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PRINTED: 11/08/2001

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: KYANITE 1-3

ALTERNATE NAMES:
BAYLES

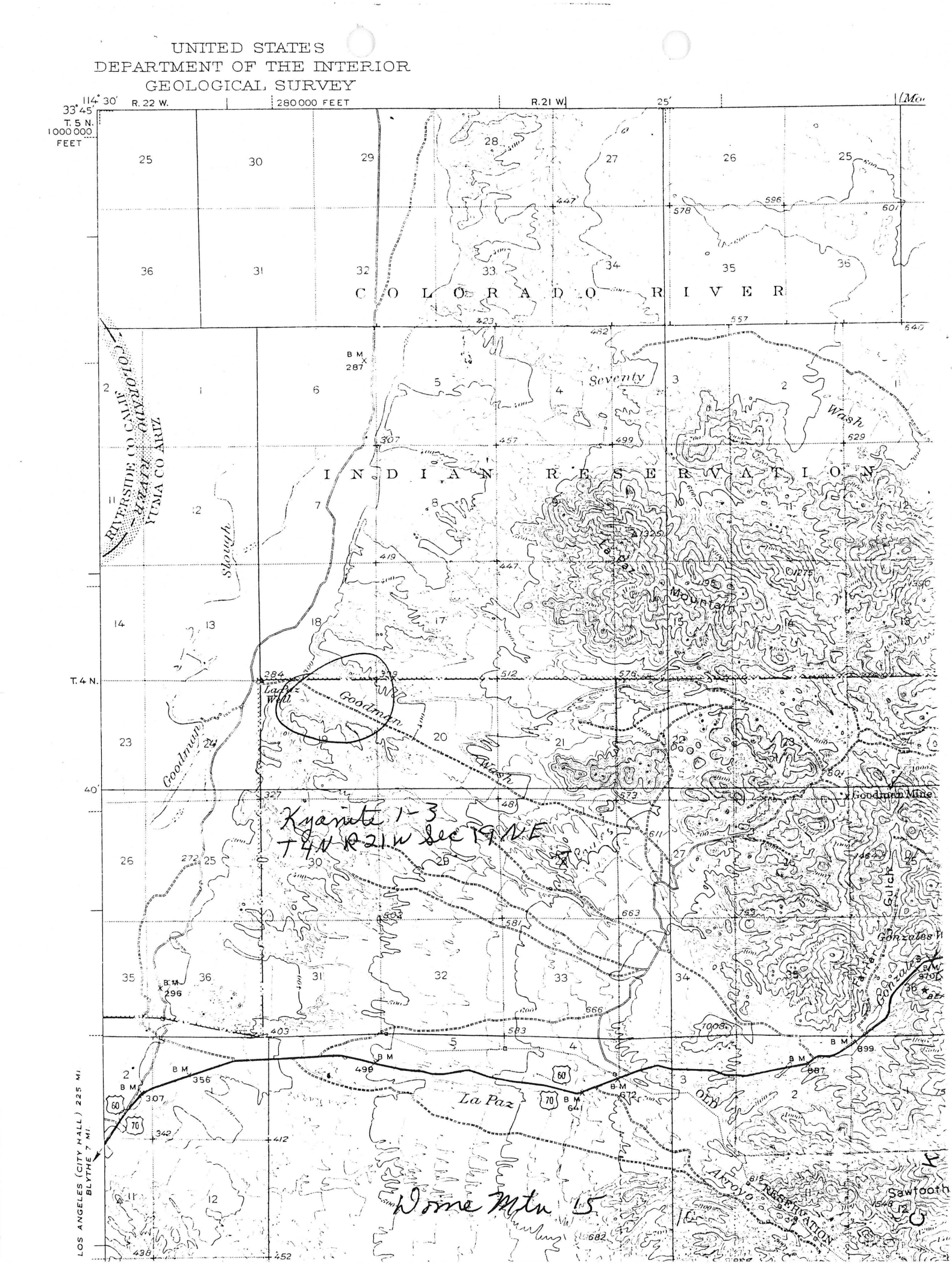
LA PAZ COUNTY MILS NUMBER: 248

LOCATION: TOWNSHIP 4 N RANGE 21 W SECTION 19 QUARTER NE
LATITUDE: N 33DEG 40MIN 25SEC LONGITUDE: W 114DEG 27MIN 24SEC
TOPO MAP NAME: LA PAZ MTN - 7.5 MIN

CURRENT STATUS: UNKNOWN

COMMODITY:
KYANITE
SILICON SILICA
TITANIUM RUTILE

BIBLIOGRAPHY:
ADMMR KYANITE 1-3 FILE
AZBM FILE DATA


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
114° 30'
R. 22 W.
280000 FEET
R. 21 W.
25'
33° 45'
T. 5 N.
1000 000
FEET
COLORADO RIVER
INDIAN RESERVATION
RIVERSIDE CO. CALIF.
YUMA CO. ARIZ.
Seventy
Wash
Slough
La Paz
Mountain
Goodman
Wash
Goodman Mine
Kyanite 1-3
T4N R21W Sec 19 NE
Gulch
La Paz
OLD
Arroyo
Dome Mtn 1.5
Sawtooth
LOS ANGELES (CITY HALL) 225 MI
BLYTHE 7 MI

