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Arizona Department of Mines and Mineral Resources Mining Collection

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PRINTED: 12/10/2002

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: BIG REEF

ALTERNATE NAMES:
GREEN DRAGON

YAVAPAI COUNTY MILS NUMBER: 965B

LOCATION: TOWNSHIP 7 N RANGE 2 W SECTION 8 QUARTER SE
LATITUDE: N 33DEG 57MIN 40SEC LONGITUDE: W 112DEG 29MIN 01SEC
TOPO MAP NAME: GARFIAS MOUNTAIN - 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:
MICA
BERYLLIUM

BIBLIOGRAPHY:
USGS GARFIAS MT QUAD
ADMMR BIG REEF FILE
MEEVES, H.C. ETAL. RECON OF BERYLLIUM-BEARING
PEPMATITE DEPOSITS USBM IC 8298 P 21
AZBM BULL 180 MIN. & WATER RES. OF AZ 1968
P 107, 400 & 402

T. 8 N.

T. 7 N.

3761

3760

3759

57'30"

3758



3451.1 NE (RED PICACHO) MORRISTOWN (U.S. 60, 70 AND 89) 9.8 MI.

3755

Big Reef Mt in Raw Sec 8 SE

Garfield Mtn 7.5

BIG REEF MINE

YAVAPAI COUNTY

NJN WR 12/31/82: A brief examination for beryl was made of some of the pegmatites at the Big Reef Mine in Section 8, T7N R2W. None was found in the quarries and pegmatites examined. Further prospecting is warranted, however, as beryl's occurrence there is reported as spoty and was recovered only as a by-product of the mica mining operation. No current activity was seen at the property.

NJN WR 4/22/88: Spent considerable time with Laksir Napier (card) reviewing the production and marketing of beryl ore and decorative rhyolite wonderstone. He reports he is considering producing these two commodities, along with mica, from a property position covering the Big Reef (file) Yavapai County.

BIG REEF MINE

YAVAPAI COUNTY

Visited Big Reef mine - gate locked. No activity due to lawsuits. FTJ WR 2-23-68

All equipment from Big Reef (Green Dragon) has been removed. No one at the mine. FTJ WR 6-14-68

Mr. Sprinkle of Tel Co., mentioned that he owned the Big Reef Mica mine near Youngtown. GWI WR 5-3-69

Visitor to office - R. T. Torkelson, Sec'y. Treas. of Great Western Minerals Inc. Suite 2002, First Federal Savings Bldg., 3003 N. Central Avenue, Phoenix. A. J. Petrie is president. They are trying to take over the Big Reef mine & mill. FTJ WR 2-20-70

Visited the Big Reef Mine - gate locked. The mine is taken over by Mineral Mountain Mining Co. No further information. FTJ WR 6-19-70

Visited with Mr. McQuire at his store re Big Reef mica mine - inactive. FTJ WR 6-21-71

To Big Reef Mine - watchman said I should call Hal Adams of Tempe for information - they expect to start operating. FTJ WR 11/11/71

The Big Reef mica property is still in litigation. FTJ. QR 9/71

Vern Dale phoned for information on Rio Del Oro Mining Company which had an article in the magazine section of yesterday's Arizona Republic. The files indicate this property has been promoted as a mica producer for several years; the last operator was known as the Big Reef Mining Company which built a crushing and screening plant. The mine is in Sections 7 and 8, T. 7N, R. 2W., in the Red Picacho district about 11 miles northeast of Morristown. GW WR 1/24/72

The Big Reef mica operation was visited and was idle. FTJ QR 71-72 2nd 1/4

Then went to Big Reef mica mine and mill, inactive. It is called Mineral Mountain Mining Company owned by Del Reme of Salt River Sand & Rock Company, Granite Reef Dam, Mesa. Phone, Mesa, 832-0550. The exact relationship not known. Watchman at property did not know their plans but a few tons of stock pile material is sold occasionally, did not say to whom, probably Smith of Buckeye Mica. FTJ WR 6/8/72

Went to the Big Reef mine, it was idle. FTJ WR 5-10-73

"Dee" D. M. Cantwell, called about beryl markets (crystals) and stated that he had not been operating his mica-beryl property the past two weeks because torrential rains in the area had washed out his access road. He is 6½ miles southwest of Sheep Mountain in Yavapai County, where Phelps Dodge has been drilling for nearly a year and still are. Prior to the rains Cantwell produced and sold 20 tons of 95 per cent mica concentrates and a few hundred pounds of beryl. He also said that Longyear was doing the P.D. drilling. Cantwell gets his mail at Morrystown. LAS WR 8-18-64

A. Robillard, 4321 E. Garfield, Phoenix, is interested in mica and had been approached by Dee Cantwell, who due to age and bad health wants to sell his mill and claims. According to H. G. Smith, Buckeye, who erected Cantwell's mill, the plant does a very good job of cleaning the mica, and is a dry mill. LAS WR 10-1-65

"Dee" Cantwell, Morrystown, who has a mica mill and claims north of Castle Hot Springs, said it's in operation but hopes to lease the whole works to a Colorado group. LAS WR 11-5-65

