# Carbonate King (De Witts, Umberci) Pb-Zn-Cu Mine, Mountain Pass District

| | | |
|---|---|---|
| 17N 14E Sec. 05 SBM | 35.62778000020 | -115.49334000000 (Carbonate King Prospect) |
| **16N14E Sec. 05 SBM** | **35.61720000000** | **-115.49084000000 (Carbonate King-Mine)** |
| 16N 14E Sec. 32 SBM | 35.46999999990 | -115.50028000000 (Carbonate King Prospect) |
| 15N 14E Sec. 04 SBM | 35.42111000030 | -115.49584000000 (Carbonate King Prospect) |

The Carbonate King Group includes the Carbonate King (DeWitts), Umberci, , Kalley, and Stateline mines. These mines have similar mineralogy and occur as replacement bodies and veins filling faults within the Bird Springs Formation. The mineralization consists of galena, sphalerite, cerrusite, anglesite, calamine, and hydrozincite along with accessory pyrite, black manganese oxides, jarositic chert, hematite and limonite. All of the mines have produced lead and zinc. In addition, the Carbonate King Mine produced 9,000 ounces of silver between 1917 and 1928. (From Bezore and Joseph, 1985, p. 45)..Production records from Hewett (1956) show grades of 140 lbs per ton zinc and 400 lbs per ton lead (see chart, below).

The Carbonate King Mine (plotted by Hewett in Section 05, northwest of the Umberci Mine in Section 08) is a former Zn-Pb-Ag-Au mine located in sec. 05 , T17N, R14E, SBM, in the Clark Mountains. Also named also named De Witts mine the Carbonate King (a.k.a Umberci Mine, Section 08 see Clary, 1967) lies on the south slope of one of the ridges that separate Mesquite Valley from Ivanpah Valley. By road, it is 10 miles west of Roach. The discovery was probably made before 1880 when there was much mining in the nearby Ivanpah district. There have been several periods of exploration. A mill was built in 1926 and operated for a short period. Three tunnels with an aggregate of 1,200 feet of work constitute the principal workings. The outcrop zone was mined by trenches for 300 feet and is reported to have yielded about 400 tons of good-grade lead ore. (From Hewett, 1956, p. 154).

The Carbonate King adit is owned by Crystal Cave Mining Co. of Los Angeles, California (http://www.mindat.org/loc-27936.html, Dec. 6, 2015). There are three other prospects in the Clark-Ivanpah Mountains, also called the “Carbonate King”. They are listed as “prospects” in the mine location table, above.

Host rocks at the surface of the Carbonate King Mine were mapped as Pennsylvanian Supai Formation by Clary (1967) and Pennsylvanian Bird Springs Formation by Hewett (1957, Plate 1) It is south of the Umberci Fault.

