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ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: LIVE OAK AND BERYL HILL

ALTERNATE NAMES:
BERYL HILL

COCHISE COUNTY MILS NUMBER: 149

LOCATION: TOWNSHIP 14 S RANGE 28 E SECTION 23 QUARTER SW
LATITUDE: N 32DEG 11MIN 48SEC LONGITUDE: W 109DEG 27MIN 45SEC
TOPO MAP NAME: BOWIE MTN NORTH - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:
BERYLLIUM
MICA SERICITE
SILICON QUARTZ
FELDSPAR

BIBLIOGRAPHY:
KEITH, S.B., 1973, AZBM BULL. 187, P. 72
ADMMR LIVE OAK AND BERYL HILL FILE
ANTHONY, J.W, ET AL, MINERALOGY OF AZ P 53

LIVE OAK & BERYL HILL MINES

COCHISE COUNTY
DOS CABEZAS DISTRICT
T14S R28E Sec. 23

RI 6828 p. 14

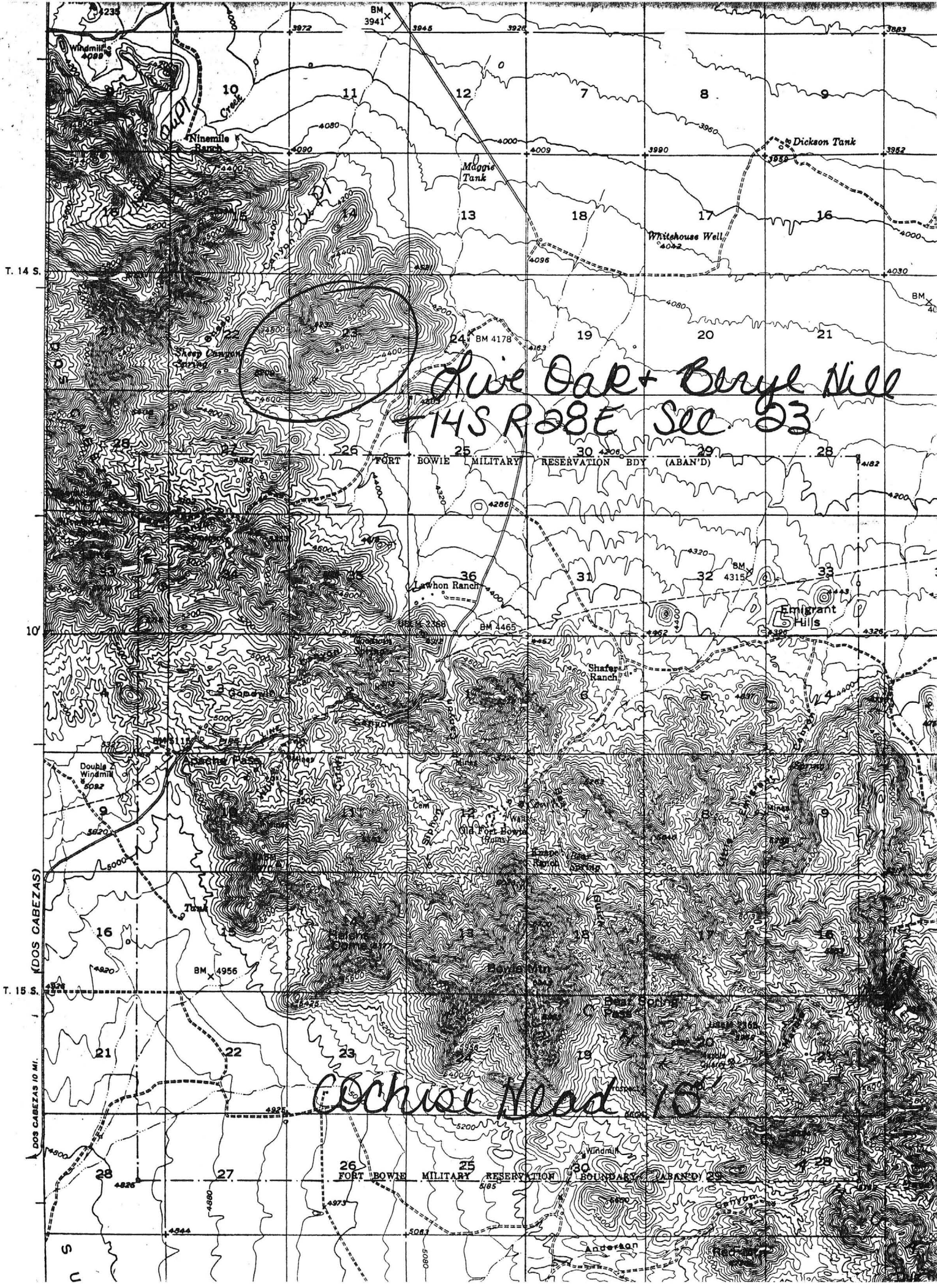
ABM Bull. 180, p. 105

Minerology of Arizona p. 15

Cochise County MILS Index #149

See: Map I-1310-B p. 53; Mineral Deposit Map of the Silver City 1⁰ x 2⁰ Quad., NM & AZ

Cochise Head 15' Quad., NM & AZ



Live Oak + Beryl Hill
T14S R08E Sec 23

Cochise Mead 15'

T. 14 S.

10'

T. 15 S.

DOS CABEZAS 10 MI.

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LIVE OAK & BERYL HILL MINES

COCHISE COUNTY

Henry H. Cox, Box 714, Willcox and Jesse Cox, Box 751, Willcox (partners) informed field engineer that they had received a letter from a New York firm wanting to buy quartz rock (1 $\frac{1}{4}$ " & 3/4") screened, and are considering furnishing quartz from their mines, shipping same to New York. Engineer recommended that they ask the N.Y. firm how much they will pay and more details on specifications, and also find out what the freight charges will be, and give engineer the name and address of the firm and this information when received.
ALJ WR 1-27-62

RI 6828, p. 14

ABM Bull. 180, p. 105

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Live Oak & Beryl Hill

Date May 8, 1959

District Dos Cabezas, Cochise Co.

Engineer Axel L. Johnson

Subject: Field Engineers Report. Personal Visit & Information from Henry H. Cox

Location: Sec. 23 - T. 14 S. - R. 28 E. About 10 miles S of Bowie. Drive south from Bowie on the Bowie-Dos Cabezas road for a distance of 7.7 miles. Turn right (west) and drive 1.3 miles on a rough trail. Park car and walk about a mile up a steep mountain.

