

Geochemistry Field Trip

On the last day of classes (May 5, 2007), students from Dr. Arden Davis' Geochemistry class (GEOLE 663) at SDSM&T measure water temperature, pH, specific conductance, and dissolved oxygen at the ranch. The outgassing of CO₂ as groundwater emerges at the springs, changes the pH surprisingly fast as the water flows downstream. The increase in pH changes the solubility of CaCO₃ (limestone) causing the precipitation of travertine. Spectacular examples of travertine deposits downstream are Roughlock Falls and Spearfish Falls. Students were asked to explain the reasons why there are no travertine deposits below Cleghorn Springs on Rapid Creek—another large carbonate springs discharging from the Madison Limestone. They also tried to explain the geologic position of the springs. Why do springs discharge from the west side of the property and not the east side?



Photo 1—Dr. Arden Davis' Geochemistry class from the South Dakota School of Mines and Technology samples water.