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ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: LIME CHIEF 1 AND 2

ALTERNATE NAMES:

PHELPS DODGE SILICA MINE

PIMA COUNTY MILS NUMBER: 720

LOCATION: TOWNSHIP 14 S RANGE 1 E SECTION 10 QUARTER SE
LATITUDE: N 32DEG 13MIN 02SEC LONGITUDE: W 112DEG 15MIN 08SEC
TOPO MAP NAME: PISINIMO - 15 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:

SILICON DIOXIDE

BIBLIOGRAPHY:

ADMMR LIME CHIEF FILE

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Line Chief 1 & 2

Date September 5, 1961

District Sierra Blanca Mtns., Pima Co.

Engineer Lewis A. Smith

Subject: Conference with R.E. West, Chief Engineer

Location: SE cor. Sec. 10, T. 14 S., R. 1 E.

Property 2 claims (patented) (Book 765, page 553)

Owner: Phelps Dodge Corp. (New Cornelia Branch, Ajo, Ariz.) (Originally located by Fred Rhoads, G.A. Withers, and A.J. Jeffries in August 1954.)

Status: Idle

Minerals: Limestone and silica.

Access: 4 1/2 miles along the Ajo-Tucson Hwy., thence 3 miles northeast.

Work: The silica is largely exhausted in the open pit. The average grade mined was about 90 per cent silica, 6 per cent iron and some alumina. The quartz is in a "blowout" or chimney in sediments, which were intruded by diabase-like dikes and irregular bunches.

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

Mine Phelps Dodge Silica (Lime Chief Claims)

Date January 10, 1961

District Sierra Blanca Mountains, Pima Co.

Engineer Lewis A. Smith

Subject: Interview with Mr. West, Chief Engineer of Phelps Dodge, New Cornelia Branch

Mr. West stated that Richard Ballesteros had about exhausted his reserves at his mine west of Ajo, and would probably be awarded the contract to liquidate the remaining silica on the Lime Chief Claims. It is estimated that there are 2000 tons or more still remaining. Silica is still being obtained from the Allison Mine, Baboquivari Mountains; Anderson Mine, Gunsight Hills; White Peak, Pikes Peak area, Orizaba and Jack Rabbit in the Slate Mountains, and small amounts from Ballesteros. The supply is now adequate.

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

Mine Phelps Dodge Silica Mine

Date March 3, 1959

District Sierra Blanca Mtns., Pima County
Quijotoa District

Engineer Lewis A. Smith

Subject: Mine Visit

Owner: Phelps Dodge Corp., New Cornelia Branch
Ajo, Arizona
Jack Gilbert, Warren, Arizona, Contract operator.

Property: 1 claim

Minerals: Quartz

Location: The mine lies 40 miles from Ajo along the Ajo-Tucson Highway, and thence $2\frac{1}{2}$ miles in a N 10° E direction.

Topography: The area consists of a series of off-set faulted buttes, mainly composed of limestone with a steep dip westward and separated by a deep valley from the main Sierra Blanco Range. The buttes rise about 200-250 feet above the interior valley and the San Simon Valley to the west. These buttes are precipitous and then relief has partly been produced by faulting. This type of topography extends for $1\frac{1}{2}$ miles in length and 200 yards of width. The main range to the east is also rugged and precipitous although less precipitous as compared to the butte topography. The accompanying sketch shows these buttes and their geological relationship.

Geology: The area consists of a group of slates and intensely compressed and disrupted mica schists. These have been intruded by dikes and irregular masses of granite. The schists have been intensely metamorphosed near the contacts. Epidote, quartz garnet and another contact silicate probably wollastonite, have been introduced. Under the silica pit these have been intricately folded and domed into a set of cupolas. These cupolas bulge upward into the quartz. The quartz is a lenticular sheet which lies within the schist laminae and bulges the laminae apart into a lenticular mass (150' long and 100' wide). These also are present in the schist east of the major fault contact, and are indicated on the map in black (solid). The limestone-schist or granite contact east and north of the major fault is an erosional unconformity which represents a long epoch of erosion. The contact roughly strikes N 15° W.

The schist and the granite are most probably of Pre-Cambrian Age, while the deformed and locally metamorphosed limestone is probably Paleozoic. Locally the limestone has been marbelized and sparsely garnetized. Cross faulting with a northward trend separates the individual buttes, but these faults are barely evident, because of healing and detrital cover. The lack of dip concordance between the beds in each butte compared with the neighboring buttes is significant. The strike of the limestone beds, while somewhat indefinite, has on the whole been changed. Residuals of the relatively unweathered limestone indicated that it was fairly coarse grained and gray in color. Some of the limestone appears to be of good enough quality to be of use as limestone flux.

The silica lense on top of the first butte has been mined for silica flux by Jack Gilbert, Warren, Arizona, on a contract with Phelps Dodge. It assayed, for a long time, about 90% SiO₂ but lately bulges of schist into the quartz, have seriously lowered the silica content. Possibly 1000 tons of marketable silica remain. Small amounts could be pieced out for a few hundred tons, but these would be uneconomic under present silica rates.

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

Mine

Date

District

Engineer

Subject:

