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JUN 10 1955

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

224 New Customhouse
Denver 2, Colorado

June 6, 1955

Memorandum

To: Chairman, Operating Committee, DMEA

From: DMEA Field Team, Region III

Subject: Report of Examination, DMEA Docket 3707 (Asbestos), Jaquays Mining Corp., Regal mine, Gila County, Arizona

Enclosed are the original and three copies of the report pertaining to the above application. The Engineering report and the Survey report are not in agreement.

We would recommend DMEA participation in some exploration from the present face, south of the diabase dike, but the applicant proposes to do this work on his own account, and will not subordinate the ground involved in this exploration work.

We therefore recommend that the application be denied without prejudice. If the results of the applicant's exploration south of the dike are favorable, a new application would receive proper consideration.

DMEA Field Team, Region III

W. M. Traver

W. M. Traver

E. N. Harshman

E. N. Harshman

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
11-19-56
(date)

DMEA
Date Rec'd.

MAY 23 1955

BUREAU OF MINES

TRANSMITTED
JUN - 6 1955

May 19, 1955

Memorandum

To : W. M. Traver, Executive Officer, DMEA Field Team

From : Superintendent, Southwest Experiment Station

Subject : Engineering Report, Docket DMEA-3707, Jaquays Mining Corp.'s Regal Asbestos Mine, Gila County, Ariz.

Enclosed are original and 8 copies of the section on Summary, Conclusions and Recommendations by W. R. Hardwick of the Bureau of Mines and the section on Engineering by the same author. A short memorandum also is enclosed by Lincoln A. Stewart, mining engineer, Bureau of Mines (our asbestos expert). A separate section on Geology will be submitted by the Geological Survey.

The Survey member of the DMEA examining team (L. Dryner), and the Bureau member (W. R. Hardwick) evidently cannot agree on their recommendations so separate reports are being submitted by each. I have carefully read Hardwick's report, as has L. A. Stewart, and we both concur with his recommendations. However, as the Field Team may not agree with us, no maps for a possible contract are being enclosed.

Walter R. Storms

Walter R. Storms

CC W. M. Traver (8)
J. N. Faick (without report)
DMEA-3707
DF

WRStorms:frj

Reviewed by
DMEA OPERATING COMMITTEE
11-19-56
(date)

RECEIVED

SOUTHWEST EXPERIMENT STATION
Box 4097, Tucson 5, Arizona

May 18, 1955

Memorandum

To : Walter R. Storms, Superintendent, Southwest Experiment Station.

From : Lincoln A. Stewart, Mining Engineer, Tucson, Ariz.

Subject : Regal mine - DMEA-3707.

Although I have not inspected the workings of the Regal mine within the past year, I am familiar with the operation and with the problems involved in the exploration of this deposit. Asbestos concentrations occur in the limestone that has been shattered and distorted by thrust faulting. The thrust fault system of the Regal mine is a strong geologic feature; it has been shown to be continuous for 1,700 feet along its strike and it can reasonably be expected to extend for at least another 1,000 feet southward from the present working faces.

Relative to the question of subordination of claims to be benefited by the proposed exploration, Jaquays limits the lien to 2 claims. He is currently producing asbestos from the known ore body on claims to the northwest and does not wish to subordinate these known reserves.

CC W. M. Traver (Orig. & 8)
DMEA-3707
DF

LAStewart:frj

Reviewed by
DMEA OPERATING COMMITTEE
11-19-56
(date)

This is not an unusual procedure in Defense Minerals Exploration Administration applications. The Coronado Copper and Zinc Co. (DMEA-2746) subordinated 2 separate, small areas, roughly 1,000 by 1,600 feet and 600 by 800 feet; United States Smelting, Refining, and Mining Co. (DMA-1325A) subordinated an area of only 1,150 by 3,300 feet and farther limited it to a 500-foot vertical range. In both the above cases, the applicants were not willing to subordinate areas in which current work on known ore bodies was in progress. Even with the limited subordinated areas involved, Coronado was granted a contract for $99,050 and U. S. Smelting, a contract for $382,000.

In view of the above precedents Jaquays' request for subordination of 2 full claims, on which a $26,000 proposed exploration is to be conducted, does not appear to be unreasonable.

I have read Hardwick's report and concur with his recommendations and program of exploration.

LINCOLN A. STEWART

Lincoln A. Stewart
Mining Engineer
Southwest Experiment Station

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

DMEA-3797, Jacquays Mining Corporation

Regal Asbestos Mine

Gila County, Arizona

William R. Hardwick, Mining Engineer
U. S. Bureau of Mines

May 1955

Reviewed by
DMEA OPERATING COMMITTEE
11-19-56
(date)

TRANSMITTED

JUN - 6 1955

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

By William R. Hardwick 1/

The Regal asbestos mine, Gila County, Ariz. was purchased from the Asbestos Corp. of America by the Jaquays Mining Corp. for $60,000.15 in 1952. The Regal mine is one of the three largest asbestos producers of the Gila County asbestos district and has produced from 5,000 to 6,000 tons of low-iron fiber. During 1954, the mine produced 500 tons of fiber valued at $333,000.00. According to D. W. Jaquays, all of the purchase price will be paid by June 1955 and Jaquays Mining Corp. will be the sole owner.

In 1953, Jaquays asked for assistance from the Defense Minerals Exploration Administration to explore for and extend the ore body. This request was approved, the project (DMEA Docket 2867) did find fiber, and the Government's funds were repaid. The applicant estimates 1,000 tons of fiber will be produced from the existing ore reserves.

Strategic fiber occurs along the strike of the low-angle Regal thrust fault system for a distance of 1,700 feet. The quantity and grade of fiber has improved along the fault at the places where the diabase sill has swelled upward causing a slight dome effect in the favorable limestone beds. Two domes have occurred, and a third is inferred in the area to be explored.

1/ Mining engineer, U. S. Bureau of Mines

For the second time, the Jaquays Mining Corp., 1219 South 19th Ave., Phoenix, Ariz. has applied for assistance under the terms of the Defense Production Act of 1950, as amended. This application was docketed DMEA-3707, (Asbestos), reviewed by Oliver Bowles, Commodity Specialist, and referred to the field for an examination and report. The applicant proposes to explore for asbestos fiber along the projected trend of the Regal ore body by drifting and crosscutting from an extension of the Navajo adit. The applicant estimates the total cost of the project to be $33,000.00.

The Regal mine was examined on May 3 and 4, 1955 by William R. Hardwick, mining engineer, U. S. Bureau of Mines, and Leonid Bryner, geologist, U. S. Geological Survey. The examining team was accompanied by D. W. Jaquays, president, and A. W. Jerhardt, superintendent of the Jaquays Mining Corp.

The examining engineer and the examining geologist are not in agreement and it is believed that the geologist will recommend denial.

The examining engineer believes that a significant amount of strategic fiber may be discovered, that the method of exploration proposed is the most logical and practical, and that the applicant's request for assistance should be approved.

The following conclusions are drawn:

1. The product of the mine, low-iron spinning-grade chrysotile fiber, is of strategic importance.

2. A significant amount of fiber may be found.

3. While some exploration from the existing face is desirable, the applicant proposes to do this work at its own expense and the Government should not insist on participating in costs.

3. The cost of exploring the target area from the existing mine face would be greater.

4. As the applicant does not plan to move ore through the Navajo adit, but will continue to haul ore to his present sorting plant, the proposed project cannot be considered development.

5. The proposed exploration should be completed while the mine has a small reserve and is operating.

6. The applicant will not subordinate any ground that contains known asbestos reserves.

7. An area of 180,000 square feet will be explored. If fiber is found in an area of 47,000 square feet, the returns should be enough to repay the Government's share of the exploration funds if the grade of fiber is the same as that mined during 1954.

The examining engineer recommends an exploration project that will consist of 1,000 feet of drifting and crosscutting, and 150 feet of raise. The total estimated cost is $26,000.00.

DMEA-3707, JANUARY MINING CORPORATION
REGAL ASBESTOS MINE
GILA COUNTY, ARIZONA

Engineering Report

By William R. Hardwick
Mining Engineer
U. S. Bureau of Mines

May 1955

DMA-3707, JAQUAYS MINING CORPORATION
REGAL ASBESTOS MINE
GILA COUNTY, ARIZONA

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INTRODUCTION

The Regal asbestos mine was purchased from the Asbestos Corp. of America by the Jaquays Mining Corp. in 1952 for the sum of $60,000.15. The Jaquays Mining Corp. then applied for Government assistance (DMLA-2867) to explore for additional ore. The assistance was granted and the company was successful in finding more ore before the project was completed; the exploration contract was canceled, and the funds advanced by the Government were repaid by a cash settlement.

The Jaquays Mining Corp. has produced fiber and has paid all but $5,000.00 of the agreed purchase price. However, ore reserves have been considerably depleted and the operator has applied for Government assistance from the Defense Minerals Exploration Administration to explore for additional ore.

This application proposes to explore for asbestos fiber south of the present mine and along the projected trend of the Regal fault system by driving a new adit. The total amount of work proposed by the applicant is 1,250 feet of drifting and crosscutting, and 150 feet of raises at a total estimated cost of $33,000.00.

The application was docketed DMLA-3707, reviewed by Oliver Bowles, Commodity Specialist, Branch of Construction and Chemical Materials, Bureau of Mines, and referred to the Field Team for an examination and report. The Regal asbestos mine was examined on May 3 and 4, 1955, by William A. Hardwick, mining engineer, Bureau of Mines, and Leonid Brynor, geologist, Geological Survey.

The examining engineer and the examining geologist are not in agreement as to the merits of this application; the examining engineer recommends that the Government assist in the proposed project, but the examining geologist does not recommend the project.

ACKNOWLEDGMENTS

Acknowledgments are due to D. W. Jaquays, president, and to Alvin W. Gerhardt, superintendent, Jaquays Mining Corp., for their courtesy to the examining team, and for furnishing information relative to the application for Government assistance.

The Regal mine was examined on March 19 and 26, 1953 by Lincoln A. Stewart, mining engineer, Bureau of Mines, and much background material for this report has been copied from his report (Docket DMEA-2867).

LOCATION, TOPOGRAPHY AND CLIMATE

The Regal mine is situated in the Crook National Forest on the south rim of Salt River Canyon about 30 airmiles northeast of Globe, Gila County, Ariz. (figure 1). The mine is at an altitude of 4,250 feet, or about 1,250 feet above the river. According to the Crook National Forest map, the Regal property is in approximate sec. 36, T. 6 N., and sec. 1, T. 5 N., R. 16 E., unsurveyed.

The mine is at the end of a 9.6-mile graded dirt road that branches west off paved U. S. Highway 60 at a point one-half mile north of Seneca (37 miles north of Globe). It is accessible throughout the year except for a few days after heavy rains or snow storms, when the dirt access road is virtually impassable.

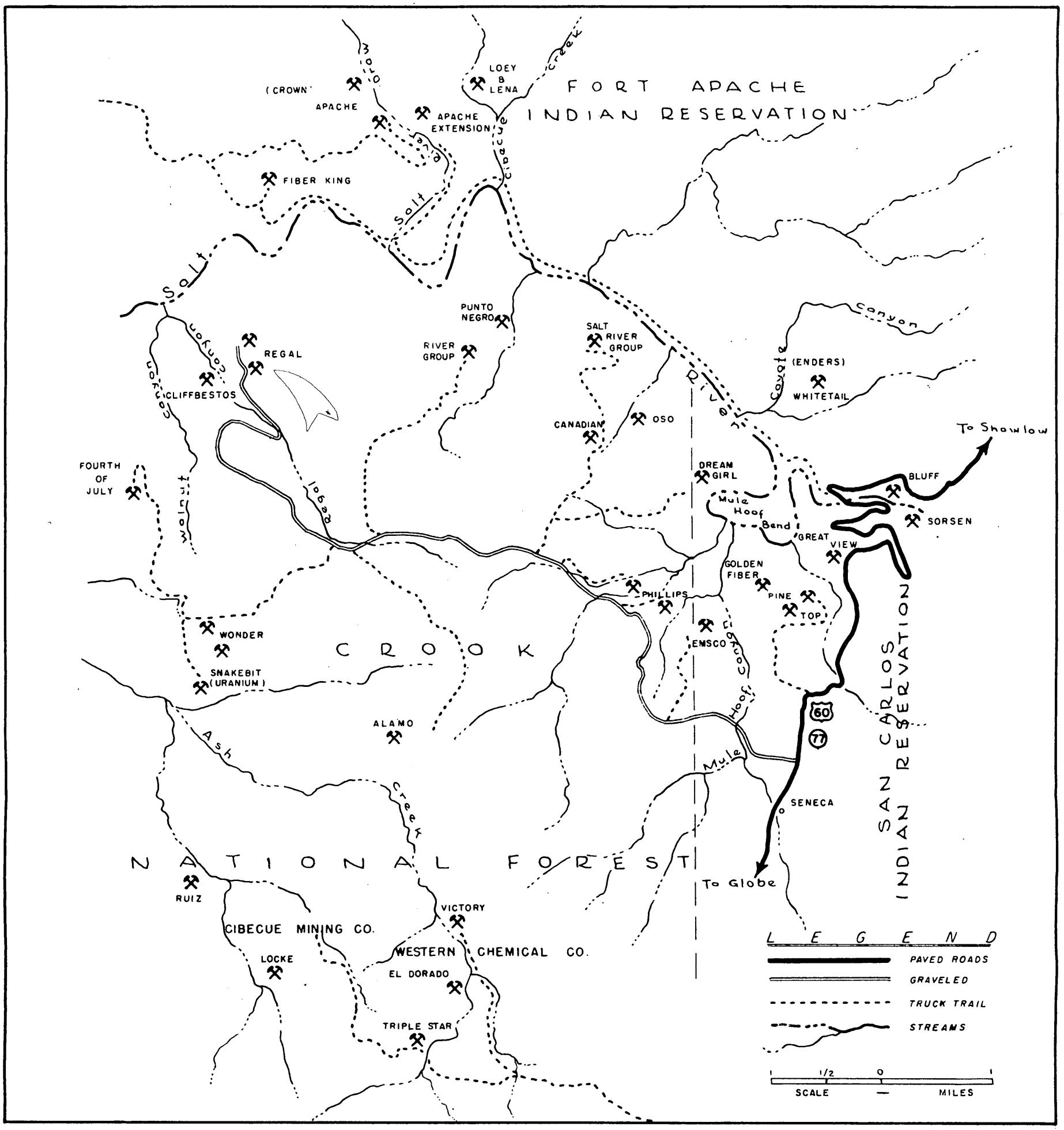

FIGURE - 1 - MINE LOCATION MAP - MAJOR PART OF SALT RIVER DISTRICT

HISTORY AND PRODUCTION

The nucleus of the group consisted of about 10 claims that were located prior to 1917. During 1918 the property was being developed by the Colorado-Arizona Asbestos Mining Co. and a small production was reported. The Denver Arizona Asbestos Co. produced some fiber from the property in 1919. The claims were purchased by E. Schaaf-Regalman in 1919, who relocated the claims and added many more to the group. By the end of 1921, the Regal Asbestos Mines, Inc., E. Schaaf-Regalman, president, had taken over the property. It was idle, except for assessment work, from April 1921 until 1925. During 1925 and 1926, lessees were its principal, but intermittent operators. In June 1927, the company resumed regular development and production. The following year a mill was constructed, said to have a capacity of 30 tons of mill rock per 8 hours.

About 1937, the Arizona Chrysotile Asbestos Co. took over the property and made substantial yearly production under various managements through 1948. The mill was destroyed by fire in August 1948. In December 1950, Jaquays became the manager of the company, operated the mine for company account, and from a surface lease produced fiber by open-pit methods for himself. In June 1952, Jaquays bought the Regal mine and the mill in Globe which had been built with the assistance of Defense Plant Corporation financing.

The Jaquays Mining Corp. paid a price of $60,000.15 for the mine and mill. This price included a cash payment of $15,000.00; six semi-annual payments of $5,000.00 each; $10,950.70 to General Services Administration (successor to Defense Plant Corporation) on Mortgage covering the mill; and $4,049.45 due on a conditional sales contract for machinery.

In 1953, Jaquays Mining Corp. applied for and was granted Government assistance (Docket DMSA-2567) to explore for additional ore. Additional ore was discovered and the contract was terminated at the request of the applicant. All funds advanced by the Government were repaid.

During 1953 and 1954, the Jaquays Mining Corp. has mined 1,000 tons of asbestos at the rate of 45 tons of finished fiber per month. The total production of the Regal mine has been on the order of 6,500 tons of fiber, all grades, which is reported to have been sold for $4,000,000.00. This mine has been the second largest producer in the district and soon may become the largest. A large portion of the recent production has been No. 1 and No. 2 crude.

OWNERSHIP AND EXTENT

The property consists of 27 unpatented claims. The 22 claims, bought June 1, 1952 by the Jaquays Mining Corp. from Asbestos Corp. of America, are recorded at the Gila County Court House, Globe, Ariz. as follows:

Name	Book	Page
Regal No. 1	43	87
Regal No. 10	35	436
Regal No. 11	35	437
Regal No. 12	35	438
Regal No. 13	35	439
Regal No. 14	35	440
Regal No. 15	35	441
Regal No. 16	35	442
Regal No. 17	35	443
Regal No. 18	35	444
Regal No. 19	35	445
Regal No. 21	35	447
Regal No. 22	35	448
Regal No. 23	35	449
Regal No. 24	35	450
Regal No. 25	35	451
Hunts No. 3	41	500
Hunts No. 4	41	500
Hunts No. 5	41	501
Hunts No. 6	41	501
Hunts No. 29	41	491
Amended	41	502
Hunts No. 30	41	491

D. W. Jaquays stated that on June 1, 1955, the final $5,000.00 semi-annual payment would be made to the Asbestos Corp. of America after which the Jaquays Mining Corp. would own the claims.

Five additional claims have been located by Jaquays. These claims are recorded as follows:

Name	Book	Page
Jaquays No. 1	50	91
Jaquays No. 2	50	92
Jaquays No. 3	50	93
Jaquays No. 4	50	90
Jaquays No. 34	50	94

All of the above claims are shown on figure 2. For the purpose of the requested assistance, Jaquays Mining Corp. proposes to obligate only 2 claims, Hunts No. 29 and Hunts No. 30.

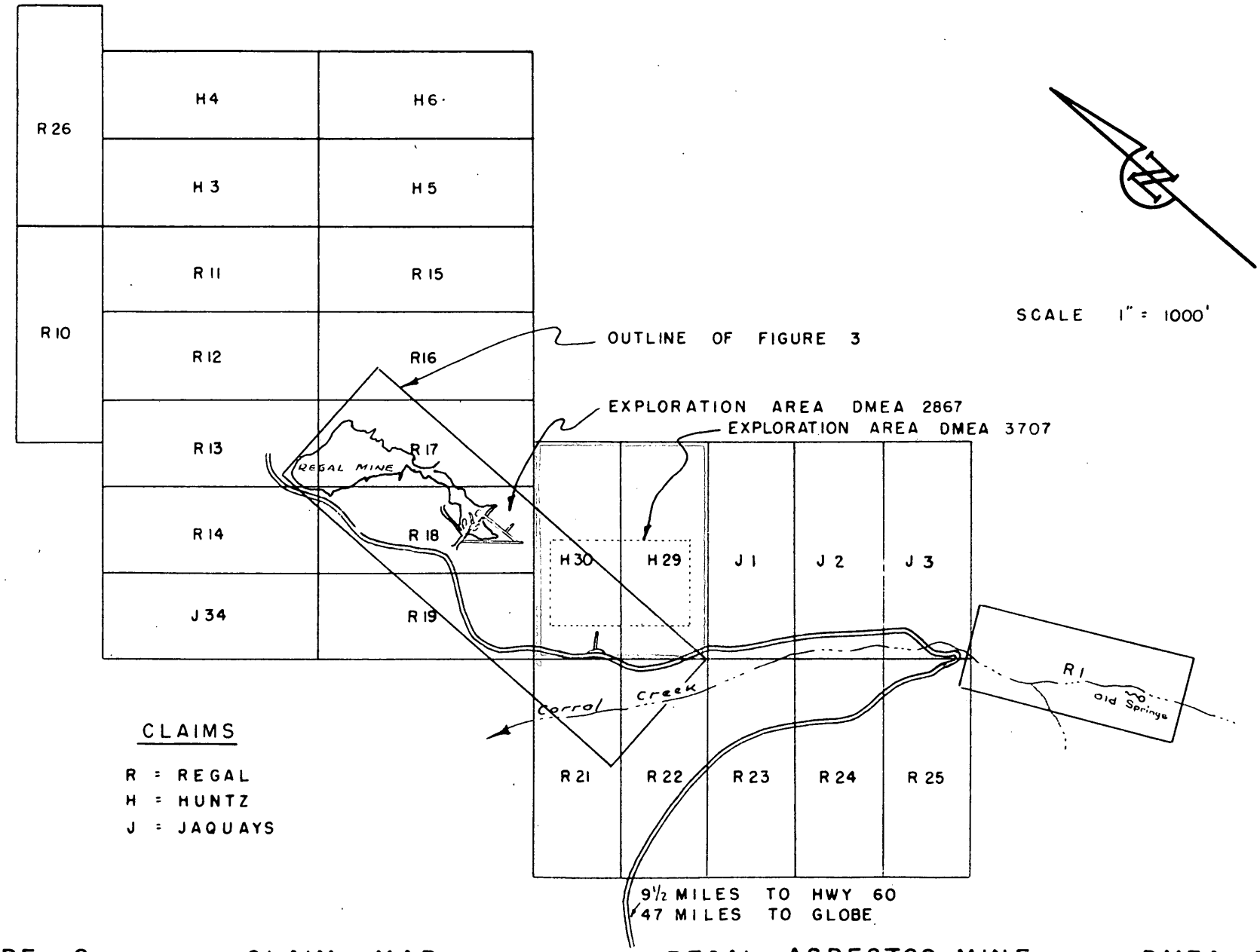

FIGURE 2. - CLAIM MAP

JAQUAYS MINING CORP.

REGAL ASBESTOS MINE DMEA 3707

GILA COUNTY, ARIZONA

The question of how much ground should be subject to royalty was discussed with D. W. Jaquays on May 4, 1955. Jaquays believes that there is enough measured and indicated ore in the existing mine to produce 1,000 tons of fiber, or to more than pay off the assistance that he has requested, but he will not subordinate this ground under any condition. However, Jaquays believes that the project which he has presented will explore ground where a substantial quantity of asbestos may be found. He believes that this project fulfills the requirements of an exploration project and that he should not be required to offer as security the subordination of claims containing known ore, particularly when the area that contains known ore will not be benefited by the project.

DESCRIPTION OF THE DEPOSIT

The Regal deposit outcrops high on the cliffs on the south side of the Salt River Canyon at an altitude of 4,250 feet. The main veins are in the lower-pre-Cambrian Mescal limestone, about 30 feet below the algal member of this formation, and approximately 15 feet above a thick diabase sill that has warped the bedding locally. The 2 most productive veins are 5.5 feet apart and are usually carried at the roof and near the floor of the drifts and stopes. A less important vein was found in the near-surface workings 2 feet under the lower vein. Another important vein is sometimes found at the base of the algal member 30 feet above the main vein system.

The greatest concentrations of ore have been found in the warped areas that have been shattered by the Regal thrust fault and its branches. Near the surface the stoped areas are 600 feet wide, gradually decreasing to a width of 100 to 150 feet at about 600 feet in depth. This average width of ore persists to about 1,000 feet in depth where the minable ore again increases to a width of 300 feet and continues to the present working depth of 1,700 feet (see figure 3).

The ore is found along the limbs of folds. Where certain areas along the fault are relatively flat-lying, no concentrations of fiber are present. About 1943, this condition existed at the then south end of the mine and it was considered virtually worked out. Additional exploration work completed with the assistance of the Defense Minerals Exploration Administration (docket DMEA-2067) proved the existence of another ore-bearing structure along the fault zone and this area is now being worked by the applicant.

A persistent band of dark green serpentine, 1 to 2 inches thick, occurs in the bedding between the two main ore zones. It is locally called "the oscar" and is found in all parts of the mine and along the surface outcrops. It is a reliable marker that indicates the favorable beds even when no fiber is present. The beds that contain the "oscar" outcrop on a canyon wall about 250 feet west of the interior mine workings. The outcrop there (see figure 3) contains only traces of asbestos, but this is to be expected as the beds are

relatively level and undisturbed. This "oscar" is visible for the full length of the Navajo adit. It is at the bottom for the first part of the adit and is at the top of the drift for the last 75 feet due to a fault which shows a displacement of about 7 feet.

MINABLE ORE RESERVES AND GRADE

The prediction of ore reserves for an asbestos mine of the Arizona chrysotile-asbestos deposit type is difficult. Abrupt termination of the asbestos-bearing limestones by a discordant diabase intrusion, without predictable indication in adjacent exposures, is common. In the case of the Regal mine, a definite favorable trend has been established for a distance of 1,700 feet along the Regal thrust fault.

The grade of material can be determined best from mining experience. In 1954, the area stoped was 40,000 square feet and the total production from this area was 500 tons of fiber, all grades. This is equal to 25,000 pounds per 1,000 square feet. A thickness of 1 inch of asbestos throughout an area of 1,000 square feet will produce 6.5 tons, or 13,000 pounds of fiber, all grades. Therefore, the fiber that was recovered is equal to a vein 1.92 inches thick over the area mined in 1954.

A large part of the fiber that is produced from the Regal mine is of strategic quality. During the year 1954, the fiber that was produced was divided by grade as follows:[1]

1/ Oral statement by D. W. Jaquays.

Grade	Tons	Percent	Estimated Value
No. 1 crude	80	16	$120,000.00
No. 2 crude	120	24	108,000.00
No. 3 (filler grade)	300	60	105,000.00
Total	500	100	$333,000.00

The applicant states that the ore reserves at present are estimated at about 1,000 tons of asbestos fiber. A rough check of the fiber thickness by field measurement, and the probable area by map measurement indicates that this is a reasonable figure.

PRESENT STATUS

The Regal mine now is being operated by Jaquays Mining Corp. which will become the owner on June 1, 1955 when the final payment on a purchase contract is made. The present production is at the rate of 60 tons of crude ore per day. The present known reserves will last from 1½ to 2 years at this rate of production.

PROPOSED EXPLORATION

The applicant proposes to explore a feverable area (see figure 2) by driving 1,250 feet of drifts and crosscuts, and 150 feet of raises at a total estimated cost of $33,000.00. The applicant has requested assistance from the Defense Minerals Exploration Administration to do this work. At the same time, the applicant proposes to mine ore from the southern end of the mine and to drive exploration drifts southward from the existing face at its own expense. The complete exploration project as envisioned by the applicant is shown in figure 3.

