Low pH zones in portions of the overburden at the Dave Johnston Coal Field, Converse County, Wyoming are the subject of this study. The low pH zones are restricted to limonite stained sandstones which grade downdip into normal pH gray sandstones. Changes in color, clay mineralogy, cementation and feldspar surface textures are noted between the two sandstone units. These changes appear to be the result of post depositional alteration that was responsible for oxidation of pyrite and chlorite, dissolu-
tion of calcite, and the etching of feldspar grains. The parameters for the diagenesis fit those of uranium roll front models proposed for the Powder River Basin. The alteration appears responsible for the low pH values reported in the yellow sandstone. Research by the North Dakota Geological Survey on similar problems associated with lignite mines in North Dakota suggests reclamation procedures for dealing with these potentially hazardous overburden spoils.