700

FILE COPY
Surname:
Murphy
Nelson
Yager
Gallagher
Hinrichs

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

MAR 23 1956

Mr. R. S. Butler
Executive Vice-President and General Manager
Arizona Giant Mining Corporation
220 East Birch Avenue
Flagstaff, Arizona

Re: Docket No. DMEA-3999 (Uranium)
Willaha-Hot Valley Properties
Coconino County, Arizona

Dear Mr. Butler:

Reference is made to your application for Government aid in an exploration program on the above-named properties.

Projects approved by the Defense Minerals Exploration Administration must, in its judgment, show definite promise of yielding materials of acceptable grade in quantities that will significantly improve the mineral supply position for the National Defense Program.

Careful study of all our information indicates to us that the probability of disclosing significant ore reserves on the subject properties is not sufficiently promising to justify Government participation in an exploration program. We regret to advise you that, under these circumstances, your application for exploration assistance is denied.

We wish to thank you for your interest in the Defense Minerals Program and for bringing your property to our attention.

Sincerely yours,

W. O. Whitesford (for)

Administrator

FMMurphy/izm 3-23-56
cc to: Docket
Code 700
Mr. Murphy
Admr.'s Reading File
Operating Committee
DMEA Field Team, Region III (2)
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA

R.G.L.

700
Docket Copy
Murphy
Ellis

Summary of Proposed Project

March 23, 1956

Object: Denial of application for exploration aid.

Docket No.: DMEA-3999

Commodity: Uranium

Applicant: Arizona Giant Mining Corporation
R. S. Butler, Exec. Vice-Pres., & General Manager
220 East Birch Avenue
Flagstaff, Arizona

Property: Owners of 160 unpatented mining claims situated in secs. 19 through 21 and 26 through 35, T. 28 N., R. 3 E., Coconino County, Arizona.

Date of Application: September 23, 1955

Joint Memorandum received: October 10, 1955

Referred to Field Team: October 27, 1955

Field examination made: December 13, 1955

Field Team Report received: March 14, 1956

Work Proposed:

Stage I - 6 holes, average depth 500 feet -- 3,000 feet
Stage II - 300 holes, average depth 75 feet - 22,500 feet

Estimated Costs:

Drilling 25,500 feet	$19,425.00
Access roads	2,800.00
Labor & Supervision	4,680.00
300 sample analyses @ $7/sample	2,100.00
Miscellaneous	1,575.00
Contingencies	3,058.00
Total	$33,638.00

Excerpts from Field Team Report:

The property is underlain by the Permian Kaibab limestone. In this area the Kaibab limestone is divided into three members, from top to bottom, the Alpha, Beta, and Gamma. The Alpha member has been eroded from much of the area. The entire thickness of the Kaibab limestone is estimated to be about 600 feet.

The ore deposits in the area appear to be restricted to the crests of small anticlinal structures in the upper part of the Beta limestone member.

The known ore deposits in the area show a vertical zonation occuring in recrystallized limestone beds with minor amounts of uranium capping copper mineral deposits. The deposits are small and none of those observed contain significant quantities of uranium. The ore occurrences are covered by an overlying horizontal bed of limestone.

The Applicant has made aerial and ground radiometric surveys of the property. These were followed by drilling 64 holes on the Willaha and Hot Valley claims, probably in the areas of high radiometric anomalies. No mineralization was disclosed by the drilling and no mineralization was noted on the property by the field examiners.

The AEC has recently completed some studies in the Willaha Mining District and conclude that the uranium potential of the area is low.

The Field Team recommends that the subject application be denied.

Commodity Member's Comments: (excerpts)

USGS, W. P. Williams, March 20, 1956:

Mr. Williams concurs in the Field Team's recommendation to deny the application because:

1. AEC drilling in the vicinity was discouraging;

2. None of the known deposits contain significant amounts of uranium; and

3. The uranium mineralization is not expected to persist in depth.

USBM, J. E. Crawford, March 21, 1956:

Mr. Crawford concurs in Field Team's recommendation of denial.

Rare & Miscellaneous Metals Division, F. M. Murphy, March 23, 1956:

Exploration by the Applicant and the AEC indicate that the area is not favorable for significant deposits of uranium ore. The close-spaced drilling required to discover the small deposits of uranium and copper ores that have been found in the area (not on the Applicant's claims) does not appear economically feasible.

Therefore, this Division concurs in the Field Team's recommendation of denial.

Ernest Wm. Ellis

Ernest Wm. Ellis, Chief
Rare & Miscellaneous Metals Division

3/22/56

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

RECEIVED
MAR 22 1956

March 21, 1956

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee, Room 4445

From: John E. Crawford, Bureau of Mines Member
Uranium Commodity Committee

Subject: Report of Examination, DMEA Docket 3999, Arizona Giant Mining Corporation, Hot Valley Property, Coconino County, Arizona

I have reviewed the report of examination, Arizona Giant Mining Corporation, DMEA Docket 3999, dated March 12 and received in this office March 19. I have also discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

The Hot Valley property was examined by DMEA personnel December 13, 1955, to determine the potentialities of the area for the exploration for uranium.

The Field Team concluded that, because of the weak uranium mineralization, it is improbable that significant uranium deposits would be found by additional drilling on the subject property. Therefore, the Field Team recommends that the request for Federal assistance be denied. We concur in the recommendation for denial.

The report is being forwarded to the Chief, Division of Minerals, in accordance with the routing slip attached thereto.

John E Crawford
John E. Crawford

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

RECEIVED
MAR 22 1956

March 21, 1956

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee, Room 4445

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John E. Crawford

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

RECEIVED
MAR 22 1956

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The Field Team concluded that, because of the weak uranium mineralization, it is improbable that significant uranium deposits would be found by additional drilling on the subject property. Therefore, the Field Team recommends that the request for Federal assistance be denied. We concur in the recommendation for denial.

The report is being forwarded to the Chief, Division of Minerals, in accordance with the routing slip attached thereto.

John E. Crawford

3/21/56 [illegible]

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

RECEIVED
MAR 20 1956

March 20, 1956

Memorandum

To: E. W. Ellis, Defense Minerals Exploration Administration

From: W. P. Williams, U. S. Geological Survey

Subject: Review of field examination report, DMEA 3999, Arizona Giant Mining Corporation, Hot Valley property, Coconino County, Arizona.

The examining team points out the unfavorable nature of the subject property by showing that 1) drilling in the vicinity by the AEC afforded discouraging results, 2) uranium is associated with copper minerals, but none of the known deposits contain significant amounts of uranium, 3) a zonal mineral arrangement is present, and the uranium mineralization is not expected to persist with depth.

For the above principal reasons I concur with the examining team's recommendation that the application be denied.

W P Williams

W. P. Williams

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

RECEIVED
MAR 20 1956

March 20, 1956

Memorandum

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For the above principal reasons I concur with the examining team's recommendation that the application be denied.

W. P. Williams

WPWilliams:jeh
3/20/56
cc: Director's reading 4212
Branch reading 4212
DMEA (3)
Docket file
J. E. Crawford, 3641 Interior
J. O. Hosted, 3210, GSA

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

RECEIVED
MAR 20 1956

March 20, 1956

Memorandum

To: E. W. Ellis, Defense Minerals Exploration Administration

From: W. P. Williams, U. S. Geological Survey

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For the above principal reasons I concur with the examining team's recommendation that the application be denied.

W. P. Williams

WPWilliams:jch
3/20/56
cc: Director's reading k212
Branch reading k212
DMEA (3)
Docket file
J. E. Crawford, 3641 Interior
J. O. Kested, 3210, GSA

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

RECEIVED
MAR 20 1956

March 20, 1956

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From: W. P. Williams, U. S. Geological Survey

Subject: Review of field examination report, DMEA 3999, Arizona Giant Mining Corporation, Hot Valley property, Coconino County, Arizona.

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For the above principal reasons I concur with the examining team's recommendation that the application be denied.

W. P. Williams

WPWilliams:jeh
3/20/56
cc: Director's reading 4212
Branch reading 4212
DMEA (3)
Docket file
J. E. Crawford, 3641 Interior
J. O. Kosted, 3210, DMA

3/20/56 dgn

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

RECEIVED
MAR 14 1956

March 12, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Report of Examination, Docket DMEA 3999 (Uranium), Arizona Giant Mining Corporation, Hot Valley Property, Coconino, County, Arizona

Enclosed are the original and three copies of an engineering and geologic report on the subject property.

The field examiners conclude that chances for discovery of a significant amount of uranium on this property are poor. They recommend that the application be denied, and we concur in this recommendation.

DMEA Field Team, Region III

W. M. Traver

E. N. Harshman

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
3-19-56
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

1600 EAST FIRST SOUTH STREET
SALT LAKE CITY 12, UTAH

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MAR 14 1956
DMEA
Date Rec'd.

MAR 12 1956
BUREAU OF MINES
Denver, Colorado

TRANSMITTED
MAR 12 1956

March 9, 1956

Memorandum

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

From: Stephen R. Wilson

Subject: Docket No. DMEA-3999 (Uranium), Arizona Giant Mining Corp., Hot Valley property, Coconino County, Arizona

Attached are the original and ten copies of an engineering report pertaining to examination of the property controlled by Arizona Giant Mining Corp., Coconino County, Arizona. The report was prepared by M. H. Howes as a result of an examination made December 13, 1955. Also enclosed are copies of a separate section, Summary, Conclusions and Recommendations, with a copy of the brochure and attached correspondence.

Mineralization in the area of the applicant's property is found in the Permian Kaibab limestone and in most cases appears to be associated with minor anticlinal flexures or arched beds. Mineralization consists of chalcocite, bornite, chalcopyrite, azurite, malachite and stibnite, with an unidentified uranium mineral. No significant deposits of uranium ores have been found in the general area of the applicant's property.

The applicant has requested a loan of $33,638 to drill 25,500 feet of noncore holes to explore the Permian Kaibab limestone and beds below the Kaibab. The examining engineer concludes that chances for discovery of workable uranium deposits on the Hot Valley property are poor and, therefore, recommends denial of the request for Government aid. I am in accord with the recommendation of the examining engineer.

Stephen R. Wilson
Stephen R. Wilson

cc: J. Bruce Clemmer
John F. Shaw

Reviewed by
DMEA OPERATING COMMITTEE
3-19-56
(date)

TRANSMITTED
MAR 12 1956

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

By H. F. Albee, C. H. Roach and M. H. Howes

The Arizona Giant Mining Corp. has applied for Government assistance to explore for uranium ores on its Hot Valley property in Coconino County, Arizona, under docket No. DMEA-3999. The property consists of 132 claims leased from the State of Arizona, and 28 unpatented lode mining claims. The property was examined by DMEA personnel December 13, 1955, to appraise the applicant's request for a loan of $33,638 to conduct an exploratory, noncore drilling project, consisting of 6 500-foot and 300 75-foot holes totaling 25,500 feet.

The property is located south of the Kaibab uplift, and is underlain by Permian Kaibab, Toroweap, and Coconino formations. The Kaibab limestone is divided from top to bottom into Alpha, Beta, and Gamma members. The Alpha member has been eroded from most of the area.

Ore deposits on neighboring properties occur in the upper part of the Kaibab Beta member and appear to be restricted to the crests of small, anticlinal flexures. The deposits contain chalcocite, chalcopyrite, stibnite, various copper carbonates, and occasionally an unidentified uranium mineral (possibly uraninite). No significant quantities of uranium are discernible.

Areas of radioactivity were discovered by the applicant as a result of aerial reconnaissance with airborne radiometric equipment. The Hot Valley property was further checked by means of radiometric

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3-19-56
(date)

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equipment on the ground, and by drilling 22 holes into lower Kaibab limestone. No uranium mineralization was discovered in any of the holes.

The applicant proposes a two-stage program to explore the Hot Valley property. Stage I, consisting of 6 holes averaging 500 feet each, is designed to test the Toroweap and Coconino horizons. The second stage, consisting of 300 holes averaging 75 feet each, is planned to explore the Kaibab Beta and Gamma members.