Visited Big Reef mine - Mr. Cantwell recently had Richard Mieritz, 5822 N. 22nd Pl., Phoenix, Arizona examine the property. Mr. Mieritz estimated 1,500,000 tons (according to Mr. Cantwell) of material available containing 400,000 tons of mica (scrap). Mr. Cantwell said a deal is being considered with a California Group. FTJ WR 2-18-66

Mr. R. E. Mieritz called about D. Cantwell's mica in which he said was a large reserve of mica bearing pegmatite that contained 12-20 percent mica. LAS WR 3-4-66

Mr. D. M. Cantwell reported that he was resuming work at his mica property north of Castle Hot Springs. LAS WR 4-1-66

Visited Big Reef Mine - gate locked and no activity evident. FTJ WR 10-21-66

Joe Wong, 29 E. 1st Ave., Scottsdale re Big Reef Mica Mine north of Morrystown - he said he and associates have taken over the Big Reef, and that they would come in this office Monday to examine reports. FTJ WR 2-17-67

Has been taken over by Wong Associated Enterprises, 29 Pima Plaza, Scottsdale. Joe B. Wong is President and one of his associates is R. G. LaGree, same address. Richard Mieritz is consultant. Five men were working at the plant which is being enlarged. A Mr. Beardsley is in charge and gave out very little information. FTJ WR 2-24-67

Mr. Mieritz is no longer consultant. 5-10-67 LP

Visited the Green Dragon property (Big Reef) north of Morrystown. Lonnie Kindren is superintendent but he was not at the property. They are still holding additions to the mill and are about 50% completed. FTJ WR 6-23-67

CANTWELL CLAIMS

RED PICACHO DIST.(Castle Creek)

Interview with D.M. Cantwell, 4114 E. Campbell Ave., Phoenix.

Doc Cantwell has been ill for some time, with a heart condition, but now it appears he can soon resume work on a slower basis. Before his illness he had nearly completed a mica mill capable of treating 30 tons per 24 hours. The plant consists of a crusher, multiple scalping screens, hammermill and tables, (Davis type of air machine). The crusher reduces the muck to 1/4 inch mesh and the fines are removed prior to being ^{sent} to a hammermill that "splits" the books. The hammermill travels at 450 r.p.m. and contains 4 hammers of 4-inch size. The face of these has been set for a 3 inch space between these hammers and the mill side. Thus the ore itself helps to delaminate itself. The final screened product ranges from 1/8 inch to 1/64 of an inch in sizes. Further delineation of size, if useful, will be obtained by further screens. \$30.00 f.o.b. Buckeye or \$40.00 per ton f.o.b. California, was offered for the screen cleaned scrap mica. A.C. Hamilton of Yuma has a 14 set shaking-screen assembly that produces up to 7 sizes. Hamilton wants to sell this unit which appears to be in good condition. It was used at a mica property near Oglesby, California, for a while. This was called to Cantwell's attention.

This area also contains deposits of white beryl of unknown extent but reputedly of good grade. It is associated with mica, white orthoclase feldspar and a little quartz, magnetite and titanium.

Cantwell also stated that he had contacted E.E. Maillot, Chief of the Phelps Exploration Division, and they plan to visit his property in April. He reportedly has a band of good gossan that indicates copper and pyrite. Cantwell obtained samples from places in this gossan that ran appreciably in gold. The gossan also contains chrysocolla and some malachite. A drill hole showed spots or kidneys of sulphides (pyrite and chalcopyrite). It is not known if this is representative and several more holes may be required before any evaluation can be arrived at.

MEMO - LAS - 3-4-63

Visited Cantwell's copper-gold claims bordering the Morrystown-Castle Hot Springs road and extending north from it. The property comprises 13 unpatented contiguous claims and 8 other contiguous northerly claims which will be staked. The large Bear Creek Mining Co. holdings adjoin Cantwell's claims on the south. A contractor is doing location work on a large number of claims for this company and a drill rig has been moved in and has started drilling about $\frac{1}{2}$ mile south of the road opposite the Cantwell property. TPL WR 8-1-59

Dee Cantwell, 1237 E. Moreland, Phoenix, whose property adjoins the property now being drilled by Bear Creek, in the Castle Creek Area. He stated that some long hole drilling under an iron gossan has disclosed some chalcopyrite-chalcocite sulphides. These were indicated by the oxidized capping he brought in previously. Richard Mieritz will supervise drilling and made a brief study of the claims. He stated that Cantwell's area looks more favorable to him than that being drilled by Bear Creek. The best iron gossan extends for a mile and varies from 50 to 100 feet in width. LAS WR 10-20-59

Dee Cantwell, who has several claims in the Red Picacho area, brought in a suite of capping specimens to be analyzed. These showed good pyrite limonite which indicated some copper had been present. Locally in veinlets and vugs, some good copper limonite showed. The material, according to Dee, carries some gold values. LAS WR 12-29-61