Number of Claims: 6 unpatented claims -- 3 claims in the Live Oak Group and 3 claims in the Beryl Hill Group.

Owner: Henry H. Cox, Box 714, Willcox, Arizona.

Principal Minerals: Beryl

Present Mining Activity: None

Geology & Mineralization: (1) Live Oak Group - Pegmatite blowout containing quartz, feldspar, mica and a small amount of beryl. No definite strike or dip. Country rock granite. (2) Beryl Hill Group - Narrow pegmatite vein containing same minerals as the Live Oak. Vein strikes approximately N & S and is vertical, with both walls granite. Vein is about 2" wide at the surface, increasing to 26" at a depth of 10 ft. below the surface.

Ore Values: Mr. Cox reports having obtained an assay of 8.9% BeO on a sample of hand sorted ore sent to Beryllium Corporation of America.

Past History & Production: Live Oak claims located 1953-1954. Beryl Hill claims located in July 1956. Work on claims to date has been limited to the required annual assessment work. No ore shipments to date.

Mine Workings: (1) Live Oak Group - This consists of an open cut excavation, in a pegmatite blowout, which is approximately 12 ft. deep, with a width of 5 ft. at one end and 9 ft. at the other, and a length of 12 ft. at the top and 3 ft. at the bottom. Two sides of the cut exposes the granite and the other 2 sides are in the pegmatite blowout. A small amount of beryl rock (about 1/3 beryl) was found in an ore pile, but no beryl was visible in the cut.

(2) Beryl Hill Group - This is an open trench about 3 ft. wide, and 14 ft. long, increasing in depth from 0 to 10 ft. The pegmatite vein is about 2 in. wide at the top, increasing to about 26" in width at the bottom. A small amount of beryl rock (about 1/3 beryl) was found in an ore pile, with a small amount of beryl visible in the trench.

Commercial Possibilities: (1) Live Oak Group - Owner states that 300 lbs. of beryl ore, with approximately 1/3 beryl content, has been obtained from this cut and stockpiled at his home in Willcox. Value of this ore at \$300.00 per ton or \$0.15 per lb. = $\frac{300}{3} \times$

\$0.15 = \$15.00. Excavation in the cut amounts to about 630 cu. ft. or about 50 tons. Value per ton of excavation = $\frac{\$15.00}{50} = \0.30 per ton.