The applicant's estimated cost of the project of $33,638 has been revised to $28,580 by the examining engineer. Government participation at 75 percent is $21,435.

It is concluded that, because of the weak uranium mineralization exposed in the area, it is improbable that significant uranium deposits will be found by additional drilling on the Hot Valley property.

Recommendation is made that Government assistance be denied.

DMEA
Date Rec'd
JAN 10 1956
BUREAU OF MINES
Denver, Colorado

MINERAL DEPOSITS
DMEA
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U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. BOX 360
GRAND JUNCTION, COLORADO

January 4, 1956

TRANSMITTED
MAR 12 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: J. William Hasler

Through: E. N. Harshman EN H

Subject: DMEA docket 3999 (Uranium), Arizona Giant Mining Corporation, Willaha Mining District, Coconino County, Arizona.

The Arizona Giant Mining Corporation has applied for Government assistance to explore for copper-uranium deposits in the Willaha Mining District, Coconino County, Arizona. The application was referred to the field and an examination was made December 13, 1955, by Carl H. Roach and Howard F. Albee, U. S. Geological Survey, and M. H. Howes of the U. S. Bureau of Mines.

The U. S. Atomic Energy Commission has completed some exploration in the area and their conclusions have been used in evaluating the subject property.

The applicant's property is underlain by the Permian Kaibab formation. The Kaibab formation consists largely of limestone and is divided into three members: the Alpha, Beta, and Gamma members. The ore deposits in the Willaha Mining District appear to occur near the crest of small, anticlinal flexures in the upper part of the Beta member of the Kaibab formation. The deposits contain varied amounts of chalcocite, chalcopyrite, and various secondary copper carbonates. In a few places on the

Reviewed by
DMEA OPERATIONS COMMITTEE
(date)

property an unidentified uranium mineral was found to occur in the upper part of the copper deposits. None of the deposits observed, however, contain significant quantities of uranium, and the results of the Atomic Energy Commission's exploration drilling also indicates that any deposits, if found, would likely be too small to be of commercial grade.

It is concluded that the chances of finding ore deposits of commercial size and grade in the area are not good and it is recommended that the application for Government assistance be denied. I concur with the conclusions and recommendations of the examining team.

Enclosed are the accompanying maps and the applicant's brochure.

J. William Hasler

J. William Hasler,
Geologist.

JWH/mlr

Enclosures

DMEA
Date Rec'd
JAN 10 1956
BUREAU OF MINES
Denver, Colorado

UNITED STATES DEPARTMENT OF THE INTERIOR

DOUGLAS McKAY, SECRETARY

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FEB 14 1956

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MAR 12 1956

DEFENSE MINERALS EXPLORATION ADMINISTRATION
REPORT OF EXAMINING TEAM
REGION XII

DMEA 3999, Arizona Giant Mining Corporation, Willcox Mining District, Cochise County, Arizona

Drawing

Geologic Report
by
~~Xxxxxxxxxx~~ Carl H. Roach
U. S. Geological Survey

Reviewed by
DMEA OPERATING COMMITTEE
(date)

December 1955

DMEA 3999

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APR 14 1956

INTRODUCTION

The Arizona Giant Mining Corporation (DMEA 3999) applied for Government assistance on September 23, 1955, to explore for copper-uranium deposits in the Willaha Mining District, Coconino County, Arizona (fig. 1).

The applicant proposes to explore 160 claims in T. 28 N., R. 3 E., Coconino County, Arizona. The property can be reached by traveling one mile east on a paved road connecting with U. S. Highway 66 and the Marble Canyon road (fig.1). The proposed plan of exploration provides for a total of 25,500 feet of drilling. The total cost of the exploration program (drilling and incidental expenses) is estimated by the applicant to be about $33,638.00.

A DMEA examining team, Region III, consisting of Carl H. Roach and H. F. Albee of the U. S. Geological Survey, and M. H. Howes of the U.S. Bureau of Mines, examined the property on December 13, 1955. Mr. D. O. McGoon, Jr., of the Arizona Giant Mining Corporation, accompanied the DMEA examining team during the field examination.

The U. S. Atomic Energy Commission, Raw Materials Office, Grand Junction, Colorado, has completed some exploration in the area, and their conclusions have been used in evaluating the subject property.

Reviewed by
DMEA OPERATING COMMITTEE

(date)

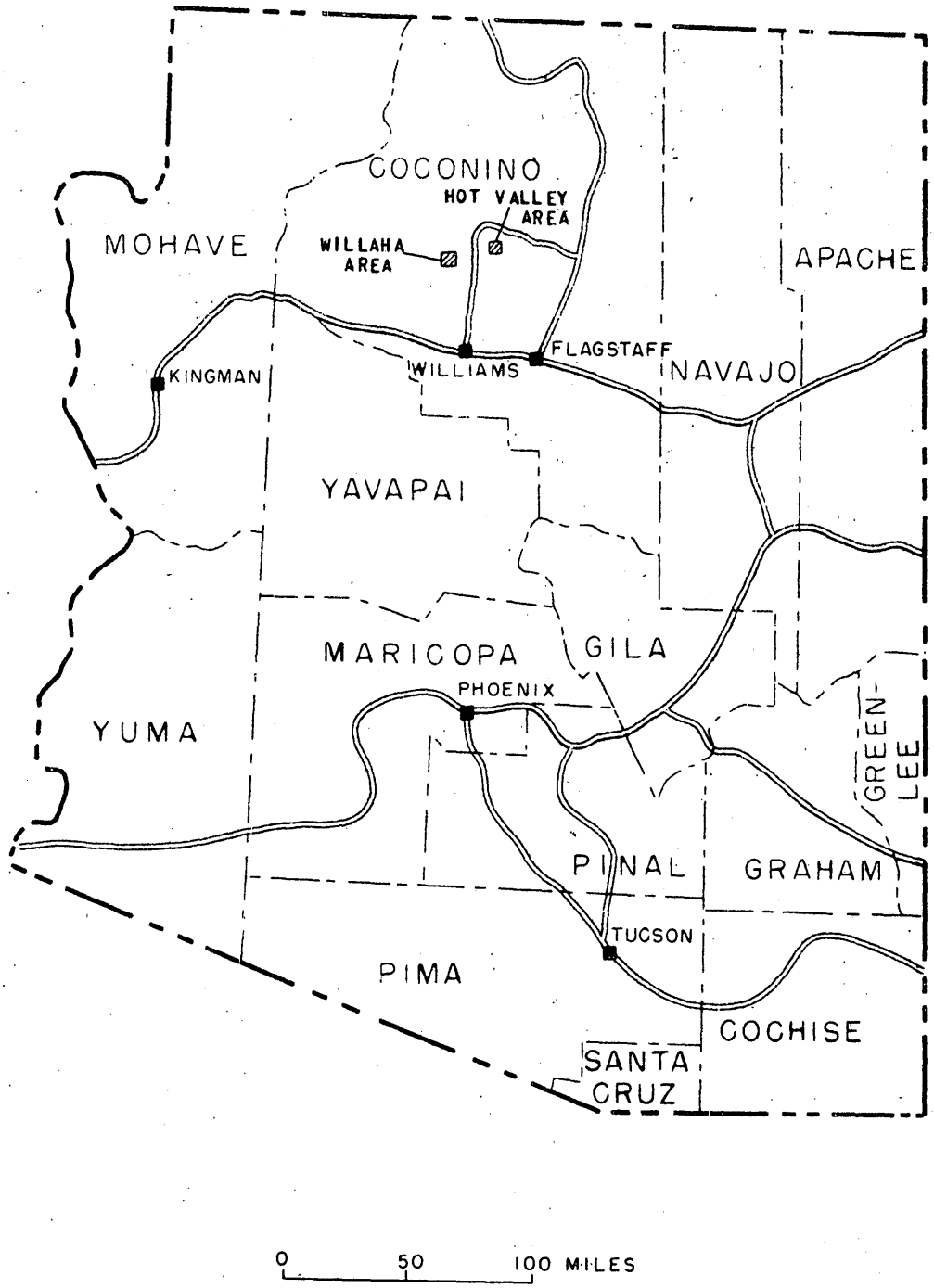

FIGURE 1. INDEX MAP SHOWING LOCATION OF WILLAHA AND HOT VALLEY AREAS, COCONINO COUNTY, ARIZONA.

GEOLOGY AND ORE DEPOSITS

The Arizona Giant Mining Corporation's property is located in the Willaha Mining District, Coconino County, Arizona, in an area characterized by a low "rolling-hill" type of topography. The entire area is underlain by outcrops of the Permian Kaibab limestone. The subject property is located south of the Kaibab uplift. No significant tectonic structures, however, are known to exist on the subject property. In this area, the Kaibab limestone is divided into three members which are, from top to bottom: the Alpha, Beta and Gamma members (McKee, 1938). The Alpha member has been eroded from much of the area, and only a few erosional remnants of the member remain. The entire thickness of the Kaibab limestone is estimated to be about 600 feet thick.

The ore deposits in the Willaha Mining District appear to be restricted to the upper part of the Beta member of the Kaibab limestone. Furthermore, they appear to be restricted to small anticlinal flexures, and tend to occur near the crest of such structures where they are associated with "recrystallized" limestones (fig. 2). In many cases, the ore bodies are associated with arching beds that are not truly anticlinal in the tectonic sense, but owe their structure to either original sedimentary structures, or possibly, in some cases, to solution and collapse structures. However, the ore deposits in either case tend to occur near the crest of arching beds. The "anticlinal structures" are expressed topographically as small hills, on an otherwise generally flat or slightly rolling plain. This fact has been used extensively in prospecting for new deposits in the area.

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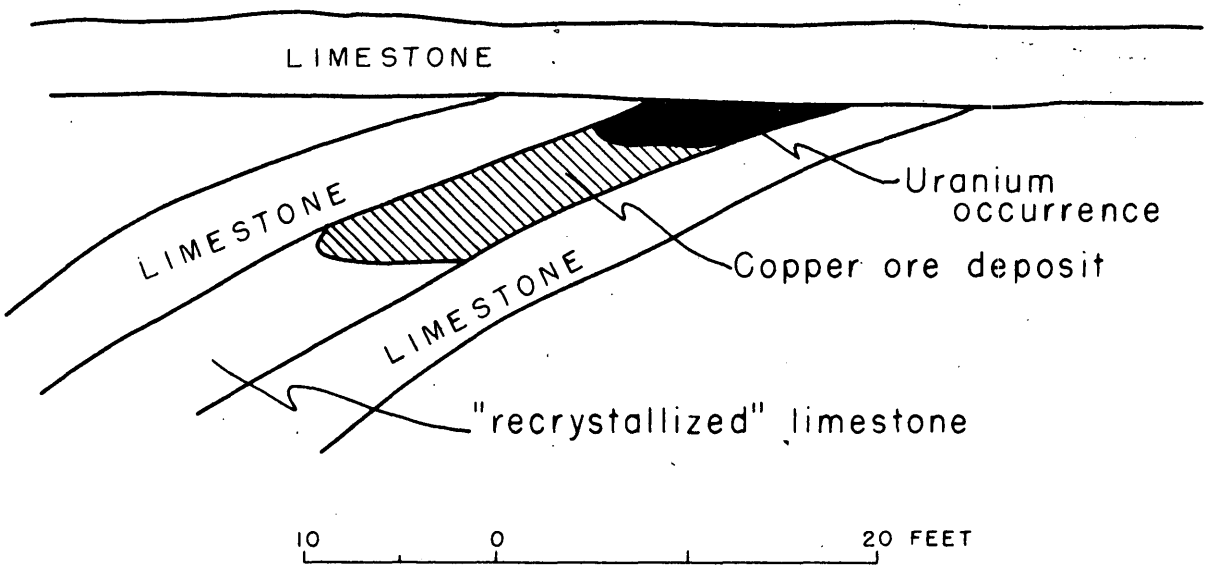

FIGURE 2. OCCURRENCE OF COPPER-URANIUM ORE IN "RECRYSTALLIZED" LIMESTONE BED TRUNCATED IN UP DIP DIRECTION, NEAR AXIS OF A SMALL ANTICLINE, WILLAHA DISTRICT, COCONINO COUNTY, ARIZONA.