ARIZONA DEPARTMENT OF MINERAL RESOURCES

Mineral Building, Fairgrounds

Phoenix, Arizona

NO 511

- 1. Information from: Miko Bagley
- Address: 1645 E Thomas St Apt 207 334-3545
- 2. Mine: 3rd Pkt 3. No. of Claims - Patented _____
Unpatented 36
- 4. Location: _____
- 5. Sec _____ Tp _____ Range _____ 6. Mining District _____
- 7. Owner: _____
- 8. Address: _____
- 9. Operating Co.: Rio del Oro Mining Co
- 10. Address: Escobedo
- 11. President: J. J. Harris 12. Gen. Mgr.: Miko Bagley
- 13. Principal Metals: minerals 14. No. Employed: 5
- 15. Mill, Type & Capacity: Air - Jaw Pkts
- 16. Present Operations: (a) Down (b) Assessment work (c) Exploration
(d) Production (e) Rate 500 - 2500 tpd.
- 17. New Work Planned: _____
- 18. Misc. Notes: Roxbury reports being investigated and other methods are under study - flotation etc
They hope to recover other pegmatite minerals, feldspar beryl etc

Date: 5-12-71

F. T. [Signature]
(Signature) (Field Engineer)

ARIZONA DEPARTMENT OF MINERAL RESOURCES

Mineral Building, Fairgrounds

Phoenix, Arizona

- 1. Information from: Watchman of Mill + Camp site
Address: _____
- 2. Mine: Big Reef. 3. No. of Claims - Patented _____
Unpatented _____
- 4. Location: _____
- 5. Sec _____ Tp _____ Range _____ 6. Mining District _____
- 7. Owner: Del Reme of Salt River Sand and Rock Co.
- 8. Address: Granite Reef Dam. Phone Mesa 832-0550
- 9. Operating Co.: Mineral Mountain Mining Co
- 10. Address: _____
- 11. President: _____ 12. Gen. Mgr.: _____
- 13. Principal Metals: Mica 14. No. Employed: watch man
- 15. Mill, Type & Capacity: _____
- 16. Present Operations: (a) Down (b) Assessment work (c) Exploration
(d) Production (e) Rate _____ tpd.
- 17. New Work Planned: unknown

- 18. Misl. Notes: _____

Date: June 20 1922

[Signature]
(Signature) (Field Engineer)

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

FILED

MAR 23 1964

Mine Cantwell Property Date March 26, 1964
District Castle Creek Dist., Yavapai County Engineer Lewis A. Smith
Subject: Interview with ("Dee") D.M. Cantwell

Mr. Cantwell is operating his new mica mill. The mill consists of a 36" hammer mill with 4 arms connected to 10-1/8 x 10-1/4" hammers with 1" of abrasive coating material. The mill runs at 1865 R.P.M. and is powered by a D-4 engine and attached generator. The mill is followed by 2 cyclones that separate gangue waste. The cyclones are followed by 3 x 12 foot shaking screens that make 3 products plus a scalp product. The 3 screen products are run over 3 - 6 x 36 inch air tables that clean the mica. The products are 1/2 inch, 1/8 inch and 40 mesh, all on screens. These grades are blended before sacking. The finest product sells for \$41 per ton f.o.b. mine. The cyclone dust is bagged and sells for up to \$25 per ton. Books over 1 inch are shipped as such and cleaning is done in California. Sheet mica, as a commercial product is not available due to herringbone structures and minute magnetite grains between the leaves.

Cantwell estimates developed reserves at 6000 to 7000 tons of mica in a pegmatite belt that is 1 1/2 miles long and up to 200 feet wide. The pegmatite material, according to Cantwell contains 10-90 per cent of mica, the higher grade material being in variable sized lenses. The mica is clear and thin leafed, splitting easily. Much of the material goes into electric wire coats and other insulants, and for roof paper, paint fillings and false snow, etc. Some concentrate is used by H.G. Smith of Buckeye Mica for blending purposes, although most of it is sent to California.

Cantwell said that his group is a closed corporation consisting of: -

- ' D.M. Cantwell, Pres., Morristown
- ' Clyde E. Douglas, Attorney at Law, 1515 E. McDowell, Rd., Phoenix - AL 8-6158
- N. Gene Cantwell, 1830 N. 37th St. (son), Phoenix - WO 7-4153
- * Rev. C. Van Rock, 1st Baptist Church, Phoenix
- ' Keith D. Sprinkle, 2216 N. 74 St., Scottsdale - WH 7-1140
- ' Arne Westerinen, 238 Huntington Drive, Tempe - WO 7-4153

These, along with other minor partners, comprise the Big Reef Mining Co., Inc.

Beryl and white orthoclase are also present, but neither are being marketed. The beryl bearing material is being separated only when it can readily be hand cobbled. Beryl distribution in the pegmatite is usually spotty, or more concentrated in scattered local areas. Mr. Cantwell does not think it will pay to separate beryl alone. Over \$100,000, according to Cantwell, has been expended in the past three years for the plant, road, and mine development.

DEPARTMENT OF MINERAL RESOURCES

FILED

STATE OF ARIZONA
FIELD ENGINEERS REPORT

2001

Mine Cantwell Property Date March 26, 1964
 District Castle Creek Dist., Yavapai County Engineer Lewis A. Smith
 Subject: Interview with ("Dee") D.M. Cantwell

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Note: Phone Book, 1964, lists a Rev. C. Vaughan Rock, Pastor, First Southern Baptist Church of Phoenix, 1202 N. 3rd Street, Phoenix. ms