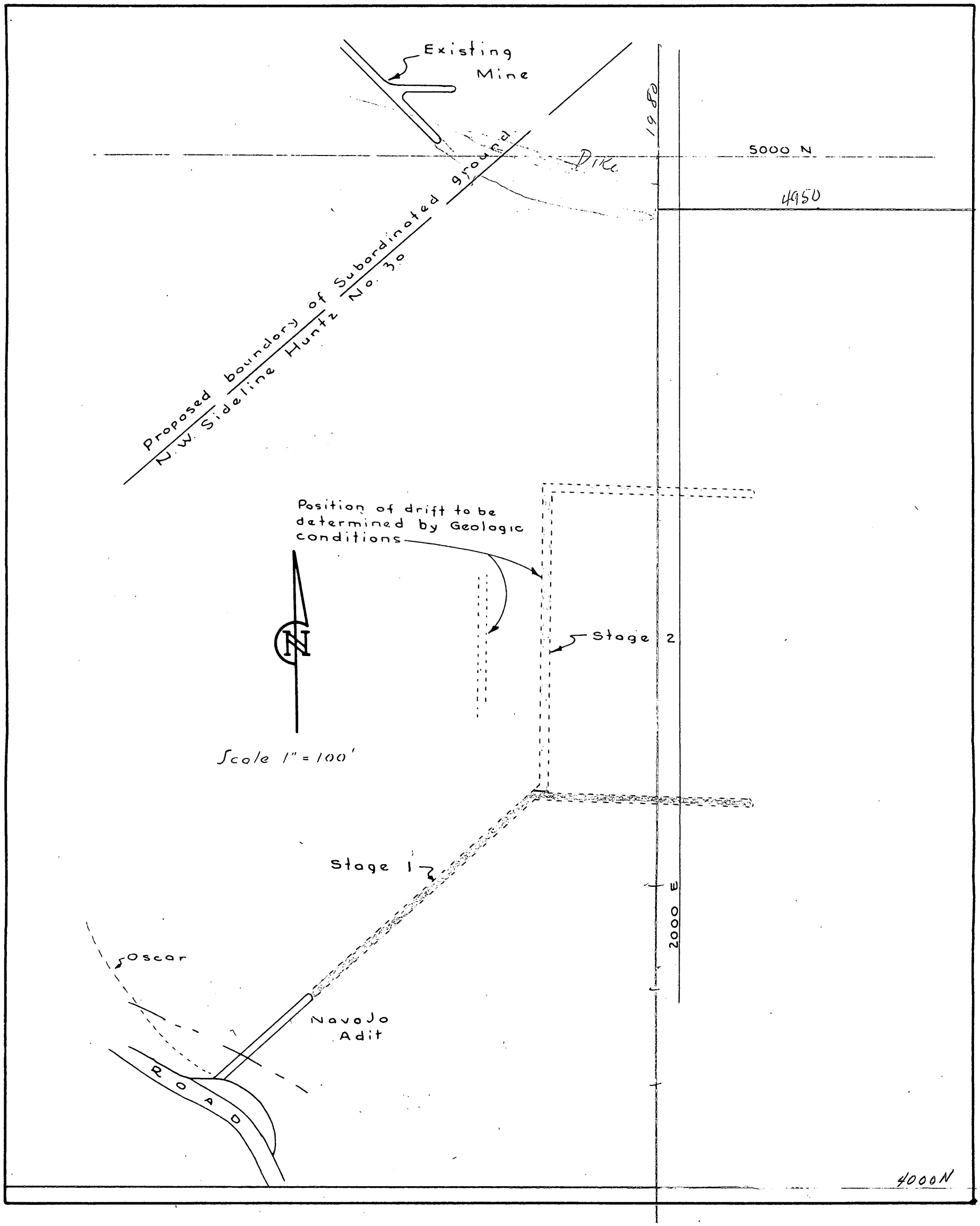

FIGURE - 4 - PROPOSED EXPLORATION SCHEME
REGAL ASBESTOS MINE, GILA CO. ARIZONA

On May 4, 1955, when the property was examined, it was pointed out to the applicant, if an extention of the Navajo adit cuts ore and finds that the favorable structure does continue, the additional work outlined by the project might be considered to be development instead of exploration in nature. Jaquays agreed that if ore and structure are cut by the extended Navajo adit, then further exploration should be in a more southern direction. He requested that the project be made flexible so if ore and structure are not cut by the adit, then some work could be done in a northern direction.

The following project is the most practical way to explore the target area:

Stage I

A. Extend the Navajo adit 300 feet in a direction normal to the general trend of the Regal ore body.

B. If neither structure nor ore is found under A, extend the Navajo adit an additional 200 feet (total of 500 feet).

Stage II

A. If ore and structure are found by Stage I, drift 300 feet in a southern direction along and parallel to the ore trend and crosscut the favorable zone.

B. If no ore is found but structure is evident by Stage I, drift 200 feet northward and crosscut the favorable zone.

In addition to the above drifting and crosscutting, a total of 150 feet of raise should be provided to be used as necessary.

ESTIMATED COSTS

The wage scale at the Regal mine is as follows:

Job	Per Hour	Per Day	Per Month
Machineman	$1.50	$12.00	
Mucker	1.25	10.00	
Slusher operator	1.25	10.00	
Trammer	1.125	9.00	
Supervisor			$600.00

The labor at the Regal mine consists almost entirely of Apache Indians. These men make good miners and the average advance of 4 feet per day proposed by the applicant seems conservative. However, accepting this rate of advance and using the wage rates shown above, the costs of labor are estimated as follows:

	Cost per day
Machine man	$12.00
2 Muckers	20.00
½ Supervision	12.00
Overtime (2 days in 12)	4.00
Engineering	4.00
Total labor	$52.00

The Workmen's Compensation rate at the Regal mine is 9.35 percent and the Arizona Unemployment charges are 2.7 percent of the payroll. Old Age Benefit charges are 1.5 percent of the payroll. This makes a total of 13.55 percent on all payroll expenses, or $7.05 per shift.

The costs of operating supplies, as listed by the applicant, are as follows:

Type	Cost
Explosives	$21.10/c
Fuse and caps	2.25/c
Diesel oil	.20/gal.
Drill steel	1.00/lin. ft.
Bits (carbide)	13.50/each

The Jaquays Mining Corp. has used a rental price for equipment in making an estimate of the costs of the project. The price used is the same as that charged when this equipment is rented out to its customers. As the equipment is owned by the company, a depreciation charge seems more in order. The estimated cost of the equipment to be furnished for this project is as follows:

1 -	210-CFM compressor	$8,000.00
2 -	55 lb. jackhammers	1,400.00
	Hose	200.00
	Loading ramp and slusher	2,400.00
2 -	Mine cars	400.00
	Stoper	700.00
Total		$13,100.00

Using a 5-year depreciation rate, the monthly charge for this equipment would be $218.33 as compared to the rental charge of $477.00 proposed by the applicant.

Summing up the various items of cost and using a depreciation charge instead of a rental charge for equipment, the cost of drift and crosscut is estimated to be as follows:

	Per day	Per foot
Labor, incl. supervision and engineering	$32.00	$11.00
Workmen's comp., State unemployment Ins., & OAB	7.05	1.76
Supplies	18.00	4.50
Equipment depreciation	6.63	1.66
Camp and trucking expense	2.00	0.50
Miscellaneous	4.00	1.50
Total for drifting and crosscutting	$69.68	$22.92

The applicants proposed price of $20.00 per foot for raising seems reasonable.

The total cost of the exploration program as recommended by the examining engineer is as follows:

Stage I

Drifting, 500 ft. @ $23.00	$11,500.00	
Raising, 75 ft. @ $20.00	1,500.00	
Total, Stage I		$13,000.00

Stage II

Drifting and crosscutting, 500 ft. @ $23.00	$11,500.00	
Raising, 75 ft. @ $20.00	1,500.00	
Total Stage II		$13,000.00

Estimated total cost of project ---------- $26,000.00

The estimated cost of the project proposed by the applicant was as follows:

Drifting and crosscutting, 1,400 ft. @ $24.00	$30,000.00
Raising, 150 feet @ $20.00	3,000.00

Estimated total cost of project ---------- $33,000.00

The possibility of exploring the same target area by extending a drift from the existing mine face should be examined. The average tramming distance for the project as proposed by the applicant is estimated to be on the order of 500 feet. The average tramming distance for a project to explore the same area from the existing face is estimated as 1,200 feet. Jaquays estimates that this additional tram will require 2 additional trammers equal to a cost of $4.50 per foot of advance.

Additional ventilation is required for dead-end entries of more than 600 feet at the Magal mine. Assuming a cost of $600.00 for a blower and $0.80 per foot for tubing, the added cost is estimated to be $1.50 per foot of drift beyond the existing face.

The actual footage required to explore the target area is the same from each point of entry. The costs of the alternate programs are compared as follows:

Driving from present face

1,250 feet drift @ $28.00	$35,250.00	
150 feet of raise @ $24.50	3,675.00	
Total cost		$39,925.00

Driving from Navajo adit

1,250 feet drift @ $23.00	$28,750.00	
150 feet raise @ $20.00	3,000.00	
Total cost		$31,750.00

The total estimated saving, assuming that the same amount of exploration work is completed, by driving from the Navajo adit rather than from the existing face is $8,175.00.

All ore will continue to be mined through the present entry where handling facilities are installed. Some improvement in ventilation will result when the Navajo adit is connected with existing stopes.

Some exploration advantage would result from driving out of the existing working face, but Jaquays does not favor this and probably would refuse a contract proposing this method of exploration.

PROPOSED FINANCING

The Jaquays Mining Corp. has proposed an exploration project to extend the ore reserves of the Regal mine. This project is divided into two parts which are to be completed at the same time. One part consists of extending exploration drifts from the existing workings which the Jaquays Mining Corp. proposes to do at its own expense. The second part consists of driving a new adit to explore for asbestos beyond the economic limits of exploration from the existing workings. On this latter part of the project, the applicant has proposed to finance 25 percent of the costs and has requested that the Government provide 75 percent of the costs under the terms of Defense Production Act of 1950, as amended.

CONCLUSIONS

D. W. Jaquays is a capable mining engineer and in planning this exploration program has carefully reserved for development at his own expense that area where ore is known to exist. However, Jaquays has proposed for Defense Minerals Exploration Administration participation in the costs, a project which is not entirely without merit and which may discover a significant extension to the Regal ore body. Careful consideration should be given to this project.

The conclusions, resulting from a review of various reports and publications, discussion with the operator, past visits to this property, and a field examination on May 4, 1955 are summarized as follows:

1. D. W. Jaquays is a capable engineer and mine operator.

2. The Regal asbestos mine has been the second largest producer in the district.

3. The commercial fiber in the Regal mine has been found along the trend of the low-angle Regal fault for 1,700 feet.

4. The ore zone has not been of uniform width, but has ranged from 0 to 600 feet, due probably to the influence of slight domes in the diabase sill.

5. The Regal fault almost certainly extends into the target area and a possible dome is indicated in the target area by the fact that the back end of the Navajo adit has been faulted upward 7 feet. These conditions are favorable for the formation of asbestos fiber.

6. The applicant will refuse to include claims that have developed asbestos reserves. He believes that the project outlined is justified on its own merits and may find a substantial amount of strategic fiber.

7. Some exploration from the present face is in order, but the applicant expects to do this work at his own expense (see figure 3).

8. The target area can be more efficiently and economically explored by extending the Navajo adit than by extending drifts from the existing face.

9. As all ore will continue to be transported through the existing entry, where handling facilities are available, the extension of the Navajo adit and its connection with existing workings should not be considered development.

RECOMMENDATIONS

Admittedly this applicant has proposed an exploration project that has an element of risk, greater for the part in which it has requested Government assistance, than is the risk in the part of the program that the applicant proposes to complete at its own expense. Still the proposed project is good exploration and is recommended in modified form.

It is recommended that the Government participate in the costs of an exploration project as follows:

Stage I

Extend the Navajo adit to cut the projected trend of the ore zone. Raise at favorable locations to search for fiber.

Stage II

Drift 300 feet along the favorable structure and crosscut the projected trend of the ore zone at a second location. Raise at favorable intervals to search for fiber.

The recommended costs for this project are as follows:

Stage I

Crosscut 500 ft. @ $23.00/ft.	$11,500.00	
Short raises (total 75 ft.) @ $20.00/ft.	1,500.00	
Total estimated cost		$13,000.00

Stage II

Drifting, 300 ft. @ $23.00	$6,900.00	
Crosscutting 200 ft. @ $23.00	4,600.00	
Short raises (total 75 ft.) @ $20.00	1,500.00	
Total estimated cost		$13,000.00
Grand total estimated cost		$26,000.00

As the mine is now operating, work on this project could be started as soon as the contract is approved and should be completed in 12 months.

RECEIVED
JUN 6 1955

IN REPLY REFER TO:

DMEA
Date Rec'd.
JUN 2 1955
BUREAU OF MINES
Denver, Colorado

UNITED STATES
DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY
Defense Minerals Exploration Administration
Denver Federal Center
Denver, Colorado

June 1, 1955

TRANSMITTED
JUN - 6 1955

Memorandum

To: Field Team, Region III

From: E. N. Harshman

Subject: DMEA Docket 3707 (Asbestos), Jaques Mining Co., Regal mine, Gila County, Arizona

Enclosed are the original and 8 copies of a geologic report by Leonid Bryner, U. S. Geological Survey, covering his examination of the Regal mine. Enclosed also are 10 copies of a review of the report and comments by A. F. Shride, U. S. Geological Survey, who has followed the development of the Regal mine for the last 13 years.

The examining engineer and geologist do not agree in their recommendations on the proposed project, although they both believe that exploration southeast or south of the present mine workings is warranted. Although the examining engineer states that "Some exploration advantage would result from driving out of the existing working face,..." he concurs with the applicant's proposal to extend the Navajo adit in an attempt to locate an extension of the known deposit in an area about 700 feet south of the present mine workings. The examining geologist believes that an extension of the known ore deposit can be best sought by drifting south or southeasterly from the present mine workings along the known ore horizon or along a fault zone that probably localized the ore.

The applicant proposes to do exploration similar to that proposed by the examining geologist and does not wish Government assistance in this work. Based on the position taken by the applicant, the examining geologist recommends denial of the application for exploration assistance.

After a careful review of the reports and the letters of comment, it is my recommendation that the application be denied without prejudice. After completion of the work being undertaken by the applicant, a revised program of exploration may be justified.

E. N. Harshman

E. N. Harshman
Member, Field Team

Enclosures (9)

ENHarshman:arh

Box 4195 University Station
Tucson, Arizona

May 26, 1953

MEMORANDUM

To: E. H. Hardman

From: J. H. Faick, Geologist

Subject: MMA-3797 (Asbestos), Sagaye Mining Corporation (Bagal mine), Gila County, Arizona

I am submitting to you the original and 5 copies of a geological examination report by Leonid Bryner on the Bagal Asbestos Mine, MMA-3797, for which B. W. Sagaye has applied for Government assistance in exploration for asbestos. I am also submitting a memorandum on the same subject by A. F. Shride, which I have asked him to prepare because of his familiarity with the Bagal mine, and with other Arizona asbestos deposits. The engineering report, accompanied by a memorandum prepared by Lincoln A. Stewart, was submitted May 19 to Mr. Trower by Mr. Stoms. It is to be noted that the Summary, Conclusions and Recommendations, prepared by Mr. Hardesik, and submitted with the engineering report contains recommendations for approval of the application; however this recommendation does not represent Bryner's position. The report prepared by Leonid Bryner, geologist, after careful examination of the property and thorough evaluation of the abundant data available to this office, recommends denial of the application for reasons set forth in the report.

It is inevitable that two individuals, examining and appraising a mine, and having at their disposal the same data, will sometimes form different opinions of the merit of an exploration program, as has happened in the case of the Bagal asbestos mine. It has proved impossible

in this case for the engineer and geologist in Tucson to resolve their differences of opinions, and as there appears to be a matter of policy involved, it is deemed advisable to submit the reports to your office so that the field team may determine what course of action is to be followed.

Nearly everyone familiar with the Bagal mine agrees that it is one of the most productive asbestos mines in Arizona and that extensions of the ore zone should be sought even if negative results are obtained. Those familiar with the property also agree that the logical way to explore the property is to drive southward from the present mine workings, a project which Jaquays orally is proposing to do at his own expense and for which he orally refused Government participation. Jaquays, however, is remaining firm in his request for Government participation in the relatively undesirable and somewhat speculative method of exploration by driving a new crosscut adit about 1000 feet ahead of his present workings, in an area where there is essentially no data to indicate whether or not conditions favorable to the localization of ore exist. Thus, to explore essentially the same block of ground, there are 2 alternative plans which I shall designate as follows:

Plan 1 - Drift south from present workings and crosscut the favorable structures if they exist;

Plan 2 - Attempt to crosscut the inferred extensions of the favorable structures by driving a new adit and to explore these structures by drifts and other crosscuts.

It appears to me that the question to be resolved is whether it is to the Government's interest to participate in the relatively undesirable plan 2 at the same time the operator is proceeding with

the perfectly logical plan 1 without Government participation. No other question of importance is involved.

If the operator will complete Plan 1 at his own expense, the Government is faced with taking a choice of 3 alternatives as follows:

1 - Participate in plan 2, as requested by the applicant and recommended by the BMA engineering staff;

2 - Deny the application, as is favored by the BMA geological staff;

3 - Hold plan 2 in abeyance until the operator completes plan 1 and at least proves the existence of extensions of the mineralized structures.

My opinion is that after plan 1 is completed the operator will no longer want plan 2 in its proposed form, but that he might then offer some alternative exploration plan. If asbestos fiber is found with plan 1, then plan 2 will automatically become more of a development project than an exploration project.

I do not wish to be overly conservative on exploration, but believe we should always insist upon selecting the best exploration method, which is not possible for us on the Bagal mine because of the position taken by the operator. As we cannot participate on the most logical exploration method, I agree with Bryner that the application should be denied. If the field team agrees with this decision, then it might be desirable to advise the operator that we might reconsider his proposal after he completes his part of the exploration program.

J. H. Faich

J. H. Faich

JHF:mm

cc: S Hardman

Box 4186 University Station
Tucson, Arizona

May 26, 1955

MEMORANDUM

To: E. H. Rochow

From: A. F. Shride

Subject: MEDA-3707, Regal Mine, Magma Mining Corp., Gila County, Arizona

I have read Leonid Bryner's report on the above application and am in agreement with his recommendations. I mapped the older part of the mine in great detail in a study of the factors that control the localization of asbestos, and have followed the development of the Regal ore-bodies over a period of 13 years. Therefore I am very familiar with the geologic habit and potentialities of this particular deposit. I have not seen the southernmost and newest workings of the mine. In this part of the deposit Bryner describes geologic features that were anticipated as a result of my earlier work.

The present knowledge of the geology, as shown by Bryner on pages 8 and 9 of his report, does not allow a prediction that the fold and the bedding-plane and thrust fault held favorable to ore localization can be projected into much of the area proposed for exploration. The best geologic "bet" as to an area favorable for exploration is the area southeast, rather than south, of the present southernmost workings. Favorable structural trends, as now known, are in a southeasterly direction from these workings.

Furthermore, the diabase dike and associated phenomena observed by Bryner in the southernmost workings give some cause

for concern in geologic prediction. Throughout the asbestos district lines of weakness, such as that represented by the dike, are lines along which the structural environment favorable to asbestos localization changed abruptly. For example, the low-angle faulting essential to asbestos localization may terminate against such dikes; vice-versa, the low-angle faulting may have existed in even greater degree across such dikes. The information now available does not allow a sound prediction in this case. However, the fact that little fiber has been found just north of the dike, and no fiber found in the drill hole 20 feet south of the dike could be significant. Reynar notes (page 3) that the limestone beds are folded adjacent to the dike; asbestos generally would be found in greater than ordinary quantities in such a structural setting unless other favorable factors were also modified. It is possible also that the trend of the structures favorable to asbestos have changed direction abruptly in the vicinity of the dike.

In view of the unusual persistence, for the Arizona district, of the Regal ore zone, additional exploration seems warranted, even if it results in negative findings. However, this exploration should follow extensions of the known asbestos zones, or lacking asbestos should follow the fault zone that in most places was the most favorable area to asbestos localization until the trend and continuity or lack of continuity of that zone is established. That part of the exploration that the applicant has orally stated he will undertake would accomplish this exploration in part.

Actually the applicant is requesting, rather than exploration, that the Government hazard funds for development work toward an ore body not now known to exist. By his own independent extension of the southern mine workings the applicant hopes to find this ore-body. The proposed extension of the Navajo adit is supposedly justified by the applicant on the premise that it would intersect the structural zones favorable to asbestos. If the Navajo adit is extended far enough to the northeast such structures might be intersected, if they exist. The present program does not propose such an extension. There is no factual information suggesting that the proposed plan will adequately expose potential asbestos zones, and there is a strong suggestion that it will not. Therefore, Boyer's recommendations should be seriously considered.

J. M. Daish
for A. F. Shride
Geologist

AFS:rmm

U. S. DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REGION XXI

GEOLOGIC
EXAMINATION REPORT
DMEA 3707

ROYAL MINE
JAQUAYS MINING CORPORATION

GILA COUNTY, ARIZONA

(Asbestos)

By
Leonid Bryner
Geologist
U. S. Geological Survey

May 24, 1955

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
FIELD CHAIN WORKGROUP III

GEOLOGIC
EXAMINATION REPORT

DMEA 3707
NEGAL MINE
JAQUAYS MINING CORPORATION
GILA COUNTY, ARIZONA

(Asbestos)

CONTENTS

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CONCLUSIONS AND RECOMMENDATIONS	9

ILLUSTRATIONS

Fig. 1 Location Map	See Engineering Report
Fig. 2 Claim Map	" " "
Fig. 3 Geologic map and sections, Negal Mine	Following page 1

INTRODUCTION

In an application to the Defense Minerals Exploration Administration dated February 22, 1955, B. N. Jagnyn, president of the Jagnyn Mining Corporation, requested government participation in a program costing $35,000 to explore for chrysotile asbestos ore immediately south of the Engel Mine.

The Engel Mine is in Sec. 36, T. 6 N., and Sec. 1, T. 5 N., R. 16 E., Gila County, Arizona. It is accessible by 9.6 miles of graded dirt road from U. S. Highway 60 at a point one-half mile north of Hayden (37 miles north of Globe). The mine is in the precipitous south wall of the Salt River Canyon at an elevation of about 4,250 feet.

The property is being purchased under contract from the Arizona Chrysotile Asbestos Company. The mine workings as of May 1, 1955 are shown in figure 3. The property was examined on May 4 by W. R. Hardwick of the U. S. Bureau of Mines and by this writer. A. V. Gerhardt, the company engineer, accompanied the examiners through the mine.

The purpose of the geological examination was to determine, if possible, whether there is a good chance of finding a southerly extension of the ore deposit. The geological part of this examination consisted of mapping some of the features related to ore in the newly opened, southern part of the mine, and in a reconnaissance of the surface for about one thousand feet south of the mine workings. From this work and from information from A. F. Shride of the U. S. Geological Survey, it seems to the writer that the chances are good for finding several hundred tons of additional reserves in a southerly extension of the

deposit. Whether or not a much larger tonnage than this is likely to exist cannot be answered from the known geology. Denial of the application is recommended because the applicant will not accept government participation in the most logical exploration plan, but wants government assistance only in a plan that appears impractical on the basis of our present knowledge of the geology of the deposit. The engineering report recommends acceptance of the applicant's exploration plan. However, the writer of the geologic report does not concur in this recommendation for the reasons explained below.

In a previous RFC application (Docket 2867) Shride submitted a report on this property. In addition to this report the writer has had access to the results of a detailed study of the deposit conducted by Shride for the U. S. Geological Survey. Shride's RFC report recommended exploration for a southerly extension of the deposit. This work was approved for a loan but the applicant terminated the contract by paying off the loan before the RFC exploration was completed. The applicant, however, did continue exploration to the south more or less according to the RFC scheme and developed a good body of schaphos of about the size predicted by Shride in his exploration report.

Much of the geology outlined below is from Shride's reports, and some of the data in L. A. Stewart's Engineering section of the RFC report also is included here.

GEOLOGY

The Bagal Mine, with a total production on the order of 5,000 tons of fiber, is the second or third largest asbestos producer of the district.

The deposit is in the lower member of the pre-Cambrian Bagal Limestone, and consists of two main fiber zones, which lie parallel to the beds of the enclosing limestone. The fiber zones lie in or near limestone beds that are relatively thicker and more competent than most of the lower Bagal beds. The lower fiber zone is overlain at a distance of about 1½ feet by a dark green, strongly serpentinized bed which is 2 or 3 inches thick, and is locally known as the "Cover" or "Blue Ribbon" (Fig. 3, geologic sections). At distances of 35 and 50 feet stratigraphically above the two fiber zones is the cliff-forming, Algal (middle) member of the Bagal. An underlying diabase sill is at a distance of 19 and 25 feet stratigraphically below these two fiber zones. However, immediately east of the mine workings and about parallel to them the limestone-diabase contact drops abruptly in a discontinuity (Figure 3, section B-B').

In the extreme southerly workings a diabase dike about 7 feet wide strikes N 75° W. and dips almost vertically. It cuts the limestone and probably cuts the underlying diabase sill. Buckling of the beds and the development of gouge along the dike walls indicate fault movement, but no appreciable offset in the enclosing beds has been recognized.

In broad aspect the structure in the mine area is very simple, but in detail it is quite complex. The Bagni beds and the underlying sill are essentially flat-lying. But the limestone-diabase contact as well as the limestone itself are slightly warped and cut along a N-SE trending belt by small thrust faults as shown in figure 3. This belt of thrust faulting, locally known as the Bagni Fault, is recognized as far as the extreme south end of the mine.

The Bagni Fault and the associated folds indicate pressure from the southwest, although there is also evidence from a small overturned fold of horizontal pressure almost at right angles to this. Movement along the thrust faults generally is on the order of a few inches to a few feet. Rubbing-plane faults of like effect are common. In places the asbestos is offset by the faults, but the faults and folds also seem to have localized the asbestos. There are numerous small strike-slip faults and a few small normal faults, but these do not exhibit a significant relationship to asbestos mineralization as do the thrusts and the folds. The mine area offers examples of the four factors that Shride considers favorable to the concentration of asbestos, namely, (1) competent limestone beds, (2) proximity to diabase, (3) pre-mineral low-angle faulting, and (4) pre-mineral folding.

The size and shape of the deposit can best be seen in figure 3. The two main fiber zones mentioned above are not everywhere continuous in the mine, but generally at least one of the zones is present.

However, in the extreme south end of the mine the failure of several drill holes and a raise (fig. 3) to find ore in the favorable zones indicates that either the south limit of the deposit has been reached or that there is a barren zone in the deposit near the south end of the present workings.

Jagnaya preferred the following information on the most recently mined ground, that is, the south end of the workings. In the past year 500 tons of fiber have been produced from this part of the mine, and this tonnage represents a mine area of about 40,000 square feet. Rock from this area contained fiber having an average thickness of about 2 inches. Total No. 1 grade fiber was 80 tons; No. 2 grade, 120 tons; and the rest, lower grade material. These figures seem reasonable to the writer.

EXPLORATION

On the previous RFCA contract it was planned to drive an adit to intersect the ore body about 200 feet ahead of where asbestos was showing in the face of the most southerly stope, then to drift both north and south and to crosscut from the drift to explore an area of about 400 by 200 feet immediately south of the stope face. Although the applicant withdrew from the contract, he continued work in this area essentially as planned above and opened a sizable body of ore (fig. 3). This ore is still being mined.

The applicant's present proposal is to conduct exploration from the Navajo adit, which is about 850 feet south of the most southerly mine workings (fig. 3). The plan presented in the docket is to extend the Navajo adit in its present direction 340 feet from the portal, then to drift due north about 450 feet and to drive from the drift three westerly crosscuts, each about 250 feet long and spaced at 200-feet intervals along the drift.

The writer thinks that a preferable plan would be to explore south and southeast from the most southerly mine workings, employing a system of drifting and crosscutting similar to that used in the previous RFCA work. This plan would be preferable to the other because (1) of the uncertainty that the deposit extends much, if at all, beyond its present southerly limit and also because (2) in theoretically projecting the deposit southward about 800 feet to crosscut it with the Navajo adit there are several rather different interpretations of what trend to base this work on. If the trend of the south end of the deposit is the significant one, then the Navajo adit is already practically in the extension of the deposit. If the trend of the Bagal fault is the correct one to follow for ore then the Navajo adit will have to be extended six or seven hundred feet to the east before encountering ore. Both of these uncertainties could be avoided by seeking the ore immediately south or southeast from its present known position. The applicant, however, wants to reserve this plan of exploration for himself and at the same time obtain government aid for the more hazardous scheme of exploring

from the Navajo adit. This adit would provide a good development backing if the ore is nearby. But the purpose of the NMBA program should be to discover the ore, and not to provide a development backing while incidentally searching for the ore.

