Chemical analyses of 33 surface water samples from the Redcloud Peak area, Colorado

by

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INTRODUCTION

The Redcloud Peak areas, west and southwest of Lake City, Colorado, was selected for study because no significant mining or acid mine drainage is associated with the study area. The study area was determined to have high potential for base and precious metals in vein and breccia-pipe epithermal deposits and moderate potential for molybdenum and copper porphyry deposits (Sanford and others, 1987). The study area lies mostly within the Lake City caldera and exposed rocks are mainly a caldera-fill sequence of high silica to quartz trachytic ash-flow tuffs and caldera collapse breccia.

SAMPLE COLLECTION

Thirty-three samples of water were collected from streams in the Redcloud Peak area on July 21-23, 1994. Samples were collected in polyethylene bottles that had been rinsed with 10 percent nitric acid. At each site, a 60-mL sample was collected and filtered through a 0.45-um filter, and acidified to pH<2 with concentrated nitric acid. An additional unfiltered, and unacidified 500-mL sample was also collected.

ANALYTICAL METHODS

At each site temperature and pH were measured. Ferrous iron was also determined at each site colorimetrically with a Hach DR/2000 spectrophotometer. Calcium, magnesium, sodium, potassium, silica, aluminum, manganese, and iron were determined in the filtered acidified samples by flame atomic absorption spectrophotometry (Perkin-Elmer, 1976). Arsenic, copper, cobalt, nickel, molybdenum, uranium, and zinc were determined in the filtered acidified samples by inductively coupled plasma-mass spectrometry. Fluoride, chloride, sulfate, and nitrate were determined by ion chromatography using the untreated samples (Fishman and Pyen 1979). Alkalinity was determined in the untreated samples, by Gran's plot potentiometric titration (Orion Research, 1978), as was specific conductance. The analytical data for these analyses are shown in table 1.
REFERENCES CITED


Table 1. Analytical data for 33 water samples from Redcloud Peak area, Colorado

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Table 1. Analytical data for 33 water samples from Redcloud Peak area, Colorado—Continued

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Table 1. Analytical data for 33 water samples from Redcloud Peak area, Colorado—Continued

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