ARIZONA DEPARTMENT OF MINERAL RESOURCES

Mineral Building, Fairgrounds

Phoenix, Arizona

1. Information from: Guards at Gate
Address: _____
2. Mine: Big Feet (Green) Dragon 3. No. of Claims - Patented ?
Unpatented _____
4. Location: 11 mi NE Morrictown - off Castle Hot Springs Rd.
5. Sec 748 Tp 7N Range 7EW 6. Mining District White Picachia
7. Owner: Big Feet Mng. Co.
8. Address: Morrictown,
9. Operating Co.: Wong Associates Enterprises
10. Address: 29 - Pima Plaza, Scottsdale
11. President: V. B. Wong 12. Gen. Mgr.: J. B. Wong
13. Principal Metals: Mica 14. No. Employed: ?
15. Mill, Type & Capacity: dry, screening and air tables
16. Present Operations: (a) Down (b) Assessment work (c) Exploration
(d) Production (e) Rate 100 tpd.
finished product 25 tpd.
17. New Work Planned: _____

18. Misc. Notes: A weeks time to complete mill. All work suspended for unknown reasons. Mr. Canwell - manager of Big Feet Co. is in County Jail on 3 counts of attempted murder, ~~at~~ at the plant. Details not known.

Date: Oct 19, 1967

F. T. Conway
(Signature)

(Field Engineer)

BIG REEF MICA

WONG ASSOCIATED ENTERPRISES

29 PIMA PLAZA

SCOTTSDALE, ARIZONA

MICA MINING AND MILLING DIVISION

PRO-FORMA STATEMENT OF OPERATION

	<u>WEEKLY</u>	<u>YEARLY</u>
PRODUCTION QUANTITIES:	180 TONS	9,360 TONS
INCOME FROM PRODUCT SALES @ \$140.00 PER TON	\$ 25,200.00	\$1,310,400.00
COST OF PRODUCING AND DELIVERING PRODUCT		
MINING \$ 795.72		
MILLING 2,071.38		
GENERAL <u>3,740.00</u>	\$ 6,607.10	\$ 343,569.20
	<u>\$ 18,592.90</u>	<u>\$ 966,830.80</u>
COST OF PROPERTY CLAIMS & MILL	\$ 5,769.00	\$ 300,000.00
PROFIT FIRST YEAR BEFORE TAXES	<u>\$ 12,823.90</u>	<u>\$ 666,830.80</u>
FEDERAL TAX DEPLETION ALLOWANCE (23%)	\$ 5,796.00	\$ 301,392.80
TAXABLE PROFIT	<u>\$ 7,027.90</u>	<u>\$ 365,438.00</u>
UN-TAXABLE PROFIT	<u>\$ 5,796.00</u>	<u>\$ 301,392.80</u>
<u>TOTAL COMBINED PROFITS FIRST YEAR OPERATION</u>	<u>\$ 12,823.90</u>	<u>\$ 666,830.80</u>

ORE RESERVES WILL ALLOW A TWENTY EIGHT (28) YEAR OPERATION AND AFTER THIS FIRST YEAR OPERATION THERE WILL BE NO PROPERTY CLAIMS PAYMENT THEREFORE GIVING AN ADDITIONAL \$300,000.00 YEARLY PROFIT.

J. C.

MINING OPERATION

		<u>DAILY</u>	<u>WEEKLY</u>	<u>YEARLY</u>
<u>LABOR:</u>				
DRILLER-POWDER MAN	PER HOUR \$2.85			
	LBR TAX <u>.34</u>			
	\$3.19	\$ 25.52	\$ 287.52	\$ 14,951.04
LOADER-TRUCK MAN	PER HOUR \$2.50			
	LBR TAX <u>.30</u>			
	\$2.80	\$ 22.40		
<u>MATERIAL:</u>				
POWDER 100#	\$27.00			
CAPS 25	.85			
FUSE 500'	<u>8.50</u>			
	\$36.35		\$ 218.10	\$ 11,341.20
<u>EQUIPMENT FUEL:</u>				
TRUCK 10 GALLONS DIESEL	\$ 3.40			
LOADER 20 GALLONS DIESEL	6.80			
COMPRESSOR 20 GALLONS DIESEL	<u>6.80</u>	\$ 17.00	\$ 113.70	\$ 5,912.40
TRUCK 1 QUART OIL	\$.65			
LOADER 1 QUART OIL	.65			
COMPRESSOR 1 QUART OIL	<u>.65</u>			
	\$ 1.95	\$ 1.95		
<u>MAINTENANCE:</u>				
CLEAN UP AND SERVICE WEEKLY				
4 HOURS @ \$3.50	\$14.00			
4 # GREASE @ \$3.10	<u>12.40</u>			
			\$ 26.40	\$ 1,372.80
<u>REPAIR RESERVE:</u>				
MAJOR REPAIR & REPLACEMENT				
PARTS ALLOWANCE		\$ 25.00	\$ 150.00	\$ 7,800.00
			<u>\$ 795.72</u>	<u>\$ 41,377.44</u>