The ore deposits contain varying amounts of chalcocite, chalcopyrite, stibnite, and various secondary copper carbonates. In a few deposits an unidentified uranium mineral (possibly uraninite) occurs in the upper part of the deposits. The known uranium deposits in the area appear to show a vertical zonation with copper. None of the deposits observed contain significant quantities of uranium, and it seems likely that none will (fig. 2).

The AEC concluded from their work in this area that the uranium content of the copper-uranium deposits is likely to be small, and that the area is generally unfavorable for the occurrence of significant uranium ore deposits. The examining team concludes that the area has very little uranium potential and, therefore, recommends that Government assistance be denied.

PROPOSED EXPLORATION

The applicant proposes to explore the Kaibab limestone for copper-uranium deposits on their Hot Valley group of claims in Coconino County, Arizona (fig. 1). The proposal calls for a deep drilling (500 feet) phase to test the Toroweap and upper Coconino horizons and a shallower phase (100 feet) to test parts of the Kaibab Beta and Gamma members. The applicant requested 6 holes of 500 feet average depths for a total of 3,000 feet of drilling in the first stage, and a second stage of 300 holes averaging 75 feet in depth for a total of 22,500 feet of drilling. The total project calls for 25,500 feet of drilling at a total cost of about $33,638.

The applicant has drilled a total of 64 holes on the Willaha and Hot Valley properties without discovering ore or mineralization. The prospects of discovery with additional drilling do not appear good.

SUMMARY AND RECOMMENDATIONS

The applicant proposes to explore, by drilling, for uranium-copper deposits on their Hot Valley property, Willaha Mining District, Coconino County, Arizona. They propose 25,500 feet of drilling, and the total cost is estimated at $33,638. The applicant has previously drilled 64 holes on the Willaha and Hot Valley properties without discovering mineralization.

The known ore deposits in the area appear to be restricted to the upper part of the Beta member of the Permian Kaibab limestone. The uranium content of the deposits is very low and it is probable that significant uranium deposits will not be found by additional drilling on the subject properties. The Atomic Energy Commission has recently completed some studies in the Willaha Mining District and conclude that the uranium potential of the area is low.

Because of the above reasons, it is recommended that Government assistance be denied.

Literature cited

McKee, E. D., 1938, "The environment and history of the Toroweap and Kaibab formations of northern Arizona and southern Utah," Carnegie Institution of Washington, publication No. 492, p. 35.

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TRANSMITTED
MAR 12 1956

ARIZONA GIANT MINING CORP.
COCONINO COUNTY, ARIZONA
DMEA-3999
Uranium

Engineering Report

By M. H. Howes
Mining Engineer
Bureau of Mines

Reviewed by
DMEA OPERATING COMMITTEE

(date)

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MAR 14

ARIZONA GIANT MINING CORP.
COCONINO COUNTY, ARIZONA

CONTENTS

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ILLUSTRATIONS

Fig. 1 Location map, Arizona Giant Mining Corp., Hot Valley property, Coconino County, Arizona
Fig. 2 Claim map, showing holes already drilled and proposed holes for Stages I and II

INTRODUCTION

An application, dated September 25, 1955, was submitted by Arizona Giant Mining Corp. for Government aid in an exploratory project on the Hot Valley uranium property, Coconino County, Arizona. The application is recorded under docket No. DMEA-3999. A program, consisting of 6 500-foot and 300 75-foot noncore drill holes totaling 25,500 feet of drilling, is proposed to explore for uranium ores within and below the Permian Kaibab limestone. The applicant's estimated cost of the proposed project is $33,638.

A field examination of the property was made December 13, 1955, by Carl H. Roach and H. F. Albee, Geological Survey, and M. H. Howes, Bureau of Mines, to determine the feasibility of the proposed exploratory work, and to appraise the estimated costs and the engineering aspects of the job. The field examiners were accompanied to the property by D. O. McGoon, Jr., representative of the applicant.

LOCATION, TOPOGRAPHY AND PHYSICAL FEATURES

The property is located in Coconino County, Arizona, about 3 miles east of State Highway 64 and approximately 40 miles north of Williams, in Secs. 19, 20, 21, 26, 27, 28, 29, 30, 31, 32, 33, 34 and 35, T. 28 N., R. 3 E., G. and S.R.B. and M. Terrain in the vicinity of the claims is flat with gently rolling hills.

The climate is semiarid. Summers are hot and dry, and winters are moderately cold, with snow rarely accumulating. Vegetation consists mostly of desert plants.

HISTORY AND PRODUCTION

This is a newly located property, with no production record.

OWNERSHIP AND EXTENT

Arizona Giant Mining Corp. is incorporated under the laws of Minnesota. The address of the home office is:

W-2681 - First National Bank Building, St. Paul, Minnesota.

The address of the operations office is:

220 East Birch, Flagstaff, Arizona.

Officers and directors of the company are as follows:

Maynard Clough, President
First National Bank Building, St. Paul, Minnesota

Melvin Butler, Vice President
First National Bank Building, St. Paul, Minnesota

Osborne Cowles, Secretary
First National Bank Building, St. Paul, Minnesota

Hiram S. Lewis, Treasurer
1015 Plymouth Building, Minneapolis, Minnesota

R. S. Butler, Executive Vice President
Flagstaff, Arizona.

The applicant is lessee of 132 claims on State land and holds 28 unpatented lode mining claims on public domain (fig. 2). These claims are recorded in the books of the County Recorder of Coconino County, Flagstaff, Arizona, as follows:

T. 28 N., R. 3 E., G. and S.R.B. and M.

Mining Claim	Date of Location	County Record Book No.	Page No.	Description			
Epsilon 1	7/8/55	78	423	W½	SW¼	NW¼	Sec. 29
" 2	"	"	424	W½	NW¼	SW¼	" "
" 3	"	"	425	E½	SW¼	NW¼	" "
" 4	"	"	426	E½	NW¼	SW¼	" "
" 5	"	"	427	W½	SE¼	NW¼	" "
" 6	"	"	428	W½	NE¼	SW¼	" "
" 7	"	"	429	E½	SE¼	NW¼	" "
" 8	"	"	430	E½	NE¼	SW¼	" "
" 9	"	"	431	W½	SW¼	NE¼	" "
" 10	"	"	432	W½	NW¼	SE¼	" "
" 11	"	"	433	E½	SW¼	NE¼	" "
" 12	"	"	434	E½	NW¼	SE¼	" "
" 13	"	"	435	W½	SE¼	NE¼	" "
" 14	"	"	436	W½	NE¼	SE¼	" "
" 15	"	"	437	E½	SE¼	NE¼	" "
" 16	"	"	438	E½	NE¼	SE¼	" "
" 17	"	"	439	W½	SW¼	NW¼	Sec. 28
" 18	"	"	440	W½	NW¼	SW¼	" "
" 19	"	"	441	E½	SW¼	NW¼	" "
" 20	"	"	442	E½	NW¼	SW¼	" "
" 21	7/9/55	"	443	W½	SE¼	NW¼	" "
" 22	"	"	444	W½	NE¼	SW¼	" "
" 23	"	"	445	E½	SE¼	NW¼	" "
" 24	"	"	446	E½	NE¼	SW¼	" "
" 25	"	"	447	W½	SW¼	NE¼	" "
" 26	"	"	448	W½	NW¼	SE¼	" "
" 27	"	"	449	E½	SW¼	NE¼	" "
" 28	"	"	450	E½	NW¼	SE¼	" "
" 29	"	"	451	W½	SE¼	NE¼	" "
" 30	"	"	452	W½	NE¼	SE¼	" "
" 31	"	"	453	E½	SE¼	NE¼	" "
" 32	"	"	454	E½	NE¼	SE¼	" "
" 33	"	"	455	Lode Claim			Sec. 27
" 34	7/10/55	"	456	"	"	"	"
" 35	"	"	457	"	"	"	"
" 36	"	"	458	"	"	"	"
" 37	"	"	459	"	"	"	"
" 38	"	"	460	"	"	"	"
" 39	"	"	461	"	"	"	"
" 40	"	"	462	"	"	"	"
" 41	"	"	463	"	"	"	"
" 42	7/15/55	"	464	"	"	"	"
" 43	"	"	465	"	"	"	"
" 44	"	"	466	"	"	"	"
" 45	"	"	467	"	"	"	"

Mining Claim	Date of Location	County Record Book No.	Page No.	Description	
Epsilon 46	7/15/55	78	468	Lode Claim	Sec. 27
" 47	"	"	469	" "	" "
" 48	"	"	470	" "	" "
" 49	"	"	471	" "	" "
" 50	"	"	472	" "	" "
" 51	"	"	473	" "	" "
Delta 1	7/9/55	"	474	W½ SW¼ SW¼	Sec. 29
" 2	"	"	475	W½ NW¼ NW¼	Sec. 32
" 3	"	"	476	E½ SW¼ SW¼	Sec. 29
" 4	"	"	477	E½ NW¼ NW¼	Sec. 32
" 5	"	"	478	W½ SE¼ SW¼	Sec. 29
" 6	"	"	479	W½ NE¼ NW¼	Sec. 32
" 7	"	"	480	E½ SE¼ SW¼	Sec. 29
" 8	"	"	481	E½ NE¼ NW¼	Sec. 32
" 9	"	"	482	W½ SW¼ SE¼	Sec. 29
" 10	"	"	483	W½ NW¼ NE¼	Sec. 32
" 11	"	"	484	E½ SW¼ SE¼	Sec. 29
" 12	"	"	485	E½ NW¼ NE¼	Sec. 32
" 13	"	"	486	W½ SE¼ SE¼	Sec. 29
" 14	"	"	487	W½ NE¼ NE¼	Sec. 32
" 15	"	"	488	E½ SE¼ SE¼	Sec. 29
" 16	"	"	489	E½ NE¼ NE¼	Sec. 32
" 17	"	"	490	W½ SW¼ SW¼	Sec. 28
" 18	"	"	491	W½ NW¼ NW¼	Sec. 33
" 19	"	"	492	E½ SW¼ SW¼	Sec. 28
" 20	"	"	493	E½ NW¼ NW¼	Sec. 33
" 21	"	"	494	W½ SW¼ SW¼	Sec. 28
" 22	"	"	495	W½ NW¼ NW¼	Sec. 33
" 23	"	"	496	E½ SW¼ SW¼	Sec. 28
" 24	"	"	497	E½ NW¼ NW¼	Sec. 33
" 25	"	"	498	W½ SE¼ SW¼	Sec. 28
" 26	"	"	499	W½ NE¼ NE¼	Sec. 33
" 27	"	"	500	E½ SE¼ SE¼	Sec. 28
" 28	"	"	501	E½ NE¼ NE¼	Sec. 33
" 29	"	"	502	W½ SE¼ SE¼	Sec. 28
" 30	"	"	503	W½ NE¼ NE¼	Sec. 33
" 31	"	"	504	E½ SE¼ SE¼	Sec. 28
" 32	"	"	505	E½ NE¼ NE¼	Sec. 33
" 33	"	"	506	Lode Claim	Sec. 27
" 34	"	"	507	W½ NW¼ NW¼	Sec. 34
" 35	7/10/55	"	508	Lode Claim	Sec. 27
" 36	7/9/55	"	509	E½ NW¼ NW¼	Sec. 34
" 37	7/10/55	"	510	Lode Claim	Sec. 27
" 38	7/9/55	"	511	W½ NW¼ NW¼	Sec. 34
" 39	7/10/55	"	512	Lode Claim	Sec. 27
" 40	7/9/55	"	513	E½ NW¼ NW¼	Sec. 34