BAYLES KYANITE MILL

YUMA COUNTY

A Kyanite milling plant has been built north of Ehrenburg by Robert Bayles. Stopped at the Inland Supply, owned by Mr. Bayles, he said he had finished the flotation mill this spring and has made some trial runs on ore from the K-D deposit which indicates there is too much specular hematite in the concentrate to make a first grade saleable product. GW WR 10-16-70

Went to Ehrenberg and saw the young Mr. Bayles whose father owns the kyanite deposit and mill NE of there. He said they had given an option to some California people which is about to expire. They have done some metallurgical testing of the deposit and investigated the market possibilities to some extent. GW WR 12/14/72

K - D MINE YUMA

Floyd Everett, USBM, called to say a Mr. Sallsbery of Los Angeles had called him regarding markets for kyanite. He has purchased the kyanite deposit and mill north of Ehrenberg from Mr. Boyles. GW WR 11/17/72

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Bayles Kyanite Date February 7, 1963

District La Paz, Quartzsite District, Yuma Co. Engineer Lewis A. Smith

Subject: Interview with R.B. Bayles, now operating the World Building Supply Co. of Blythe, California, (P.O. Box 873)

Mr. Bayles stated that his group have been having tests run at Livermore, California. It is hoped that, by these tests, to make a better extraction of the kyanite from quartz and rutile, the other ore constituents. Kyanite, it is reported, can be floated well, but costs must be bettered. A market survey indicates that there is a good demand in the glass and pottery industries for kyanite for kiln furniture. Samples taken by Kings Mountain Kyanite Co. of North Carolina showed less kyanite content than previous tests by others, had shown. Eugene Turley reported that they ran about 27-30 per cent of kyanite. Turley was acting for the Kings Mountain people, who have not followed through after their tests. This is verified by Bayles, who had considerable correspondence with them.

Bayles has ½ million board feet of large sizes of fir lumber for sale to mining companies for timber. The lumber is completely seasoned and otherwise appears to be in good condition. He stated that he would cut the timber to specifications and deliver the timber for $95.00 per thousand board feet. A list of operating underground mines was sent to Bayles.

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

Supplementary

Mine: Bayles Kyanite — Date: January 8, 1960

District: Dome Rock, La Paz Dist., Yuma County — Engineer: Lewis A. Smith

Subject: Interview with R.B. Bayles of Ehrenburg (Box 47)

Owner: R. B. Bayles & Son

Bayles has temporarily leased the Stetler Mill, 1½ miles southwest of Quartzsite. The mill was equipped with a bin, jaw crusher, rolls, a battery of 5 large stamps, and 2 tables (Wilfley). Bayles added a flotation unit, water tank, and compressor. He will test the separation of the kyanite, rutile and quartz which comprise the deposits. He will follow the recommendations of Mr. Roseveare of the Arizona Bureau of Mines, who worked out a flowsheet for this ore.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Bayles Kyanite Date May 5, 1961

District Dome Rock (La Paz) District, Yuma Co. Engineer Lewis A. Smith

Subject: Mill visit with R. B. Bayles (owner) Box 47, Ehrenberg

Location: 6 miles north of Blythe on west side of the Colorado River in California.

The mill consists of an ore bin followed by three jaw crushers in series with screens. The crushers are:
1.) 10 x 12 inches - 3/4 inch product
2.) 12 x 16 " - 10 mesh product
3.) 10 x 12 " - 10 to 35 mesh product

The crushers are followed by 12 x 16 inch rolls which reduce the kyanite to about 35 mesh or smaller. The roll product (35 mesh) is sent through a conditioner to a set of Denver No. 24 flotation cells where the kyanite is floated from the quartz gangue. American Cyanimid's 825 reagent has produced a plus 90 percent kyanite concentrate. The concentrate is then sent to a table for removal of rutile. Eventually, it is planned to roast the kyanite to mullite. The Denver cell will handle about 3 tons per hour. The plant also includes a sink float machine which is capable of around 2 tons per hour and runs with ferro-silicon at about 2 gravity. Four Denver jigs were originally used for manganese beneficiation, but they are not usable for kyanite separation.

Mr. Bayles has plans to eventually buy a roaster ($15,000) to roast the kyanite to mullite. (Mullite ranges from $Al_2O_3.SiO_2$ to 3 $Al_2O_3.SiO_2$ depending upon the heat of roasting.) The conversion points range from 2750 degrees F to 2950 degrees F. The bulk of the use in California calls for 35 mesh, but sizing ranges from 15 to 100 mesh for special uses. Bayles gets the 15 mesh type by sink-float. Screening will yield considerable 60 and 100 mesh, even though 35 mesh is the principal product. The 15 mesh is used in brick and furniture in the glass industry.