MC

MILLING OPERATION

		<u>DAILY</u>	<u>WEEKLY</u>	<u>YEARLY</u>
<u>LABOR:</u>				
MILL OPERATORS	PER HOUR \$2.50			
	LBR TAX .30			
	<u>\$2.80</u>	\$134.40	\$ 1,145.28	\$ 59,554.56
FOREMAN	PER HOUR \$3.15			
	LBR. TAX .38			
	<u>\$3.53</u>	<u>\$ 56.48</u>		
 <u>UTILITIES:</u>				
ELECTRICAL @ \$1.35 PER HOUR		<u>\$ 32.40</u>	\$ 194.40	\$ 10,108.80
 <u>MATERIAL:</u>				
BAGS 1200 @ 6¢ EACH PER DAY		<u>\$ 72.00</u>	\$ 432.00	\$ 22,464.00
 <u>EQUIPMENT FUEL:</u>				
TRACTOR	20 GALLONS DIESEL	\$6.80		
	1 QUART OIL	<u>.65</u>		
		<u>\$7.45</u>	\$ 44.70	\$ 2,324.40
 <u>MAINTENANCE:</u>				
CLEAN UP AND SERVICE WEEKLY				
4 HOURS @ \$3.50	\$14.00			
10 # GREASE @ \$3.10	<u>32.00</u>			
	\$45.00		-\$ 45.00	\$ 2,340.00
 <u>REPAIR RESERVE:</u>				
MAJOR REPAIR & REPLACEMENT				
PARTS ALLOWANCE		<u>\$ 35.00</u>	\$ 210.00	\$ 10,920.00
			<u>\$ 2,071.38 \$ 107,711.76</u>	

GENERAL ITEMS OF OPERATION

	<u>DAILY</u>	<u>WEEKLY</u>	<u>YEARLY</u>
<u>GENERAL MANAGER:</u> REGISTERED MINING ENGINEER		\$ 350.00	\$ 18,200.00
<u>FREIGHT:</u> TRUCKING TO LOS ANGELES @ \$8.00 PER. TONS ON 30 TONS PER DAY	<u>\$240.00</u>	\$ 1,440.00	\$ 74,880.00
<u>EQUIPMENT LEASE:</u> LEASE PAYMENTS FOR 1 YEAR PAY OFF		\$ 1,350.00	\$ 70,200.00
<u>MISC. ITEMS:</u> GENERAL ALLOWANCE	<u>\$100.00</u>	\$ 600.00	\$ 31,200.00
		<u>\$ 3,740.00</u>	<u>\$ 194,480.00</u>



GEOLOGIC APPRAISAL
PEGMATITE DEPOSITS
Big Reef Mining Co. Inc.
White Picacho Mining District
Yavapai County, Arizona

The writer completed an on-the-ground geological examination of the pegmatite mineralization within the boundaries of twenty lode claims held by the Big Reef Mining Co. The purpose of the examination was to study the mineralization outcrops and obtain factual data on which to base a reasonable, accurate and realistic ore reserves as regards the potential mica quantity in the pegmatite exposures.

CONCLUSIONS

The following conclusions can be forwarded as a result of the examination.

(1) The area is dotted with many pegmatite outcrops, some short in length and narrow in width, some circular or odd in shape and many of long lengths and wide widths.

(2) The strike-wise attitude of these exposures are north-south, east-west, northeast-southwest and northwest-southeast. Dip attitudes are nearly vertical or about 40 degrees to the horizontal.

(3) The young, deep, recent gully erosion cuts many exposures and provides an adequate and reliable guide to determine the "downward" existence, shape and size of the "hilltop" outcrops.

(4) The examination reveals the existence of some 1,590,000 INDICATED tons of pegmatite, plus 500,000 INFERRED tons of pegmatite, plus 500,000 INFERRED tons of micaceous schist which could make a good "mill feed".

(5) There are many small exposures not mapped nor included in the above tonnage estimates.

PROPERTY - LOCATION and OWNERSHIP

The Big Reef Mining Co. property includes 20 unpatented lode claims held by "right of location" and they lie in Township 7 North, Range 2 West, Section 8 and in part Sections 5, 7 and 9, G. & S. R. Base and Meridian, White Picacho Mining District, Yavapai County, Arizona. Claim names are Copper Skillet, Last Hope #1 through #19.

Claims are owned by the Big Reef Mining Co. of

Phoenix, Arizona. It is an Arizona corporation. Mr. Dee Cantwell is President and major stockholder.

The claims are valid locations and legal in every respect including being up to date assessment-wise.

Access to the property is over 14 miles of the good maintained graveled Castle Hot Springs road leading northeast from Morrystown which is on U. S. Highways 60, 70 and 89, forty miles northwest of Phoenix, Arizona.

GEOLOGY and MINERALIZATION

The country rocks in the immediate area are Pre-Cambrian Schists and Cretaceous andesites and rhyolite.

These rocks have been intruded by pegmatite material composed of quartz, feldspars and mica (muscovite) as the predominant constituents with such accessory minerals as beryl, columbite, tantalite, tungsten and probably augite of the pyroxene family, all in minor amounts.

The Big Reef Mining Co. has been mining the pegmatite orebodies for the mica content. The crude pegmatite is milled (crushed and air separated) and a mica product of high quality is produced which brings a price of \$48.00 per ton at the mine.

According to Richard Jahns, author of Arizona Bureau of Mines Bulletin #162, Pegmatite Deposits of the White Picacho District, Maricopa and Yavapai Counties, November, 1952, "the pegmatite deposits are fresh and unaltered, quite homogenous, occur as dikes, sills, pods and irregular branching masses most of which are elongated. They vary from 50 to 2000 feet long, averaging 400 feet, are 1 to 200 feet wide, averaging 40 feet and have steep dips."