Mining Claim	Date of Location	County Record Book No.	Page No.	Description	
Delta 41	7/10/55	78	514	Lode Claim	Sec. 27
" 42	7/9/55	"	515	W½ NE¼ NE¼	Sec. 34
" 43	"	"	516	Lode Claim	Sec. 27
" 44	"	"	517	E½ NW¼ NE¼	Sec. 34
" 45	"	"	518	Lode Claim	Sec. 27
" 46	"	"	519	W½ NE¼ NE¼	Sec. 34
" 47	"	"	520	Lode Claim	Sec. 27
" 48	"	"	521	E½ NE¼ NE¼	Sec. 34
" 49	"	"	522	Lode Claim	Sec. 27
Theta 1	7/19/55	79	270	W½ NW¼ SE¼	Sec. 19
" 2	"	"	271	W½ SW¼ SE¼	" "
" 3	"	"	272	E½ NW¼ SE¼	" "
" 4	"	"	273	E½ SW¼ SE¼	" "
" 5	"	"	274	W½ NE¼ SE¼	" "
" 6	"	"	275	E½ SE¼ SE¼	" "
" 7	"	"	276	E½ NE¼ SE¼	" "
" 8	"	"	277	E½ SE¼ SE¼	" "
" 9	"	"	278	W½ NW¼ SE¼	Sec. 30
" 10	"	"	279	W½ SW¼ SE¼	" "
" 11	"	"	280	E½ NW¼ SE¼	" "
" 12	"	"	281	E½ SW¼ SE¼	" "
" 13	"	"	282	W½ NE¼ SE¼	" "
" 14	"	"	283	W½ SE¼ SE¼	" "
" 15	"	"	284	E½ NE¼ SE¼	" "
" 16	"	"	285	E½ SE¼ SE¼	" "
" 17	"	"	286	W½ NW¼ NE¼	Sec. 31
" 18	"	"	287	E½ NW¼ NE¼	" "
" 19	"	"	288	W½ NE¼ NE¼	" "
" 20	"	"	289	E½ NE¼ NE¼	" "
Eta 1	7/13/55	78	359	W½ SW¼ SW¼	Sec. 20
" 2	"	"	360	W½ NW¼ NW¼	Sec. 29
" 3	"	"	361	E½ SW¼ SW¼	Sec. 20
" 4	"	"	362	E½ NW¼ NW¼	Sec. 29
" 5	"	"	363	W½ SE¼ SW¼	Sec. 20
" 6	"	"	364	W½ NE¼ NW¼	Sec. 29
" 7	"	"	365	E½ SE¼ SW¼	Sec. 20
" 8	"	"	366	E½ NE¼ NW¼	Sec. 29
" 9	"	"	367	W½ SW¼ SE¼	Sec. 20
" 10	"	"	368	W½ NW¼ NE¼	Sec. 29
" 11	"	"	369	E½ SW¼ SE¼	Sec. 20
" 12	"	"	370	E½ NW¼ NE¼	Sec. 29
" 13	"	"	371	W½ SW¼ SW¼	Sec. 20
" 14	"	"	372	W½ NE¼ NE¼	Sec. 29
" 15	"	"	373	E½ SE¼ SE¼	Sec. 20
" 16	"	"	374	E½ NE¼ NE¼	Sec. 29

Mining Claim	Date of Location	County Record Book No.	Page No.	Description			
Eta 17	7/13/55	78	375	W½	SW¼	SW¼	Sec. 21
" 18	7/14/55	"	376	W½	NW¼	NW¼	Sec. 28
" 19	"	"	377	E½	SW¼	SW¼	Sec. 21
" 20	"	"	378	E½	NW¼	NW¼	Sec. 28
" 21	"	"	379	W½	SE¼	SW¼	Sec. 21
" 22	"	"	380	W½	NE¼	NW¼	Sec. 28
" 23	"	"	381	E½	SE¼	SW¼	Sec. 21
" 24	"	"	382	E½	NE¼	NW¼	Sec. 28
" 25	"	"	383	W½	SW¼	SE¼	Sec. 21
" 26	"	"	384	W½	NW¼	NE¼	Sec. 28
" 27	"	"	385	E½	SW¼	SE¼	Sec. 21
" 28	"	"	386	E½	NW¼	NE¼	Sec. 28
" 29	"	"	387	W½	SE¼	SE¼	Sec. 21
" 30	"	"	388	W½	NE¼	NE¼	Sec. 28
" 31	"	"	389	E½	SE¼	SE¼	Sec. 21
" 32	"	"	390	E½	NE¼	NE¼	Sec. 28
Zeta 1	7/12/55	"	391	W½	SW¼	SW¼	Sec. 26
" 2	"	"	392	W½	NW¼	NW¼	Sec. 35
" 3	"	"	393	E½	SW¼	SW¼	Sec. 26
" 4	"	"	394	E½	NW¼	NW¼	Sec. 35
" 5	"	"	395	W½	SE¼	SW¼	Sec. 26
" 6	"	"	396	W½	NE¼	NW¼	Sec. 35
" 7	"	"	397	E½	SE¼	SW¼	Sec. 26
" 8	"	"	398	E½	NE¼	NW¼	Sec. 35

DESCRIPTION OF THE DEPOSITS

Rocks outcropping in the vicinity of the claims are composed of Permian Kaibab limestone. On neighboring properties, uranium mineralization occurs in small anticlinal flexures, associated with copper and altered mudstone, in the Kaibab limestone. Minerals observed are chalcopyrite, chalcocite, bornite, azurite, malachite, stibnite, and an unidentified uranium mineral.

Areas of radioactivity were discovered by the applicant as a result of aerial reconnaissance with an airborne scintillation counter. The area of radioactivity on the Hot Valley property was further checked by radiometric equipment on the ground. Twenty-two holes were drilled

in the Hot Valley area, bottoming in lower Kaibab limestone. The applicant reported that, although altered mudstone was encountered in some of the holes, no uranium mineralization was discovered.

MINABLE ORE RESERVES

No ore reserves are known to exist on the property.

PRESENT STATUS

There are no mine workings or buildings on the property. A fair desert road, about 3 miles long, connects the claims with State Highway 64.

A plentiful supply of mine labor may be had from the area around Flagstaff or from the nearby Navajo Indian Reservation. Mine equipment and supplies are available in Flagstaff.

Water must be hauled to the property. It will be necessary to generate power to be used in any mining operation.

PROJECT PROPOSALS

The applicant proposes to explore the property for uranium by a noncore drilling program composed of two stages.

Stage I consists of drilling 6 holes (fig. 2) to an average depth of 500 feet each, for a total of 3,000 feet, for the purpose of exploring the Permian Toroweap and Coconino horizons below the Kaibab.

Stage II consists of drilling 300 holes to an average depth of 75 feet each, for a total of 22,500 feet, on 100-foot spacing, within the areas of radioactivity (fig. 2), for the purpose of exploring the favorable horizon in the Kaibab limestone.

ESTIMATED COSTS OF PROJECT PROPOSALS

An estimate of the cost of the proposed work follows. The costs were prepared by revision of the applicant's estimate.

Independent Contracts

Drilling

6 holes, 500 feet each, 3,000 feet at $1.55 per foot --------	$ 4,650.00	
300 holes, 75 feet each, 22,500 feet at $0.65-2/3 per foot ---	14,775.00	
Total ----------	$19,425.00	
Bulldozer stripping (roads and drill sites)		
200 hours at $14.00 per hour ----------	$ 2,800.00	
Total cost, independent contracts ----------		$22,225.00

Labor, Supervision, Consultants

Labor (for flagging drill locations, clearing, moving drill, and other work incidental to exploration)

1 man, 60 days at $16.00 per day -------	$ 960.00	
1 man, 60 days at $12.00 per day -------	720.00	
Total ----------		1,680.00

Supervision (includes direction of drilling, surveying, mapping, probing and logging of holes and sampling)

1 geologist, 3 months at $600 per month -	$ 1,800.00	
1 assistant geologist, 3 months at $400 per month ----------	1,200.00	
Total ----------		3,000.00
Total cost, labor and supervision ----------		$ 4,680.00

Miscellaneous

Repairs to instruments (batteries, tubes, etc.)	$ 100.00	
300 samples (chemical analyses) at $3.50 each -	1,050.00	
Accounting, 3 months at $50 per month ---------	150.00	
Workmen's compensation, 8% of $4,680 ----------	375.00	
Total ----------		$ 1,675.00
Total estimated cost of project ----------		$28,580.00
Government participation at 75 percent ----------		$21,435.00

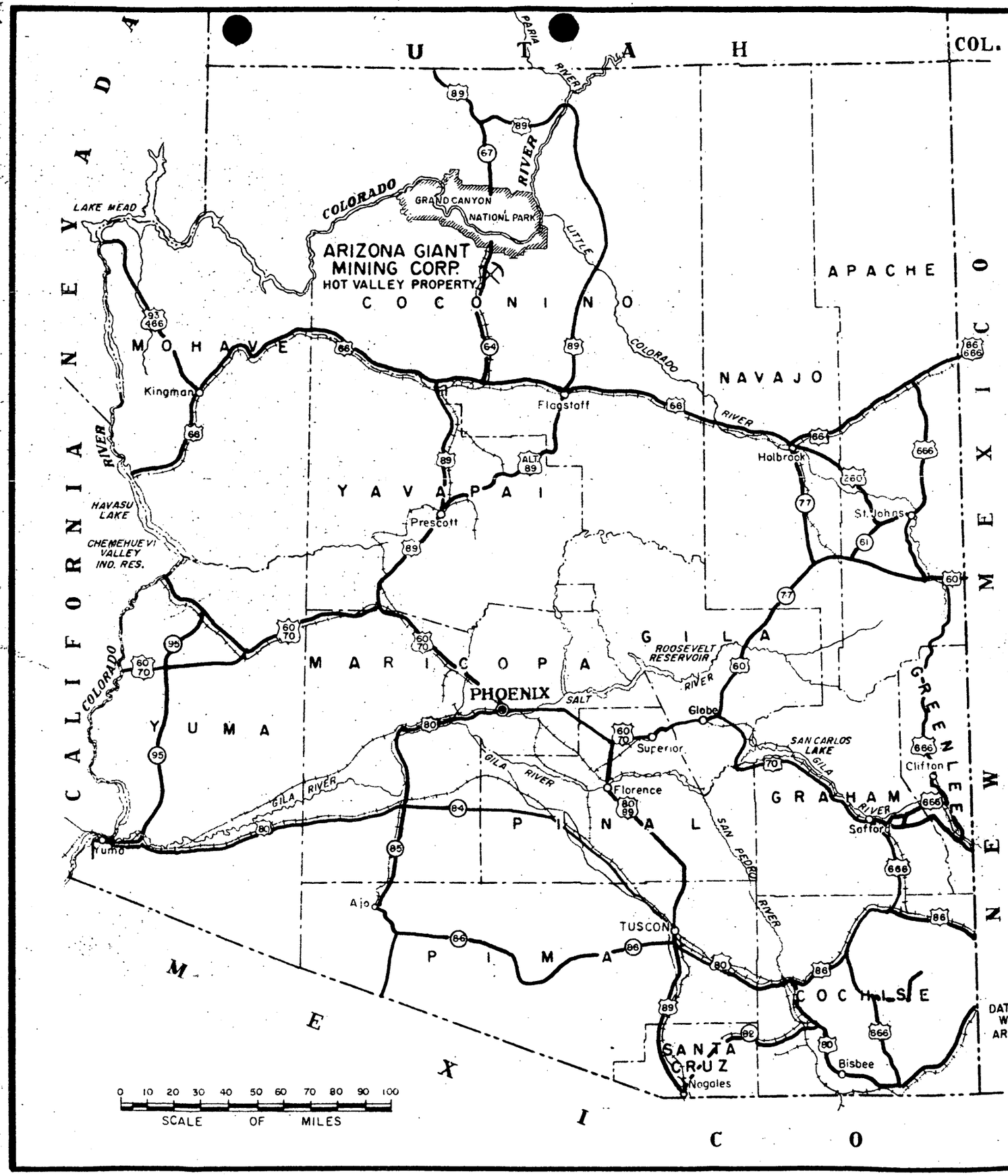
PROPOSED FINANCING

The applicant reports he is prepared to furnish, in money, $7,145, his share of the cost of the proposed project, in accordance with the regulations on Government participation (Sec. 7 DMEA Order 1 Amended).