(2) Beryl Hill Group - Owner states that 125 lbs. of beryl ore, with approximately 1/3 beryl content, has been obtained from this trench and stockpiled at his home in Willcox.

Value of this ore at \$300.00 per ton or \$0.15 per lb. = $\frac{125}{3} \times \$0.15 = \6.25 .

Excavation in the trench amounts to about 210 cu. ft. or about 16.67 tons. Value per ton of excavation = $\$ \frac{6.25}{16.67}$ or \$0.375 per ton.

Average width of vein to date has been approximately 1 1/4". If this vein should increase to a width of 4 ft. with the same amount of beryl occurrence in the rock, the value per ton of excavation would then increase about 3.4 times to about \$1.27 per ton, which is still far from being commercial ore.

Transportation: In order to haul equipment up to the property, and haul out the mined ore, the following roads would have to be built.

(1) A road about 1.3 miles long from the Bowie-Dos Cabezas road to the foot of the mountain. This road would be on a fairly level terrain on valley fill, which could be constructed at a small cost.

(2) A road up the mountain about one mile long. The mountain is very steep, and is almost solid granite, and consequently the road will require rock excavation the entire length with a number of switchbacks. The cost of this road would be prohibitive for a small operation.

enrichment that might be useful in studying these deposits and similar deposits elsewhere.

BUREAU OF MINES BENEFICIATION STUDIES

The Bureau has done extensive research on beneficiating nonpegmatitic beryllium ores from Iron Mountain, N. Mex. (26); Lake George area, Colo. (23); and Spor Mountain, Utah (13-14, 17-18, 32). Generally most of the contained beryllium can be recovered from these low-grade ores by flotation, solvent extraction, and acid leaching or by a combination of these methods, but costs might be too high to compete commercially with imported beryl.

SIGNIFICANT OCCURRENCES

The 155 properties examined are listed by State and county in appendix A. Of these, 24 are considered to have significant amounts of material that contain more than 0.10 percent BeO and possibly several could be exploited economically with a moderate increase in demand, especially under national emergency conditions.

Arizona

All properties examined in Arizona for beryllium are shown on figure 6.

Beryl Hill Prospect

The Beryl Hill claim (fig. 6, loc. 2) is one of seven claims located on the eastern slope of the Dos Cabezas Mountains, a north-trending range that rises abruptly out of the desert 7.4 miles south of Bowie and three-fourths of a mile west of the Apache Pass Road. The mineralized exposures, at an altitude of 4,800 feet, are on the steep western slope of a ridge 800 feet above the desert floor. This area could not be reached by four-wheel-drive vehicle.

The property covers an outcrop of Precambrian biotite gneiss (4) enclosed by porphyritic granite. An opencut 22 feet long, 4 feet wide, and 12 feet deep in gneiss exposed two intersecting granitic dikes. The larger dike, 3 feet wide, strikes S 23° E and dips almost vertically. The cross dike, 11 inches wide, strikes S 8° W and dips 55° W, roughly parallel to the foliation of the gneiss. The granitic filling of the vertical dike contains a 3- to 8-inch beryl-bearing quartz core. Small beryl crystals, present wherever core contacted the enclosing granitic dike material, are elongated in the plane of the contacts. Beryl crystals also occur along contacts of dikes with gneissic wall rock, oriented perpendicular to the plane of these contacts. Very little beryl was observed in the larger dike away from the contacts or in the core. The gneiss had no detectable beryl. Sparse beryl is present as a filling in minute fractures in the cross dike. Another vertical dike outcrop, in line with the vertical dike in the opencut as projected, is exposed by a trench 17 feet long, 4 feet wide, and 2 feet deep. This dike is 45 feet southwest of the opencut and contains no quartz core or visible beryl, but scanning with a portable beryllium detector indicated the presence of some beryllium. Cobbed specimens revealed a thin, pale-blue coating along

fractures; the coating identified as fine-grain beryl after testing with the portable beryllium detector.

Seven selected samples from representative exposures were found to contain 0.18 to 2.63 percent BeO (equivalent) when tested with the laboratory beryllium detector.

Tungsten King Mine

The Tungsten King mine (fig. 6, loc. 9) contains small tungsten-bearing quartz veins. This prospect consists of a group of 12 claims which are located approximately halfway up the western slope of the Little Dragoon Mountains, about 16 miles northeast of Benson.