Although the Big Reef property is not discussed in the Bulletin, the writer finds the above quoted statements very definitely apply, for the most part, to the pegmatites in the Big Reef property as evidenced by the dimensions of the outcrops exhibited under Ore Reserves. (see Geologic Map)

In many places, the schist in contact with the pegmatite has become quite micaceous in character and degree that it could be mined, milled and a good mica product produced for a profit. Although the mica particles are small, the mica content is there.

ORE RESERVES - PEGMATITE

Many pegmatite outcrops were visually on-the-spot examined, outline sketched, located by Brunton and distance estimated to a claim discovery monument or other recognizable point and measured by pacing or estimating lengths and widths. Depth, the third dimension for volume, was based on the visible vertical extent of the outcrop examined.

Most of the outcrops are clearly visible from the hilltops or ridges they usually form to the canyon or wash bottoms. In some cases both extremities of an outcrop are visible in separate canyons which cross-cut the pegmatites. The writer feels that the depth measurements used are therefor quite realistic, conservative and not of the "guesstimate" category.

The following schedule lists the outcrops examined and "measured" and shows the dimensions used to determine the volume of each.

ORE RESERVE TABLE - PEGMATITE

<u>Outcrop</u>	<u>Length</u>	<u>Width</u>	<u>Depth</u>	<u>Cubic Feet</u>	<u>Remarks</u>
"A"	40	x 15	x 15	9,000	
"B"	40	x 12	x 15	7,200	
"C"	65	x 13	x 20	16,800	
"D"	25	x 10	x 15	3,750	
"E"	55	dia.	x 27	19,700	
"E-1"	50	x 12	x 14	8,400	
"E-2"	75	x 13	x 12	10,900	
"F"	80	x 20	x 20	47,000	One leg Second leg.
"G"	50	x 15	x 20		
"H"	100	x 40	x 30	120,000	Being mined.
"H-1"	60	x 30	x 25	45,000	Some ore mined.
"H-2"	60	x 12	x 18	12,950	
"I"	175	x 25	x 70	$x\frac{1}{2}$ 153,000	Triangle
"J"	400	x 40	x 70	$x\frac{1}{2}$ 560,000	" "
"K"	400	x 50	x 70	$x\frac{1}{2}$ 700,000	" "
"L"	350	x 40	x 60	$x\frac{1}{2}$ 420,000	" "
"L-1"	225	x 30	x 25	169,000	
"L-2"	200	x 12	x 20	48,000	
"M"	400	x 40	x 50	900,000	(2/3 Vert. height
"M-1"	250	x 20	x 20	100,000	(used.
"N"	250	x 40	x 40	400,000	($\frac{1}{2}$ Vert height
"N-1"	200	x 50	x 40	400,000	(used
"N-2"	700	x 200	x 100	14,000,000	" " "
"P"	225	x 30	x 20	135,000	
"Q"	350	x 35	x 30	367,000	
"R"	200	x 70	x 40	560,000	
Total cubic feet				19,112,700	

Total cubic feet	19,112,7000	
Divide by 12		
Total INDICATED tons	1,590,000	Pegmatite
INFERRED tons	500,000	Pegmatite
INFERRED tons	500,000	Micaceous Schist.

An "in place" factor of 12 cubic feet to the ton has been used as a conversion factor in as much as quartz and feldspar have almost the same specific gravity, 2.56 to 2.60 while mica (muscovite) has a specific gravity of 2.76 to 3.0.

Richard Jahn, Arizona Bureau of Mines Bulletin #162 states "the mica content of the pegmatites vary from 10 to 70 percent." The writer also found this to be correct. The mica content is the most variable factor in tonnage calculations but it is the writers opinion that an average 25% mica content is a realistic figure, thus approximately 400,000 tons pure mica could be recoverable.

INFERRED RESERVES

The inferred pegmatite tonnage assumes the material to extend downward an additional 1/3 of the depth figure used in the volume calculations.