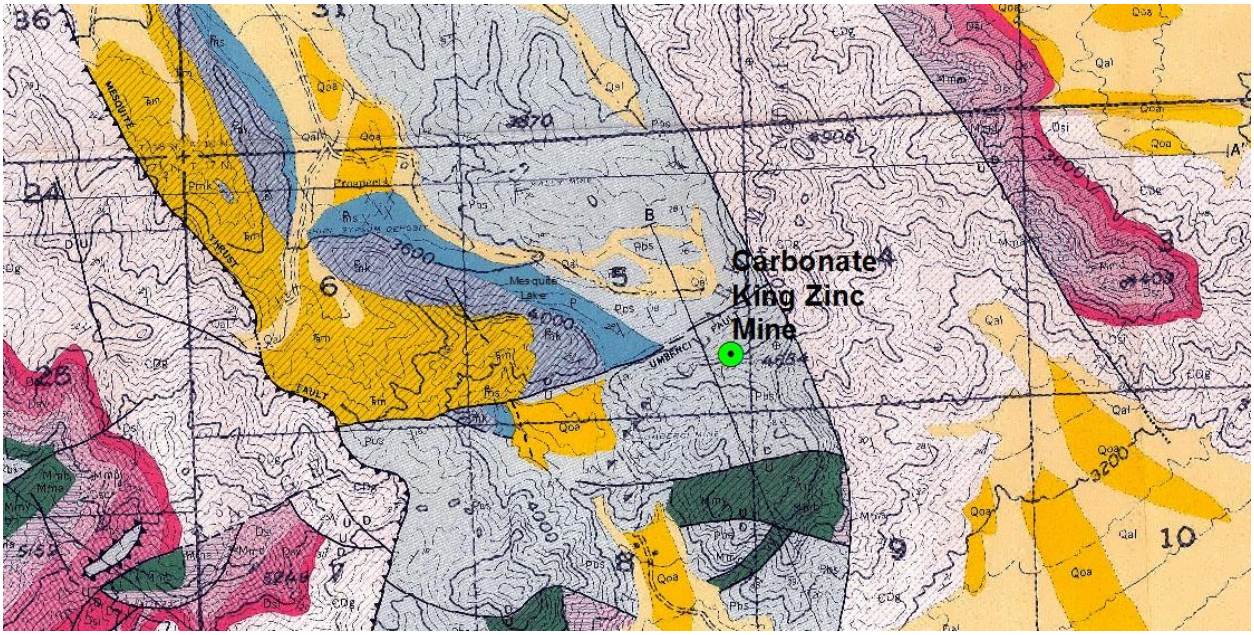

*Figure 1. Geologic map of the Carbonate King mine and surrounding area. From Clary, 1967.*

The Carbonate King Mine (southern dumps) produced zinc from the zinc silicate, hemimorphite, and the zinc carbonate, smithsonite, along with lead and silver between 1940 and 1944. Additional ore was shipped as late as 1950 (Evans, 1971; Wright and others, 1953). Dumps to the north are from the adit intersecting Kokoweef Cave, where 75 years of looking for the Lost River of Gold have produced more fossils than base metal (Reynolds and others, 1991). (From Reynolds and Weasma, 2005, p. 6)

The zone of rocks in which the ore deposit occurs lies several hundred feet below the top of the Bird Spring formation. It therefore lies higher in the stratigraphic section than any other ore deposit in the region. The region is one of structural complexity (see Hewett, 1957 pl. 2). The beds of the Bird Spring (Clark would say Supai) formation that are normally limestone at this horizon have been thoroughly dolomitized. They strike N. 45° W. and dip 35°-45° SW. The ore is largely found along a fracture that strikes N. 10° E. and dips 80°-85° E. Both the fracture and the beds are cut off several hundred feet north of the ridge by a fault that trends N. 75° E. The principal ore mineral noted is galena, but in places there is considerable pyrite and blende. In addition, the common products of oxidation of these minerals are presentanglesite, hard granular cerussite, calamine, hydrozincite, limonite, and jarositic chert. Although these minerals are largely confined to the breccia zone that crosses the bedding, locally they extend outward along the bedding as much as 20 feet. (From Herwett, 1956, p. 154).

**Hydrozincite** is the most abundant zinc mineral in the zinc deposits of the Goodsprings district and at the few zinc deposits in the remainder of this region, notably Carbonate King mine (no. 56) and Clark Mountain mine (no. 68). It was not observed and is probably uncommon in the vein deposits in igneous rocks. (From Hewett, 1956, p. 118).

Even though **anglesite** was observed at two deposits only (Chambers, no. 1; Carbonate King, no. 56), it is probably present at all of the deposits that contain oxidation products of galena. (From Hewett, 1956, p. 119).

In the zone along the east slope of Spring Mountain, from the Anchor mine on the north to the Carbonate King on the south, a distance of 12 miles, a single prospect was found (no. 55, pl. 2). It lies on the east side of the range in sec. 18, T. 26 S., R. 59 E. An open cut has been driven in the uppermost beds of the Crystal Pass limestone member which here strikes N. 25° W. and dips 20° SW. From a lens of breccia that lies parallel to the bedding, half a ton of siliceous limonite containing about 10 percent copper has been removed. The lens is enveloped by an aureole of dolomitized limestone. . (From Hewett, 1956, p. 136).

*Recorded production of the Carbonate King Mine (pl. 2, no. 56)*

| Year | Crude ore (tons) | Recoverable metals | | | | |
|---|---|---|---|---|---|---|
| | | Gold (ounces) | Silver (ounces) | Copper (pounds) | Lead (pounds) | Zinc (pounds) |
| 1917 | 71 | ---------- | ---------- | ---------- | 28, 407 | ---------- |
| 1918 | 20 | ---------- | ---------- | ---------- | 11, 654 | 2, 824 |
| 1927 | 600 | 0. 09 | 8, 412 | 1, 409 | ---------- | ---------- |
| 1928 | 28 | ---------- | 14 | ---------- | 22, 221 | ---------- |

*Figure 2. Recorded production from Carbonate King Mine. From Hewett, 1956, p. 157*