Deposits of satellite (coltonite) group in altered limestone localized along the Mogul fault and its related structures at the Morning Star mining area, Pinal County, Arizona. The mines are in the northern part of the San Carlos Mountains, in the Pinal mining district, which is described in the preliminary maps of the Morning Star district, the only active development on the Mogul property in January 1940, and the mining of the Morning Star mine are of 00 feet apart both may be reached by 4 miles of fair gravel road from Oracle, Arizona.

The Morning Star mine was assayed briefly in April 1849 by Conrad Wescott and Robert Stuyvesant of the Geological Survey, United States Department of the Interior. In early January 1940, Paul C. Bierman and Max F. Thompson of the Geological Survey spent 2 days mapping and studying the Morning Star mining district.

The principal geologic feature of this area is the Mogul fault which trends northeast and separates the Santa Catalina Range from the Santa Rita Mountains. A small cross structure, the Morning Star mine is located on the Mogul fault.

Geological features in altered limestones occur in a small body of limestones east of the main fault zone. The limestones are bordered by 500-foot quartzite ridges to the east, west, and north of the area. The area is about 1 mile wide and 2 miles long. The quartzite is highly altered and contains more than 50 percent free quartz. The ore consists of excellent quartz and calcite, with some hematite and pyrite. The ore is from 10 to 20 feet thick. The quartzite is a yellowish-brown color. The ore can be traced for 1 mile along the Mogul fault. The ore is from 10 to 20 feet thick. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along the Mogul fault. The ore is high-grade and contains more than 50 percent free quartz. The ore is of excellent quality for industrial purposes. The ore can be traced for 1 mile along

The Mogul fault is described in detail in the preliminary maps of the Morning Star district.