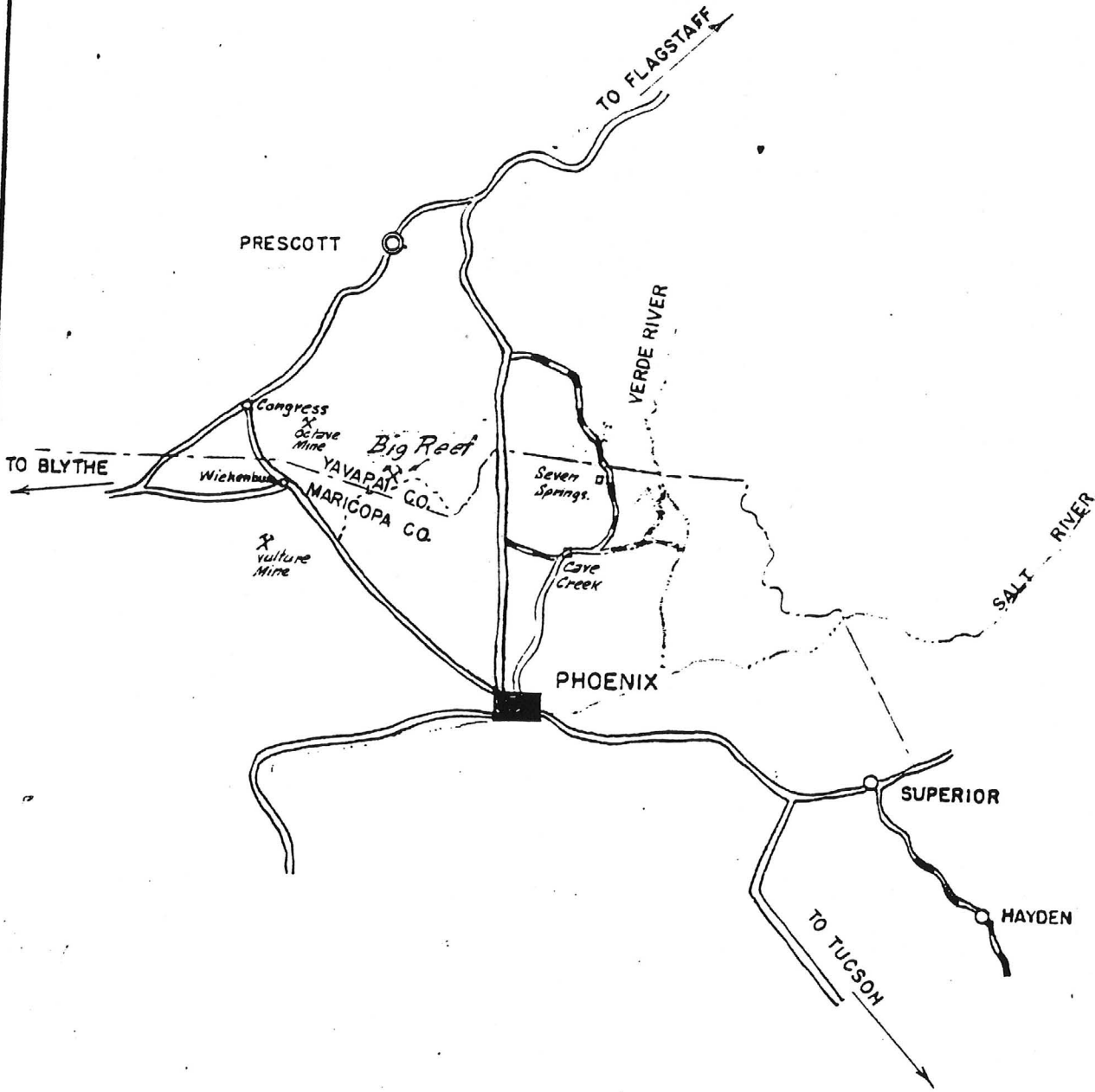
The inferred micaceous schist tonnage is merely "a guess" as visually determined by the "frequency of exposure" accompanying or associated with many of the pegmatite outcrops.

PHYSICAL PROPERTIES - MICA

The mica is of the muscovite type being very transparent, clear or a very light green in color and very thinly laminated. Much of the mica particles are from $\frac{1}{4}$ to $\frac{1}{2}$ inch square or rectangular in size but "books" up to 6 inches square are not uncommon. "Books" larger than an inch are usually quite fractured and thus break when split along the laminations and prohibit commanding a price higher than \$48.00 per ton.

The milled product has a grade "A" quality rating and commands a \$48.00 per ton value at the mine. The best, nearest market is Los Angeles, California.