RESERVES

The large stope in the south end of the mine is in an ore body that is estimated to contain 350 to 400 tons of intermixed fiber, based on probable extensions from the north and east faces of this stope. This tonnage is based on an average fiber thickness of about 2 inches, estimated from the most recent production from this stope, and on maximum extensions beyond the stope of about 70 feet. Since the fiber apparently pinches out south of the above-mentioned stope, reserves immediately south of the stope would depend on the existence in that area of another body of ore. As N-NE-trending thrust-faults are present in the most southerly workings there is a fair chance that an ore body to the south exists. Based on this assumption an inferred reserve of 500 tons of fiber is estimated.

Regarding the possibility of a large additional tonnage of ore occupying most of the ground between the most southerly mine workings and the Navajo adit, the following observations are offered. The Bagal Mine shows an almost continuous minable zone of fiber about 1400 feet in its longest dimension. This is remarkable for an Arizona asbestos deposit, especially as the north end of the

deposit probably does not represent its original north limit, but simply a limit imposed by erosion. Two interpretations of this fact are possible: (1) the Bagal is a remarkable deposit and therefore the caution needed in exploring lesser asbestos deposits is not appropriate; (2) the Bagal deposit as it is now known greatly surpasses most other Arizona asbestos deposits and therefore it is reasonable to expect that its limits must be very nearly realized by the present workings. The writer favors this latter view. Unfortunately there is hardly any geologic evidence as to whether or not the deposit extends south another seven or eight hundred feet. The Geser bed is present in the Navajo adit, but it also has been found cropping out at the surface several hundred feet beyond the west limits of the ore body. In fact, Shride points out that Geser-type beds, unaccompanied by asbestos, are common in the lower Mescal at various horizons and in an area much more extensive than the Bagal Mine. Therefore the presence of the Geser in the Navajo adit is not, of itself, an indication of nearby asbestos. The structure contour (fig. 3) based on elevations of the Geser at the workings south of the mine does not give a conclusive picture, and the thrusting or warping of beds, characteristic of the ore zone, is too deeply buried due to the steep slope of the ground above the mine to be recognized at the surface. Neither are the faults in the Navajo adit indicative of nearby ore. Those faults are very steep and could not have resulted from the compressive forces that produced the flat-lying Bagal Fault and the accompanying doming that have localized the asbestos. The

significance of the cross-cutting diabase dike in the south end of the mine workings is not fully understood. But this dike is more likely an unfavorable than a favorable feature.

CONCLUSIONS AND RECOMMENDATIONS

The Regal Mine, as an outstanding Arizona asbestos deposit, merits further exploration. However, in view of the lack of geologic evidence of the existence of an extension as great as 700 or 800 feet, and also in view of the various directions that might be taken by such an extension, the best exploration scheme would be to follow the ore deposit south from its present known south limits. But the applicant will accept government participation only if exploration is conducted from the Navajo adit. This is a less desirable exploration plan than the first. Therefore the application should be denied.

If the applicant carries out his stated intention of exploring at his own expense several hundred feet beyond the south end of the mine, then his application for government participation in exploring from the Navajo adit perhaps can be further considered.

retype the first paragraph of Annex I to read substantially as follows:

The land referred to in Article 2 of the Contract is owned by the Jaquays Mining Corporation and is located in sec. 36 , T. 6 N., and sec. 1, T. 5 N., R. 6 E., unsurveyed, Gila and Salt River Meridian, Gila County, Arizona. The land included in this contract is described as follows:

IN REPLY REFER TO:

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DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

OCT 3 1956
REGION III
DENVER, COLORADO

TRANSMITTED
OCT 3 1956

Defense Minerals Exploration Administration
Denver Federal Center
Denver, Colorado

October 1, 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: E. N. Harshman

Subject: DMEA Docket 3707 (Asbestos), Jaquays Mining Corporation (Regal mine), Gila County, Arizona

Enclosed are the original and eight copies of a joint memorandum by W. L. Emerick, U. S. Geological Survey, and T. M. Romslo, U. S. Bureau of Mines, in which approval of an exploration program on the subject property is recommended. Extra copies of maps for use in the proposed contract are enclosed also.

I concur with the examiners' conclusion that the exploration program proposed by the applicant is warranted. I wish to point out, however, that the ground which the applicant wishes to subordinate is, in my opinion, entirely inadequate to protect the Government's interest in proposed work.

In D. W. Jacquays' undated letter to Lawrence G. Houk, in which the applicant revised his proposed exploration, he points out that the proposed exploration program will be done about 15 feet below the ore horizon so that it will be possible to test drill an area 150 feet on each side of the proposed drift. In the same letter (paragraph 2, under 5 (b)) the applicant proposes

Reviewed by
DMEA OPERATING COMMITTEE
10-12-56
(date)

to subordinate only the ground south of the co-ordinate 4950 or the diabase dike, respectively 10 to 145 feet, and 30 feet north of the proposed drift.

Since the hoped for asbestos deposits are essentially horizontal and since ore found to date by the applicant has been north of the diabase dike I can see no justification for the northern limit of the subordinated ground proposed by the applicant.

For reasons given above I suggest that the applicant be requested to subordinate additional ground, particularly to the east of co-ordinate 2000 E (fig. 3A of memorandum). Should he be unwilling to extend the ground subordinated to the Government I suggest that his request for exploration assistance be denied.

For your convenience Figure 3A accompanying the original copy of the fields' memorandum has been marked to show pertinent distances.

E. N. Harshman
Member, Field Team

Enclosures
ENHarshman:mp

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OCT 3 1956

MINERAL DEPOSITS
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DENVER, COLORADO

DMEA
DEPARTMENT OF THE INTERIOR
OCT 3 1956
REGION III
DENVER, COLORADO

September 28, 1956

Memorandum

To : Executive Officer, DMEA Field Team, Region III

From : Walter R. Storms
U. S. Bureau of Mines
William L. Emerick,
U. S. Geological Survey

Through: E. N. Harshman

Subject : Memorandum Report - Docket DMEA-3707 (Asbestos)
Jeanette Mining Corporation (Regal Mine), Gila County, Arizona

Enclosed are the original and 6 copies of a memorandum report recommending Government participation in exploration of the Regal Mine, Gila County, Arizona. Ten extra copies of each map are also enclosed.

Signed by Walter R. Storms

Walter R. Storms
Superintendent
Southwest Experiment Station

W L Emerick

W. L. Emerick
Geologist
U. S. Geological Survey

CC W. M. Traver (8)
E. N. Harshman
W. R. Storms
W. H. King
W. L. Emerick
RF

WRStorms:WLEmerick:frj

Reviewed by
DMEA OPERATING COMMITTEE
10-12-56
(date)

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IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Box 4126 University Station
Tucson, Arizona

TRANSMITTED
OCT 3 1956

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OCT - 8 1956

September 25, 1956

MEMORANDUM

To: Executive Officer, DMEA Field Team, Region III

From: T. M. Romslo, U. S. Bureau of Mines
W. L. Emerick, U.S. Geological Survey

Through: W. R. Storms noted
E. N. Harshman

Subject: Docket DMEA 3707 (Asbestos) Jaquays Mining Corporation (Regal Mine), Gila County, Arizona

SUMMARY AND CONCLUSIONS

An original application for government aid in exploration for asbestos was made by Jaquays Mining Corporation to the Defense Minerals Exploration Administration on February 24, 1955, under docket DMEA 3707. The property, located approximately in Sec. 36, T. 6 N. and Sec. 1, T. 5 N., R. 6 E., and consisting of about 32 unpatented claims, was examined by W. R. Hardwick, U. S. Bureau of Mines, and Leonid Bryner, U. S. Geological Survey, on May 5, 1955. The application was denied because the work involved did not warrant government participation. A revised exploratory program, under the original docket DMEA 3707, was submitted by the applicant in August 1956.

The property was operated but produced spasmodically from 1917 to 1937. Production by the Arizona Chrysotile Asbestos Co., after acquisition of the property in 1937, was substantial through 1948. The mill was destroyed by fire in 1948. Jaquays purchased the Regal mine, and the mill in Globe, in 1952. Production since that time has probably been

Reviewed by
DMEA OPERATING COMMITTEE
10-12-56
(date)

at the rate of about 45 tons of finished fiber per month. Total production from the Regal mine is estimated to be on the order of 7,000 tons of fiber, of all grades. The Regal mine is the largest producer in the district.

The deposit is in the lower member of the pre-Cambrian Mescal limestone and consists of two fiber zones about 6 feet apart. A diabase sill underlies the fiber zones at stratigraphic distances of 19 and 25 feet respectively. Thrust faulting along a belt, known locally as the Regal fault, cuts and warps the limestone and limestone-diabase contact. The Regal fault zone is characterized by small thrust faults, bedding-plane faults, some small normal faults, and numerous small strike-slip faults. In the extreme southerly workings a diabase dike cuts the limestone beds. The diabase sill is exposed in the southerly workings.

Exposure of the diabase sill, and small scale thrusting or warping in the limestone beds in the No. 3 crosscut could possibly indicate favorable possibilities for extension of the ore body southeastward. The No. 3 crosscut is in the area recommended for exploration in the original geological report because of its favorable geological conditions.

The revised exploratory program in the Regal mine involves 1,250 feet of drifts and crosscuts and 150 feet of raises for a total estimated cost of $39,925.00. The producing area is not subject to subordination.

Because favorable structural trends probably continue southeastward from the present workings and the proposed area was originally considered geologically favorable for exploration, approval of the application is recommended.

INTRODUCTION

The original application for government aid in exploration for asbestos was made by Jaquays Mining Corporation in February 1955, under docket DMEA-3707. The property, located approximately in sec. 36, T. 6 N., and sec. 1, T. 5 N., R. 6 E. (unsurveyed), Gila County, Arizona, was examined by W. R. Hardwick, U. S. Bureau of Mines, and L. Bryner, U. S. Geological Survey, on May 5, 1955. The application was denied because work proposed by the applicant did not warrant government participation. On June 7, 1956, T. M. Romslo, U. S. Bureau of Mines, conferred with D. W. Jaquays and obtained a map showing a proposed revised program of government aid. A revised exploration program under the original docket DMEA-3707 was then submitted by the applicant in August 1956. W. L. Emerick, U. S. Geological Survey, examined the property on August 29, 1956, to bring the geology up to date.

The revised exploration program submitted by the applicant involves a total of 1,250 feet of drifts and crosscuts and 150 feet of raises at an estimated cost of $39,925.00.

HISTORY AND PRODUCTION

The property consists of about 10 claims located prior to 1917 and several others added in 1919 and 1952. Small productions were reported from the property under various managements through the years 1918 to 1937. About 1937 the Arizona Chrysotile Asbestos Co. took over the property and made substantial yearly productions through 1948. Fire destroyed the mill in August 1948. In December 1950 Jaquays became manager and operated the company until 1952, when he purchased the Regal mine, and the mill in Globe. Jaquays Mining Corporation applied for and was granted government assistance in 1953 to explore for additional ore under docket DMEA-2867. The contract was successful and all funds advanced by the government were repaid. Production since that time has probably been at the rate of about 45 tons of finished fiber per month. The total production from the Regal mine is on the order of 7,000 tons of fiber of all grades. The mine is the largest asbestos producer of the district.

EXTENT AND OWNERSHIP

The property consisted of 27 unpatented claims in 1952 when purchased from Asbestos Corporation of America by Jaquays Mining Corporation. Five additional claims were located later by Jaquays Mining Corporation, probably in 1952.

GEOLOGY

For a complete description of the geology the reader is referred to the examination report of May 19, 1955 under the same DMEA docket number. The following geology was extracted and summarized from the above report and supplemented by a more recent examination of the southernmost workings, namely, the crosscut No. 3 (Figure 3A) where work on the revised exploration program would be applicable.

The deposit is in the lower member of the pre-Cambrian Mescal limestone and consists of two fiber zones about 6 feet apart lying parallel to the enclosing essentially flat-lying limestone beds. An underlying flat-lying diabase sill is at a distance of 19 and 25 feet stratigraphically below the two fiber zones. The limestone-diabase contact, as well as the limestone, are slightly warped and cut along a S-SE trending belt by small thrust faults. The belt of thrust-faulting is locally known as the Regal fault and is recognized to the south end of the mine. Small thrust faults, a few small normal faults, bedding-plane faults, and numerous small strike-slip faults characterize the Regal fault.

In the extreme southerly workings a diabase dike (Figure 3A) about 7 feet wide strikes N. 72° W. and dips almost vertically. It cuts the limestone and probably cuts the underlying diabase sill. There is buckling of the beds and development of gouge along the dike walls, indicating fault movement, but no appreciable offset is recognized in the enclosing limestone beds.

In the No. 3 crosscut (Figure 3A) from which the revised exploration is proposed there is small scale thrusting or warping of the limestone beds. Southeastward from the raise in the crosscut for the last 30 feet of the crosscut to the face, the diabase sill is exposed along the north wall. The upper surface of the sill is probably discordant here and the drift cuts through the upwarped surface. The sill exposure courses diagonally upward on the north wall from near the raise to the face, where a thin arm of it loops across to the south wall and pinches out. Stratigraphically, the sill on the crosscut level lies about 19 feet below the lower fiber zone. Presence of the diabase sill and the thrusting or warping of the limestone beds could possibly indicate favorable possibilities of extension of the ore body southeastward. Proposed exploration in the revised application is now in the area recommended in the original application as containing favorable geological conditions for the localization of ore. Extension of the No. 3 crosscut was done subsequent to denial of the original application, and favorable geological conditions present southeastward as far as the crosscut has been driven appear to favor past predictions on a possible extension in this direction.

PROPOSED EXPLORATORY PROGRAM

The revised exploratory program at the Regal mine involves 1250 feet of drifts and crosscuts and 150 feet of raises. Stage I of the revised program involves extending the No. 3 crosscut (Figure 3A) for 500 feet on a bearing of S. 74° E. from the present face, and the driving of 75 feet of raises where necessary to probe the ore zone.

The ore horizon, about 15 feet above the proposed 500-foot drift, first will be explored from the drift by long holes that are to be driven at no expense to the government. Favorable zones encountered by the long holes then will be tested under stage 1 by a total of 75 feet of short raises from the drift. Under stage 2, favorable zones encountered by the drill holes at distances up to about 150 feet from the drift then will be tested in a similar manner by 750 feet of drifts and crosscuts and 75 feet of short raises.

As described by the applicant, "The advantage of exploring for asbestos from below the ore horizon is that it is possible to test drill an area 150 feet on each side of the new drift whereas on the ore level the inspection area is limited to the small area of the face."

The area to be obligated under the revised exploratory program would be everything south of the diabase dike or south of the 4950 coordinate.

Estimated costs of the revised exploration program are the same as given in the original application. Breakdown of the costs by stages is given below.

Stage I	
500 feet of drift @ $29.00	$14,500.00
75 feet of raises @ $24.50	1,837.50
Total Stage I	$16,337.50
Stage II	
750 feet of drifts and crosscuts @ $29.00	$21,750.00
75 feet of raises @ $24.50	1,837.50
Total Stage II	$23,587.50
Total Stages I and II	$39,925.00

RECOMMENDATIONS

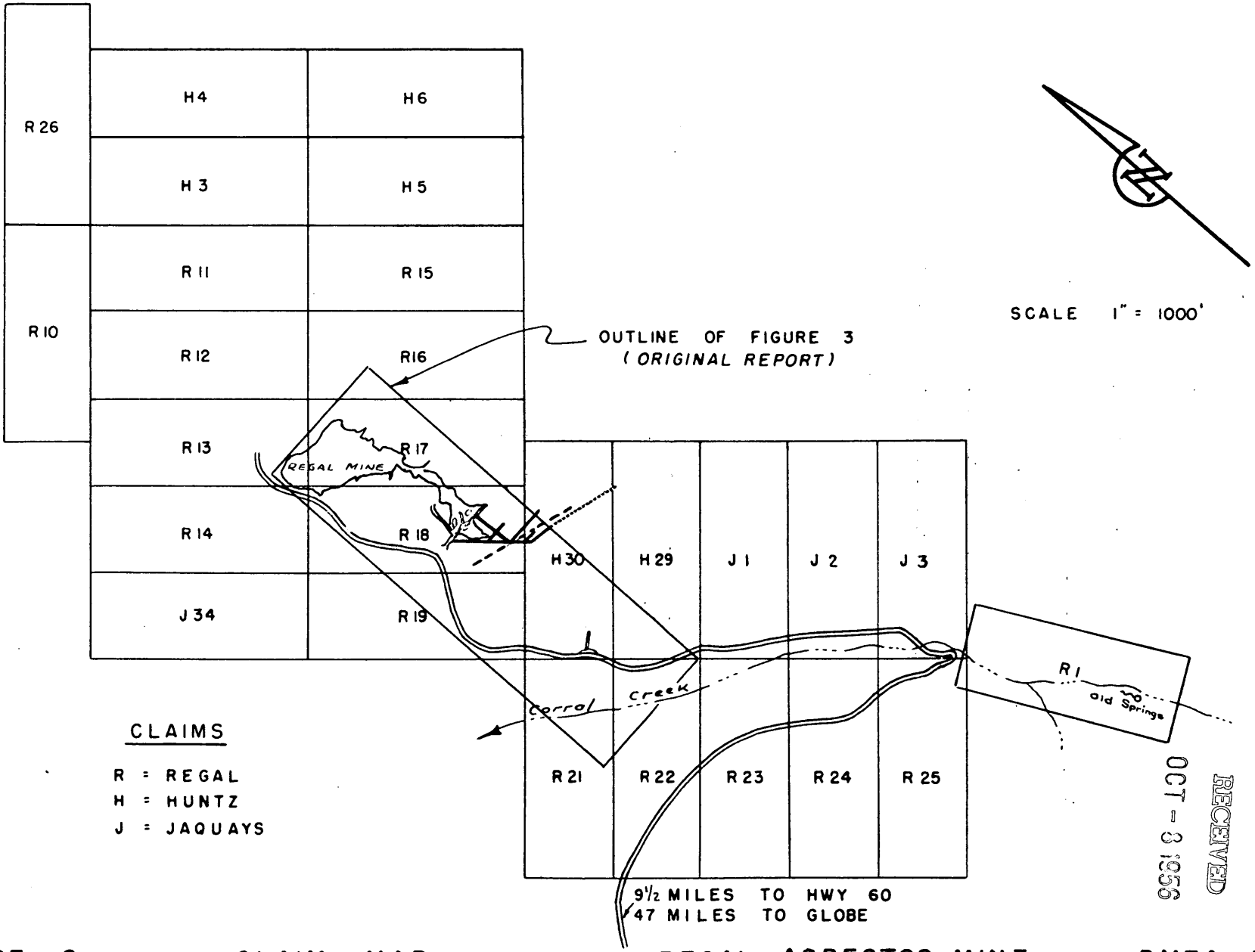
In view of the probability that favorable structural trends as now known may continue southeastward from the present workings and that the revised exploratory program is in the area originally considered geologically favorable for work, it is recommended that the application be approved.

W L Emerick

W. L. Emerick, Geologist
U. S. Geological Survey

T M Romslo

T. M. Romslo, Mining Engineer
U. S. Bureau of Mines



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OCT - 3 1956

FIGURE 2. - CLAIM MAP

JAQUAYS MINING CORP.

REGAL ASBESTOS MINE

GILA COUNTY, ARIZONA

DMEA 3707

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OCT - 3 1956

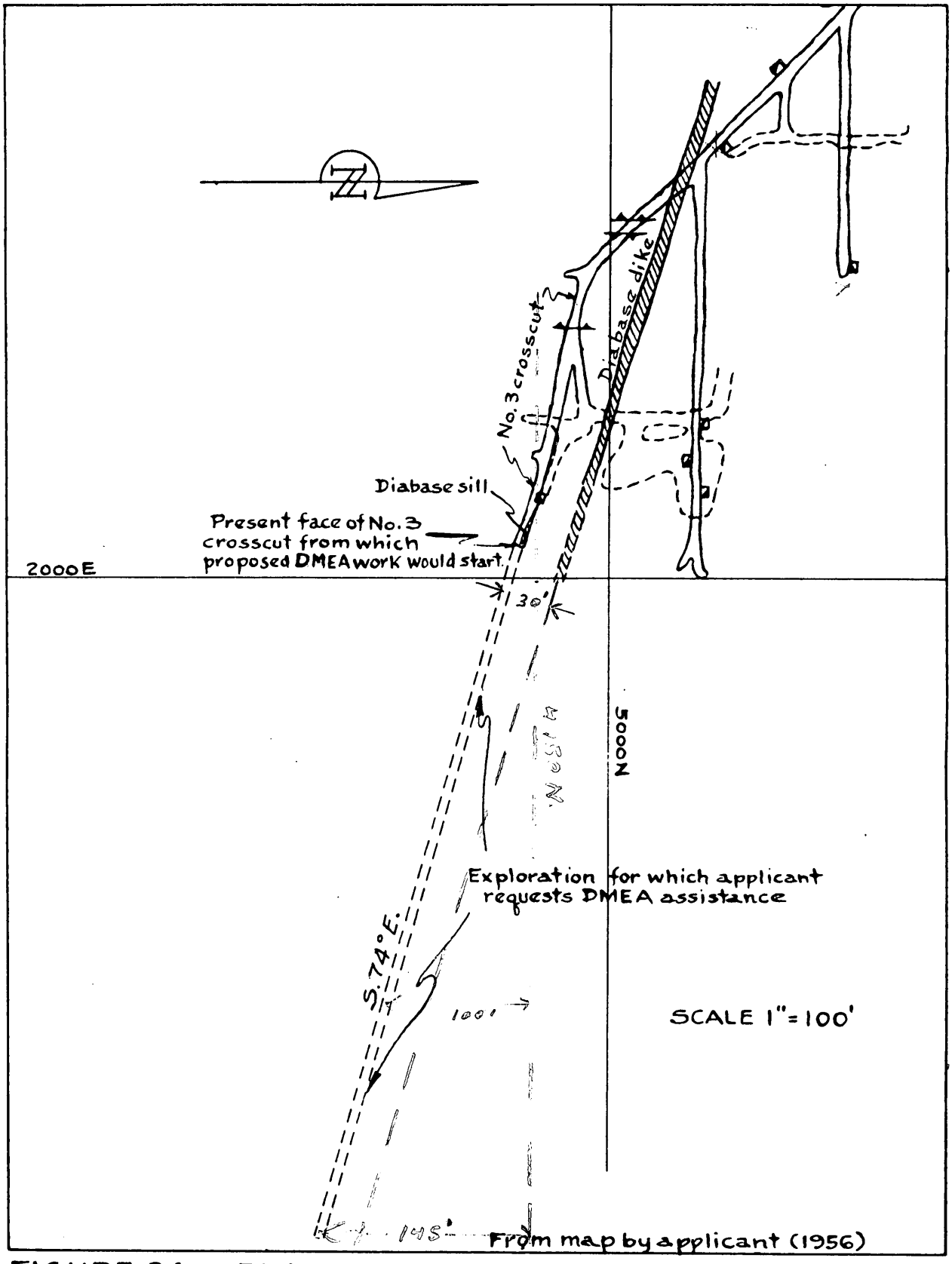

FIGURE 3A.- PLAN OF SOUTH WORKINGS OF REGAL MINE AND PROPOSED PROJECT (DMEA 3707).

ITEM _____

DOCKET INDEX

ACTION DOCUMENTS

1. APPLICATION — DATE RECEIVED

2. CONTRACT 1043 — DATE DEC 1 1 1956

3. TERMINATION AGREEMENT: — DATE

   a. Mutual (with/without repayment provision).
   b. Unilateral.
   c. Amendment with automatic termination clause and with/without repayment provision.

4. CERTIFICATION — DATE

5. AUDIT REPORT — DATE

6. AMENDMENTS - NUMBERS — DATE

Extra copy

MF-200A
(Rev. April 1956)

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
EXPLORATION PROJECT CONTRACT
(Short Form)

DMEA No.	*Commodity*	*Contract No. Idm–E*	*County*	*State*
3707	Asbestos	1043	Gila	Arizona

It is agreed DEC 1 1 1956, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and Jaquays Mining Corporation, an Arizona corporation

whose mailing address is 1212 South 13th Avenue
Phoenix, Arizona
hereinafter called the "Operator," as follows:

ARTICLE 1. *Authority and project.*—(a) This contract is entered into under the authority of the Defense Production Act of 1950, as amended. It consists of this form (MF–200A), the attached Annex I (land description), Exhibit A (work and costs), and the maps and documents listed therein. The project work is a search for indicated or undeveloped deposits of the commodity designated above. The Operator shall begin the work on or before ....., and, subject to the provisions of Article 7 and Exhibit A, shall complete the work within 18 months from the date of the contract.

(b) The description of the work and the fixed cost for each unit of work to be performed (per foot of drilling, per foot of drifting, per hour of operations, etc.) are hereby agreed upon as specified in Exhibit A. The estimated total cost of the project work is $25,400.00. The Government will contribute 75 percent of the fixed unit cost of the work performed, not exceeding $19,500.00, in accordance with the provisions of Articles 4 and 5.

(c) The Operator shall not transfer or assign this contract or any right or obligation thereunder without the written consent of the Government.

ARTICLE 2. *Operator's property rights.*—(a) The Operator represents and undertakes that Annex I correctly describes the land which is the subject of this contract and the nature of the Operator's rights of property and possession therein (whether as owner, lessee, or otherwise), and that such right, title, or interest is subject only to the following claims, liens, or encumbrances: Interest of the landowner

(b) The Subordination Agreement of the holder of any claim, lien, or encumbrance listed above and (if the Operator does not hold the legal title) the Consent to Lien of any holder of the legal title of the land (lessor, seller, optionor, etc.) are attached, as follows: Consent to Lien and Subordination Agreement of owner.

(c) The Operator shall preserve and maintain his right, title, and interest in the land and his right to the possession thereof for the purposes of this contract, and shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of this contract. The Operator shall neither transfer, convey, nor surrender the land nor any right, title, or interest therein, nor permit nor suffer any claim, lien, or encumbrance thereon, without expressly referring to and providing

in the instrument of conveyance, lien, or encumbrance for the preservation of the Government's right to a percentage royalty on production and lien for the payment thereof. Two copies of such instrument shall be furnished to the Government. If the Government's rights to royalty as provided in Article 6 have been terminated, the provisions of this paragraph (c) shall become inapplicable.

ARTICLE 3. *Performance of the work.*—(a) Operator's responsibility.—The work shall be performed diligently, efficiently, expertly, in a workmanlike manner, and in accordance with good mining standards and State regulations governing health, safety, and liability insurance covering employment. The Operator shall provide suitable and adequate equipment, facilities, materials, supplies, and labor to complete the work, as specified in Article 1 (a).

(b) *Government may inspect.*—The Operator shall consult with and inform the Government on all phases of the work as it progresses. The Government may enter at all reasonable times to inspect the work under the contract, and also after certification of discovery or development, to inspect production operations and underground workings. The Operator shall provide the Government with all reasonable means of access for such inspections.

ARTICLE 4. *Contribution by the Government.*—The Government will make its contribution on the basis of the monthly vouchers referred to in Article 5 (b); but all payments by the Government are provisional only, subject to audit, and until the account between the Operator and the Government is finally audited and settled and the Operator's final report has been rendered, the Government may withhold such sums as it sees fit but not in excess of 10 percent of the estimated total cost of the work. To the extent that excesses over fixed unit costs or any excess over the estimated total cost may be necessary for the performance of the work, the Operator shall incur and pay such excesses for his own account without contribution by the Government. The Government will not contribute to the cost of any work performed prior to the date of this contract. The Government may make payments for the account of the Operator directly to independent contractors and suppliers rather than to the Operator.

