Torin McDonald
Junior Division Environmental Sciences
The Impact of a Coal Mine on Water Quality

This project in its present form suggests how the water quality of a spring is affected by the presence of a coal mine in the Laramie Formation. To find this, the water quality of the spring that is affected by an underground coal mine was compared to an unaffected spring in the same geological formation. The water quality parameters that were tested were pH, dissolved oxygen, and conductivity. These parameters were tested with a Thermo Orion 5 Star Probe. The data for the first spring, affected by a coal mine, was collected at the head of the spring, each in the same spot. There were a total of 5 sets of data for each parameter. The data for the second spring, unaffected by a coal mine, was collected at the head of the spring, each in the same spot. There were a total of 5 sets of data for each parameter. The data collected showed that in the spring affected by a coal mine, the pH levels were lower by an average of .50, the levels of conductivity were lower by an average of 278 μS/cm, and the dissolved oxygen was lower by 6.81 mg/L. The data supported my hypothesis that there would be acid mine drainage in the spring that was affected by a coal mine. This would make the pH levels go down, the conductivity levels go down, and the dissolved oxygen levels go down, compared to a spring that is unaffected by a coal mine. My data is conclusive.