CONCLUSIONS AND RECOMMENDATIONS

No known uranium mineralization occurs on the property. Radioactivity, in spots of highest intensity, is only two times or slightly over two times background count. Several holes drilled within the areas of radioactivity show no uranium mineralization. Known ore deposits in the area contain only low percentages of U_3O_8.

It is therefore recommended that the application of the Arizona Giant Mining Corp. for Government aid in exploring its Hot Valley property for uranium ore be denied.



NOTE

DATA TRACED FROM HAMMOND'S LIBRARY WORLD ATLAS. ROADS PLOTTED FROM ARIZONA TOURING MAP OF STANDARD OIL COMPANY OF CALIFORNIA, 1950.

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Fig. 1 DMEA Docket No. 3999
Location Map
STATE OF ARIZONA
ARIZONA GIANT MINING CORP.
(HOT VALLEY PROPERTY)
COCONINO COUNTY

ENGINEER: *M. H. HOWES*	DATE: FEB. 6, 1956
DRAWN: FEB., 1956; A.P.T.S.	1900-373-F
CHECKED:	

3-15-56 [illegible]

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

March 12, 1956

224 New Customhouse
Denver 2, Colorado

RECEIVED
MAR 14 1956

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Report of Examination, Docket DMEA 3999 (Uranium), Arizona Giant Mining Corporation, Hot Valley Property, Coconino, County, Arizona

Enclosed are the original and three copies of an engineering and geologic report on the subject property.

The field examiners conclude that chances for discovery of a significant amount of uranium on this property are poor. They recommend that the application be denied, and we concur in this recommendation.

DMEA Field Team, Region III

W. M. Traver

W. M. Traver

E. N. Harshman

E. N. Harshman

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE

3-19-56
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
1600 EAST FIRST SOUTH STREET
SALT LAKE CITY 12, UTAH

March 9, 1956

RECEIVED
DMEA MAR 14 1956
Date Rec'd.

MAR 12 1956
BUREAU OF MINES
Denver, Colorado

TRANSMITTED
MAR 12 1956

Memorandum

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

From: Stephen R. Wilson

Subject: Docket No. DMEA-3999 (Uranium), Arizona Giant Mining Corp., Hot Valley property, Coconino County, Arizona

Attached are the original and ten copies of an engineering report pertaining to examination of the property controlled by Arizona Giant Mining Corp., Coconino County, Arizona. The report was prepared by M. H. Howes as a result of an examination made December 13, 1955. Also enclosed are copies of a separate section, Summary, Conclusions and Recommendations, with a copy of the brochure and attached correspondence.

Mineralization in the area of the applicant's property is found in the Permian Kaibab limestone and in most cases appears to be associated with minor anticlinal flexures or arched beds. Mineralization consists of chalcocite, bornite, chalcopyrite, azurite, malachite and stibnite, with an unidentified uranium mineral. No significant deposits of uranium ores have been found in the general area of the applicant's property.

The applicant has requested a loan of $33,638 to drill 25,500 feet of noncore holes to explore the Permian Kaibab limestone and beds below the Kaibab. The examining engineer concludes that chances for discovery of workable uranium deposits on the Hot Valley property are poor and, therefore, recommends denial of the request for Government aid. I am in accord with the recommendation of the examining engineer.

Stephen R. Wilson
Stephen R. Wilson

cc: J. Bruce Clemmer
John F. Shaw

Reviewed by
DMEA OPERATING COMMITTEE
3-19-56
(Date)

TRANSMITTED

MAR 12 1956

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

By H. F. Albee, C. M. Roach and M. H. Howes

The Arizona Giant Mining Corp. has applied for Government assistance to explore for uranium ores on its Hot Valley property in Coconino County, Arizona, under docket No. DMEA-3999. The property consists of 132 claims leased from the State of Arizona, and 28 unpatented lode mining claims. The property was examined by DMEA personnel December 13, 1955, to appraise the applicant's request for a loan of $33,638 to conduct an exploratory, noncore drilling project, consisting of 6 500-foot and 300 75-foot holes totaling 25,500 feet.

The property is located south of the Kaibab uplift, and is underlain by Permian Kaibab, Toroweap, and Coconino formations. The Kaibab limestone is divided from top to bottom into Alpha, Beta, and Gamma members. The Alpha member has been eroded from most of the area.

Ore deposits on neighboring properties occur in the upper part of the Kaibab Beta member and appear to be restricted to the crests of small, anticlinal flexures. The deposits contain chalcocite, chalcopyrite, stibnite, various copper carbonates, and occasionally an unidentified uranium mineral (possibly uraninite). No significant quantities of uranium are discernible.

Areas of radioactivity were discovered by the applicant as a result of aerial reconnaissance with airborne radiometric equipment. The Hot Valley property was further checked by means of radiometric

Reviewed by
DMEA OPERATING COMMITTEE

3-19-56
(Date)

equipment on the ground, and by drilling 22 holes into lower Kaibab limestone. No uranium mineralization was discovered in any of the holes.

The applicant proposes a two-stage program to explore the Hot Valley property. Stage I, consisting of 6 holes averaging 500 feet each, is designed to test the Toroweap and Coconino horizons. The second stage, consisting of 300 holes averaging 75 feet each, is planned to explore the Kaibab Beta and Gamma members.

The applicant's estimated cost of the project of $33,638 has been revised to $28,580 by the examining engineer. Government participation at 75 percent is $21,435.

It is concluded that, because of the weak uranium mineralization exposed in the area, it is improbable that significant uranium deposits will be found by additional drilling on the Hot Valley property.

Recommendation is made that Government assistance be denied.

DMEA
Date Rec
JAN 10 1956
BUREAU OF MINES
Denver, Colorado
RECEIVED
MAR 14 1956

MINERAL DEPOSITS
DMEA
RECEIVED
JAN 9 1956
U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. BOX 360
GRAND JUNCTION, COLORADO

January 4, 1956

TRANSMITTED
MAR 12 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: J. William Hasler

Through: E. N. Harshman

Subject: DMEA docket 3999 (Uranium), Arizona Giant Mining Corporation, Willaha Mining District, Coconino County, Arizona.

The Arizona Giant Mining Corporation has applied for Government assistance to explore for copper-uranium deposits in the Willaha Mining District, Coconino County, Arizona. The application was referred to the field and an examination was made December 13, 1955, by Carl H. Roach and Howard F. Albee, U. S. Geological Survey, and M. H. Howes of the U. S. Bureau of Mines.

The U. S. Atomic Energy Commission has completed some exploration in the area and their conclusions have been used in evaluating the subject property.

The applicant's property is underlain by the Permian Kaibab formation. The Kaibab formation consists largely of limestone and is divided into three members: the Alpha, Beta, and Gamma members. The ore deposits in the Willaha Mining District appear to occur near the crest of small, anticlinal flexures in the upper part of the Beta member of the Kaibab formation. The deposits contain varied amounts of chalcocite, chalcopyrite, and various secondary copper carbonates. In a few places on the

Reviewed by
DMEA OPERATING COMMITTEE
3-19-56
(date)

property an unidentified uranium mineral was found to occur in the upper part of the copper deposits. None of the deposits observed, however, contain significant quantities of uranium, and the results of the Atomic Energy Commission's exploration drilling also indicates that any deposits, if found, would likely be too small to be of commercial grade.

It is concluded that the chances of finding ore deposits of commercial size and grade in the area are not good and it is recommended that the application for Government assistance be denied. I concur with the conclusions and recommendations of the examining team.

Enclosed are the accompanying maps and the applicant's brochure.

J. William Hasler

J. William Hasler,
Geologist.

JWH/mlr

Enclosures

DMEA
Date Rec'd.
JAN 10 1956
BUREAU OF MINES
Denver, Colorado

UNITED STATES DEPARTMENT OF THE INTERIOR

DOUGLAS McKAY, SECRETARY

TRANSMITTED
MAR 12 1956

DEFENSE MINERALS EXPLORATION ADMINISTRATION
REPORT OF EXAMINING TEAM
REGION III

DMEA 3999, Arizona Giant Mining Corporation, Willow Mining District, Coconino County, Arizona

Uranium

Geologic Report
by
Carl H. Roach
U. S. Geological Survey

Reviewed by
DMEA OPERATING COMMITTEE
3-19-56
(date)

December 1955

DMEA 3999

INTRODUCTION

The Arizona Giant Mining Corporation (DMEA 3999) applied for Government assistance on September 23, 1955, to explore for copper-uranium deposits in the Willaha Mining District, Coconino County, Arizona (fig. 1).

The applicant proposes to explore 160 claims in T. 28 N., R. 3 E., Coconino County, Arizona. The property can be reached by traveling one mile east on a paved road connecting with U. S. Highway 66 and the Marble Canyon road (fig.1). The proposed plan of exploration provides for a total of 25,500 feet of drilling. The total cost of the exploration program (drilling and incidental expenses) is estimated by the applicant to be about $33,638.00.

A DMEA examining team, Region III, consisting of Carl H. Roach and H. F. Albee of the U. S. Geological Survey, and M. H. Howes of the U.S. Bureau of Mines, examined the property on December 13, 1955. Mr. D. O. McGoon, Jr., of the Arizona Giant Mining Corporation, accompanied the DMEA examining team during the field examination.

The U. S. Atomic Energy Commission, Raw Materials Office, Grand Junction, Colorado, has completed some exploration in the area, and their conclusions have been used in evaluating the subject property.

Reviewed by
DMEA OPERATING OFFICERS
3-19-56
(date)

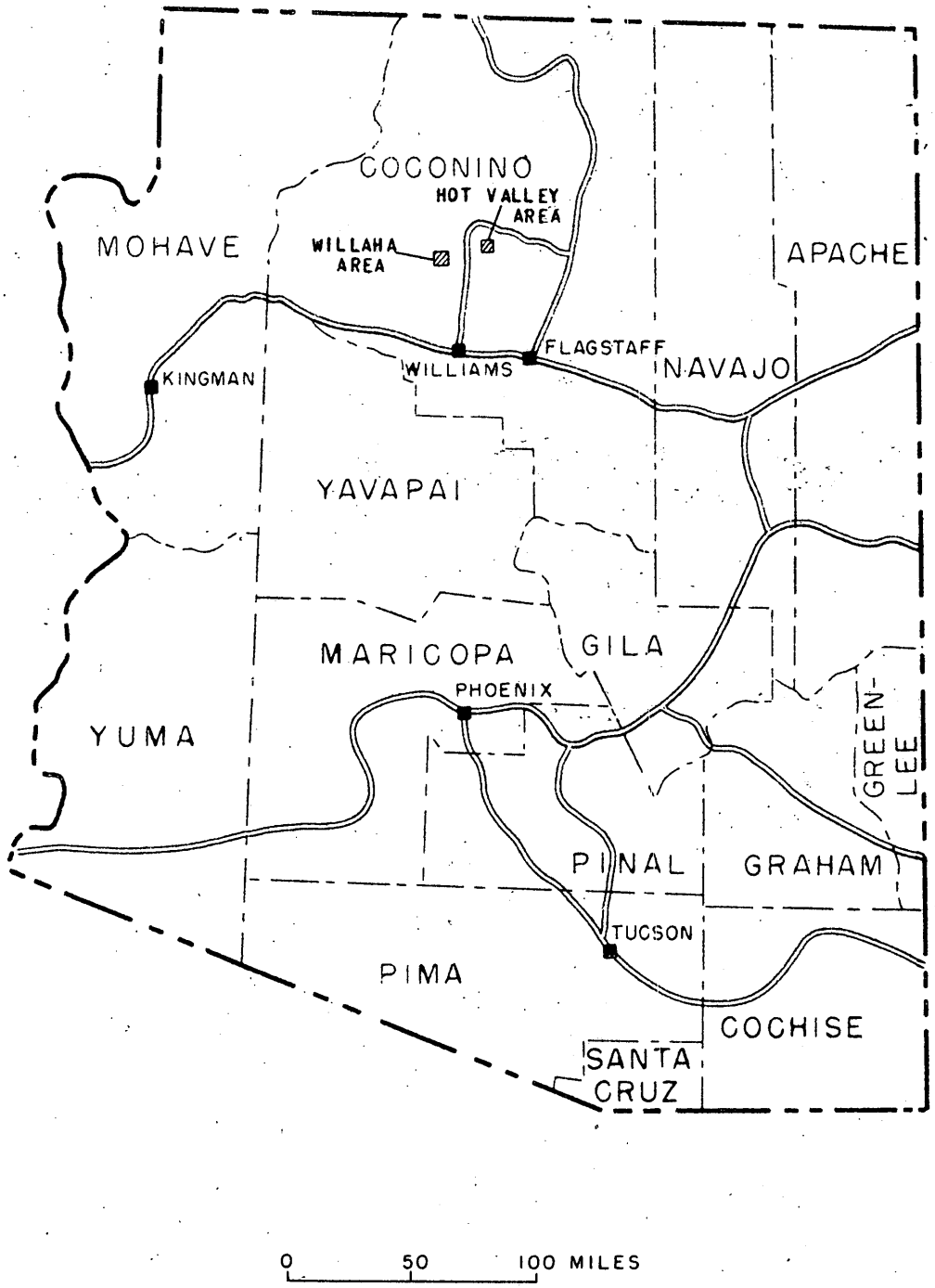


FIGURE 1. INDEX MAP SHOWING LOCATION OF WILLAHA AND HOT VALLEY AREAS, COCONINO COUNTY, ARIZONA.