Quartz veins containing sparse beryl, scheelite, and sulfide minerals are generally parallel to an irregular, generally steep-dipping, contact between Precambrian schist and Tertiary granite (4). The quartz veins, ranging from 1 inch to 6 feet in width, occur either at the contact or in the schist within 35 feet of the contact.

The property has been developed by two adits: one inaccessible 275-foot adit with crosscuts, and one 25-foot adit along the granite-schist contact. There are also numerous opencuts and trenches in the contact zone.

Many specimens of beryl from outcrops of quartz stringers and representative samples of granite and schist were collected along 2,000 feet of the granite and schist contact. The samples were tested on the site with a portable beryllium detector. Granite and schist gave negative results. Only vein matter containing visible beryl gave a positive test. The beryllium appears to accompany the tungsten enrichment, occurring sparsely in the quartz veins within 10 to 15 feet of the contact. Veins further away apparently do not contain either beryllium or tungsten in appreciable amounts.

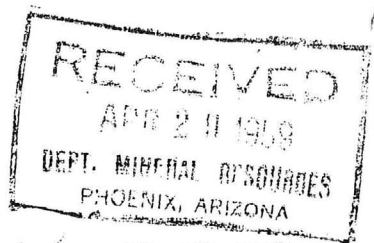
While the reserve potential of this occurrence is very low, a description is included because the beryl accompanies tungsten mineralization that in itself is economically marginal. The beryl and tungsten together might constitute a minable resource during a national emergency.

Breadpan Beryllium Deposits

The Breadpan beryllium claims (fig. 6, loc. 13) are in Breadpan Canyon, on the northeast slope of the Sierra Ancha Mountains (figs. 7 and 8), 13 miles westerly from Young. The last 2 miles of the unimproved access road descends in a steep switchback and ends at the Flying W Ranch on the floor of Spring Creek Canyon. From here, the claims can be reached by Jeep³ trail in the bed of Breadpan Creek above its junction with Spring Creek.

³Use of the trade name "Jeep" is necessary for clarity and does not imply endorsement by the Bureau of Mines.

DEPARTMENT OF MINERAL RESOURCES
State of Arizona
MINE OWNER'S REPORT



Date April 25, 1959

1. Mine: Live Oak + Beryl Hill 12 + 3 in Groups
2. Location: Sec. 23 Twp. 14S Range 28E Nearest Town Bowie, Ariz. Distance 10 miles
Direction North Nearest R.R. 10 Bowie Arizona Distance 10 miles
Road Conditions From bottom of hill to the top none exist C.R.
3. Mining District and County: Dog Cobergas, Cochise
4. Former Name of Mine: Same
5. Owner: Henry H. Cox
Address: Box 714 Willcox, Arizona
6. Operator: Same
Address: Same
7. Principal Minerals: Beryl
8. Number of Claims: Lode 2 Patented..... Unpatented.....
Placer..... Patented..... Unpatented.....
9. Type of Surrounding Terrain: Pegmatite
Dog Cobergas, Mts.
10. Geology and Mineralization: Pegmatite, Quartz, Feldspar, Mica +
Beryl
- Report from Beryllium Corporation of America
Analysis 8, 9 % Beryllium
11. Dimension and Value of Ore Body: Ledge 4' wide
one vein 1' wide
Depth not determined

Please give as complete information as possible and attach copies of engineer's reports, shipment returns, maps, etc. if you wish to have them available in this Department's files for inspection by prospective lessors or buyers.

12. Ore "Blocked Out" or "In Sight" *One Mine not in sight
One Mine in sight*

Ore Probable: *Ore is probable in both mines
We have sample out of each*

13. Mine Workings—Amount and Condition: *Prospect Hole - Condition Good*

No.	Feet	Condition
Shafts: <i>2</i>	<i>104.15</i>	Good <i>Good</i>
Raises:		
Tunnels:		
Crosscuts:		
Stopes:		

14. Water Supply: *One mile to well quarter*

15. Brief History: *We have found Beryl in the
mines up to present time since discovered
in 1953*

16. Remarks: *We think that the possibility
of Ore is good because of number of
crystals found in area*

17. If Property for Sale, List Approximate Price and Terms: *\$5000 ⁵⁰*
For two mines terms are Cash

18. Signature: *Henry H Cox Wilcox Ariz*

Phone Du 4-2474

PO 714