors and stream gages to profile contaminant loading spatially and temporally in the study reach. Data from the monitors and gages (collected 2011-2012) will help to provide a more detailed assessment of contaminant sources. Preliminary results from part one and part two of the study will be presented.