Geologic Analysis of Octave, Beehive Mines

Portions are From the book "Rich Hill, the history of Arizona's Most Amazing Gold District"

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Octave Mine-One of Arizona's best known mining properties, thought to be originally worked in the late 1860s. The workings of the Octave mine consist of the main mine and nearby, the Joker mine, both which were mining the same ore body. The original Octave consisted of a decline that went 2000 feet deep, three shafts and several thousand feet of tunnels. The Joker workings had a shaft that went down 1250 feet with approximately 3000 feet of tunnels. The best ore production was from about 300 feet down. Regarding the geology of the mine, it was a quartz-gold vein hosted within older granite and diorite. The Octave vein dips at an angle of about 20-30 degrees to the Northwest and the strike aligned with 70 degrees East of North. Old faults have also displaced the eastern side of the vein to about 400 feet deep, below the sediments of Weaver Creek. Toward the West, the vein was cut by old faults, similar to the Joker, but only offset the vein by around fifty feet. The richest ore in the vein occurred where it was alongside and bounded by one of the Apache diabase dikes.

The Octave Vein ranges from 5 inches to 5 feet thick and averages about 3 feet thick. The vein consists of massive gray to white quartz, with rare disseminations (4%-5%) of pyrite and galena. Older reports record small amounts of chalcopyrite. Little gold occurs in native form with most being microscopic inclusions on or within sulfide minerals. Of notable concentration was the pure galena, which assayed 100 oz. of gold and silver per ton and the pyrite which average 8 to 25 ounces per ton.

Having produced some 80,000 ounces of gold, the Octave Mine remains by a very large margin, the single largest producer of lode gold in the Weaver District. Interestingly, the lode gold from the Octave is more than the estimates of placer gold production for all mining operations in the district. Between 1895 and 1925, over 75,000 ounces of silver were removed from the Octave

ASARCO had last operated the mine on a large basis in the early 1940s.

The seller reports that experts believe one area at the Octave that bears further investigation is where the exposed veins run along the road from the White cross to the Joker shaft entrance. When Dr. Erik Melchiorre (author of "The Octave Mine") and the owner were walking the property a few years ago, the doctor said there maybe high gold values in one of the two main veins showing along there which would be easy pickings for a shallow surface operation. Also a nice specimen of crystalline gold in a narrow quartz stringer was found with a detector just uphill from the white cross a about 5 years ago so there is some specimen potential there as well.

You never know what might turn up as another vein of the Octave is found. While one owner sold the property around 1905, convinced that he had found most of the ore, in 1915, a subsequent owner

hired a crack mining engineer named J. Nelson Nevius who felt the mine had been mismanaged and the vein was not properly traced. He had his workers start uncovering a vein and do some work around what was called the Joker Shaft. They believed the main Octave vein had been offset by faulting in this area, and the awesome quality of what they found set a high-water mark for the property. Nicknamed "The New York Stope," the tunnels there produced 25,000 ounces of gold. The exceptionally-rich ore averaged one ounce of gold and one ounce of silver per ton, with the highest sample recording a jaw-dropping 6.1 ounces of gold per ton, while galena-bearing rock in the New York stope got as high as 12.84 ounces of gold/ton and almost as much silver.

Between the Octave and the Joker operations, there were more than 25 miles of tunnels, at 100-foot-intervals.

Early miners, in an attempt to get a piece this incredible Octave vein, filed claims all the way up the mountain, and included off-shoots of the vein. This 266 acre offering includes that land.

Beehive Mine- Believed my many geologists as an extension of the Octave Vein, the Beehive vein has virtually identical mineralogy, orientation and structure. Notable minerals reported and confirmed include bornite, tetrahedrite and gold-silver tellurides. The Beehive Mine is located at the center of the Golden Age claim where the vein intersects a north-west trending shear, or fault zone. The mine was first operated from the late 1890s to 1915 by the original owner. It was patented by a second owner, Andrew Peterson in 1900.

The Ziegler Tunnel, named for the first owner, is an inclined shaft that follows the vein down dip for 1100 feet. Various levels from the shaft had stopes on the high-grade ore. There are no detailed working, which are now largely under water and inaccessible. Ore pockets averaged .5 to 5 oz. of gold per ton, and one exceptionally rich ore chute yielded over 250 ounces of gold. In early 1920, Phelps Dodge Mining explored the property and reported "pocketey quartz." Unfortunately, the tonnage of ore required for a major mining operation was not blocked out and the asking price was too high.

In 1982, International Gold and Minerals Ltd. Drilled several exploratory holds to examine the vein at depth. Results must have been moderately promising, as in 1984, another larger company from Canada, began a second drilling program. Crusier Minerals drilled several holes, and reported 4-8-foot-wide intercepts of the vein with depth, averaging .19 to .39 oz. gold per ton.

According to the owner, he has copy of a study done at the Beehive in 1982 that included a very modest rotary drill program (several thousand feet). The seller indicates it was fairly informative and was able to prove the continuity of the beehive vein structure to a depth of 650' on the dip and 2000' on strike. There were an insufficient number of intercepts with the vein (significant depth to intercept and consequently high drilling cost) to draw any real conclusions as to homogenous values throughout the zone of study which could be used to calculate reserves with any accuracy in my opinion. It is believed that this will be the same problem faced by any small drilling program.

These two mines represent but a small portion of the entire 266 acres of patented claims. being offered for sale.

Further detailed geologic analysis from Dr. Melchiorre's "The Octave Mine" includes "Granite to dioritic igneous rock hosts the Octave vein chiefly composed of quartz and strikes (runs) 70 degrees East of North and dips at an angle of 20 to 30 degrees to the Northwest. The vein has experienced some degree of reverse faulting, as indicated by a fault gouge and cleavage in the vein. Old faults have displaced the Eastern side of the vein to a depth of over 400 feet below the sediments of Weaver Gulch. To the West, the vein has also been cut by old faults, but these faults, i.e.: The Joker Fault, only offset the vein by 50 feet or so. The vein is traceable on the surface for at least 2500 feet of strike. A few small barren quartz veins cut the Octave vein and are offset by the fault with a displacement of less than 100 feet. The richest ore in the vein occurs where it lies adjacent to and bounded by Apache diabase dikes.

The Octave vein ranges from 5 inches to 5 feet thick and averages about 3 feet thick."

Other resources include: "Octave Gold Mine-the Golden Queen of Rich Hill" and "Gold Atlas of Rich Hill, Arizona", both by Dr. Erik Melchiorre, published by Rock Doc publications.