ARTICLE 5. *Reports, accounts, audits.*—(a) Operator's records.—The Operator shall keep suitable records and accounts of the units of work performed and of any production in which the Government may have an interest; and shall preserve those with respect to work performed for at least three years after final payment by the Government, and those with respect to production for at least three years after any obligation to pay royalties to the Government has terminated. The Government may inspect and audit said records and accounts at any time, either by itself or by a certified public accountant. The Comptroller General of the United States or his representative, until the expiration of said three-year periods, shall have access to and the right to examine all pertinent books, documents, papers, and records of the Operator.

(b) *Progress reports and vouchers.*—The Operator shall provide the Government with five copies of monthly progress reports in three sections as follows: (1) Operator's Monthly Report and Voucher showing a detailed statement of units of work performed during the reporting period; (2) Operator's Unit Cost and Progress Report showing the various types of work performed during the reporting period and the fixed unit costs incurred for each type of work; and (3) a Narrative Report of the work performed during the reporting period including adequate engineering-geological maps or sketches, drill hole logs and locations, and assay reports on samples taken concurrently with advance in mineralized ground. (Forms for reporting under (1) and (2) above will be provided by the Government.)

(c) *Final report.*—Upon completion of the work or termination of the Government's obligation to contribute to costs, the Operator shall furnish the Government with five copies of a final report (in addition to the final progress report and voucher). This final report shall include a geological and engineering evaluation of the results of the work performed under the contract with an estimate of the ore reserves resulting from such work, complete assay data, adequate geological and engineering maps or sketches, and a summary of the work performed and the unit costs thereof.

(d) *Report of sales.*—The Operator shall provide the Government with suitable accounting and documentary evidence covering all production to which the Government's percentage royalty relates, such as copies of smelter or concentrator settlement sheets, and certified accounts of production and sale or other disposition of production.

(e) *Compliance with requirements.*—If in the opinion of the Government any of the Operator's reports, records, or accounts are insufficient or incomplete, or if the Operator fails to make them, the Government may procure the making or completion of such with suitable attachments as an expense of the work to which the Operator shall contribute. The Government may withhold approval and payment of any vouchers relating to insufficient or incomplete reports, records, or accounts.

ARTICLE 6. *Repayment by Operator.*—(a) *Certification.*—If the Government considers that a discovery or development from which production may be made has resulted from the work, the Government, at any time not later than six months after the Operator has rendered a sufficient final report (see Article 5), may so certify in writing to the Operator. Such certification shall describe broadly or indicate the nature of the discovery or development.

(b) *Royalty on production.*—The Operator, as principal if the Operator is the producer or as surety if the Operator is not the producer (for example, if the Operator either transfers or fails to retain his interest in the land), shall pay to the Government a royalty on all minerals mined or produced from the land, as follows: (1) regardless of any certification of discovery or development, from the date of the contract until the lapse of the time within which the Government may make such certification or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first; or (2) if the Government makes a certification of discovery or development, for a period of ten years from the date of the contract or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first.

(c) *Basis for computation.*—The Government's royalty shall be a percentage of the gross proceeds (including any bonuses, premiums, allowances, or other benefits) from the production sold, in the form sold (ore, concentrates, metal, or equivalent), at the point of delivery (the f. o. b. point); *except,* that charges of *the buyer* arising in the regular course of business, and shown as deductions on the buyer's settlement sheets, on account of the cost of treatment processes performed by *the buyer,* sampling and assaying to determine the value of the production sold, and freight paid by *the buyer* to a carrier (not the Operator), shall be allowed as deductions in arriving at the "gross proceeds" as that term is used herein. Any costs of treatment processes, sampling, assaying, or transportation performed or paid by the Operator or by anyone other than the buyer are not deductible in arriving at the "gross proceeds" as that term is here used. The term "treatment processes," as here used, means those processes (such as milling, concentrating, smelting, refining, or equivalent, but excluding fabricating or manufacturing) applied to the crude ore or other production after it is extracted from the ground to put it into a commercially marketable form.

(d) *Unsold production.*—If any production (ore, concentrates, metal, or equivalent) after the lapse of six months from the date the ore was extracted from the ground remains neither sold nor used by the Operator in integrated manufacturing or fabricating operations (for instance, if it is stockpiled), the Government, at its option, as long as it so remains, may require the computation and payment of its royalty on the value of such production in the form (ore, concentrates, metal, or equivalent) it is in when the Government elects to require computation and payment. If any production is used by the Operator in integrated manufacturing or fabricating operations before the Government makes its election, the Government's royalty on such production shall be computed on the value thereof in the form in which and at the time it is so used. "Value" as here used means what is or would be gross income from mining operations for percentage depletion purposes in Federal income tax determination, or the market value, whichever is greater.

(e) *Percentages of royalty.*—The percentages of the Government's royalty shall be as follows:

One and one-half (1½) percent of amounts ("gross proceeds" or "value") not in excess of eight dollars ($8.00) per ton of production in the form in which sold, held, or used, plus one-half (½) percent for each additional full fifty cents ($0.50) by which such amounts exceed eight dollars ($8.00) per ton, but not in excess of five (5) percent of such amounts.

(For instance: the royalty on an amount of five dollars ($5.00) per ton would be one and one-half (1½) percent; on an amount of ten dollars ($10.00) per ton, three and one-half (3½) percent.)

(f) *Time for computation and payment.*—The Government's royalty shall be computed and paid currently upon each lot sold, held, or used in integrated operations, as the case may be, as above provided in this Article.

(g) *Lien for payment.*—To secure the payment of its percentage royalty, there is hereby granted to the Government a lien upon the land or the Operator's interest in the land and upon any production of minerals therefrom until the royalty claim is extinguished by lapse of time or is fully paid.

(h) *Notice to purchasers.*—The Operator shall give notice of the Government's claim for royalty to any purchaser of the production, and shall authorize and direct such purchaser to pay the royalty directly to the Government and to furnish the Government with copies of the settlement sheets. If the records of any production and sales or other disposition of production, whether the production is by the Operator or by others, are not made available to the Government, the amount of the royalty may be estimated by the Administrator, Defense Minerals Exploration Administration, or his successor, and his estimate thereof shall be final and binding upon the Operator.

(i) *No obligation to produce.*—Nothing in this contract is to be construed as imposing any obligation on the Operator or the Operator's successor in interest to engage in any production operations.

(j) *Government not obligated to buy.*—Nothing in this contract shall be construed as imposing any obligation on the Government to purchase any minerals mined or produced from the land.

ARTICLE 7. *Termination of the Government's obligations.*—(a) If in the opinion of the Government operations at any time have failed to achieve anticipated results that indicate the probability of making a worthwhile discovery and in the opinion of the Government further operations are not justified, the Government may give the Operator written notice thereof, and thereupon the Government shall be free of all obligation to pay on account of units of work not then performed, and the Operator shall be free of all further obligation to prosecute the work other than such as may be necessary and incidental to winding up, reporting, and accounting.

(b) If in the opinion of the Government the Operator is in any manner in default under the terms of the contract, the Government may give the Operator written notice of such default with a specification of reasonable time within which the default must be cured; and if the Operator fails to cure such default as required, thereupon the Government shall be relieved of all obligation to pay on account of units of work not performed when the notice was given, and the Operator shall be free of all obligation to prosecute the work other than such as may be necessary and incidental to winding up, reporting, and accounting. The Government may also avail itself of any other remedy the law may provide for breach of contract, including the right to rescind the contract and to demand repayment of all moneys contributed by the Government under the contract.

(c) The giving of any notice by the Government under the provisions of this Article 7 shall not affect the Government's rights as provided for in the contract with respect to a percentage royalty, and liens to secure the payment thereof, and such rights shall be fully preserved.

ARTICLE 8. *Notices to be given by the Government* may be delivered to the Operator or may be sent by registered mail addressed to the Operator at the mailing address stated in this contract. If mailed, notices are deemed to have been delivered five days after the date of mailing.

ARTICLE 9. *Officials not to benefit.*—No member of or delegate to Congress or resident commissioner shall be admitted to any share or part of this contract or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

ARTICLE 10. *Changes and added provisions.*—

.....

.....

.....

.....

.....

.....

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

JACUAYS MINING CORPORATION
(Operator)

By C. O. Mittendorf
Administrator, Defense Minerals
Exploration Administration

By .....

Title .....

I, ..., certify that I am the ..... secretary of the corporation named as Operator herein; that ....., who signed this contract on behalf of the Operator, was then ..... of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

.....

[CORPORATE SEAL]

U. S. GOVERNMENT PRINTING OFFICE: 1956—O-383069

EXPLORATION PROJECT CONTRACT
JAQUAYS MINING CORPORATION
DOCKET NO. DMEA-3707

Annex I

The land referred to in Article 2 of the Contract is located in Sec. 36, T. 6 N. and Sec. 1, T. 5 N., R.16 E., unsurveyed, Gila and Salt River Meridian, Gila County, Arizona, and is owned by the Asbestos Corporation of America. The Operator has the right to possession by virtue of a contract between said corporation and D. W. Jaquays, dated June 1, 1952, which contract was assigned by D. W. Jaquays and his wife to the Operator by assignment dated July 29, 1952. The Consent to Lien and Subordination Agreement of the Asbestos Corporation of America is attached hereto. The land included in this contract is described as follows:

Those portions of certain unpatented lode mining claims, to wit: Huntz #29, Amended, Huntz #30, Jaquays #1 and Jaquays #2, which are south of 4950 N. Coordinate, north of the 4000 N. Coordinate and east of the 1980 E. Coordinate line, same being marked in red on Figure 2.

Notices of location of the aforesaid unpatented claims are recorded in the Recorder's Office, Gila County, Globe, Arizona, as follows:

Name	Book	Page
Jaquays No. 1	50	91
Jaquays No. 2	50	92
Huntz No. 29	41	491
Amended	41	502
Huntz No. 30	41	401

EXPLORATION PROJECT CONTRACT
JAQUAYS MINING CORPORATION
DOCKET NO. DMEA-3707

"EXHIBIT A"

Description of the Work

(a) The approximate location of the work is shown on the maps entitled, "Figure 2, Claim Map, Regal Asbestos Mine, DMEA 3707, Jaquays Mining Corp., Gila County, Arizona and "Figure 3A - Plan of South Workings of Regal Mine and proposed project (DMEA 3707)", attached hereto and made a part hereof.

(b) The work shall be performed in three stages. The Operator shall perform all of Stage I and as much of Stage II and Stage III as may be approved by the Government in writing.

(c) Long-hole drilling, the cost of which shall be for the account of the Operator, shall be performed in each stage of the project concurrently with the crosscutting operations and the work and reports thereon shall be an integral part of the project.

(d) Regardless of any certification of discovery, the Operator, as principal if the Operator is the producer and as surety if the Operator is not the producer, shall pay to the Government royalty on all minerals transported or passed through any workings to the cost of which the Government contributes, as specified in this contract, irrespective of where the minerals came from. Such royalty shall be paid in the same manner and amount and for the full time and subject to the same conditions as provided in the contract.

(e) No work shall be performed within 100 feet of the end lines of the mining claims included in this contract.

(f) The location, direction, inclination and extent of all work are subject to the approval of the Government.

(g) All work shall be timbered as necessary.

(h) Crosscuts shall have minimum cross sectional dimension of 5 feet by 7 feet in the clear of timber.

(i) Raises shall have minimum cross sectional dimensions of 5 feet by 5 feet in the clear of timber.

Stage I

1. From the present face of No. 3 crosscut which is approximately 15 feet below the ore horizon at approximate coordinates N 4950, E 1980 in the Bagal Mine, drive not more than 300 feet of crosscut on the approximate bearing of S 74° E.

2. At intervals of approximately 100 feet in the crosscut drill a series of long holes with a percussion drill to test the ore horizon for 100 feet on each side and for 100 feet ahead of the face of the crosscut.

3. At intervals of approximately 100 feet in the crosscut drive raises to the ore horizon when justified by drilling results. The total footage of raises in this Stage I shall not exceed 45 feet.

Stage II

4. Extend No. 3 crosscut a distance not to exceed 300 feet on a course approved by the Government.

5. At intervals of approximately 100 feet in the crosscut drill a series of long holes with a percussion drill to test the ore horizon for 100 feet on each side and for 100 feet ahead of the face of the crosscut.

6. At intervals of approximately 100 feet in the crosscut drive raises to the ore horizon when justified by drilling results. The total footage of raises in this Stage II shall not exceed 45 feet.

Stage III

7. Extend No. 3 crosscut a distance not to exceed 300 feet on a course approved by the Government.

8. At intervals of approximately 100 feet in the crosscut drill a series of long holes with a percussion drill to test the ore horizon for 100 feet on each side and for 100 feet ahead of the face of the crosscut.

9. At intervals of approximately 100 feet in the crosscut drive raises to the ore horizon when justified by drilling results. The total footage of raises in this Stage III shall not exceed 45 feet.

Fixed Unit Costs

Stage I

1.	Drive 300 feet of crosscut @ $24.75/foot	$7,425.00
2.	Drill series of long holes with percussion drill at no cost to the Government	--------
3.	Drive 3 raises totaling 45 feet @ $20.00/foot	900.00

Stage II

4.	Drive 300 feet of crosscut @ $26.25/foot	7,875.00
5.	Drill series of long holes with percussion drill at no cost to the Government	--------
6.	Drive 3 raises a total of 45 feet @ $22.50/foot	1,012.50

Stage III

7.	Drive 300 feet of crosscut @ $27.25/foot	8,175.00
8.	Drill series of long holes with percussion drill at no cost to the Government	--------
9.	Drive 3 raises a total of 45 feet @ $22.50/foot	1,012.50
	Estimated total cost of project	$26,400.00
	Government participation @ 75%	$19,800.00

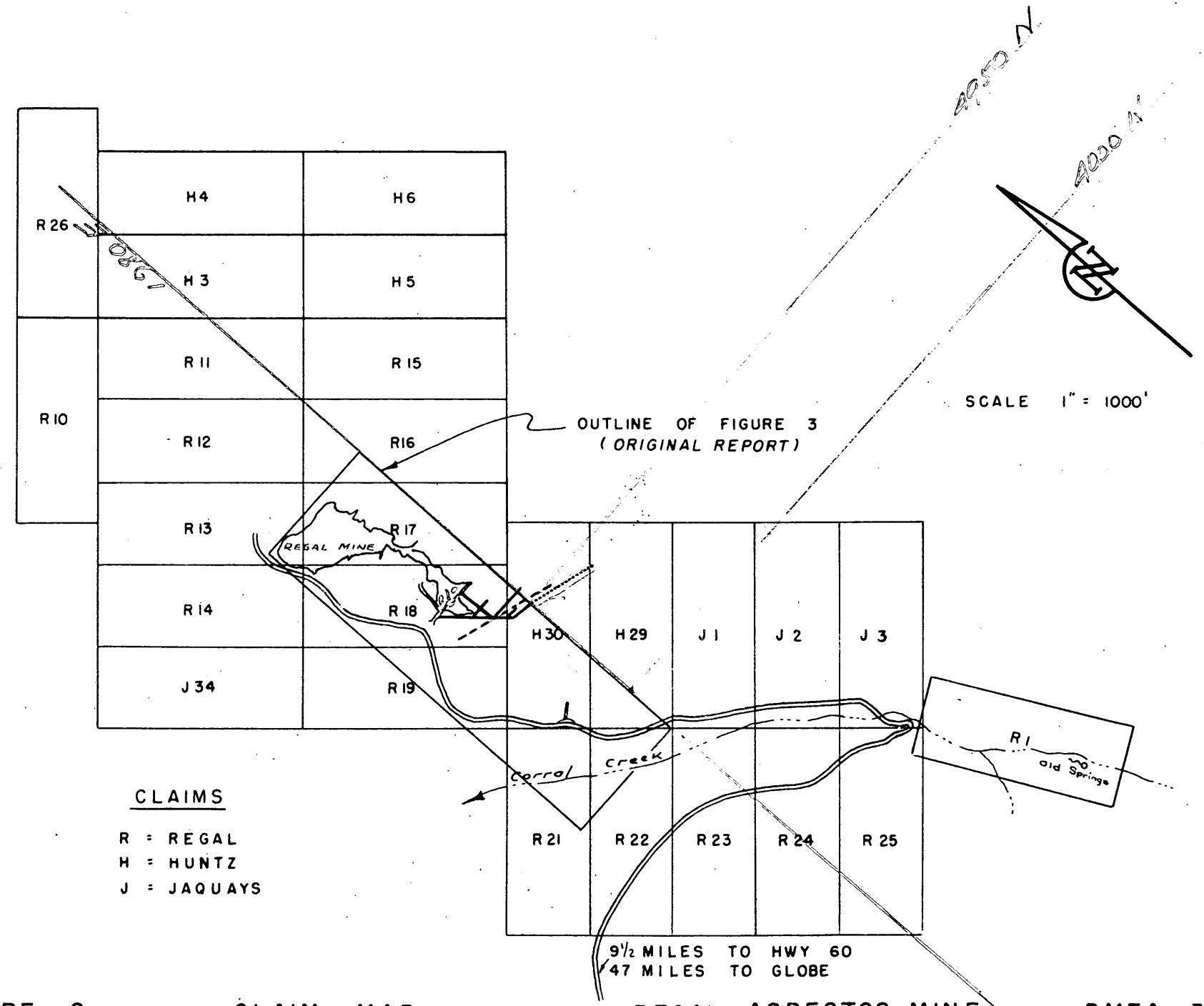

FIGURE 2. - CLAIM MAP
JAQUAYS MINING CORP.

REGAL ASBESTOS MINE
GILA COUNTY, ARIZONA

DMEA 3707

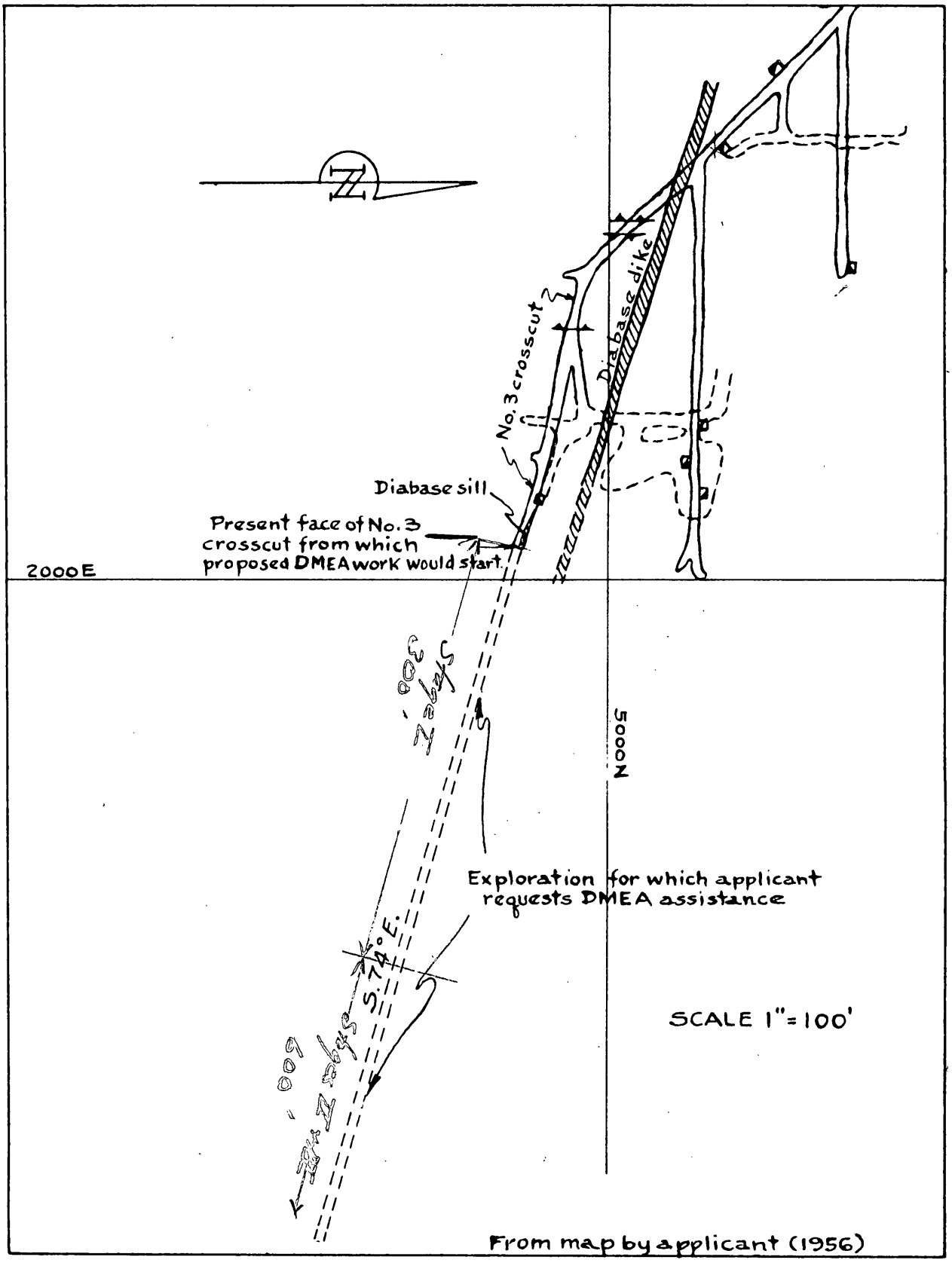

FIGURE 3A.- PLAN OF SOUTH WORKINGS OF REGAL MINE AND PROPOSED PROJECT (DMEA 3707).

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

RECEIVED
JUN 10 1955

224 New Customhouse
Denver 2, Colorado

June 6, 1955

Memorandum

To: Chairman, Operating Committee, DMEA

From: DMEA Field Team, Region III

Subject: Report of Examination, DMEA Docket 3707 (Asbestos), Jaquays Mining Corp., Regal mine, Gila County, Arizona

Enclosed are the original and three copies of the report pertaining to the above application. The Engineering report and the Survey report are not in agreement.

We would recommend DMEA participation in some exploration from the present face, south of the diabase dike, but the applicant proposes to do this work on his own account, and will not subordinate the ground involved in this exploration work.

We therefore recommend that the application be denied without prejudice. If the results of the applicant's exploration south of the dike are favorable, a new application would receive proper consideration.

DMEA Field Team, Region III

W. M. Traver

W. M. Traver

E. N. Harshman

E. N. Harshman

Enclosures

Received
DMEA Operations Committee
6-13-55
(date)

TRANSMITTED
JUN - 6 1955

DMEA
Date Rec'd.
MAY 23 1955
RECEIVED
JUN 1 0 1955
BUREAU OF MINES
Denver, Colorado

May 19, 1955

Memorandum

To : W. M. Traver, Executive Officer, DMEA Field Team

From : Superintendent, Southwest Experiment Station

Subject : Engineering Report, Docket DMEA-3707, Jaquays Mining Corp.'s Regal Asbestos Mine, Gila County, Ariz.

Enclosed are original and 8 copies of the section on Summary, Conclusions and Recommendations by W. R. Hardwick of the Bureau of Mines and the section on Engineering by the same author. A short memorandum also is enclosed by Lincoln A. Stewart, mining engineer, Bureau of Mines (our asbestos expert). A separate section on Geology will be submitted by the Geological Survey.

The Survey member of the DMEA examining team (L. Bryner), and the Bureau member (W. R. Hardwick) evidently cannot agree on their recommendations so separate reports are being submitted by each. I have carefully read Hardwick's report, as has L. A. Stewart, and we both concur with his recommendations. However, as the Field Team may not agree with us, no maps for a possible contract are being enclosed.

Walter R. Storms

Walter R. Storms

CC W. M. Traver (8)
J. N. Faick (without report)
DMEA-3707
DF

WRStorms:frj

6-13-55

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

RECEIVED
JUN 10 1955

SOUTHWEST EXPERIMENT STATION
Box 4097, Tucson 5, Arizona

May 18, 1955

Memorandum

To : Walter R. Storms, Superintendent, Southwest Experiment Station.

From : Lincoln A. Stewart, Mining Engineer, Tucson, Ariz.

Subject : Regal mine - DMEA-3707.

Although I have not inspected the workings of the Regal mine within the past year, I am familiar with the operation and with the problems involved in the exploration of this deposit. Asbestos concentrations occur in the limestone that has been shattered and distorted by thrust faulting. The thrust fault system of the Regal mine is a strong geologic feature; it has been shown to be continuous for 1,700 feet along its strike and it can reasonably be expected to extend for at least another 1,000 feet southward from the present working faces.

Relative to the question of subordination of claims to be benefited by the proposed exploration, Jaquays limits the lien to 2 claims. He is currently producing asbestos from the known ore body on claims to the northwest and does not wish to subordinate these known reserves.

CC W. M. Traver (Orig. & 8)
DMEA-3707
DF

LAStewart:frj

Reviewed by
DMEA OPERATING COMMITTEE
6-13-55
(date)

This is not an unusual procedure in Defense Minerals Exploration Administration applications. The Coronado Copper and Zinc Co. (DMEA-2746) subordinated 2 separate, small areas, roughly 1,000 by 1,600 feet and 600 by 800 feet; United States Smelting, Refining, and Mining Co. (DMA-1325X) subordinated an area of only 1,150 by 3,300 feet and farther limited it to a 500-foot vertical range. In both the above cases, the applicants were not willing to subordinate areas in which current work on known ore bodies was in progress. Even with the limited subordinated areas involved, Coronado was granted a contract for $99,050 and U. S. Smelting, a contract for $582,000.

In view of the above precedents Jaquays' request for subordination of 2 full claims, on which a $26,000 proposed exploration is to be conducted, does not appear to be unreasonable.

I have read Hardwick's report and concur with his recommendations and program of exploration.

Lincoln A. Stewart

Lincoln A. Stewart
Mining Engineer
Southwest Experiment Station

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

DMEA-3707, Jaquays Mining Corporation

Regal Asbestos Mine

Gila County, Arizona

William R. Hardwick, Mining Engineer
U. S. Bureau of Mines

May 1955

Reviewed by
DMEA OPERATING COMMITTEE
6-13-55
(date)

TRANSMITTED
JUN - 6 1955

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

By William R. Hardwick 1/

The Regal asbestos mine, Gila County, Ariz. was purchased from the Asbestos Corp. of America by the Jaquays Mining Corp. for $60,000.15 in 1952. The Regal mine is one of the three largest asbestos producers of the Gila County asbestos district and has produced from 5,000 to 6,000 tons of low-iron fiber. During 1954, the mine produced 500 tons of fiber valued at $333,000.00. According to D. W. Jaquays, all of the purchase price will be paid by June 1955 and Jaquays Mining Corp. will be the sole owner.

In 1953, Jaquays asked for assistance from the Defense Minerals Exploration Administration to explore for and extend the ore body. This request was approved, the project (DMEA Docket 2867) did find fiber, and the Government's funds were repaid. The applicant estimates 1,000 tons of fiber will be produced from the existing ore reserves.

Strategic fiber occurs along the strike of the low-angle Regal thrust fault system for a distance of 1,700 feet. The quantity and grade of fiber has improved along the fault at the places where the diabase sill has swelled upward causing a slight dome effect in the favorable limestone beds. Two domes have occurred, and a third is inferred in the area to be explored.

1/ Mining engineer, U. S. Bureau of Mines

For the second time, the Jaquays Mining Corp., 1219 South 19th Ave., Phoenix, Ariz. has applied for assistance under the terms of the Defense Production Act of 1950, as amended. This application was docketed DMEA-3707, (Asbestos), reviewed by Oliver Bowles, Commodity Specialist, and referred to the field for an examination and report. The applicant proposes to explore for asbestos fiber along the projected trend of the Regal ore body by drifting and crosscutting from an extension of the Navajo adit. The applicant estimates the total cost of the project to be $33,000.00.