R. E. Mieritz, P. E.
Mining Consultant
Phoenix, Arizona



Community

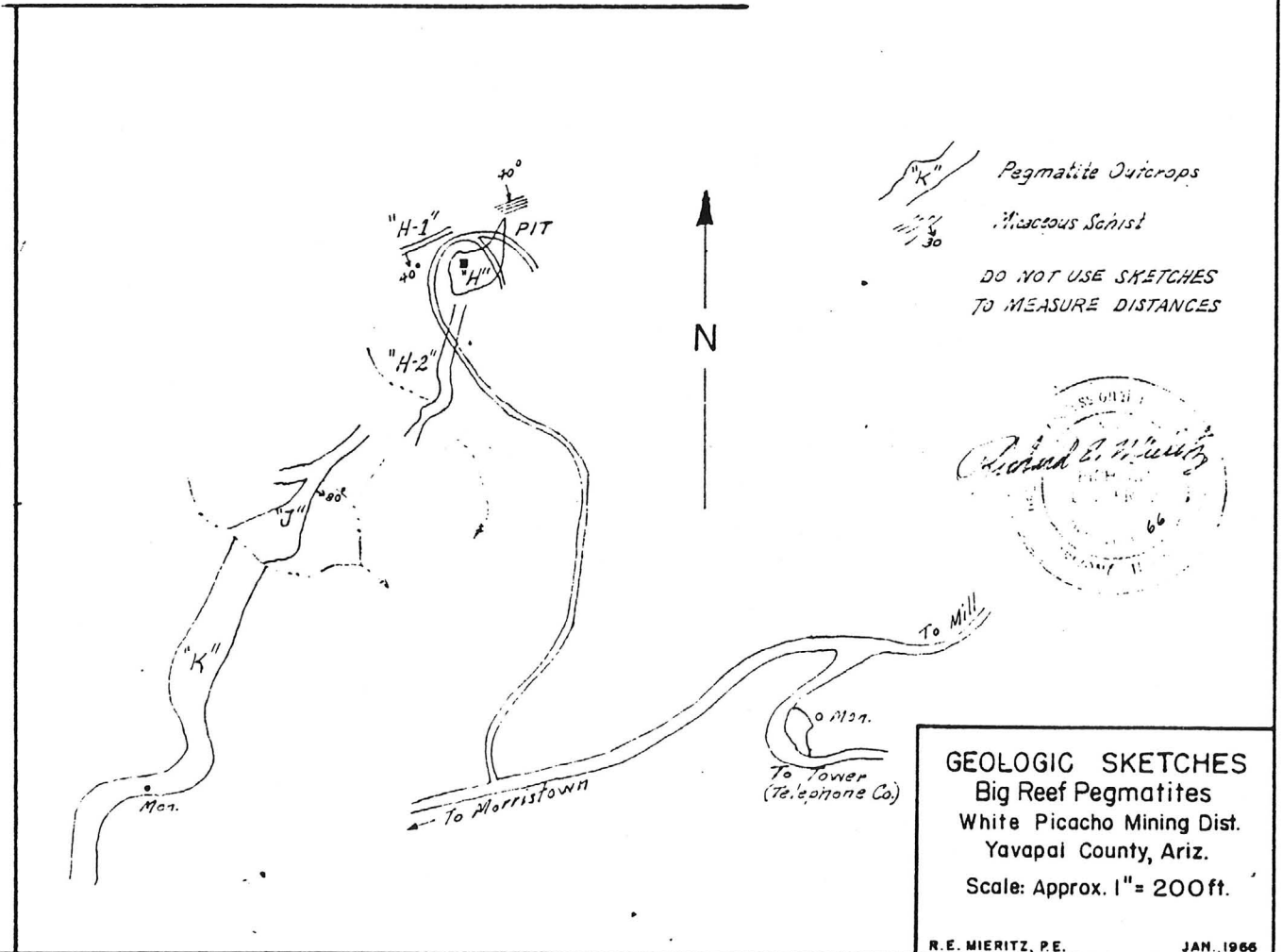
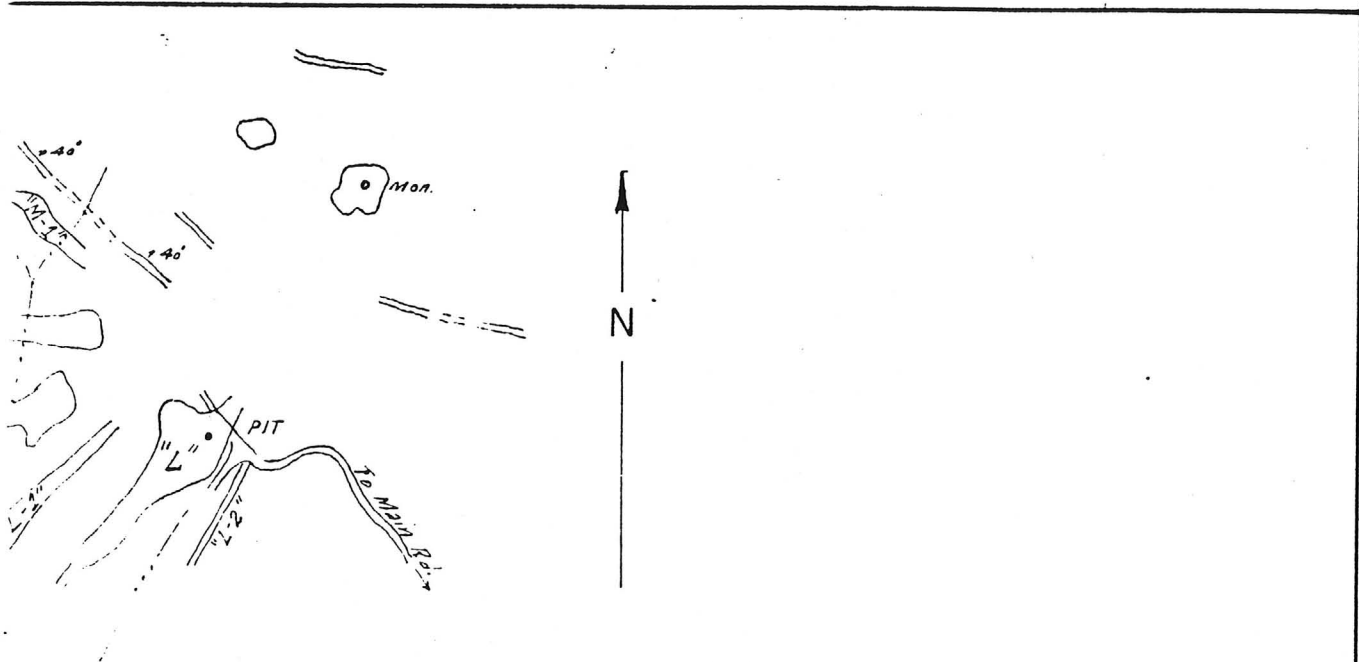
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R.E.M.*

**INDEX MAP
CENTRAL ARIZ.**

SCALE: 1" = 27 MI

R.E. MIERITZ, P.E. MAR., 1962



GEOLOGIC SKETCHES
Big Reef Pegmatites
 White Picacho Mining Dist.
 Yavapai County, Ariz.
 Scale: Approx. 1" = 200 ft.
 R. E. MIERITZ, P.E. JAN. 1966