GEOLOGY AND ORE DEPOSITS

The Arizona Giant Mining Corporation's property is located in the Willaha Mining District, Coconino County, Arizona, in an area characterized by a low "rolling-hill" type of topography. The entire area is underlain by outcrops of the Permian Kaibab limestone. The subject property is located south of the Kaibab uplift. No significant tectonic structures, however, are known to exist on the subject property. In this area, the Kaibab limestone is divided into three members which are, from top to bottom: the Alpha, Beta and Gamma members (McKee, 1938). The Alpha member has been eroded from much of the area, and only a few erosional remnants of the member remain. The entire thickness of the Kaibab limestone is estimated to be about 600 feet. ~~thick-~~

The ore deposits in the Willaha Mining District appear to be restricted to the upper part of the Beta member of the Kaibab limestone. Furthermore, they appear to be restricted to small anticlinal flexures, and tend to occur near the crest of such structures where they are associated with "recrystallized" limestones (fig. 2). In many cases, the ore bodies are associated with arching beds that are not truly anticlinal in the tectonic sense, but owe their structure to either original sedimentary structures, or possibly, in some cases, to solution and collapse structures. However, the ore deposits in either case tend to occur near the crest of arching beds. The "anticlinal structures" are expressed topographically as small hills, on an otherwise generally flat or slightly rolling plain. This fact has been used extensively in prospecting for new deposits in the area.

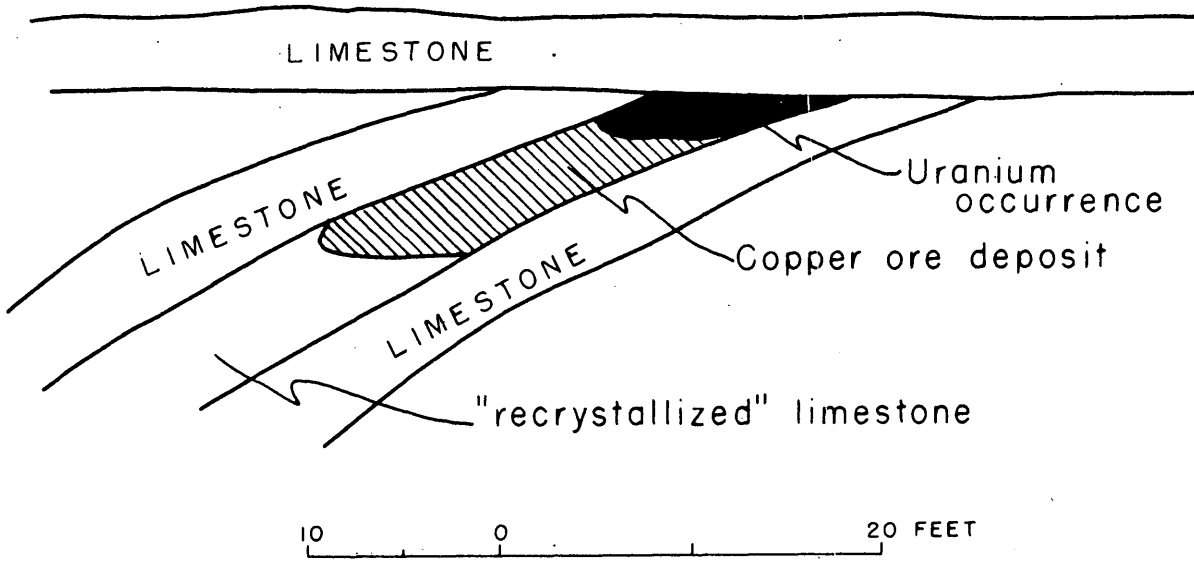


FIGURE 2. OCCURRENCE OF COPPER-URANIUM ORE IN "RECRYSTALLIZED" LIMESTONE BED TRUNCATED IN UP DIP DIRECTION, NEAR AXIS OF A SMALL ANTICLINE, WILLAHA DISTRICT, COCONINO COUNTY, ARIZONA.

The ore deposits contain varying amounts of chalcocite, chalcopyrite, stibnite, and various secondary copper carbonates. In a few deposits an unidentified uranium mineral (possibly uraninite) occurs in the upper part of the deposits. The known uranium deposits in the area appear to show a vertical zonation with copper. None of the deposits observed contain significant quantities of uranium, and it seems likely that none will (fig. 2).

The AEC concluded from their work in this area that the uranium content of the copper-uranium deposits is likely to be small, and that the area is generally unfavorable for the occurrence of significant uranium ore deposits. The examining team concludes that the area has very little uranium potential and, therefore, recommends that Government assistance be denied.

PROPOSED EXPLORATION

The applicant proposes to explore the Kaibab limestone for copper-uranium deposits on their Hot Valley group of claims in Coconino County, Arizona (fig. 1). The proposal calls for a deep drilling (500 feet) phase to test the Toroweap and upper Coconino horizons and a shallower phase (100 feet) to test parts of the Kaibab Beta and Gamma members. The applicant requested 6 holes of 500 feet average depths for a total of 3,000 feet of drilling in the first stage, and a second stage of 300 holes averaging 75 feet in depth for a total of 22,500 feet of drilling. The total project calls for 25,500 feet of drilling at a total cost of about $33,638.

The applicant has drilled a total of 64 holes on the Willaha and Hot Valley properties without discovering ore or mineralization. The prospects of discovery with additional drilling do not appear good.

SUMMARY AND RECOMMENDATIONS

The applicant proposes to explore, by drilling, for uranium-copper deposits on their Hot Valley property, Willaha Mining District, Coconino County, Arizona. They propose 25,500 feet of drilling, and the total cost is estimated at $33,638. The applicant has previously drilled 64 holes on the Willaha and Hot Valley properties without discovering mineralization.

The known ore deposits in the area appear to be restricted to the upper part of the Beta member of the Permian Kaibab limestone. The uranium content of the deposits is very low and it is probable that significant uranium deposits will not be found by additional drilling on the subject properties. The Atomic Energy Commission has recently completed some studies in the Willaha Mining District and conclude that the uranium potential of the area is low.

Because of the above reasons, it is recommended that Government assistance be denied.

Literature cited

McKee, E. D., 1938, "The environment and history of the Toroweap and Kaibab formations of northern Arizona and southern Utah," Carnegie Institution of Washington, publication No. 492, p. 35.

MAR 14 1956

ARIZONA GIANT MINING CORP.
COCONINO COUNTY, ARIZONA
DMEA-3999
Uranium

TRANSMITTED
MAR 12 1956

Engineering Report

By M. K. Howes
Mining Engineer
Bureau of Mines

Reviewed by
DMEA OPERATING COMMITTEE
3-19-56
(date)

RECEIVED
MAR 14 1956

ARIZONA GIANT MINING CORP.
COCONINO COUNTY, ARIZONA

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ILLUSTRATIONS

Fig. 1 Location map, Arizona Giant Mining Corp., Hot Valley property, Coconino County, Arizona
Fig. 2 Claim map, showing holes already drilled and proposed holes for Stages I and II

INTRODUCTION

An application, dated September 25, 1955, was submitted by Arizona Giant Mining Corp. for Government aid in an exploratory project on the Hot Valley uranium property, Coconino County, Arizona. The application is recorded under docket No. DMEA-3999. A program, consisting of 6 500-foot and 300 75-foot noncore drill holes totaling 25,500 feet of drilling, is proposed to explore for uranium ores within and below the Permian Kaibab limestone. The applicant's estimated cost of the proposed project is $33,636.

A field examination of the property was made December 13, 1955, by Carl H. Roach and H. F. Albee, Geological Survey, and M. R. Rowe, Bureau of Mines, to determine the feasibility of the proposed exploratory work, and to appraise the estimated costs and the engineering aspects of the job. The field examiners were accompanied to the property by B. O. McCoon, Jr., representative of the applicant.

LOCATION, TOPOGRAPHY AND PHYSICAL FEATURES

The property is located in Coconino County, Arizona, about 3 miles east of State Highway 64 and approximately 40 miles north of Williams, in Secs. 19, 20, 21, 26, 27, 28, 29, 30, 31, 32, 33, 34 and 35, T. 28 N., R. 3 E., G. and S.R.B. and M. Terrain in the vicinity of the claims is flat with gently rolling hills.

The climate is semiarid. Summers are hot and dry, and winters are moderately cold, with snow rarely accumulating. Vegetation consists mostly of desert plants.

HISTORY AND PROMOTION

This is a newly located property, with no production record.

OWNERSHIP AND EXTENT

Arizona Giant Mining Corp. is incorporated under the laws of Minnesota. The address of the home office is:

N-2631 - First National Bank Building, St. Paul, Minnesota.

The address of the operations office is:

220 East Birch, Flagstaff, Arizona.

Officers and directors of the company are as follows:

Maynard Clough, President
First National Bank Building, St. Paul, Minnesota

Melvin Butler, Vice President
First National Bank Building, St. Paul, Minnesota

Osborne Cowles, Secretary
First National Bank Building, St. Paul, Minnesota

Miran S. Lewis, Treasurer
1015 Plymouth Building, Minneapolis, Minnesota

R. S. Butler, Executive Vice President
Flagstaff, Arizona.

The applicant is lessee of 132 claims on State land and holds 28 unpatented lode mining claims on public domain (fig. 2). These claims are recorded in the books of the County Recorder of Coconino County, Flagstaff, Arizona, as follows:

T. 28 N., R. 3 E., G. and S.R.B. and M.

Mining Claim	Date of Location	County Record Book No.	County Record Page No.	Description			
Epsilon 1	7/8/55	78	423	W½	SW¼	NW¼	Sec. 29
" 2	"	"	424	W½	NW¼	SW¼	" "
" 3	"	"	425	E½	SW¼	NW¼	" "
" 4	"	"	426	E½	NW¼	SW¼	" "
" 5	"	"	427	W½	SE¼	NW¼	" "
" 6	"	"	428	W½	NE¼	SW¼	" "
" 7	"	"	429	E½	SE¼	NW¼	" "
" 8	"	"	430	E½	NE¼	SW¼	" "
" 9	"	"	431	W½	SW¼	NE¼	" "
" 10	"	"	432	W½	NW¼	SE¼	" "
" 11	"	"	433	E½	SW¼	NE¼	" "
" 12	"	"	434	E½	NW¼	SE¼	" "
" 13	"	"	435	E½	SE¼	NE¼	" "
" 14	"	"	436	E½	NE¼	SE¼	" "
" 15	"	"	437	E½	SE¼	NE¼	" "
" 16	"	"	438	E½	NE¼	SE¼	" "
" 17	"	"	439	W½	SW¼	NW¼	Sec. 28
" 18	"	"	440	W½	NW¼	SW¼	" "
" 19	"	"	441	E½	SW¼	NW¼	" "
" 20	"	"	442	E½	NW¼	SW¼	" "
" 21	7/9/55	"	443	W½	SW¼	NW¼	" "
" 22	"	"	444	W½	NE¼	SW¼	" "
" 23	"	"	445	E½	SE¼	NW¼	" "
" 24	"	"	446	E½	NE¼	SW¼	" "
" 25	"	"	447	W½	SW¼	NE¼	" "
" 26	"	"	448	W½	NW¼	SE¼	" "
" 27	"	"	449	E½	SW¼	NE¼	" "
" 28	"	"	450	E½	NW¼	SE¼	" "
" 29	"	"	451	W½	SE¼	NE¼	" "
" 30	"	"	452	W½	NE¼	SE¼	" "
" 31	"	"	453	E½	SE¼	NE¼	" "
" 32	"	"	454	E½	NE¼	SE¼	" "
" 33	"	"	455	Lode Claim			Sec. 27
" 34	7/10/55	"	456	"	"	"	"
" 35	"	"	457	"	"	"	"
" 36	"	"	458	"	"	"	"
" 37	"	"	459	"	"	"	"
" 38	"	"	460	"	"	"	"
" 39	"	"	461	"	"	"	"
" 40	"	"	462	"	"	"	"
" 41	"	"	463	"	"	"	"
" 42	7/15/55	"	464	"	"	"	"
" 43	"	"	465	"	"	"	"
" 44	"	"	466	"	"	"	"
" 45	"	"	467	"	"	"	"

Mining Claim	Date of Location	County Record Book No.	County Record Page No.	Description	
Epsilon 46	7/15/55	78	468	Lode Claim	Sec. 27
" 47	"	"	469	" "	" "
" 48	"	"	470	" "	" "
" 49	"	"	471	" "	" "
" 50	"	"	472	" "	" "
" 51	"	"	473	" "	" "
Delta 1	7/9/55	"	474	W½ SW¼ SW¼	Sec. 29
" 2	"	"	475	W½ NW¼ NW¼	Sec. 32
" 3	"	"	476	W½ SW¼ SW¼	Sec. 29
" 4	"	"	477	W½ NW¼ NW¼	Sec. 32
" 5	"	"	478	W½ SW¼ SW¼	Sec. 29
" 6	"	"	479	W½ NW¼ NW¼	Sec. 32
" 7	"	"	480	E½ SW¼ SW¼	Sec. 29
" 8	"	"	481	E½ NW¼ NW¼	Sec. 32
" 9	"	"	482	W½ SW¼ SW¼	Sec. 29
" 10	"	"	483	W½ NW¼ NW¼	Sec. 32
" 11	"	"	484	E½ SW¼ SW¼	Sec. 29
" 12	"	"	485	E½ NW¼ NW¼	Sec. 32
" 13	"	"	486	W½ SW¼ SW¼	Sec. 29
" 14	"	"	487	W½ NW¼ NW¼	Sec. 32
" 15	"	"	488	E½ SW¼ SW¼	Sec. 29
" 16	"	"	489	E½ NW¼ NW¼	Sec. 32
" 17	"	"	490	W½ SW¼ SW¼	Sec. 28
" 18	"	"	491	W½ NW¼ NW¼	Sec. 33
" 19	"	"	492	E½ SW¼ SW¼	Sec. 28
" 20	"	"	493	E½ NW¼ NW¼	Sec. 33
" 21	"	"	494	W½ SW¼ SW¼	Sec. 28
" 22	"	"	495	W½ NW¼ NW¼	Sec. 33
" 23	"	"	496	E½ SW¼ SW¼	Sec. 28
" 24	"	"	497	E½ NW¼ NW¼	Sec. 33
" 25	"	"	498	W½ SE¼ SW¼	Sec. 28
" 26	"	"	499	W½ NE¼ NE¼	Sec. 33
" 27	"	"	500	E½ SE¼ SE¼	Sec. 28
" 28	"	"	501	E½ NE¼ NE¼	Sec. 33
" 29	"	"	502	W½ SE¼ SE¼	Sec. 28
" 30	"	"	503	W½ NE¼ NE¼	Sec. 33
" 31	"	"	504	E½ SE¼ SE¼	Sec. 28
" 32	"	"	505	E½ NE¼ NE¼	Sec. 33
" 33	"	"	506	Lode Claim	Sec. 27
" 34	"	"	507	W½ NW¼ NW¼	Sec. 34
" 35	7/10/55	"	508	Lode Claim	Sec. 27
" 36	7/9/55	"	509	E½ NW¼ NW¼	Sec. 34
" 37	7/10/55	"	510	Lode Claim	Sec. 27
" 38	7/9/55	"	511	W½ NW¼ NW¼	Sec. 34
" 39	7/10/55	"	512	Lode Claim	Sec. 27
" 40	7/9/55	"	513	E½ NW¼ NW¼	Sec. 34

Mining Claim	Date of Location	County Record Book No.	County Record Page No.	Description	
Delta 41	7/10/55	78	514	Lode Claim	Sec. 27
" 42	7/9/55	"	515	W½ NE¼ NE¼	Sec. 34
" 43	"	"	516	Lode Claim	Sec. 27
" 44	"	"	517	E½ NW¼ NE¼	Sec. 34
" 45	"	"	518	Lode Claim	Sec. 27
" 46	"	"	519	W½ NE¼ NE¼	Sec. 34
" 47	"	"	520	Lode Claim	Sec. 27
" 48	"	"	521	E½ NE¼ NE¼	Sec. 34
" 49	"	"	522	Lode Claim	Sec. 27
Theta 1	7/19/55	79	270	W½ NW¼ SE¼	Sec. 19
" 2	"	"	271	W½ SW¼ SE¼	" "
" 3	"	"	272	E½ NW¼ SE¼	" "
" 4	"	"	273	E½ SW¼ SE¼	" "
" 5	"	"	274	W½ NE¼ SE¼	" "
" 6	"	"	275	E½ SE¼ SE¼	" "
" 7	"	"	276	E½ NE¼ SE¼	" "
" 8	"	"	277	E½ SE¼ SE¼	" "
" 9	"	"	278	W½ NW¼ SE¼	Sec. 30
" 10	"	"	279	W½ SW¼ SE¼	" "
" 11	"	"	280	E½ NW¼ SE¼	" "
" 12	"	"	281	E½ SW¼ SE¼	" "
" 13	"	"	282	W½ NE¼ SE¼	" "
" 14	"	"	283	W½ SE¼ SE¼	" "
" 15	"	"	284	E½ NE¼ SE¼	" "
" 16	"	"	285	E½ SE¼ SE¼	" "
" 17	"	"	286	W½ NW¼ NE¼	Sec. 31
" 18	"	"	287	E½ NW¼ NE¼	" "
" 19	"	"	288	W½ NE¼ NE¼	" "
" 20	"	"	289	E½ NE¼ NE¼	" "
Eta 1	7/13/55	78	399	W½ NW¼ SW¼	Sec. 20
" 2	"	"	360	W½ NW¼ NW¼	Sec. 29
" 3	"	"	361	E½ SW¼ SW¼	Sec. 20
" 4	"	"	362	E½ NW¼ NW¼	Sec. 29
" 5	"	"	363	W½ SE¼ SW¼	Sec. 20
" 6	"	"	364	W½ NE¼ NW¼	Sec. 29
" 7	"	"	365	E½ SE¼ SW¼	Sec. 20
" 8	"	"	366	E½ NE¼ NW¼	Sec. 29
" 9	"	"	367	W½ SE¼ SE¼	Sec. 20
" 10	"	"	368	W½ NE¼ NE¼	Sec. 29
" 11	"	"	369	E½ SE¼ SE¼	Sec. 20
" 12	"	"	370	E½ NE¼ NE¼	Sec. 29
" 13	"	"	371	W½ SW¼ SW¼	Sec. 20
" 14	"	"	372	W½ NW¼ NW¼	Sec. 29
" 15	"	"	373	E½ SE¼ SW¼	Sec. 20
" 16	"	"	374	E½ NE¼ NW¼	Sec. 29

Mining Claim	Date of Location	County Record Book No.	County Record Page No.	Description
Eta 17	7/13/55	78	375	W½ SW¼ NW¼ Sec. 21
" 18	7/14/55	"	376	W½ NW¼ NW¼ Sec. 28
" 19	"	"	377	E½ SW¼ SW¼ Sec. 21
" 20	"	"	378	E½ NW¼ NW¼ Sec. 28
" 21	"	"	379	W½ SE¼ SW¼ Sec. 21
" 22	"	"	380	W½ NE¼ NW¼ Sec. 28
" 23	"	"	381	E½ SE¼ SW¼ Sec. 21
" 24	"	"	382	E½ NE¼ NW¼ Sec. 28
" 25	"	"	383	W½ SW¼ SE¼ Sec. 21
" 26	"	"	384	W½ NW¼ NE¼ Sec. 28
" 27	"	"	385	E½ SW¼ SE¼ Sec. 21
" 28	"	"	386	E½ NW¼ NE¼ Sec. 28
" 29	"	"	387	W½ SE¼ SE¼ Sec. 21
" 30	"	"	388	W½ NE¼ NE¼ Sec. 28
" 31	"	"	389	E½ SE¼ SE¼ Sec. 21
" 32	"	"	390	E½ NE¼ NE¼ Sec. 28
Zeta 1	7/12/55	"	391	W½ SW¼ SW¼ Sec. 26
" 2	"	"	392	W½ NW¼ NW¼ Sec. 35
" 3	"	"	393	E½ SW¼ SW¼ Sec. 26
" 4	"	"	394	E½ NW¼ NW¼ Sec. 35
" 5	"	"	395	W½ SE¼ SW¼ Sec. 26
" 6	"	"	396	W½ NE¼ NW¼ Sec. 35
" 7	"	"	397	E½ SE¼ SW¼ Sec. 26
" 8	"	"	398	E½ NE¼ NW¼ Sec. 35

DESCRIPTION OF THE DEPOSITS

Rocks outcropping in the vicinity of the claims are composed of Permian Kaibab limestone. On neighboring properties, uranium mineralization occurs in small anticlinal flexures, associated with copper and altered mudstone, in the Kaibab limestone. Minerals observed are chalcopyrite, chalcocite, bornite, azurite, malachite, stibnite, and an unidentified uranium mineral.

Areas of radioactivity were discovered by the applicant as a result of aerial reconnaissance with an airborne scintillation counter. The area of radioactivity on the Hot Valley property was further checked by radiometric equipment on the ground. Twenty-two holes were drilled

in the Hot Valley area, bottoming in lower Kaibab limestone. The applicant reported that, although altered mudstone was encountered in some of the holes, no uranium mineralization was discovered.

MINABLE ORE RESERVES

No ore reserves are known to exist on the property.

PRESENT STATUS

There are no mine workings or buildings on the property. A fair desert road, about 3 miles long, connects the claims with State Highway 64.

A plentiful supply of mine labor may be had from the area around Flagstaff or from the nearby Navajo Indian Reservation. Mine equipment and supplies are available in Flagstaff.

Water must be hauled to the property. It will be necessary to generate power to be used in any mining operation.

PROJECT PROPOSALS

The applicant proposes to explore the property for uranium by a noncore drilling program composed of two stages.

Stage I consists of drilling 6 holes (fig. 2) to an average depth of 500 feet each, for a total of 3,000 feet, for the purpose of exploring the Permian Toroweap and Coconino horizons below the Kaibab.

Stage II consists of drilling 300 holes to an average depth of 75 feet each, for a total of 22,500 feet, on 100-foot spacing, within the areas of radioactivity (fig. 2), for the purpose of exploring the favorable horizon in the Kaibab limestone.

ESTIMATED COSTS OF PROJECT PROPOSALS

An estimate of the cost of the proposed work follows. The costs were prepared by revision of the applicant's estimate.