The Regal mine was examined on May 3 and 4, 1955 by William R. Hardwick, mining engineer, U. S. Bureau of Mines, and Leonid Bryner, geologist, U. S. Geological Survey. The examining team was accompanied by D. W. Jaquays, president, and A. W. Gerhardt, superintendent of the Jaquays Mining Corp.

The examining engineer and the examining geologist are not in agreement and it is believed that the geologist will recommend denial.

The examining engineer believes that a significant amount of strategic fiber may be discovered, that the method of exploration proposed is the most logical and practical, and that the applicant's request for assistance should be approved.

The following conclusions are drawn:

1. The product of the mine, low-iron spinning-grade chrysotile fiber, is of strategic importance.

2. A significant amount of fiber may be found.

3. While some exploration from the existing face is desirable, the applicant proposes to do this work at its own expense and the Government should not insist on participating in costs.

3. The cost of exploring the target area from the existing mine face would be greater.

4. As the applicant does not plan to move ore through the Navajo adit, but will continue to haul ore to his present sorting plant, the proposed project cannot be considered development.

5. The proposed exploration should be completed while the mine has a small reserve and is operating.

6. The applicant will not subordinate any ground that contains known asbestos reserves.

7. An area of 180,000 square feet will be explored. If fiber is found in an area of 47,000 square feet, the returns should be enough to repay the Government's share of the exploration funds if the grade of fiber is the same as that mined during 1954.

The examining engineer recommends an exploration project that will consist of 1,000 feet of drifting and crosscutting, and 150 feet of raise. The total estimated cost is $26,000.00.

DMEA-3707, JAQUAYS MINING CORPORATION
REGAL ASBESTOS MINE
GILA COUNTY, ARIZONA

Engineering Report

By William R. Hardwick
Mining Engineer
U. S. Bureau of Mines

May 1955

DMEA OPERATIONS CONTROL
6-13-55
(date)

DMEA-3707, JAQUAYS MINING CORPORATION
REGAL ASBESTOS MINE
GILA COUNTY, ARIZONA

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INTRODUCTION

The Regal asbestos mine was purchased from the Asbestos Corp. of America by the Jaquays Mining Corp. in 1952 for the sum of $60,000.15. The Jaquays Mining Corp. then applied for Government assistance (DMEA-2867) to explore for additional ore. The assistance was granted and the company was successful in finding more ore before the project was completed; the exploration contract was canceled, and the funds advanced by the Government were repaid by a cash settlement.

The Jaquays Mining Corp. has produced fiber and has paid all but $5,000.00 of the agreed purchase price. However, ore reserves have been considerably depleted and the operator has applied for Government assistance from the Defense Minerals Exploration Administration to explore for additional ore.

This application proposes to explore for asbestos fiber south of the present mine and along the projected trend of the Regal fault system by driving a new adit. The total amount of work proposed by the applicant is 1,250 feet of drifting and crosscutting, and 150 feet of raises at a total estimated cost of $33,000.00.

The application was docketed DMEA-3707, reviewed by Oliver Bowles, Commodity Specialist, Branch of Construction and Chemical Materials, Bureau of Mines, and referred to the Field Team for an examination and report. The Regal asbestos mine was examined on May 3 and 4, 1955, by William R. Hardwick, mining engineer, Bureau of Mines, and Leonid Bryner, geologist, Geological Survey.

The examining engineer and the examining geologist are not in agreement as to the merits of this application; the examining engineer recommends that the Government assist in the proposed project, but the examining geologist does not recommend the project.

ACKNOWLEDGMENTS

Acknowledgments are due to D. W. Jaquays, president, and to Alvin W. Gerhardt, superintendent, Jaquays Mining Corp., for their courtesy to the examining team, and for furnishing information relative to the application for Government assistance.

The Regal mine was examined on March 19 and 26, 1953 by Lincoln A. Stewart, mining engineer, Bureau of Mines, and much background material for this report has been copied from his report (Docket DMEA-2867).

LOCATION, TOPOGRAPHY AND CLIMATE

The Regal mine is situated in the Crook National Forest on the south rim of Salt River Canyon about 30 airmiles northeast of Globe, Gila County, Ariz. (figure 1). The mine is at an altitude of 4,250 feet, or about 1,250 feet above the river. According to the Crook National Forest map, the Regal property is in approximate sec. 36, T. 6 N., and sec. 1, T. 5 N., R. 16 E., unsurveyed.

The mine is at the end of a 9.6-mile graded dirt road that branches west off paved U. S. Highway 60 at a point one-half mile north of Seneca (37 miles north of Globe). It is accessible throughout the year except for a few days after heavy rains or snow storms, when the dirt access road is virtually impassable.

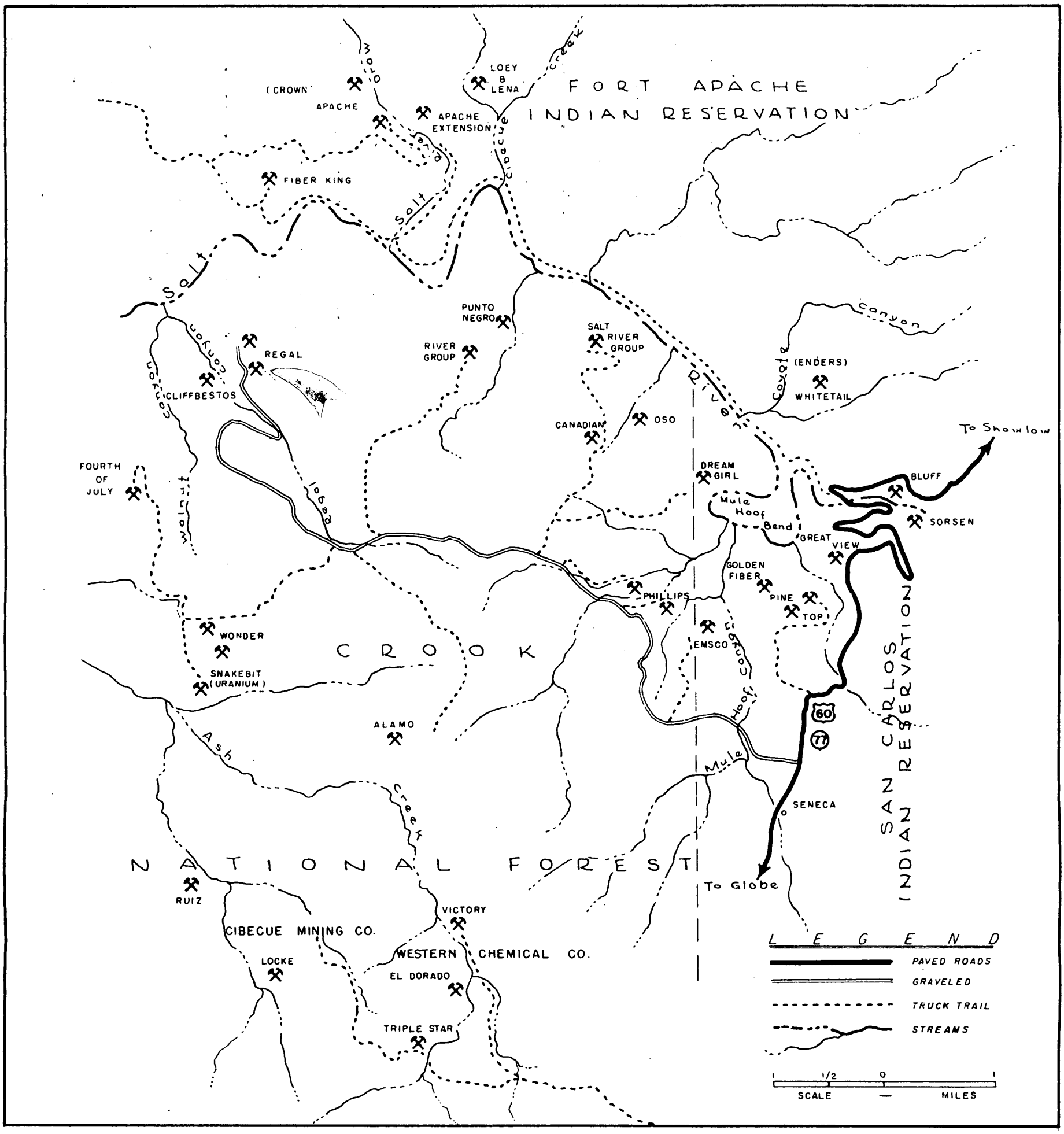

FIGURE - 1 - MINE LOCATION MAP - MAJOR PART OF SALT RIVER DISTRICT

HISTORY AND PRODUCTION

The nucleus of the group consisted of about 10 claims that were located prior to 1917. During 1918 the property was being developed by the Colorado-Arizona Asbestos Mining Co. and a small production was reported. The Denver Arizona Asbestos Co. produced some fiber from the property in 1919. The claims were purchased by E. Schaaf-Regalman in 1919, who relocated the claims and added many more to the group. By the end of 1921, the Regal Asbestos Mines, Inc., E. Schaaf-Regalman, president, had taken over the property. It was idle, except for assessment work, from April 1921 until 1925. During 1925 and 1926, lessees were its principal, but intermittent operators. In June 1927, the company resumed regular development and production. The following year a mill was constructed, said to have a capacity of 30 tons of mill rock per 8 hours.

About 1937, the Arizona Chrysotile Asbestos Co. took over the property and made substantial yearly production under various managements through 1948. The mill was destroyed by fire in August 1948. In December 1950, Jaquays became the manager of the company, operated the mine for company account, and from a surface lease produced fiber by open-pit methods for himself. In June 1952, Jaquays bought the Regal mine and the mill in Globe which had been built with the assistance of Defense Plant Corporation financing.

The Jaquays Mining Corp. paid a price of $60,000.15 for the mine and mill. This price included a cash payment of $15,000.00; six semi-annual payments of $5,000.00 each; $10,950.70 to General Services Administration (successor to Defense Plant Corporation) on Mortgage covering the mill; and $4,049.45 due on a conditional sales contract for machinery.

In 1953, Jaquays Mining Corp. applied for and was granted Government assistance (Docket DMEA-2867) to explore for additional ore. Additional ore was discovered and the contract was terminated at the request of the applicant. All funds advanced by the Government were repaid.

During 1953 and 1954, the Jaquays Mining Corp. has mined 1,000 tons of asbestos at the rate of 45 tons of finished fiber per month. The total production of the Regal mine has been on the order of 6,500 tons of fiber, all grades, which is reported to have been sold for $4,000,000.00. This mine has been the second largest producer in the district and soon may become the largest. A large portion of the recent production has been No. 1 and No. 2 crude.

OWNERSHIP AND EXTENT

The property consists of 27 unpatented claims. The 22 claims, bought June 1, 1952 by the Jaquays Mining Corp. from Asbestos Corp. of America, are recorded at the Gila County Court House, Globe, Ariz. as follows:

Name	Book	Page
Regal No. 1	43	87
Regal No. 10	35	436
Regal No. 11	35	437
Regal No. 12	35	438
Regal No. 13	35	439
Regal No. 14	35	440
Regal No. 15	35	441
Regal No. 16	35	442
Regal No. 17	35	443
Regal No. 18	35	444
Regal No. 19	35	445
Regal No. 21	35	447
Regal No. 22	35	448
Regal No. 23	35	449
Regal No. 24	35	450
Regal No. 25	35	451
Huntz No. 3	41	500
Huntz No. 4	41	500
Huntz No. 5	41	501
Huntz No. 6	41	501
Huntz No. 29	41	491
Amended	41	502
Huntz No. 30	41	491

D. W. Jaquays stated that on June 1, 1955, the final $5,000.00 semi-annual payment would be made to the Asbestos Corp. of America after which the Jaquays Mining Corp. would own the claims.

Five additional claims have been located by Jaquays. These claims are recorded as follows:

Name	Book	Page
Jaquays No. 1	50	91
Jaquays No. 2	50	92
Jaquays No. 3	50	93
Jaquays No. 4	50	90
Jaquays No. 34	50	94

All of the above claims are shown on figure 2. For the purpose of the requested assistance, Jaquays Mining Corp. proposes to obligate only 2 claims, Huntz No. 29 and Huntz No. 30.

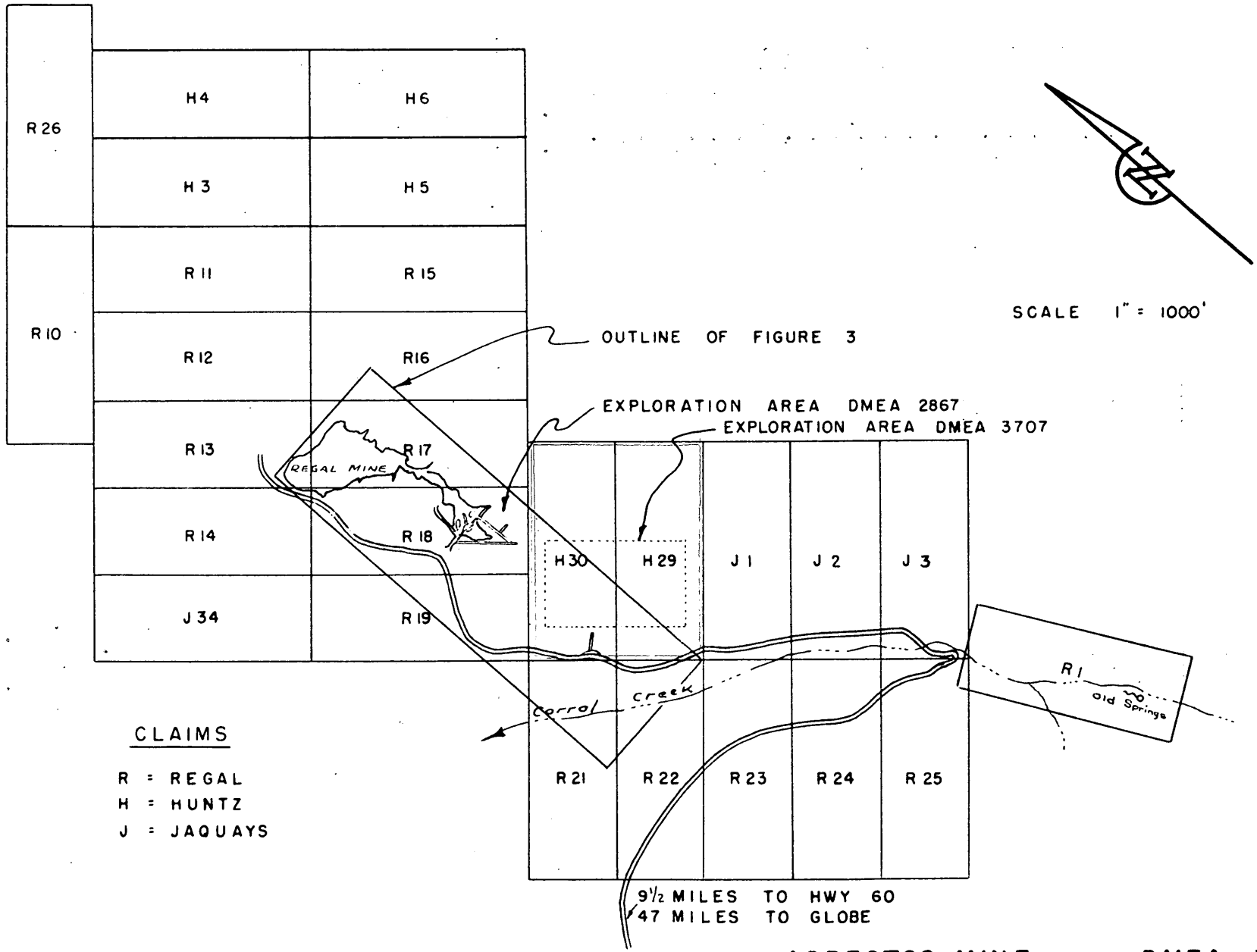

FIGURE 2. - CLAIM MAP REGAL ASBESTOS MINE DMEA 3707

JAQUAYS MINING CORP. GILA COUNTY, ARIZONA

The question of how much ground should be subject to royalty was discussed with D. W. Jaquays on May 4, 1955. Jaquays believes that there is enough measured and indicated ore in the existing mine to produce 1,000 tons of fiber, or to more than pay off the assistance that he has requested, but he will not subordinate this ground under any condition. However, Jaquays believes that the project which he has presented will explore ground where a substantial quantity of asbestos may be found. He believes that this project fulfills the requirements of an exploration project and that he should not be required to offer as security the subordination of claims containing known ore, particularly when the area that contains known ore will not be benefited by the project.

DESCRIPTION OF THE DEPOSIT

The Regal deposit outcrops high on the cliffs on the south side of the Salt River Canyon at an altitude of 4,250 feet. The main veins are in the lower-pre-Cambrian Mescal limestone, about 30 feet below the algal member of this formation, and approximately 15 feet above a thick diabase sill that has warped the bedding locally. The 2 most productive veins are 5.5 feet apart and are usually carried at the roof and near the floor of the drifts and stopes. A less important vein was found in the near-surface workings 2 feet under the lower vein. Another important vein is sometimes found at the base of the algal member 30 feet above the main vein system.

The greatest concentrations of ore have been found in the warped areas that have been shattered by the Regal thrust fault and its branches. Near the surface the stoped areas are 600 feet wide, gradually decreasing to a width of 100 to 150 feet at about 600 feet in depth. This average width of ore persists to about 1,000 feet in depth where the minable ore again increases to a width of 300 feet and continues to the present working depth of 1,700 feet (see figure 3).

The ore is found along the limbs of folds. Where certain areas along the fault are relatively flat-lying, no concentrations of fiber are present. About 1943, this condition existed at the then south end of the mine and it was considered virtually worked out. Additional exploration work completed with the assistance of the Defense Minerals Exploration Administration (docket DMEA-2867) proved the existence of another ore-bearing structure along the fault zone and this area is now being worked by the applicant.

A persistent band of dark green serpentine, 1 to 2 inches thick, occurs in the bedding between the two main ore zones. It is locally called "the oscar" and is found in all parts of the mine and along the surface outcrops. It is a reliable marker that indicates the favorable beds even when no fiber is present. The beds that contain the "oscar" outcrop on a canyon wall about 250 feet west of the interior mine workings. The outcrop there (see figure 3) contains only traces of asbestos, but this is to be expected as the beds are

relatively level and undisturbed. This "oscar" is visible for the full length of the Navajo adit. It is at the bottom for the first part of the adit and is at the top of the drift for the last 75 feet due to a fault which shows a displacement of about 7 feet.

MINABLE ORE RESERVES AND GRADE

The prediction of ore reserves for an asbestos mine of the Arizona chrysotile-asbestos deposit type is difficult. Abrupt termination of the asbestos-bearing limestones by a discordant diabase intrusion, without predictable indication in adjacent exposures, is common. In the case of the Regal mine, a definite favorable trend has been established for a distance of 1,700 feet along the Regal thrust fault.

The grade of material can be determined best from mining experience. In 1954, the area stoped was 40,000 square feet and the total production from this area was 500 tons of fiber, all grades. This is equal to 25,000 pounds per 1,000 square feet. A thickness of 1 inch of asbestos throughout an area of 1,000 square feet will produce 6.5 tons, or 13,000 pounds of fiber, all grades. Therefore, the fiber that was recovered is equal to a vein 1.92 inches thick over the area mined in 1954.

A large part of the fiber that is produced from the Regal mine is of strategic quality. During the year 1954, the fiber that was produced was divided by grade as follows:[1/]

1/ Oral statement by D. W. Jaquays.

Grade	Tons	Percent	Estimated Value
No. 1 crude	80	16	$120,000.00
No. 2 crude	120	24	108,000.00
No. 3 (filter grade)	300	60	105,000.00
Total	500	100	$333,000.00

The applicant states that the ore reserves at present are estimated at about 1,000 tons of asbestos fiber. A rough check of the fiber thickness by field measurement, and the probable area by map measurement indicates that this is a reasonable figure.

PRESENT STATUS

The Regal mine now is being operated by Jaquays Mining Corp. which will become the owner on June 1, 1955 when the final payment on a purchase contract is made. The present production is at the rate of 60 tons of crude ore per day. The present known reserves will last from $1\frac{1}{2}$ to 2 years at this rate of production.

PROPOSED EXPLORATION

The applicant proposes to explore a favorable area (see figure 2) by driving 1,250 feet of drifts and crosscuts, and 150 feet of raises at a total estimated cost of $33,000.00. The applicant has requested assistance from the Defense Minerals Exploration Administration to dp this work. At the same time, the applicant proposes to mine ore from the southern end of the mine and to drive exploration drifts southward from the existing face at its own expense. The complete exploration project as envisioned by the applicant is shown in figure 3.

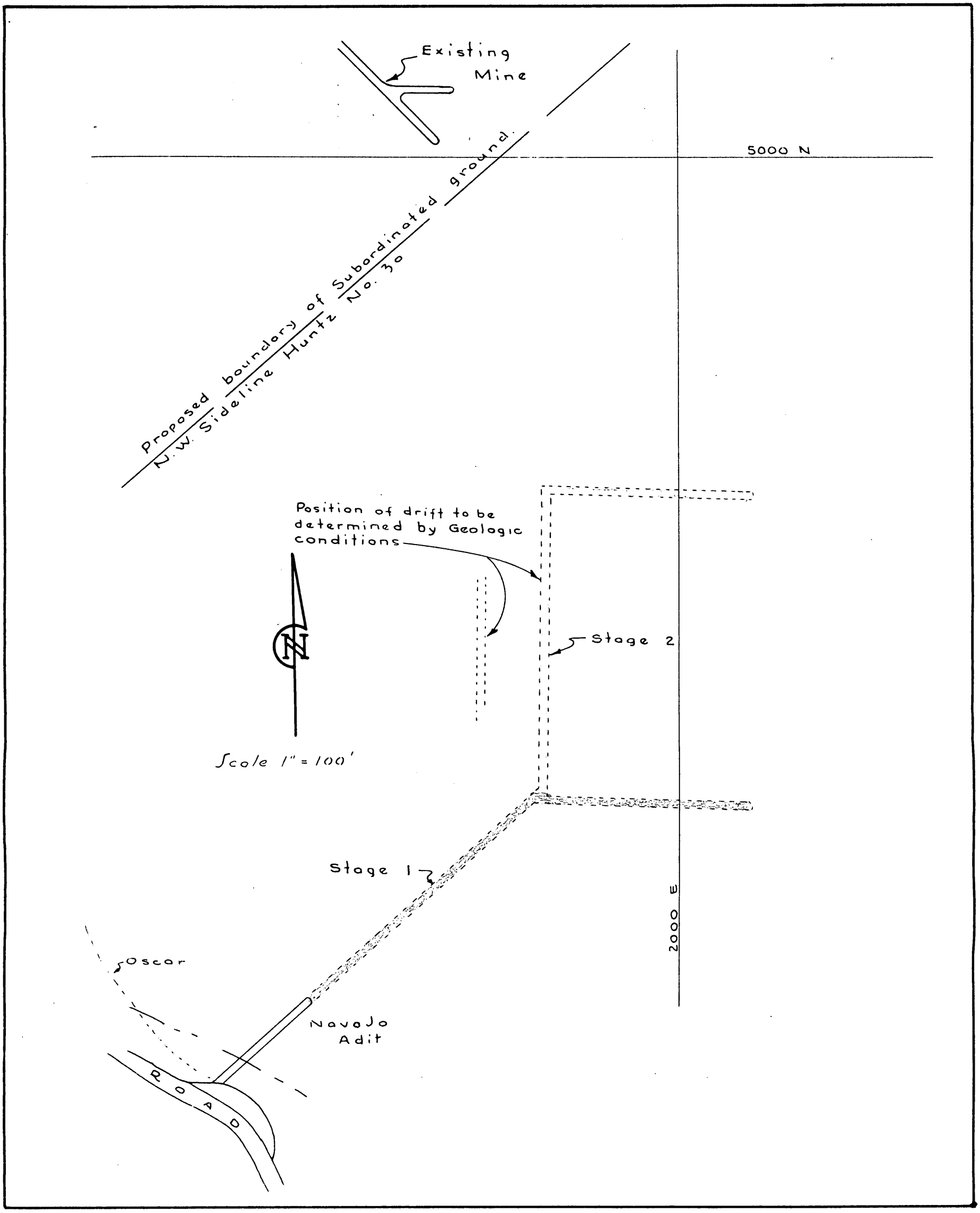

FIGURE - 4 - PROPOSED EXPLORATION SCHEME
REGAL ASBESTOS MINE, GILA CO. ARIZONA

On May 4, 1955, when the property was examined, it was pointed out to the applicant, if an extention of the Navajo adit cuts ore and finds that the favorable structure does continue, the additional work outlined by the project might be considered to be development instead of exploration in nature. Jaquays agreed that if ore and structure are cut by the extended Navajo adit, then further exploration should be in a more southern direction. He requested that the project be made flexible so if ore and structure are not cut by the adit, then some work could be done in a northern direction.

The following project is the most practical way to explore the target area:

Stage I

A. Extend the Navajo adit 300 feet in a direction normal to the general trend of the Regal ore body.

B. If neither structure nor ore is found under A, extend the Navajo adit an additional 200 feet (total of 500 feet).

Stage II

A. If ore and structure are found by Stage I, drift 300 feet in a southern direction along and parallel to the ore trend and crosscut the favorable zone.

B. If no ore is found but structure is evident by Stage I, drift 200 feet northward and crosscut the favorable zone.

In addition to the above drifting and crosscutting, a total of 150 feet of raise should be provided to be used as necessary.

ESTIMATED COSTS

The wage scale at the Regal mine is as follows:

Job	Per Hour	Per Day	Per Month
Machineman	$1.50	$12.00	
Mucker	1.25	10.00	
Slusher operator	1.25	10.00	
Trammer	1.125	9.00	
Supervisor			$600.00

The labor at the Regal mine consists almost entirely of Apache Indians. These men make good miners and the average advance of 4 feet per day proposed by the applicant seems conservative. However, accepting this rate of advance and using the wage rates shown above, the costs of laber are estimated as follows:

	Cost per day
Machine man	$12.00
2 Muckers	20.00
½ Supervision	12.00
Overtime (2 days in 12)	4.00
Engineering	4.00
Total labor	$52.00

The Workmen's Compensation rate at the Regal mine is 9.35 percent and the Arizona Unemployment charges are 2.7 percent of the payroll. Old Age Benefit charges are 1.5 percent of the payroll. This makes a total of 13.55 percent on all payroll expenses, or $7.05 per shift.

The costs of operating supplies, as listed by the applicant, are as follows:

Type	Cost
Explosives	$21.10/c
Fuse and caps	2.25/c
Diesel oil	.20/gal.
Drill steel	1.00/lin. ft.
Bits (carbide)	13.50/each

The Jaquays Mining Corp. has used a rental price for equipment in making an estimate of the costs of the project. The price used is the same as that charged when this equipment is rented out to its customers. As the equipment is owned by the company, a depreciation charge seems more in order. The estimated cost of the equipment to be furnished for this project is as follows:

1 -	210-CFM compressor	$8,000.00
2 -	55 lb. jackhammers	1,400.00
	Hose	200.00
	Loading ramp and slusher	2,400.00
2 -	Mine cars	400.00
	Stoper	700.00
Total		$13,100.00

Using a 5-year depreciation rate, the monthly charge for this equipment would be $218.33 as compared to the rental charge of $477.00 proposed by the applicant.

Summing up the various items of cost and using a depreciation charge instead of a rental charge for equipment, the cost of drift and crosscut is estimated to be as follows:

	Per day	Per foot
Labor, incl. supervision and engineering	$52.00	$13.00
Workmen's comp. State unemployment Ins. & OAB	7.05	1.76
Supplies	18.00	4.50
Equipment depreciation	6.63	1.66
Camp and trucking expense	2.00	0.50
Miscellaneous	4.00	1.50
Total for drifting and crosscutting	$89.68	$22.92

The applicants proposed price of $20.00 per foot for raising seems reasonable.

