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See also 83-12 for geochemical results.

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Item 2

CROW SPRING (ROYSTON) DISTRICT

The Crow Spring (Royston) mining district is located on either side of the Esmeralda-Nye County line in the Royston Hills in the northwest quarter of T5N, R40E. It is about 25 miles northwest of Tonopah, Nevada, and is accessible north from U.S. Highway 95 along well used dirt roads.

The first recorded activity in the Crow Spring district was in 1902 when two prospectors, Workman and Davis, began mining turquoise at the Royal Blue Mine. From 1902 until 1915, the Royal Blue Mine produced an estimated $ 5 million in gem quality turquoise. After 1915 the district reported intermittant activity in 1927, the 1930's, and 1940's (Morrissey, 1968). Production in the district has been coincident with the rise of gem prices. The district and its surrounding area was heavily staked and prospected in the early 1970's by companies interested in copper-molybdenum systems. Up to the present, the district had produced primarily gem quality turquoise, variscite, and minor amounts of diatomaceous earth, silver, lead, copper, and gold (Albers, Stewart, 1972). The original workings, which were scattered along an east-west trending canyon, have been obliterated by recent open pit operations (Morrissey, 1968). The main workings in the district are owned by the Royal Blue Mining Company and are currently idle. The caretaker at the Royal Blue mine would not permit us to inspect the workings, thereby restricting our examination of the main part of the district.

The Royston Hills are a north to northeast trending series of low hills made up of the Permian-Triassic Excelsior Formation, which is intruded by a quartz monzonite mass and overlain unconformably by Tertiary welded ash flows. The Excelsior consists of volcanic breccia, flows, tuffs, and brecciated greenstone with thin, tuffaceous sandstone interbeds and limestone lenses (Ross, 1961). The formation is intensely silicified throughout the district. Kleinhampl (in prep.) assigns the mineralized zone to the Middle Permian Pablo Formation; however no

data is offered in support.

The turquoise occurs principally in veinlets and seams with minor lenses and nodules, ranging from a fraction of an inch to more than an inch in thickness, in fracture zonesin altered trachyte, rhyolite and quartz porphyry, and along the contact between the intrusive and the volcanic sediments. The rocks were locally silicified after the turquoise was emplaced (Murphy, 1964; Morrissey,1968). In fault breccias the turquoise cements the matrix and occurs as lenses and nodules. The color of the turquoise ranges from pale to dark sky blue (Morrissey, 1968).

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