

ANALCIME DEPOSITS IN THE WICHITA MOUNTAINS, SOUTHWESTERN OKLAHOMA

by

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ABSTRACT

THE Raggedy Mountain gabbro group is a layered body of basic igneous rocks which crop out in the Wichita Mountain region of southwestern Oklahoma. These gabbroic rocks consist of stratiform layers of troctolite, anorthosite, anorthositic gabbro, olivine gabbro, diallage gabbro, and quartz diorite. The Raggedy Mountain group has been dated at about 535 million years.

Within this gabbroic terrain are scattered outcrops of a red-colored, layered, zeolitized sequence of rock that has been named the Tepee Creek Formation. This unit occurs as erosional remnants along the sides of low-lying anorthosite hills, or closely associated with nearby anorthosite outcrops. Field relationships suggest that the Tepee Creek is Permian in age.

The zeolite has a composition in the analcime-wairakite range and is very fine grained. The presence of unaltered anorthosite pebbles and the petrographic nature of the Tepee Creek suggest that prior to zeolitization this rock was a poorly sorted plagioclase arkose. There is no field or laboratory evidence for either volcanic or hydrothermal activity associated with the formation of the zeolite. Zeolitization thus appears to be a diagenetic change; the zeolite replaces the plagioclase feldspars and forms the cementing material. Other alteration minerals that occur in relatively minor amounts are calcite, dolomite, natrolite, and quartz.