The total cost of the exploration program as recommended by the examining engineer is as follows:

Stage I

Drifting, 500 ft. @ $23.00	$11,500.00	
Raising, 75 ft. @ $20.00	1,500.00	
Total, Stage I		$13,000.00

Stage II

Drifting and crosscutting, 500 ft. @ $23.00	$11,500.00	
Raising, 75 ft. @ $20.00	1,500.00	
Total Stage II		$13,000.00
Estimated total cost of project		$26,000.00

The estimated cost of the project proposed by the applicant was as follows:

Drifting and crosscutting, 1,400 ft. @ $24.00	$30,000.00
Raising, 150 feet @ $20.00	3,000.00
Estimated total cost of project	$33,000.00

The possibility of exploring the same target area by extending a drift from the existing mine face should be examined. The average tramming distance for the project as proposed by the applicant is estimated to be on the order of 500 feet. The average tramming distance for a project to explore the same area from the existing face is estimated as 1,200 feet. Jaquays estimates that this additional tram will require 2 additional trammers equal to a cost of $4.50 per foot of advance.

Additional ventilation is required for dead-end entries of more than 600 feet at the Regal mine. Assuming a cost of $600.00 for a blower and $0.80 per foot for tubing, the added cost is estimated to be $1.50 per foot of drift beyond the existing face.

The actual footage required to explore the target area is the same from each point of entry. The costs of the alternate programs are compared as follows:

Driving from present face

1,250 feet drift @ $29.00	$36,250.00	
150 feet of raise @ $24.50	3,675.00	
Total cost		$39,925.00

Driving from Navajo adit

1,250 feet drift @ $23.00	$28,750.00	
150 feet raise @ $20.00	3,000.00	
Total cost		$31,750.00

The total estimated saving, assuming that the same amount of exploration work is completed, by driving from the Navajo adit rather than from the existing face is $8,175.00.

All ore will continue to be mined through the present entry where handling facilities are installed. Some improvement in ventilation will result when the Navajo adit is connected with existing stopes.

Some exploration advantage would result from driving out of the existing working face, but Jaquays does not favor this and probably would refuse a contract proposing this method of exploration.

PROPOSED FINANCING

The Jaquays Mining Corp. has proposed an exploration project to extend the ore reserves of the Regal mine. This project is divided into two parts which are to be completed at the same time. One part consists of extending exploration drifts from the existing workings which the Jaquays Mining Corp. proposes to do at its own expense. The second part consists of driving a new adit to explore for asbestos beyond the economic limits of exploration from the existing workings. On this latter part of the project, the applicant has proposed to finance 25 percent of the costs and has requested that the Government provide 75 percent of the costs under the terms of Defense Production Act of 1950, as amended.

CONCLUSIONS

D. W. Jaquays is a capable mining engineer and in planning this exploration program has carefully reserved for development at his own expense that area where ore is known to exist. However, Jaquays has proposed for Defense Minerals Exploration Administration participation in the costs, a project which is not entirely without merit and which may discover a significant extension to the Regal ore body. Careful consideration should be given to this project.

The conclusions, resulting from a review of various reports and publications, discussion with the operator, past visits to this property, and a field examination on May 4, 1955 are summarized as follows:

1. D. W. Jaquays is a capable engineer and mine operator.

2. The Regal asbestos mine has been the second largest producer in the district.

3. The commercial fiber in the Regal mine has been found along the trend of the low-angle Regal fault for 1,700 feet.

4. The ore zone has not been of uniform width, but has ranged from 0 to 600 feet, due probably to the influence of slight domes in the diabase sill.

5. The Regal fault almost certainly extends into the target area and a possible dome is indicated in the target area by the fact that the back end of the Navajo adit has been faulted upward 7 feet. These conditions are favorable for the formation of asbestos fiber.

6. The applicant will refuse to include claims that have developed asbestos reserves. He believes that the project outlined is justified on its own merits and may find a substantial amount of strategic fiber.

7. Some exploration from the present face is in order, but the applicant expects to do this work at his own expense (see figure 3).

8. The target area can be more efficiently and economically explored by extending the Navajo adit than by extending drifts from the existing face.

9. As all ore will continue to be transported through the existing entry, where handling facilities are available, the extension of the Navajo adit and its connection with existing workings should not be considered development.

RECOMMENDATIONS

Admittedly this applicant has proposed an exploration project that has an element of risk, greater for the part in which it has requested Government assistance, than is the risk in the part of the program that the applicant proposes to complete at its own expense. Still the proposed project is good exploration and is recommended in modified form.

It is recommended that the Government participate in the costs of an exploration project as follows:

Stage I

Extend the Navajo adit to cut the projected trend of the ore zone. Raise at favorable locations to search for fiber.

Stage II

Drift 300 feet along the favorable structure and crosscut the projected trend of the ore zone at a second location. Raise at favorable intervals to search for fiber.

The recommended costs for this project are as follows:

Stage I

Crosscut 500 ft. @ $23.00/ft.	$11,500.00	
Short raises (total 75 ft.) @ $20.00/ft.	1,500.00	
Total estimated cost		$13,000.00

Stage II

Drifting, 300 ft. @ $23.00	$6,900.00	
Crosscutting 200 ft. @ $23.00	4,600.00	
Short raises (total 75 ft.) @ $20.00	1,500.00	
Total estimated cost		$13,000.00
Grand total estimated cost		$26,000.00

As the mine is now operating, work on this project could be started as soon as the contract is approved and should be completed in 12 months.

DMEA
Date Rec'd.

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR

JUN 1955

GEOLOGICAL SURVEY
Defense Minerals Exploration Administration
Denver Federal Center
Denver, Colorado

BUREAU OF MINES
Denver, Colorado

June 1, 1955

TRANSMITTED
JUN - 6 1955

RECEIVED
JUN 10 1955

Memorandum

To: Field Team, Region III

From: E. N. Harshman

Subject: DMEA Docket 3707 (Asbestos), Jaques Mining Co., Regal mine, Gila County, Arizona

Enclosed are the original and 8 copies of a geologic report by Leonid Brymer, U. S. Geological Survey, covering his examination of the Regal mine. Enclosed also are 10 copies of a review of the report and comments by A. F. Shride, U. S. Geological Survey, who has followed the development of the Regal mine for the last 13 years.

The examining engineer and geologist do not agree in their recommendations on the proposed project, although they both believe that exploration southeast or south of the present mine workings is warranted. Although the examining engineer states that "Some exploration advantage would result from driving out of the existing working face,..." he concurs with the applicant's proposal to extend the Navajo adit in an attempt to locate an extension of the known deposit in an area about 700 feet south of the present mine workings. The examining geologist believes that an extension of the known ore deposit can be best sought by drifting south or southeasterly from the present mine workings along the known ore horizon or along a fault zone that probably localized the ore.

The applicant proposes to do exploration similar to that proposed by the examining geologist and does not wish Government assistance in this work. Based on the position taken by the applicant, the examining geologist recommends denial of the application for exploration assistance.

After a careful review of the reports and the letters of comment, it is my recommendation that the application be denied without prejudice. After completion of the work being undertaken by the applicant, a revised program of exploration may be justified.

E. N. Harshman

E. N. Harshman
Member, Field Team

DMEA ORIGINATING COMMITTEE
6-13-55
(Date)

Enclosures (9)

ENHarshman:arh

Box 4126 University Station
Tucson, Arizona

May 26, 1955

MEMORANDUM

To: E. H. Kerschman

From: J. H. Faick, Geologist 6-13-55

Subject: DMEA-3707 (Asbestos), Jaquays Mining Corporation (Regal mine), Gila County, Arizona

I am submitting to you the original and 8 copies of a geological examination report by Leonid Bryner on the Regal Asbestos Mine, DMEA-3707, for which D. W. Jaquays has applied for Government assistance in exploration for asbestos. I am also submitting a memorandum on the same subject by A. F. Shride, which I have asked him to prepare because of his familiarity with the Regal mine, and with other Arizona asbestos deposits. The engineering report, accompanied by a memorandum prepared by Lincoln A. Stewart, was submitted May 19 to Mr. Traver by Mr. Storms. It is to be noted that the Summary, Conclusions and Recommendations, prepared by Mr. Hardwick, and submitted with the engineering report contains recommendations for approval of the application; however this recommendation does not represent Bryner's position. The report prepared by Leonid Bryner, geologist, after careful examination of the property and thorough evaluation of the abundant data available to this office, recommends denial of the application for reasons set forth in the report.

It is inevitable that two individuals, examining and appraising a mine, and having at their disposal the same data, will sometimes form different opinions of the merit of an exploration program, as has happened in the case of the Regal asbestos mine. It has proved impossible

in this case for the engineer and geologist in Tucson to resolve their differences of opinions, and as there appears to be a matter of policy involved, it is deemed advisable to submit the reports to your office so that the field team may determine what course of action is to be followed.

Nearly everyone familiar with the Regal mine agrees that it is one of the most productive asbestos mines in Arizona and that extensions of the ore zone should be sought even if negative results are obtained. Those familiar with the property also agree that the logical way to explore the property is to drive southward from the present mine workings, a project which Jaquays orally is proposing to do at his own expense and for which he orally refused Government participation. Jaquays, however, is remaining firm in his request for Government participation in the relatively undesirable and somewhat speculative method of exploration by driving a new crosscut adit about 1000 feet ahead of his present workings, in an area where there is essentially no data to indicate whether or not conditions favorable to the localization of ore exist. Thus, to explore essentially the same block of ground, there are 2 alternative plans which I shall designate as follows:

Plan 1 - Drift south from present workings and crosscut the favorable structures if they exist;

Plan 2 - Attempt to crosscut the inferred extensions of the favorable structures by driving a new adit and to explore these structures by drifts and other crosscuts.

It appears to me that the question to be resolved is whether it is to the Government's interest to participate in the relatively undesirable plan 2 at the same time the operator is proceeding with

the perfectly logical plan 1 without Government participation. No other question of importance is involved.

If the operator will complete Plan 1 at his own expense, the Government is faced with taking a choice of 3 alternatives as follows:

1 - Participate in plan 2, as requested by the applicant and recommended by the BMBA engineering staff;

2 - Deny the application, as is favored by the BMBA geological staff;

3 - Hold plan 2 in abeyance until the operator completes plan 1 and at least proves the existence of extensions of the mineralized structures.

My opinion is that after plan 1 is completed the operator will no longer want plan 2 in its proposed form, but that he might then offer some alternative exploration plan. If asbestos fiber is found with plan 1, then plan 2 will automatically become more of a development project than an exploration project.

I do not wish to be overly conservative on exploration, but believe we should always insist upon selecting the best exploration method, which is not possible for us on the Regal mine because of the position taken by the operator. As we cannot participate on the most logical exploration method, I agree with Bryner that the application should be denied. If the field team agrees with this decision, then it might be desirable to advise the operator that we might reconsider his proposal after he completes his part of the exploration program.

J. N. Paick

J. N. Paick

JNP:mm

cc: S Kershman

DMEA
RECEIVED
MAY 31 1955
GEOLOGICAL SURVEY
DENVER, COLORADO

Box 4126 University Station
Tucson, Arizona

May 26, 1955

Reviewed by
DMEA OPERATING COMMITTEE
6-13-55
(date)

MEMORANDUM

To: K. N. Harshman

From: A. F. Shride

Subject: DMEA-3707, Regal Mine, Jaquays Mining Corp., Gila County, Arizona

I have read Leonid Bryner's report on the above application and am in agreement with his recommendations. I mapped the older part of the mine in great detail in a study of the factors that control the localization of asbestos, and have followed the development of the Regal ore-bodies over a period of 13 years. Therefore I am very familiar with the geologic habit and potentialities of this particular deposit. I have not seen the southernmost and newest workings of the mine. In this part of the deposit Bryner describes geologic features that were anticipated as a result of my earlier work.

The present knowledge of the geology, as shown by Bryner on pages 8 and 9 of his report, does not allow a prediction that the fold and the bedding-plane and thrust fault belt favorable to ore localization can be projected into much of the area proposed for exploration. The best geologic "bet" as to an area favorable for exploration is the ~~area~~ area southeast, rather than south, of the present southernmost workings. Favorable structural trends, as now known, are in a southeasterly direction from these workings.

Furthermore, the diabase dike and associated phenomena observed by Bryner in the southernmost workings give some cause

for concern in geologic prediction. Throughout the asbestos district lines of weakness, such as that represented by the dike, are lines along which the structural environment favorable to asbestos localization changed abruptly. For example, the low-angle faulting essential to asbestos localization may terminate against such dikes; vice-versa, the low-angle faulting may have existed in even greater degree across such dikes. The information now available does not allow a sound prediction in this case. However, the fact that little fiber has been found just north of the dike, and no fiber found in the drill hole 20 feet south of the dike could be significant. Bryner notes (page 3) that the limestone beds are folded adjacent to the dike; asbestos generally would be found in greater than ordinary quantities in such a structural setting unless other favorable factors were also modified. It is possible also that the trend of the structures favorable to asbestos have changed direction abruptly in the vicinity of the dike.

In view of the unusual persistence, for the Arizona district, of the Bagal ore zone, additional exploration seems warranted, even if it results in negative findings. However, this exploration should follow extensions of the known asbestos zones, or lacking asbestos should follow the fault zone that in most places was the most favorable area to asbestos localization until the trend and continuity or lack of continuity of that zone is established. That part of the exploration that the applicant has orally stated he will undertake would accomplish this exploration in part.

Actually the applicant is requesting, rather than exploration, that the Government hazard funds for development work toward an ore body not now known to exist. By his own independent extension of the southern mine workings the applicant hopes to find this ore-body. The proposed extension of the Navajo adit is supposedly justified by the applicant on the premise that it would intersect the structural areas favorable to asbestos. If the Navajo adit is extended far enough to the northeast such structures might be intersected, if they exist. The present program does not propose such an extension. There is no factual information suggesting that the proposed plan will adequately expose potential asbestos areas, and there is a strong suggestion that it will not. Therefore, Bryner's recommendations should be seriously considered.

for A. F. Shride
Geologist

AFS:ms

MINERAL DEPOSITS
DMEA
RECEIVED
MAY 31 1955
U. S.
GEOLOGICAL SURVEY,
DENVER, COLORADO

U. S. DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED
JUN 10 1955

REGION III

GEOLOGY
EXAMINATION REPORT
DMEA 3707

REGAL MINE
JAQUAYS MINING CORPORATION

GILA COUNTY, ARIZONA

(Asbestos)

By
Leonid Bryner
Geologist
U. S. Geological Survey

May 24, 1955

Recorded by
DMEA DEPOSITS COMMITTEE
6-13-55

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
FIELD TEAM REGION III

RECEIVED
JUN 10 1955

GEOLOGY
EXAMINATION REPORT

DMEA 3707
REGAL MINE
JAQUAYS MINING CORPORATION
GILA COUNTY, ARIZONA

(Asbestos)

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ILLUSTRATIONS

Fig. 1 Location Map	See Engineering Report
Fig. 2 Claim Map	" " "
Fig. 3 Geologic map and sections, Regal Mine	Following page 1

Reviewed by
DMEA OPERATING COMMITTEE
6-13-55
(date)

INTRODUCTION

In an application to the Defense Minerals Exploration Administration dated February 22, 1955, D. W. Jaquays, president of the Jaquays Mining Corporation, requested government participation in a program costing $33,000 to explore for chrysotile asbestos ore immediately south of the Regal Mine.

The Regal Mine is in Sec. 36, T. 6 N., and Sec. 1, T. 5 N., R. 16 E., Gila County, Arizona. It is accessible by 9.6 miles of graded dirt road from U. S. Highway 60 at a point one-half mile north of Seneca (37 miles north of Globe). The mine is in the precipitous south wall of the Salt River Canyon at an elevation of about 4,250 feet.

The property is being purchased under contract from the Arizona Chrysotile Asbestos Company. The mine workings as of May 1, 1955 are shown in figure 3. The property was examined on May 4 by W. R. Hardwick of the U. S. Bureau of Mines and by this writer. A. W. Gerhardt, the company engineer, accompanied the examiners through the mine.

The purpose of the geological examination was to determine, if possible, whether there is a good chance of finding a southerly extension of the ore deposit. The geological part of this examination consisted of mapping some of the features related to ore in the newly opened, southern part of the mine, and in a reconnaissance of the surface for about one thousand feet south of the mine workings. From this work and from information from A. F. Shride of the U. S. Geological Survey, it seems to the writer that the chances are good for finding several hundred tons of additional reserves in a southerly extension of the

deposit. Whether or not a much larger tonnage than this is likely to exist cannot be answered from the known geology. Denial of the application is recommended because the applicant will not accept government participation in the most logical exploration plan, but wants government assistance only in a plan that appears impractical on the basis of our present knowledge of the geology of the deposit. The engineering report recommends acceptance of the applicant's exploration plan. However, the writer of the geologic report does not concur in this recommendation for the reasons explained below.

In a previous DMEA application (Docket 2867) Shride submitted a report on this property. In addition to this report the writer has had access to the results of a detailed study of the deposit conducted by Shride for the U. S. Geological Survey. Shride's DMEA report recommended exploration for a southerly extension of the deposit. This work was approved for a loan but the applicant terminated the contract by paying off the loan before the DMEA exploration was completed. The applicant, however, did continue exploration to the south more or less according to the DMEA scheme and developed a good body of asbestos of about the size predicted by Shride in his completion report.

Much of the geology outlined below is from Shride's reports, and some of the data in L. A. Stewart's Engineering section of the DMEA report also is included here.

GEOLOGY

The Regal Mine, with a total production on the order of 5,000 tons of fiber, is the second or third largest asbestos producer of the district.

The deposit is in the lower member of the pre-Cambrian Mescal Limestone, and consists of two main fiber zones, which lie parallel to the beds of the enclosing limestone. The fiber zones lie in or near limestone beds that are relatively thicker and more competent than most of the lower Mescal beds. The lower fiber zone is overlain at a distance of about $1\frac{1}{2}$ feet by a dark green, strongly serpentinized band which is 2 or 3 inches thick, and is locally known as the "Oscar" or "Blue Ribbon" (fig. 3, geologic sections). At distances of 35 and 29 feet stratigraphically above the two fiber zones is the cliff-forming, Algal (middle) member of the Mescal. An underlying diabase sill is at a distance of 19 and 25 feet stratigraphically below these two fiber zones. However, immediately east of the mine workings and about parallel to them the limestone-diabase contact drops abruptly in a discordancy (figure 3, section B-B').

In the extreme southerly workings a diabase dike about 7 feet wide strikes N 72° W. and dips almost vertically. It cuts the limestone and probably cuts the underlying diabase sill. Buckling of the beds and the development of gouge along the dike walls indicate fault movement, but no appreciable offset in the enclosing beds has been recognized.

In broad aspect the structure in the mine area is very simple, but in detail it is quite complex. The Mescal beds and the underlying sill are essentially flat-lying. But the limestone-diabase contact as well as the limestone itself are slightly warped and cut along a S-SE trending belt by small thrust faults as shown in figure 3. This belt of thrust faulting, locally known as the Regal Fault, is recognized as far as the extreme south end of the mine.

The Regal Fault and the associated folds indicate pressure from the southwest, although there is also evidence from a small overturned fold of horizontal pressure almost at right angles to this. Movement along the thrust faults generally is on the order of a few inches to a few feet. Bedding-plane faults of like offset are common. In places the asbestos is offset by the faults, but the faults and folds also seem to have localized the asbestos. There are numerous small strike-slip faults and a few small normal faults, but these do not exhibit a significant relationship to asbestos mineralization as do the thrusts and the folds. The mine area offers examples of the four factors that Shride considers favorable to the concentration of asbestos, namely, (1) competent limestone beds, (2) proximity to diabase, (3) pre-mineral low-angle faulting, and (4) pre-mineral folding.

The size and shape of the deposit can best be seen in figure 3. The two main fiber zones mentioned above are not everywhere continuous in the mine, but generally at least one of the zones is present.

However, in the extreme south end of the mine the failure of several drill holes and a raise (fig. 3) to find ore in the favorable zones indicates that either the south limit of the deposit has been reached or that there is a barren zone in the deposit near the south end of the present workings.

Jaquays proferred the following information on the most recently mined ground, that is, the south end of the workings. In the past year 500 tons of fiber have been produced from this part of the mine, and this tonnage represents a mine area of about 40,000 square feet. Rock from this area contained fiber having an average thickness of about 2 inches. Total No. 1 grade fiber was 80 tons; No. 2 grade, 120 tons; and the rest, lower grade material. These figures seem reasonable to the writer.

EXPLORATION

On the previous DMEA contract it was planned to drive an adit to intersect the ore body about 200 feet ahead of where asbestos was showing in the face of the most southerly stope, then to drift both north and south and to crosscut from the drift to explore an area of about 400 by 200 feet immediately south of the stope face. Although the applicant withdrew from the contract, he continued work in this area essentially as planned above and opened a sizable body of ore (fig. 3). This ore is still being mined.

The applicant's present proposal is to conduct exploration from the Navajo adit, which is about 850 feet south of the most southerly mine workings (fig. 3). The plan presented in the docket is to extend the Navajo adit in its present direction 340 feet from the portal, then to drift due north about 430 feet and to drive from the drift three easterly crosscuts, each about 200 feet long and spaced at 200-foot intervals along the drift.

The writer thinks that a preferable plan would be to explore south and southeast from the most southerly mine workings, employing a system of drifting and crosscutting similar to that used in the previous DMEA work. This plan would be preferable to the other because (1) of the uncertainty that the deposit extends much, if at all, beyond its present southerly limit and also because (2) in theoretically projecting the deposit southward about 800 feet to crosscut it with the Navajo adit there are several rather different interpretations of what trend to base this work on. If the trend of the south end of the deposit is the significant one, then the Navajo adit is already practically in the extension of the deposit. If the trend of the Regal fault is the correct one to follow for ore then the Navajo adit will have to be extended six or seven hundred feet to the east before encountering ore. Both of these uncertainties could be avoided by seeking the ore immediately south or southeast from its present known position. The applicant, however, wants to reserve this plan of exploration for himself and at the same time obtain government aid for the more hazardous scheme of exploring

from the Navajo adit. This adit would provide a good development heading if the ore is nearby. But the purpose of the DMEA program should be to discover the ore, and not to provide a development heading while incidentally searching for the ore.

RESERVES

The large stope in the south end of the mine is in an ore body that is estimated to contain 300 to 400 tons of indicated fiber, based on probable extensions from the north and east faces of this stope. This tonnage is based on an average fiber thickness of about 2 inches, estimated from the most recent production from this stope, and on maximum extensions beyond the stope of about 70 feet. Since the fiber apparently pinches out south of the above-mentioned stope, reserves immediately south of the stope would depend on the existence in that area of another body of ore. As S-SE-trending thrust-faults are present in the most southerly workings there is a fair chance that an ore body to the south exists. Based on this assumption an inferred reserve of 500 tons of fiber is estimated.

Regarding the possibility of a large additional tonnage of ore occupying most of the ground between the most southerly mine workings and the Navajo adit, the following observations are offered. The Regal Mine shows an almost continuous minable zone of fiber about 1400 feet in its longest dimension. This is remarkable for an Arizona asbestos deposit, especially as the north end of the

deposit probably does not represent its original north limit, but simply a limit imposed by erosion. Two interpretations of this fact are possible: (1) The Regal is a remarkable deposit and therefore the caution needed in exploring lesser asbestos deposits is not appropriate; (2) The Regal deposit as it is now known greatly surpasses most other Arizona asbestos deposits and therefore it is reasonable to expect that its limits must be very nearly realized by the present workings. The writer favors this latter view. Unfortunately there is hardly any geologic evidence as to whether or not the deposit extends south another seven or eight hundred feet. The Oscar bed is present in the Navajo adit, but it also has been found cropping out at the surface several hundred feet beyond the west limits of the ore body. In fact, Shride points out that Oscar-type beds, unaccompanied by asbestos, are common in the lower Mescal at various horizons and in an area much more extensive than the Regal Mine. Therefore the presence of the Oscar in the Navajo adit is not, of itself, an indication of nearby asbestos. The structure contour (fig. 3) based on elevations of the Oscar at the outcrop south of the mine does not give a conclusive picture, and the thrusting or warping of beds, characteristic of the ore zone, is too deeply buried due to the steep slope of the ground above the mine to be recognized at the surface. Neither are the faults in the Navajo adit indicative of nearby ore. These faults are very steep and could not have resulted from the compressive forces that produced the flat-lying Regal Fault and the accompanying doming that have localized the asbestos. The

significance of the cross-cutting diabase dike in the south end of the mine workings is not fully understood. But this dike is more likely an unfavorable than a favorable feature.

CONCLUSIONS AND RECOMMENDATIONS

The Regal Mine, as an outstanding Arizona asbestos deposit, merits further exploration. However, in view of the lack of geologic evidence of the existence of an extension as great as 700 or 800 feet, and also in view of the various directions that might be taken by such an extension, the best exploration scheme would be to follow the ore deposit south from its present known south limits. But the applicant will accept government participation only if exploration is conducted from the Navajo adit. This is a less desirable exploration plan than the first. Therefore the application should be denied.

If the applicant carries out his stated intention of exploring at his own expense several hundred feet beyond the south end of the mine, then his application for government participation in exploring from the Navajo adit perhaps can be further considered.

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

DMEA
Date Rec'd.
FEB 28 1955

Form Approved.
Budget Bureau No. 42-R1035.2.

BUREAU OF MINES
Denver, Colorado

APPLICATION FOR AID IN AN EXPLORATION PROJECT, PURSUANT TO DMEA ORDER 1, UNDER THE DEFENSE PRODUCTION ACT OF 1950, AS AMENDED

Not to be filled in by applicant.

Docket No. 3707
Metal or Mineral Asbestos
Date Received 3-3-55
Estimated Cost $33,000
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: Jaquays Mining Corporation (An Arizona Corporation)
1219 E. 10th Avenue
Phoenix, Arizona

(*b*) If other than an individual, add to your name above whether a corporation, partnership, etc., and the name of the State in which incorporated or otherwise organized.

(*c*) If a corporation, add to above statement, titles, names and addresses of officers.

(*d*) If a partnership, add to the above statement the names and addresses of all partners.

2. *General.*—Read DMEA Order 1, "Government Aid in Defense Exploration Projects," before completing this application. Submit this application and all accompanying papers in quadruplicate (four copies), with your name and address on each sheet of the application and on all accompanying papers. Where sufficient space is not provided on the form for all required information, state it on an accompanying paper, with a reference in each case to the instruction to which it refers by number. Comply with all applicable instructions; or, if not applicable, so state. File the application with Defense Minerals Exploration Administration, Department of the Interior, Washington 25, D. C., or with the nearest field executive officer thereof.

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract See attached sheets

(*b*) State any mine name by which the property is known.

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property.

(*e*) If you own the land, describe any liens or encumbrances on it See Attached Sheets

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice.

4. *Physical description.*—(*a*) Describe in detail any mining or exploration operations which have been or now are being conducted upon the land, including existing mine workings and production facilities. State your interest, if any, in such operations. Also describe accessibility of mine workings for examination purposes.

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades.

(*c*) Describe the geologic features of the property, including mineralization, type of deposit (vein, bedded, etc.), and your reasons for wishing to explore. Illustrate with maps or sketches. Send with your application (but not necessarily as a part of it) any geologic or engineering report, assay maps, or other technologic information you may have, indicating on each whether you require its return to you.

(*d*) State the facts with respect to the accessibility of the project: Access roads, distances to shipping, supply and residence points.

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power.

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore .....

Asbestos

(*b*) Describe fully the proposed work, including a map or sketch of the property showing a plan (and cross sections if needed) of any present mine workings, and the location of the proposed exploration work as related to such features as contacts, veins, ore-bearing beds, etc.