A new mill location is planned at about 6 miles north of Ehrenberg on the Arizona side. This place is flat and would accommodate 3 to 4 millsite claims. It borders a paved highway, has adequate water, and would be only 4-4½ miles from the mine to the east, a haul saving of 10-12 miles as compared to the present site. The mine road would follow a low mesa for almost the entire distance. The new plan would place the primary crusher on the mesa edge and the remainder of the plant on the level plain. Shipment of concentrates would be from Blythe. Thus, by shipping from the California side, a better rail freight rate could be obtained from the Santa Fe Railroad. The Parker gas line passes right by the site. Power would be furnished by diesel and adequate tailings disposal room is present.

Recent test samples from long cuts on the ridges at the mine indicate 35-40 percent kyanite, 3-4 percent hematite and rutile (about equal) and the remainder is quartz. A large potential reserve seems assured, on 5 ridges. It is hoped that a few test holes can be sunk in the near future, at the top center of each ridge. The ridges, upon superficial observation, appear to be composed of kyanite-bearing material, but it would be better to drill them to assure a good actual reserve. Should this prove out, there could be as much as 1,000,000 tons of ore available.

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

Mine Bayles Kyanite

Date September 10, 1959

District Dome Rock

Engineer Lewis A. Smith

Subject: Supplementary Report by
R.B. Bayles, Box 47, Ehrenberg

Bayles has recently obtained a mill, previously set up to mill manganese, which has combined flotation and gravity, and is relatively new, and is available to him on a partnership basis each way. The mill people would have a half interest in the mine and Bayles a half interest in the mill. Bayles says the plant is comparatively new and in good condition. His recent tests indicate that the kyanite floats readily and at 30-35 mesh an excellent recovery is made. The rutile separates cleanly on tables. Bayles reported that a market for all three products is available with Prior and Co., Los Angeles. The prices offered are:

Quartz	$20.00 per ton	(92% plus)
Kyanite	$62.00 " "	(92% plus)
Rutile	negotiable according to grade	

Concentration tests by the Arizona Bureau of Mines (Roseveare) indicate that separation of the three elements is very good and that products of 92-95% pure were obtained.

The mining will be very cheaply done by open pit particularly since the deposit stands up above the mesa in bold relief. Bayles estimates that he can mine the material for $1.50 to $2.00 per ton. He has trucks, cats, and a 1 yard trackscavator in addition to a compressor (600 Ingersol Rand) and drill equipment. Since the deposit is only 3 miles over a good dirt road from 60-70 highway, the haul would be cheap to the mill, which he states will be set up at Blythe, or, if good freight rates to San Bernardino can be obtained, at San Bernardino, California. Trucks returning from the east empty will haul to San Bernardino for $5.00 to $6.00 per ton, and many are returning empty. This has been checked by Bayles.

The kyanite will probably go into the ceramics industry and to a limited degree in refractories. The refractory use has in recent years been curtailed appreciably by the use of synthetic kyanite. The quartz is crushed for glass manufacture and for foundry sand. Rutile goes mainly into titanium base paints.

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

Mine Bayles Kyanite-Rutile-Silica Claims Date May 8, 1959

District Plomosa, Yuma County Engineer Lewis A. Smith

Subject: Mine Visit

Property: 2 unpatented claims

Location: 8 miles east of Ehrenburg (60-70 Highway) and thence north 3½ miles by dirt road (1-3/4 miles air line).

Owners: R. B. Bayles & Son, Box 47 (A-1 Motel) Ehrenberg, Arizona

Work: Several pits and two bulldozer cuts were made for sampling and development work over a length of 1500 feet and a width of 600 feet.

Topography: The deposit occupies a ridge about 100 to 150 feet high, which projects upward from a severely dissected mountain pediment near the west base of the steep Dome Rock Mountains. Most of the deposit lies above the mesa level and is, therefore, amenable to open pit mining.

Geology: The deposit consists of an E-W trending band of pegmatitic material 1500 feet long and 600 feet wide. This material analyses 30 percent kyanite; 60 plus percent silica; and 4½ to 5 percent of rutile. The quartz is angular and variable in size, but is mainly relatively fine grained and is clear in places. The rutile is disseminated in small particles and the kyanite is in with quartz in blebs and small masses. The band is bordered on the north by granitic gneiss and on the south by a dioritic rock.

Metallurgy: According to tests run by Roseveare of the Arizona Bureau of Mines, the rutile will separate by concentration to form a 92-94 percent concentrate. The kyanite will separate very well by flotation.

Economics: Mr. Bayles states that he has a limited market for the rutile with a paint manufacturer, for the kyanite with the ceramics industry, and the silica in foundary work. He requested a list of people who would be interested in his three products and was furnished with this by letter.

He has leased the old Tungsten Mill 1 mile south of Quartzsite. This mill is equipped with tables and flotation units. Water is available near by. He will try and revamp the plant to handle all three minerals, later.

In addition Mr. Bayles has 2 RD8 cats, several trucks, and a yard-loader as well as drill equipment.