

Birthday Mine, Mountain Pass District

16N, 13E, Sec. 12

35°29'22.165" -115°32'10.963"

The Birthday mine and prospects are near a contact between biotite-rich syenite and shonkinite (p€sh) to the east and PreCambrian granite augen gneiss complex (p€gc) to the west, north and south. The mine is a few hundred feet south of the North Fault (Evans, 1971).

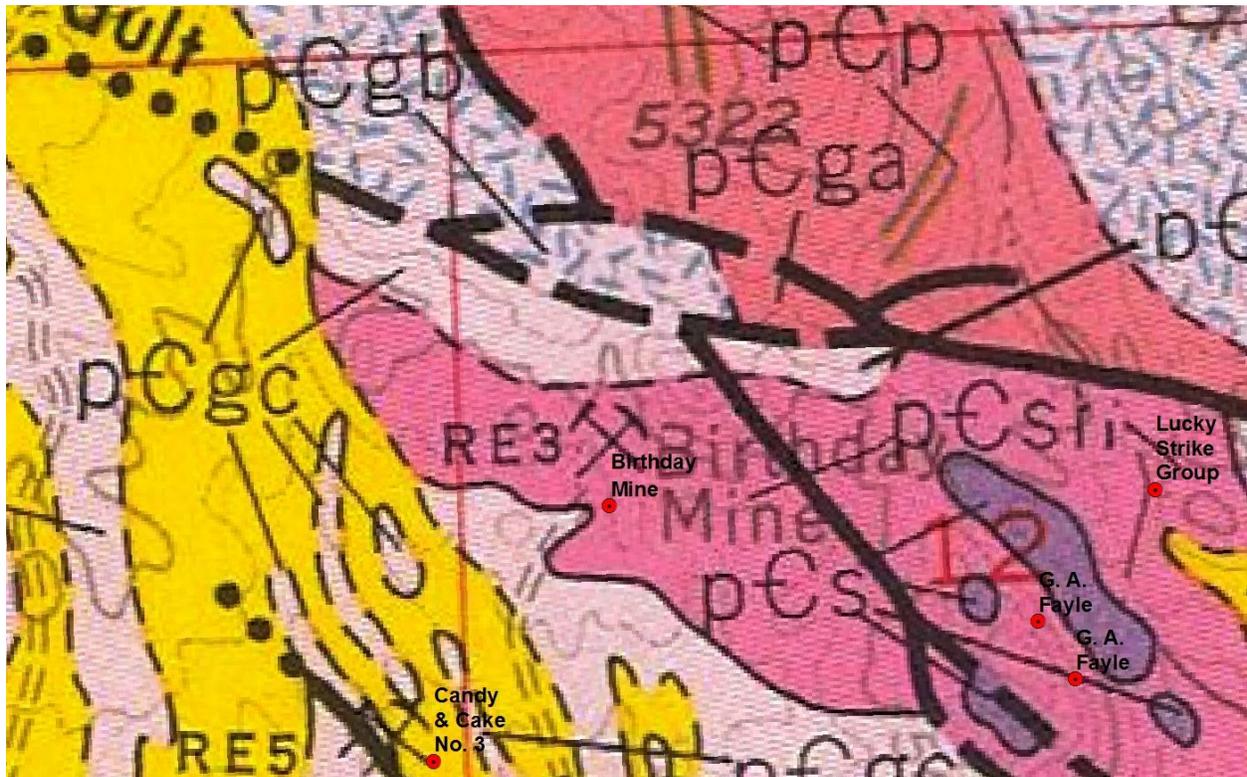


Figure 1. Geology of the Birthday Mine. From Evans, 1971.

The granite and late shonkinite dikes, as well as the carbonate veins, appear to have been emplaced in fractures in the shonkinite-syenite mass and adjacent gneiss. This is shown by the parallelism of dikes in certain areas, sharp angular intersections of segments, generally fine grain size, and sharp dike contacts that locally have relatively fine-grained chilled margins. Between the **Birthday** and Sulphide Queen areas the dikes generally form a conjugate system, the sets of which strike roughly northwest and northeast, in both the metamorphic rocks and the shonkinite. The northeast trending dikes are generally vertical. Syenite and granite bodies in the area of plate 4 are cut by dikes of light-colored granite, trending northwest and northeast, suggesting that the forces controlling the structure were persistent through the period of igneous activity. A foliation, manifested by parallel biotite flakes, is found in a few places in the shonkinite-syenite mass; it strikes about N. 75° E. and dips steeply south, corresponding in attitude roughly with the northeast set of dikes in the area. Foliation is found, although rarely, along unoriented shears in the shonkinite. In general, however, there is a notable lack of foliation in the shonkinite-syenite mass. (From Olson and others, 1957, p. 20).

The known rare earth and thorium deposits [of the Mountain Pass District] are most abundant in a belt, in places 3,000 to 4,000 feet wide, that trends north west from the southeast corner of the mapped area to the vicinity of the Birthday shaft. This belt is offset by the transverse faults and appears to be terminated by the transverse fault north of the Birthday shaft. (From Olson and others, 1957, p. 30).