(*c*) The work will start within ..... days and be completed within ..... months from the date of an exploration project contract.

10 14

(*d*) State the operating experience and background of the applicant with relation to the ability to carry out such exploration project, and also that of the person or persons who will supervise the operations.

6. *Estimate of costs.*—Furnish a detailed estimate of the costs of the proposed work (you will have to use a separate sheet), under the following headings. Add the totals under all headings to give the estimated total cost of the project:

(*a*) *Independent contracts.*—(Note.—If the applicant does not intend to let any of the work to contractors, write "none" after this item. To the extent that the work is to be contracted, do not repeat the cost of the contract-work in subsequent items.) State the cost of any proposed independent contracts for the performance of all or any part of the work, expressed in terms of units of work (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved, etc.).

(*b*) *Labor, supervision, consultants.*—Include an itemized schedule of numbers, classes and rates of wages, salaries or fees for necessary labor, supervision and engineering and geological consultants.

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel.

(*d*) *Operating equipment.*—Furnish an itemized list of any operating equipment to be rented, purchased, or which is owned and will be furnished by the Operator, with the estimated rental, purchase price, or suggested use-allowance based on present value, as the case may be.

(*e*) *Rehabilitation and repairs.*—Furnish a detailed list showing the cost of any necessary initial rehabilitation or repairs of existing buildings, installations, fixtures, and movable operating equipment, now owned by the Operator and which will be devoted to the exploration project.

(*f*) *New buildings, improvements, installations.*—Furnish a detailed list showing the cost of any necessary buildings, fixed improvements, or installations to be purchased, installed or constructed for the benefit of the exploration project.

(*g*) *Miscellaneous.*—Furnish a detailed list showing the cost of repairs to and maintenance of operating equipment (not including initial rehabilitation or repairs of the Operator's equipment), analytical work, accounting, workmen's compensation and employers' liability insurance, and payroll taxes.

(*h*) *Contingencies.*—Give an estimate of any necessary allowances for contingencies not included in the costs stated above.

NOTE.—No items of general overhead, corporate management, interest, taxes (other than payroll and sales taxes), or any other indirect costs, or work performed or costs incurred before the date of the contract, should be included in the estimate of costs.

7. (*a*) Are you prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation (Sec. 7, DMEA No. 1)?

(*b*) How do you propose to furnish your share of the costs?

☐ Money ☐ Use of equipment owned by you ☐ Other

Explain in detail on acompanying paper.

See Accompanying Sheets

CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief.

Dated ....., 195...

February 28 5

Jaquays Mining Corporation (Applicant)

By W. H. Jaquays

President

Title 18, U. S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

U. S. GOVERNMENT PRINTING OFFICE 16—66551-1

JAQUAYS MINING CORPORATION APPLICATION FOR AID IN AN EXPLORATION PROJECT, PURSUANT TO DMEA ORDER 1, UNDER THE DEFENSE PRODUCTION ACT OF 1950, AS AMENDED, ON GROUP BY FORM NO 105

DEPARTMENT OF THE INTERIOR
Bureau of Mines
Minerals Administration
RECEIVED
MAR 9 - 1955

Item 1 (a) Name of Applicant: Jaquays Mining Corporation
1219 S. 19th Avenue
Phoenix, Arizona

(b) Jaquays Mining Corporation, An Arizona Corporation

(c) D. W. Jaquays, President & Manager- 1219 S. 19th Ave.
Phoenix, Arizona

Ethelyn Jaquays, Secretary- 132 W. Granada Rd.
Phoenix, Arizona

O. A. Jaquays, Vice-President - 5011 E. Saginaw Street
Lansing, Michigan

(d) DNA

Item 2 - General

Item 3 (a) The Regal Mine property is being purchased under contract from the Arizona Chrysotile Asbestos Company, 206 Twenty-First Ave., Paterson 3, New Jersey. A copy of the contract attached.

(b) This mine has always been known as the Regal Mine.

(c) The Regal Mine is being purchased under contract by the Jaquays Mining Corporation from the Arizona Chrysotile Asbestos Company.

(d) A copy of the contract between D. W. Jaquays and Arizona Chrysotile Asbestos Company attached with assignment of D. W. Jaquays contract to the Jaquays Mining Corporation.

(e) D.N.A.

(f) The location of the Regal Mine is shown on Map 3. The book and page numbers of the Regal Group of mining Claims are as follows:

The Regal Mine property consists of 27 unpatented

mining claims as shown on Map 1 attached; all recorded at the Gila County Recorder, Globe, Arizona, as follows:

Name	Book	Page
Regal No. 1	43	87
Regal No. 10	35	436
Regal No. 11	35	437
Regal No. 12	35	438
Regal No. 13	35	439
Regal No. 14	35	440
Regal No. 15	35	441
Regal No. 16	35	442
Regal No. 17	35	443
Regal No. 18	35	444
Regal No. 19	35	445
Regal No. 21	35	447
Regal No. 22	35	448
Regal No. 23	35	449
Regal No. 24	35	450
Regal No. 25	35	451
Jaquaye No. 1	50	91
Jaquaye No. 2	50	92
Jaquaye No. 3	50	93
Jaquaye No. 4	50	490
Jaquaye No. 34	50	94
Hunts No. 3	41	500
Hunts No. 4	41	500
Hunts No. 5	41	501

Name	Book	Page
Huntz No. 6	41	501
Huntz No. 29	41	491
Amended	41	502
Huntz No. 30	41	491

Note: The following claims are to be obligated under the exploration program applied for:

Huntz No. 29

Huntz No. 30

Item 4 (a) The Regal Mine has been developed by some 8,000 feet of drifting over the past 35 years. The main haulage drifts and stope drifts are kept in good repair and are now being used for production from the area located on the south end of the workings. All of the active working places are open and accessable for examination. The mine workings are shown on Map 2 attached.

(b) Production since 1918 is estimated to be about $4,000,000.00 in all grades of Chrysotile asbestos. The ore reserves at present are estimated at about 1000 tons of asbestos fibre located in the southern end of the present workings.

(c) The principal asbestos bearing zone at the Regal Mine occurs in the Nescal Limestone and about 10 to 15 feet above the Diabase. The ore occurs in a more or less horizontal plane with slight folds and some faults raising or lowering the ore zone from the plane shown on the accompanying map. Favorable areas for asbestos formation are found to be on the slight folds and along the Regal fault which passes through the entire length

Item 4 (c) continued:

of the present workings.

The area to be explored and for which D.M.B.Assistance is desired is located some 400 to 1200 feet south of the present workings and along the strike of the Regal Fault. Past experience has shown that it is reasonable to expect good ore in a zone at least 100 feet each side of the Regal Fault, and fold structure. This condition exists in the south end of the present workings where excellent ore is now being found.

(d) The Regal Mine is accessible over a U. S. Forest Service road turning off U. S. Highway 60 at a point 37 miles north of Globe, Arizona. It is nine miles over the Forest Service Road to the Regal Mine from Highway 60. Ore is being trucked over this road daily to the company's mill at Globe, Arizona.

All ore is hauled to Globe, Arizona for milling and the finished product is shipped by rail from Globe, Arizona. Supplies are hauled to the mine by truck from either Globe or Phoenix, Arizona.

The company has ample housing on the property for the present crew and if necessary, will supply additional housing should the crew be increased.

(e) Ample manpower is available for the projects planned. All supplies, material and equipment are in good supply. Water required for drilling and domestic use is available on the property.

Power for compressed air is supplied by diesel fueled

compressors. The diesel fuel is hauled to the mine by the dealer in Globe, Arizona.

Item 5 (a) The mineral for which the D.M.E. A. Exploration assistance is planned is Chrysotile asbestos of low iron spinning grade.

(b) The tunnel site for which the D.M.E.A. exploration assistance is desired is located approximately 1000 feet south of the present workings of the Hegal Mine, and the area is situated entirely on claim Muntz No. 30. The exploration program which is planned would consist of driving a x-cut which has already advanced 126 feet in a Northeasterly direction from coordinates E-4137.19, N-1585.62. It is desired to continue this x-cut 220 feet at N45°E to the 1500E. coordinate. At this point the advancement should be at or near the continuation of the trend of the Hegal ore body and the desired exploration drift would then advance north along the 1500E. coordinate for 650 feet. At intervals of approximately 200 feet along this North-South drift it is desired to drive 3 x-cuts 200 feet long to cross the most favorable zone for an ore body.

Although the adit level was started on the serpentinized marker which indicates the ore horizon, it is expected that flexures in the strata asobserved in Hegal Mine will cause the ore strata to be above the tunnel level within the mine. Therefore, it is desired that 150 feet of raises be included in the project so that the ore horizon may be turned along the x-cuts approximately at

50 feet intervals. As the fissures in the rock are slight it is doubtful if any of the raises will be over 15 feet above the cross cuts.

A total footage of 1400 feet of exploration work is desired which includes 1250 feet of drifts and cross cuts and 150 feet of raises.

(c) The work will start within 10 days and be completed within 14 months from the date of the exploration project contract.

(d) Operating experience and background of applicant;

D. U. Jaquays, the President and Manager of the Jaquays Mining Corporation is as follows:

Born September 27, 1909, Pellston, Michigan

Graduated BSC Metallurgy Michigan College of Mines 1931

1931-1933- Sampler Machine man and Shift boss at Lake Shore Mine, Kirkland Lake, Ontario

1934-1934- Shift Boss in 500-ton-a-day cyanide plant, Lamaque Gold Mines, Bourlamaque, Quebec.

1937 Property Examination for Michigan Interests in Colorado, Montana, Nevada, and Arizona.

1938-1939- Sampler, Engineer and Shift Boss at Miami Copper Co., Miami, Arizona.

1940-1942- Manager Park View Gold Mine, Phoenix, Arizona

1942-1945- Engineer with Mineral Production Security Division of U. S. Bureau of Mines- Stationed at Phoenix, Arizona.

1946 to date	Owner and operator of D. H. Jaquays Co. Dealers in Mining Machinery and Supplies and Diamond Drilling Contractors, Registered Arizona Mining Engineer.
1947-1950	Engineer and Manager for Arizona Chrysotile Asbestos Co., Globe, Arizona
1951- date	Operator and Manager Regal Asbestos Mine later taken over by Jaquays Mining Corp.

Item 6 The estimated costs of the above project are as follows:

	Cost per day	
1 Machine Man	12.00	
2 Muckers	20.00	
½ Supervision	12.00	
Overtime, 2 days in 12	4.00	
	48.00	
Insurance, O. A. B. - 15%	16.00	
Total to Labor		65.00
Fuel- one shift	5.00	
Bits & steel .03/ft/x 100	6.00	
*Drills and Hose (Rental)	3.00	
*Compressors (Rental)	10.00	
Carbide & Oil	1.00	
Pipe and Rail	6.00	
Camp & Trucking Expense	2.00	
Engineering	4.00	
		37.00
Miscellaneous Expense		4.00
Total Mine Expense per Day		96.00

* Furnished by company

It is estimated that an average advance of 4 ft. per day will be attained bringing cost to 24.00 per foot drifting. Raising will cost about 20.00 per foot.

The total cost of the project will be as follows:

1250 ft. of drifts and cross cuts	@ 24.00-	30,000.00
150 ft. of raises	@ 20.00-	3,000.00
Total Cost		33,000.00

(a) There will be no independent contracts.

(b) The wage scale for labor at the Regal Mine is as follows:

Machineman	$1.50 per hour
Muckers and Slushermen	1.25 " "
Trammers	1.12½ " "
Mine Foreman	Salary 600.00 month

There will be no consultants and engineering will be done by the applicant. The engineering charge of $4.00 per day or $100.00 per month is charged against the Exploration project for part of the time devoted to the above project by the management.

(c) Operating Supplies and Costs:

Explosives	$21.10/c
Fuse Caps	2.25/c
Fuse	13.10/m
Diesel Oil	.20/gal.

Drill Steel approximately 1.00 per foot for new steel.

Bits (Carbide)	13.50/each

(d) Operating Equipment Required:

1-210 CFM Compressor		240.00/month
2-55 lb. Net Hammers Hose owned		72.00/month
1- Stoper	"	No Charge
2-1 ton mine cars	"	" "
Slusher Loading Ramp		165.00/month

(e) No rehabilitation or repairs required to start the above project.

(f) No new buildings or structures required.

(g) Miscellaneous. No repairs required on operators equipment. Any accounting work connected with the above project will be absorbed by the operator. The Workmen's Compensation rate for the above type of work is $9.35 per $100.00 of payroll and the Arizona Unemployment charges are 2.7% of the payroll. Old Age Benefits charges are 1.5% of the payroll making a total of 13.55% charges on all payroll expenses on the mine.

(h) Contingencies. A miscellaneous charge was set up of $4.00 per day or about $100.00 per month to cover unforeseen charges. Any additional unforeseen charges that may come up will be absorbed by the operator.

Item 7 (a) The operator of the Jaquays Mining Corporation is prepared to furnish either in the form of cash or equipment rentals, the required 25% of the above project.

(b) The operator, Jaquays Mining Corporation, will supply one 210 CFM compressor at $240.00 per month and the necessary drilling equipment at $72.00 per month for a total of equipment supplied of $312.00 a month, any additional value required will be made up in the form of carrying the required amount of expenses through cash payments.

Signed D. W. Jaquays

D. W. Jaquays, President
Jaquays Mining Corporation

AGREEMENT OF SALE

THIS AGREEMENT, entered into as of the 1st day of June, 1952, between ASBESTOS CORPORATION OF AMERICA, an Arizona corporation, (formerly Arizona Chrysotile Asbestos Company), herein termed Seller, and D. W. JAQUAYS, herein termed Buyer,

W I T N E S S E T H :

1. Property. Seller agrees to sell to Buyer and Buyer agrees to purchase from Seller, on and subject to the terms and conditions hereinafter set forth, the following described property:

(a) Regal Mine. Those certain unpatented lode mining claims in the McMillan Mining District, Gila County, Arizona, known as the Regal Mine, the names of which and the book and page number of Records of Mines in the office of the County Recorder of Gila County, Arizona, in which the United States patent thereto is located being as follows:

Name	Book	Page
Regal #1	43	87
Regal #10	35	436
Regal #11	35	437
Regal #12	35	438
Regal #13	35	439
Regal #14	35	440
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Huntz #5	41	501
Huntz #6	41	501
Huntz #29	41	491
Amended	41	502
Huntz #30	41	491

together with all improvements, buildings, structures, fixtures, machinery, equipment and tools thereon.

DWJ 6-2-52
CJH 6-2-52

(b) Mill. That certain asbestos milling property known as the Globe Mill and described as follows:

All and singular that certain tract of land situated, lying and being in the Northeast quarter of the Northwest quarter of Section Thirty-four (34), Township One (1) North of Range Fifteen and one-half (15 1/2), East of the Gila and Salt River Base and Meridian, Gila County, State of Arizona, and more particularly described as follows, to wit:

Beginning at a point on the East side line of said Northeast quarter (NE 1/4) of the Northwest quarter (NW 1/4) of Section Thirty-four (34), Township One (1) North of Range Fifteen and one-half (15 1/2) East of the Gila and Salt River Base and Meridian, Gila County, Arizona, which lies South 00° 03' East a distance of Four Hundred Fifty-eight and Sixty-seven Hundredths (458.67) feet from the North quarter corner of said Section Thirty-four (34) and at the intersection of the previous centerline of U. S. Highway 70, as shown on the map of said Highway on file in the office of the State Engineer of the Arizona State Highway Department; thence South 00 3' East 465.64 feet; thence North 89° 51' West 379.70 feet; thence North 49° 40' West 490 feet; thence North 40° 20' East 600 feet; thence South 49° 40' East 478.74 feet along the said centerline of U. S. Highway 70 to point of beginning, containing 8.28 acres more or less,

subject to the easements for rights-of-way of all public roads and highways of record,

together with all improvements, buildings, structures, fixtures, machinery tools and equipment thereon.

2. Purchase Price. The agreed purchase price for said property shall be Forty-five Thousand Dollars ($45,000.00), plus the amount of the unpaid principals of the mortgage on the aforesaid Globe Mill and the conditional sales contract on certain of the equipment thereon, together with all interest accrued thereon until such principals are paid, payable as follows: Five thousand dollars ($5,000.00) upon execution of this agreement, ten thousand dollars ($10,000.00) on or before sixty (60) days from the date of this Agreement, and the balance of said $45,000.00 in six (6) equal semi-annual installments of Five Thousand Dollars ($5,000.00) each, to be paid on or before the expiration of each six (6) month period from and after the date of this Agreement, and the amount of all principal and interest payments to be made in installments determined by the installments due under said mortgage and conditional sales contract and made thirty (30) days prior to the due date of such installments under said mortgage and conditional sales contract. All payments on the purchase price shall be made by

DWJ 6-2-02

Buyer, at Paterson, New Jersey.

3. Possession. Buyer shall be entitled to possession of said property upon making the initial payment on the purchase price and shall be entitled to hold and retain possession so long as Buyer fully performs all and singular the terms and conditions of this Agreement.

4. Covenants of Buyer. Buyer, from and after the date upon which he shall take possession of said property, shall do and perform the following:

(a) Perform all annual assessment work required upon said mining claims during each assessment year and file all affidavits provided by law to establish proof of performance of such work.

(b) Pay all ad valorem taxes becoming a lien on said property or any thereof from and after January 1, 1952.

(c) Maintain all improvements, buildings, structures, fixtures, machinery and equipment on said property in as good condition as the same is now in, reasonable wear and loss by fire and windstorm excepted.

(d) Maintain fire and windstorm insurance on all improvements, buildings, structures, fixtures, machinery, equipment, and tools located on said property in the full insurable value thereof and with an insurance carrier acceptable to Seller, the insurance to be payable to the parties hereto as their interests may appear, any insurance so paid to Seller to be applied against aforesaid purchase price.

(e) Pay before delinquent to the General Service Administration all amounts becoming due on the mortgage covering the mill property and the conditional sales contract covering the machinery, equipment and tools.

(f) Pay all costs for labor and materials used or expended on the property and post and maintain on the property, in the manner provided by law, notice of non-liability on the part of Seller for such labor and material.

(g) Perform all mining and milling operations in a good and workmanlike manner and in accordance with good mining and milling practice.

(h) Allow Seller access to the property at all times for the purpose of inspection.

DWJ 6-2-52

(i) Hold Seller harmless from any and all obligations and liabilities of whatsoever nature arising out of or by virtue of Buyer's operations or acts hereunder.

5. Asbestos Supply. Buyer, during a period not longer than six and one-half (6 1/2) years from and after the date of this Agreement, will furnish and deliver to Seller, such quantity or quantities of asbestos fiber as Seller ~~may~~ will DWJ 6-2-52 CCH 6-6-52 from time to time designate in writing, but not to exceed a total of six hundr ed and fifty (650) tons during said period of 6 1/2 years, Seller to be obligated to purchase not less than 100 tons in any annual period from and after the date hereof. Said asbestos fiber shall be clean white soft fiber testing 0-0-14-2 by Canadian shake test standards. Seller shall pay Buyer for all asbestos fiber furnished and delivered to Seller hereunder at the rate of Three Hundred Fifty Dollars ($350.00) per ton, f. o. b. railroad cars, Globe, Arizona, payment to be made either in cash within ten (10) days after delivery, or by crediting the amount of such payment upon the next installment becoming due from Buyer to Seller on the purchase price of the property.

6. Transfer of Title. Upon payment in full of the purchase price for said property, and the full performance by Buyer of his obligations under paragraph 5 hereof, Seller will execute and deliver to Buyer good and sufficient instruments of conveyance of the purpose of transferring title to the property described in Clause 1 hereof, free and clear of all liens, charges and encumbrances, subject only to the paramount title of the United States in and to the mining claims; the balance, if any, remaining due the United States (General Services Administration) on the mortgage covering the mill property and the conditional sales contract covering the machinery, equipment and tools located on said mill property; any liens, charges or encumbrances resulting from acts or omissions of Buyer; and easements and rights of way of record.

7. Covenants of Seller. Seller warrants, covenants and agrees as follows:

DWJ 6-2-52
CCH 6-6-52

(a) That it is the owner of said property and has full right, power and authority to sell the same.

(b) That it will indemnify and hold harmless Buyer, and the interest of Buyer in the property covered hereby, from any claims, demands, liens, charges or encumbrances arising from any past act of Seller, except only the lien of the aforementioned mortgage and conditional sales contract.

(c) That the principal balance of the mortgage held by the United States (General Services Administration) covering the mill property is $10,950.70 with interest from April 30, 1952, and the principal balance of the conditional sales contract is $4,049.45, with interest from April 30, 1952.

8. Default It is fully understood that time is of the essence of this Agreement and that in the event Buyer shall default in the prompt and complete performance of any term, covenant and provision of this Agreement, Seller, at its option and without notice, may declare the full balance of the purchase price immediately due and payable. If seller exercises its option under this paragraph Buyer shall also pay Seller an amount equal to 10% of the gross proceeds received by Buyer from the sale of fiber sold by Buyer during his operation hereunder, provided however, the Buyer shall not pay said 10% upon the amount of fiber sold and supplied under paragraph 5 hereof.

IN WITNESS WHEREOF, the parties have executed these presents as of the date first herein written.

ASBESTOS CORPORATION OF AMERICA

By) Chas E Hunzeker
Its PRESIDENT

SELLER

D W Jeffries Jr
BUYER

State of New Jersey)
) ss.
County of Passaic)

On this, the 23rd day of May, 1952 before me, Joseph Gaito, Jr., the undersigned officer, personally appeared Chas. E. Hunsiker, who acknowledged himself to be the President of Asbestos Corporation of America, an Arizona corporation, and that he, as such President, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation by himself as President.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Joseph Gaito, Jr.
Notary Public

My commission expires _____

State of Arizona)
Maricopa) ss.
County of ~~Gila~~)

On this, the 2nd day of June, 1952, before me, Alice J. Fitch, the undersigned officer, personally appeared D. W. Yaguaya, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that he executed the same for the purpose therein contained.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Alice J. Fitch
Notary Public

My commission expires March 4, 1956.

ASSIGNMENT OF AGREEMENT OF SALE

DATE: JULY 29, 1952.

ASSIGNORS: D. W. JAQUAYS and ETHELYN JAQUAYS, his wife.

ASSIGNEE: JAQUAYS' MINING CORPORATION, an Arizona corporation.

RECITALS

Heretofore, to-wit, on June 1, 1952, ASBESTOS CORPORATION OF AMERICA, an Arizona corporation (formerly Arizona Chrysotile Asbestos Company), as Seller, and D. W. JAQUAYS, one of ASSIGNORS herein, as Buyer entered into a certain Agreement of Sale covering those certain unpatented lode mining claims in the McMILLAN MINING DISTRICT, Gila County, Arizona, known as the REGAL MINE, the names of which and the book and page number of Records of Mines in the office of the County Recorder of Gila County, Arizona, in which the United States patent thereto is located being as follows:

NAME:	BOOK:	PAGE:
Regal #1	43	87
Regal #10	35	436
Regal #11	35	437
Regal #12	35	438
Regal #13	35	439
Regal #14	35	440
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Regal #23	35	449
Regal #24	35	450
Regal #25	35	451
Huntz #3	41	500
Huntz #4	41	500

NAME:	BOOK:	PAGE:
Huntz #5	41	501
Huntz #6	41	501
Huntz #29	41	491
(Amended)	41	502
Huntz #30	41	491

together with all improvements, buildings, structures, fixtures, machinery, equipment and tools thereon, and the GLOBE MILL described as follows:

> All and singular that certain tract of land situated, lying and being in the Northeast Quarter of the Northwest Quarter of Section Thirty-four (34), Township One (1) North of Range Fifteen and one-half (15½) East of the Gila and Salt River Base and Meridian, Gila County, State of Arizona, and more particularly described as follows, to-wit:
>
> Beginning at a point on the East side line of said Northeast Quarter of the Northwest Quarter (NE¼NW¼) of Section Thirty-four (34), Township One (1) North of Range Fifteen and one-half (15½) East of the Gila and Salt River Base and Meridian, Gila County, Arizona, which lies South 00 degrees 03 minutes East a distance of four hundred fifty-eight and sixty-seven hundredths (458.67) feet from the North Quarter corner of said Section Thirty-four (34) and at the intersection of the previous centerline of U. S. Highway 70, as shown on the map of said Highway on file in the Office of the State Engineer of the Arizona State Highway Department; thence South 00 degrees 3 minutes East 465.64 feet; thence North 89 degrees 51 minutes West 379.70 feet; thence North 49 degrees 40 minutes West 490 feet; thence North 40 degrees 20 minutes East 600 feet; thence South 49 degrees 40 minutes East 478.74 feet along the said centerline of U. S. Highway 70 to the point of beginning, containing 8.28 acres, more or less; SUBJECT to the easements for rights-of-way of all public roads and highways of record, together with all improvements, buildings, structures, fixtures, machinery tools and equipment thereon.

It is the desire of ASSIGNORS herein to sell, transfer, set over and assign to the ASSIGNEE all of their right, title and interest in and to said Agreement of Sale, as well as ASSIGNORS' interest and right and title in and to the above-described mining claims and millsite.

COVENANTS

NOW, THEREFORE, for and in consideration of the sum of TEN DOLLARS, and other good and valuable consideration, paid by ASSIGNEE to ASSIGNORS, the receipt whereof is hereby acknowledged, ASSIGNORS do hereby sell, transfer, set over and assign to ASSIGNEE, its successors and assigns, all of their right, title and interest in and to said Agreement of Sale, the ASSIGNORS hereby selling, transferring and assigning, as well, to the ASSIGNEE, all of their right, title and interest in and to the aforedescribed mining claims and millsite.

IT IS UNDERSTOOD AND AGREED by and between the ASSIGNORS and the ASSIGNEE that the ASSIGNEE assumes and agrees to pay the unpaid balance of the purchase price of FORTY-FIVE THOUSAND DOLLARS, plus any amount of the unpaid principals of the mortgage on the aforedescribed millsite and the conditional sales contract on certain of the equipment thereon, together with all interest accrued thereon until such principals are paid, ASSIGNEE assuming as well all other obligations according to the terms and conditions of the above-mentioned Agreement of Sale.

AND THE ASSIGNORS fully authorize and empower the ASSIGNEE, upon performance of the said conditions and covenants, to demand and receive of the said ASBESTOS CORPORATION OF AMERICA, an Arizona corporation (formerly ARIZONA CHRYSOTILE ASBESTOS COMPANY), the deed covenanted to be given in the said Agreement of Sale, and all preceding deeds or conveyances necessary to complete title in the ASSIGNORS, in the same manner to all intents and purposes as the ASSIGNORS might or could do, were these presents not executed.

IN WITNESS WHEREOF, the parties hereto have caused these presents to be executed the day and year first above written.

D. W. Jaquays

Ethelyn Jaquays

ASSIGNORS

JAQUAYS' MINING CORPORATION
ASSIGNEE

By D. W. Jaquays
President

ATTEST:

Ethelyn Jaquays
Secretary

STATE OF ARIZONA)
SS.
COUNTY OF MARICOPA)

ON THIS, the 29th day of July, 1952, before me, the undersigned Notary Public, personally appeared D. W. JAQUAYS and ETHELYN JAQUAYS, his wife, known to me to be the persons whose names are subscribed to the within instrument as ASSIGNORS, and who acknowledged themselves to be the President and Secretary, respectively, of JAQUAYS' MINING CORPORATION, an Arizona corporation, ASSIGNEE, and that they, as such President and Secretary, being authorized so to do, executed the foregoing instrument on behalf of the ASSIGNEE in the capacity therein stated and individually for the purposes therein contained.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

My commission expires: MY COMMISSION EXPIRES JUNE 13, 1954

NOTARY PUBLIC

Land Records Department
RECEIVED
MAR 2 - 1955

ASSIGNMENT OF AGREEMENT OF SALE

DATE: FEBRUARY 22, 1955

ASSIGNORS: D. S. JAQUAYE and EVELYN JAQUAYE, his wife.

ASSIGNEE: JAQUAYE MINING CORPORATION, an Arizona corporation.

RECITALS

Heretofore, to-wit, on February 1, 1955, D. S. Jaquaye, as Seller, and Jaquaye Mining Corporation, as Buyer entered into a certain Agreement of Sale covering those certain unpatented lode mining claims in the McMillan Mining District, Gila County, Arizona, known as the Regal Mine, the names of which and the book and page number of Records of Mines in the office of the County Recorder of Gila County, Arizona, in which the United States patent thereto is located being as follows:

Name	Book	Page
Jaquaye No. 1	80	81
Jaquaye No. 2	80	82
Jaquaye No. 3	80	83
Jaquaye No. 2 Amended to No. 6	8	490

It is the desire of ASSIGNORS herein to sell, transfer, set over and assign to the ASSIGNEE all their right, title and interest in and to said Agreement of Sale, as well as ASSIGNORS' interest and right and title in and to the above-described mining claims.

COVENANTS

Now, Therefore, for and in good consideration of the sum of TEN DOLLARS, and other good and valuable consideration,

[illegible]

paid by ASSIGNEE to ASSIGNORS, the receipt whereof is hereby acknowledged, ASSIGNORS do hereby sell, transfer, set over and assign to ASSIGNEE, its successors and assigns, all of their right, title and interest in and to said AGREEMENT of SALE, the ASSIGNORS hereby selling, transferring and assigning, as well, to the ASSIGNEE, all of their right, title and interest in and to the aforesaid described mining claims.

IN WITNESS WHEREOF, the parties hereto have caused these presents to be executed the day and year first above written.

D. W. Jaquays

Ethelyn Jaquays

ASSIGNORS

JAQUAYS' MINING CORPORATION
ASSIGNEE

By D. W. Jaquays
President

ATTEST

Ethelyn Jaquays
Secretary

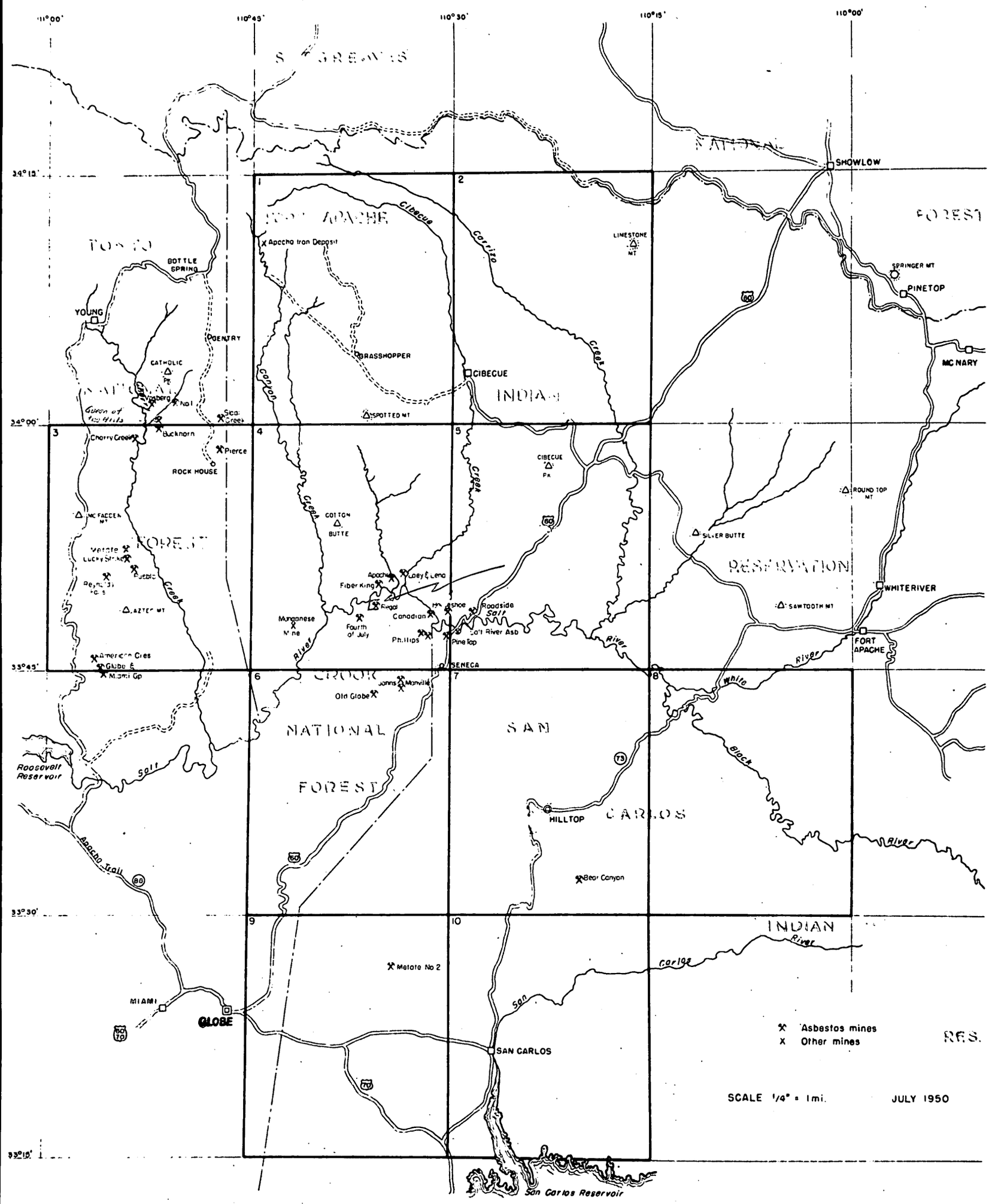
State of Arizona)
SS
County of Maricopa)

ON THIS, the 22nd day of February, 1955, before me, the undersigned Notary Public, personally appeared D. W. Jaquays and Ethelyn Jaquays, his wife, known to me to be the persons whose names are subscribed to the within instrument as ASSIGNORS, and who acknowledged themselves to be the President and Secretary, respectively, of JAQUAYS' MINING CORPORATION, an Arizona corporation, ASSIGNEE, and that they, as such President and Secretary, being authorized so to do, executed the foregoing instrument on behalf of the ASSIGNEE in the capacity therein stated and individually for the purpose therein contained.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

My Commission expires: My Commission Expires Dec. 8, 1958

Clair E. Hanna Notary Public



Location map, Asbestos Deposits, Gila County, Arizona. (Index map of aerial photo sheets.)

JAQUAYS-MINING CORP.
MAP No 4

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

OFFICIAL BUSINESS

224 NEW CUSTOMHOUSE
DENVER 2, COLORADO

DENVER
FEB
24
7 PM
1955
COLO.

COLO.

~~Defense Minerals Exploration Administration~~
~~U.S. Dept. of the Interior~~
~~Interior Bldg.~~
~~Washington 25, D.C.~~

Contract No. Idm-E 1043

Docket No. ~~3070~~ 3707

DEPARTMENT OF THE INTERIOR

Withdrawn contract

DEFENSE MINERALS EXPLORATION ADMINISTRATION

TO: Chief, Finance Section, Budget and Finance Branch, Bureau of Mines

Please make the following entry on the records of the Defense Minerals Exploration Administration under the Strategic and Critical Minerals Exploration Program.

Date of Contract	Region	State	Commodity
December 11, 1956	III	Arizona	Asbestos

Name and Address of Operator: Jaquays Mining Corporation
1219 South 19th Avenue
Phoenix, Arizona

	Reserve	Obligation
Prior Amount	$19,800.00	0
Increase	0	0
Decrease	$19,800.00	0
Revised Amount	0	0

Remarks:

ALLEN S. DAKAN

(Name)

Allen S. Dakan, Chief
Operations Control and
Statistics Division

(Title)

Date Delivered to Bureau of Mines, Washington 2/27/57

98963

Contract No. Idm-E 1043

Docket No. 3707

DEPARTMENT OF THE INTERIOR

Approved contract

DEFENSE MINERALS EXPLORATION ADMINISTRATION

TO: Chief, Finance Section, Budget and Finance Branch, Bureau of Mines

Please make the following entry on the records of the Defense Minerals Exploration Administration under the Strategic and Critical Minerals Exploration Program.

Date of Contract	Region	State	Commodity
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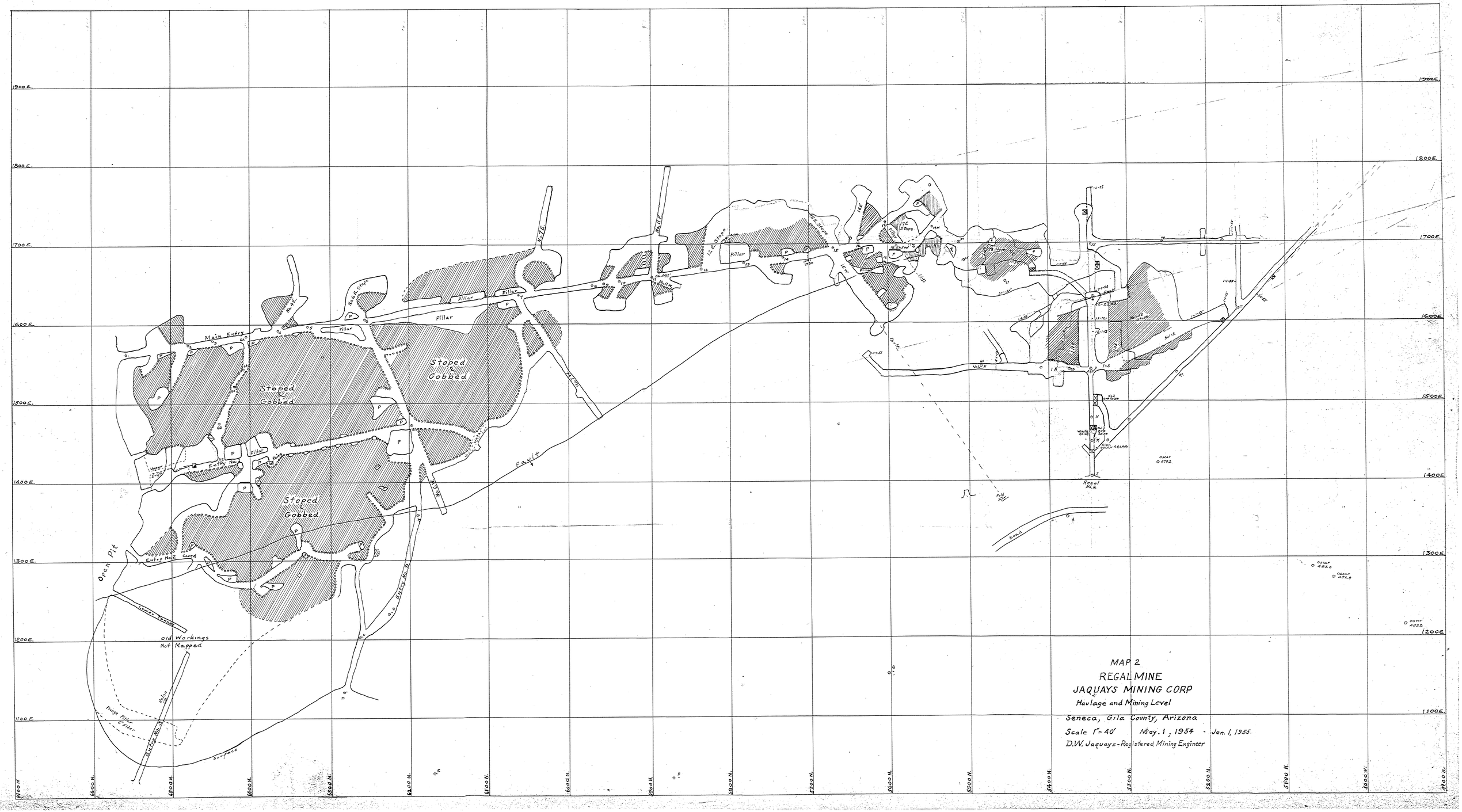
Decrease	0	0
Revised Amount	$19,800.00	0

Remarks:

(Name)
Allen S. Dakan, Chief
Operations Control and
Statistics Division
(Title)

Date Delivered to Bureau of Mines, Washington **12/11/56**

9896


MAP 2
REGAL MINE
JAQUAYS MINING CORP
Haulage and Mining Level
Seneca, Gila County, Arizona
Scale 1"=40'
May. 1, 1954 - Jan. 1, 1955
D.W. Jaquays - Registered Mining Engineer
Main Entry
Stoped & Gobbed
Pillar
Fault
Open pit
Old Workings Not Mapped
Regal No. 2
1900 E.
1800 E.
1700 E.
1600 E.
1500 E.
1400 E.
1300 E.
1200 E.
1100 E.
6800 N.
6900 N.
7000 N.
7100 N.
7200 N.
7300 N.
7400 N.
7500 N.
7600 N.
7700 N.
7800 N.
7900 N.
8000 N.
8100 N.

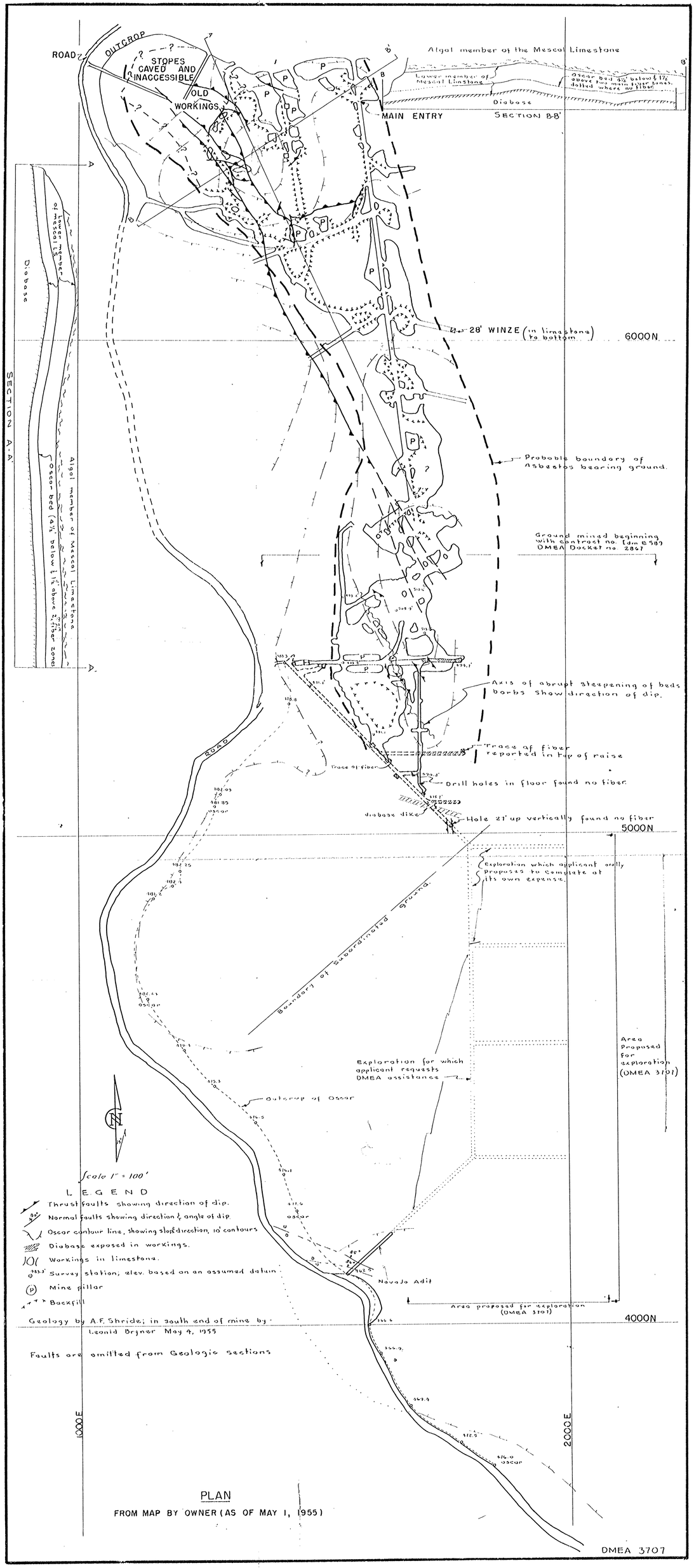


FIGURE 3 PLAN OF REGAL MINE AND PROPOSED PROJECT

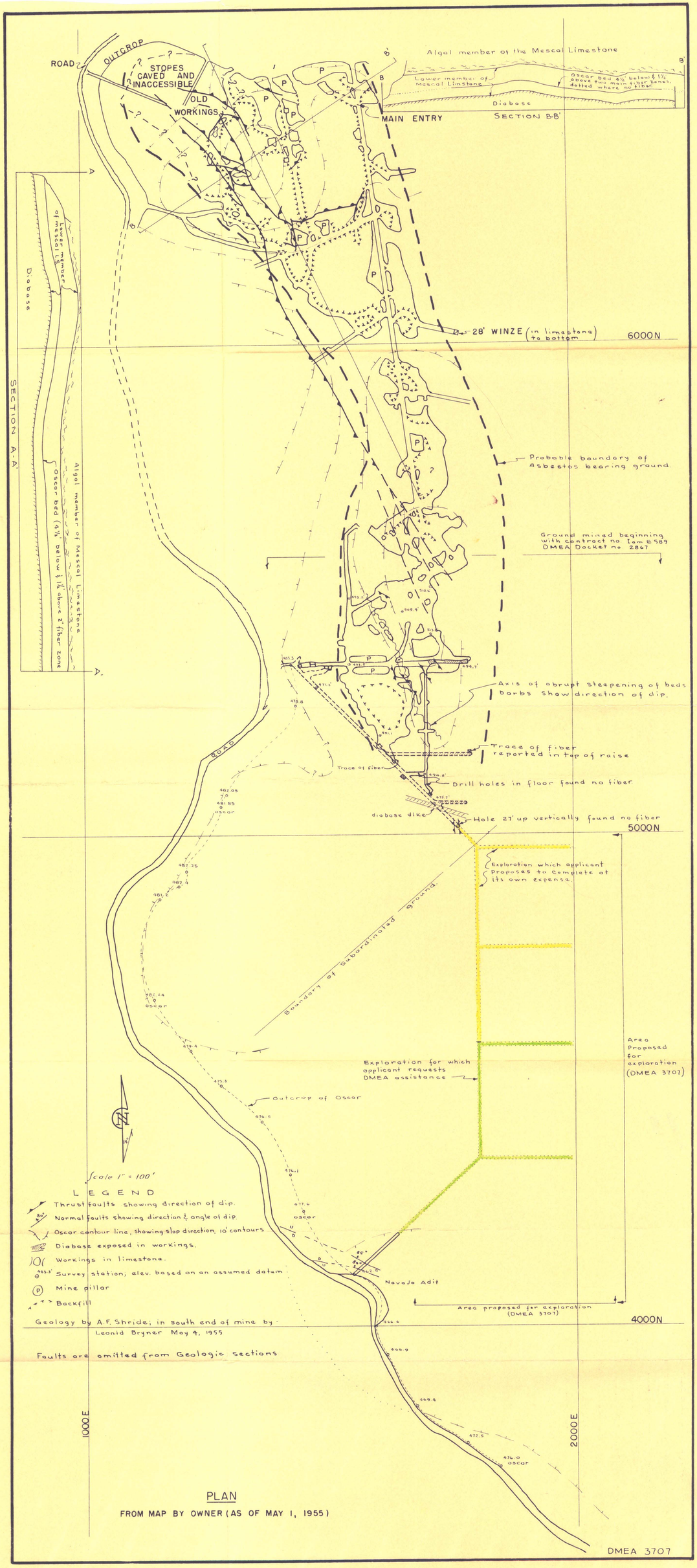
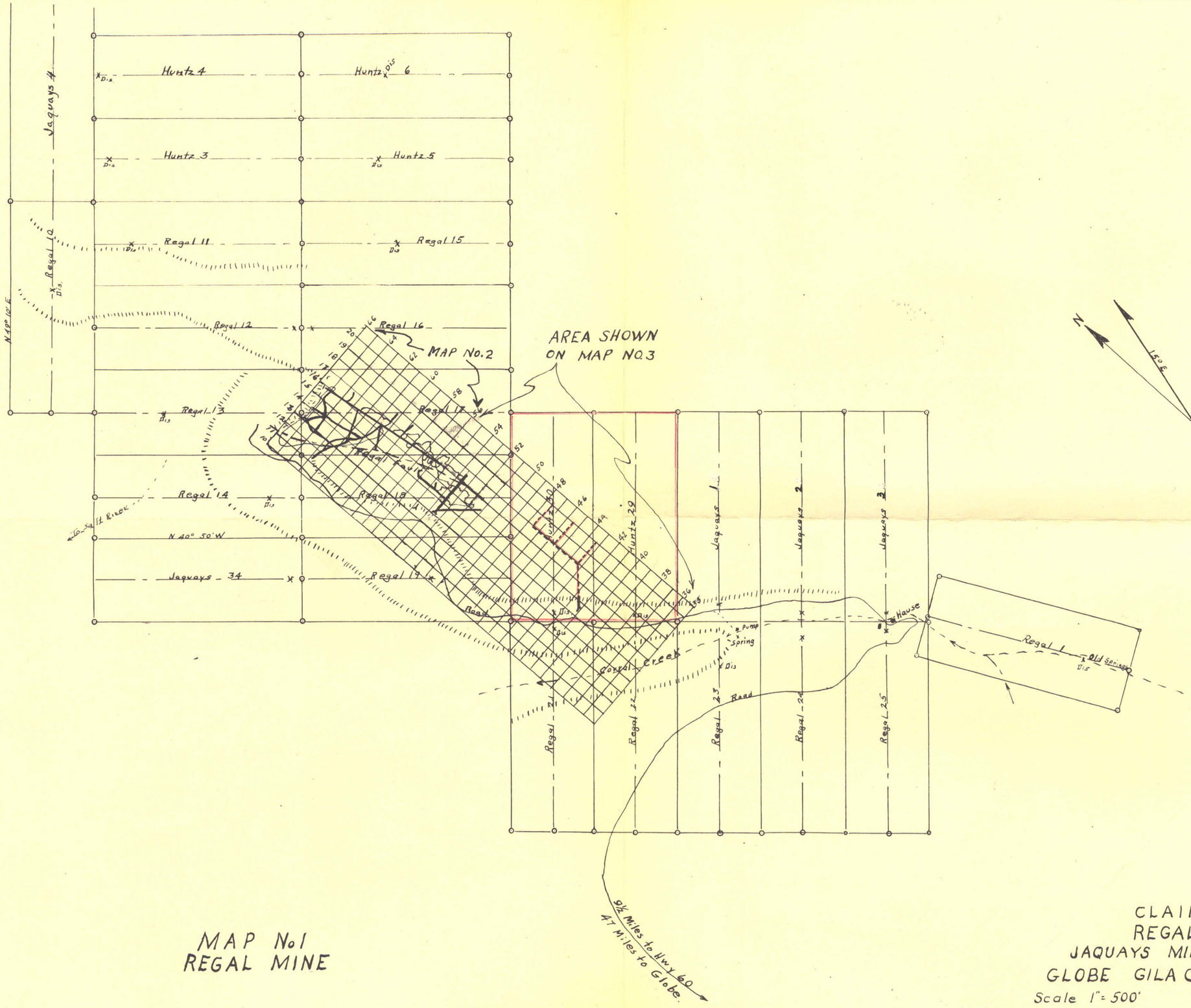


FIGURE 3 PLAN OF REGAL MINE AND PROPOSED PROJECT

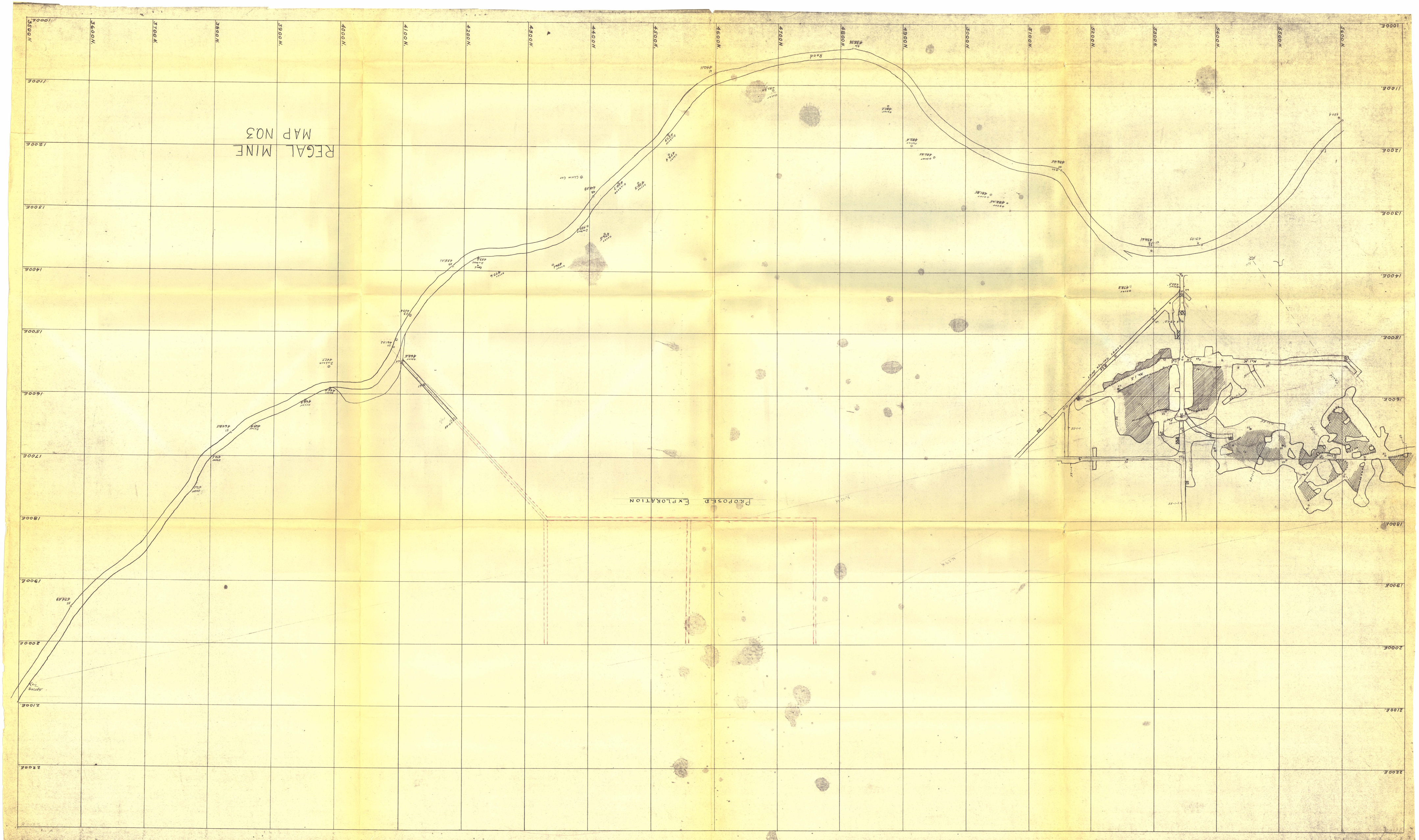


MAP No1
REGAL MINE

CLAIM MAP
REGAL MINES
JAQUAYS MINING CORPORATION
GLOBE GILA COUNTY, ARIZONA

Scale 1" = 500' Feb. 10, 1955

By D.W. Jaquays Registered Mining Engineer


REGAL MINE
MAP NO3
PROPOSED EXPLORATION
Road
Spring
Claim Corr
Dump
Dump
Dump