Independent Contracts

Drilling

6 holes, 500 feet each, 3,000 feet at $1.55 per feet	$ 4,650.00	
300 holes, 75 feet each, 22,500 feet at $0.65 2/3 per foot	14,775.00	
Total	$19,425.00	

Bulldozer stripping (roads and drill sites)

200 hours at $14.00 per hour	$ 2,800.00	
Total cost, independent contracts		$22,225.00

Labor, Supervision, Consultants

Labor (for flagging drill locations, clearing, moving drill, and other work incidental to exploration)

1 man, 60 days at $16.00 per day	$ 960.00	
1 man, 60 days at $12.00 per day	720.00	
Total		1,680.00

Supervision (includes direction of drilling, surveying, mapping, probing and logging of holes and sampling)

1 geologist, 3 months at $600 per month	$ 1,800.00	
1 assistant geologist, 3 months at $400 per month	1,200.00	
Total		3,000.00
Total cost, labor and supervision		$ 4,680.00

Miscellaneous

Repairs to instruments (batteries, tubes, etc.)	$ 100.00	
300 samples (chemical analyses) at $3.50 each -	1,050.00	
Accounting, 3 months at $50 per month ————	150.00	
Workmen's compensation, 8% of $4,680 ————	375.00	
Total ————		$ 1,675.00
Total estimated cost of project ————		$28,580.00
Government participation at 75 percent ————		$21,435.00

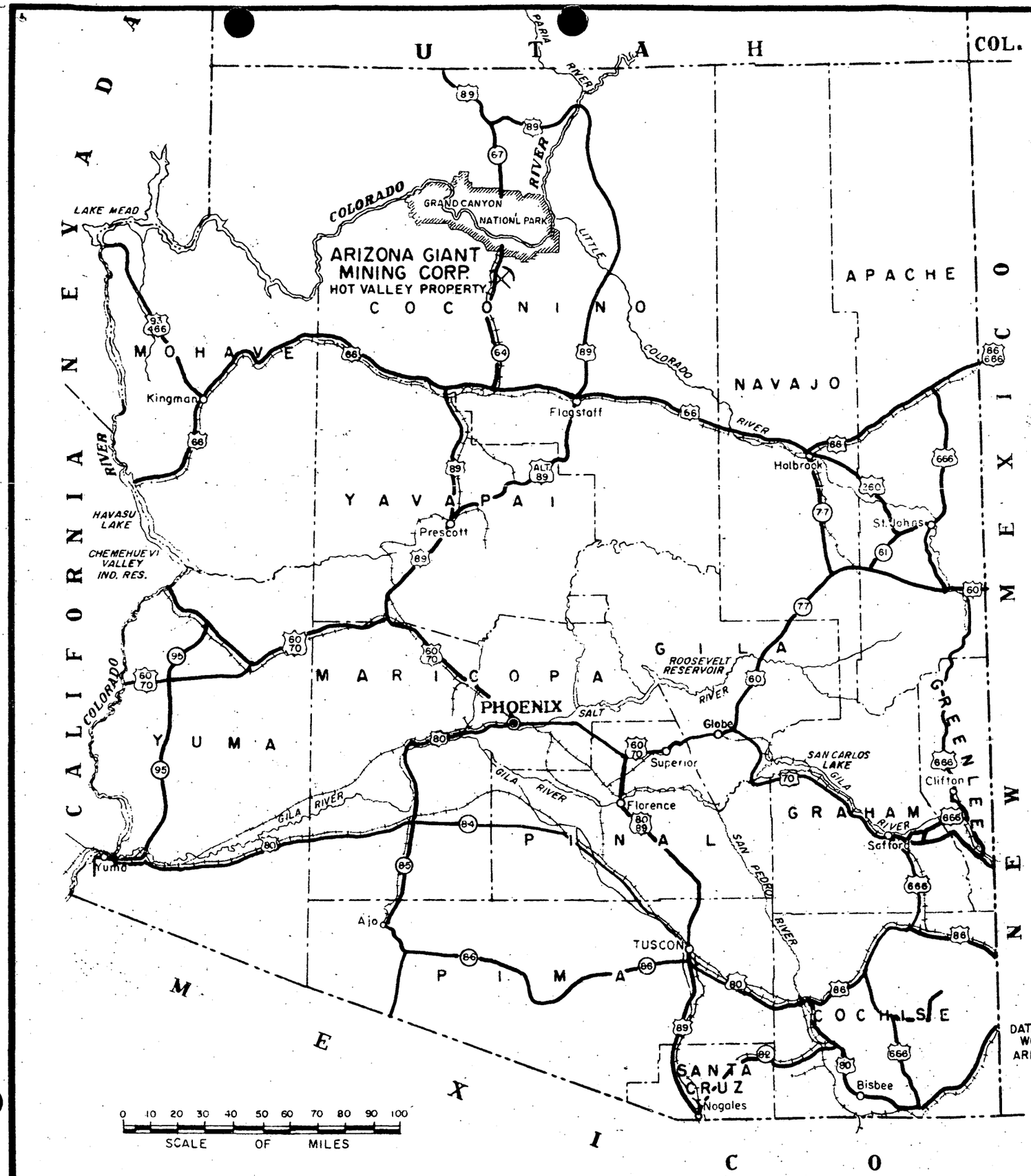
PROPOSED FINANCING

The applicant reports he is prepared to furnish, in money, $7,145, his share of the cost of the proposed project, in accordance with the regulations on Government participation (Sec. 7 DMEA Order 1 Amended).

CONCLUSIONS AND RECOMMENDATIONS

No known uranium mineralization occurs on the property. Radioactivity, in spots of highest intensity, is only two times or slightly over two times background count. Several holes drilled within the areas of radioactivity show no uranium mineralization. Known ore deposits in the area contain only low percentages of U_3O_8.

It is therefore recommended that the application of the Arizona Giant Mining Corp. for Government aid in exploring its Hot Valley property for uranium ore be denied.



NOTE

DATA TRACED FROM HAMMOND'S LIBRARY WORLD ATLAS. ROADS PLOTTED FROM ARIZONA TOURING MAP OF STANDARD OIL COMPANY OF CALIFORNIA, 1950.

U. S. DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

Fig. 1 DMEA Docket No. 3999

Location Map

STATE OF ARIZONA

ARIZONA GIANT MINING CORP.

(HOT VALLEY PROPERTY)

COCONINO COUNTY

ENGINEER: *M. H. HOWES*	DATE: FEB. 6, 1956
DRAWN: FEB., 1956; A.P.T.S.	1900-373-F
CHECKED:	

700

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

10

Mr. R. S. Butler
Executive Vice-President and General Manager
Arizona Giant Mining Corporation
720 East Birch Avenue
Flagstaff, Arizona

Re: Docket No. DMEA-3999 (Uranium)
Willard-Hot Valley Properties
Coconino County, Arizona

Dear Mr. Butler:

The application for assistance in exploring the subject properties under the captioned docket number has been reviewed by the Rare and Miscellaneous Metals Division.

The DMEA Field Team, Region III, Mr. W. M. Traver, Executive Officer, 22h New Customhouse Building, Denver 2, Colorado, will schedule a field examination of your property, if it has not already done so.

Any assistance you may give the members of the Field Team during the examination will be appreciated.

Sincerely yours,

C. O. Mi...

Administrator

FMMurphy;izm
11-10-55
cc to: Admr.'s Reading File
Docket
Code 700
Mr. Murphy
DMEA Field Team, Region III, (2)
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA

Surname Copy
700
Murphy
Ellis

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

NOV 16 1955

Mr. R. S. Butler
Executive Vice-President and General Manager
Arizona Giant Mining Corporation
220 East Birch Avenue
Flagstaff, Arizona

Re: Docket No. DMEA-3999 (Uranium)
Willaba-Hot Valley Properties
Coconino County, Arizona

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Any assistance you may give the members of the Field Team during the examination will be appreciated.

Sincerely yours,

C. O. Mittendorf (for)

Administrator

FMMurphy;izm
11-10-55
cc to: Admr.'s Reading File
Docket
Code 700
Mr. Murphy
DMEA Field Team, Region III, (2)
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA

11-10-55 [illegible]

November 4, 1955

Memorandum

To: S. R. Wilson

From: Acting Supt., Denver Experiment Station, Reg. III

Subject: Docket No. DMEA 3999 (Uranium), Arizona Giant Mining Corporation, Willaha-Hot Valley Properties, Coconino County, Arizona

Enclosed is an application for exploration assistance submitted by the Arizona Giant Mining Corporation, in the amount of $33,638.00.

A field examination and suitable report are requested. The examination report should be sent directly to the Executive Officer, with a copy of the memorandum of transmittal to this office.

JOHN F. SHAW

John F. Shaw

Enclosures

cc: E. N. Harshman
J. W. Hasler
Traver (3)
Sec. Op. Com.

November 4, 1955

Memorandum

To: S. R. Wilson

From: Acting Supt., Denver Experiment Station, Reg. III

Subject: Docket No. DMEA 3999 (Uranium), Arizona Giant Mining Corporation, Willaha-Hot Valley Properties, Coconino County, Arizona

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JOHN F. SHAW

John F. Shaw

Enclosures

cc: E. W. Marshman
J. W. Emsler
Traver (3)

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

224 New Customhouse
Denver 2, Colorado

November 1, 1955

RECEIVED
NOV - 3 1955

Memorandum

To: W. H. King (with brochure)
J. W. Hasler

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket No. 3999 (Uranium), Arizona Giant Mining Corporation, Willaha-Hot Valley Properties, Coconino County, Arizona

Enclosed is the subject application in the amount of $33,638.00. The brochure consists of the following:

(a) Form MF-103 and supplemental answer sheets
(b) Mining claim data (four sheets)
(c) Geologic report by D. O. McGoon, Jr.
(d) Professional records of staff (two sheets)
(e) Six maps (Ground Isorad, Air Isorad, Ground Geology, Drill hole location map, two property and claim location maps

Also enclosed are copies of the following:

1. Letter dated October 27, 1955 from the Chairman, Operating Committee to Executive Officer, DMEA Field Team, Region III
2. Memorandum dated October 18, 1955 from W. P. Williams to E. W. Ellis - Review of Application
3. Memorandum dated October 20, 1955 from John E. Crawford to Ernest William Ellis - Review of Application

A field examination and suitable report are required.

JDC:jy
cc: Docket DMEA-3999
Sec. Op. Comm. (4)
Harshman
Chron.

W. M. Traver

By J. W. Townsend
J. W. Townsend

Enclosures

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

RECEIVED
NOV - 3 1955

224 New Customhouse
Denver 2, Colorado

November 1, 1955

Memorandum

To: W. M. King (with brochure)
J. W. Hasler

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket No. 3999 (Uranium), Arizona Giant Mining Corporation, Willaha-Hot Valley Properties, Coconino County, Arizona

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

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cc: Docket DMEA-3999
Sec. Op. Comm. (4)
Harshman
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W. M. Traver

By J. W. Townsend
J. W. Townsend

Enclosures

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

RECEIVED
NOV - 3 1955

224 New Customhouse
Denver 2, Colorado

November 1, 1955

Memorandum

To: W. H. King (with brochure)
J. W. Hasler

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket No. 3999 (Uranium), Arizona Giant Mining Corporation, Willaka-Hot Valley Properties, Coconino County, Arizona

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A field examination and suitable report are required.

JDC:jy
cc: Docket DMEA-3999
Sec. Op. Comm. (4)
Harshman
Chron.

W. M. Traver

By J. W. Townsend

Enclosures

Surname copy

700

Murphy
Ellis
Selfridge
Fleischman

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

OCT 27 1955

Mr. W. M. Traver
Executive Officer
DMEA Field Team, Region III
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMEA-3999 (Uranium)
Arizona Giant Mining Corporation
Willaha-Hot Valley Properties
Coconino County, Arizona

Dear Mr. Traver:

This is to acknowledge your memorandum, dated October 5, and the attached joint memorandum, dated October 3, from the Grand Junction office, recommending that the above-docketed application be denied without a field examination.

Enclosed are copies of memoranda, dated October 18 and 20, 1955, by W. P. Williams, USGS, and J. E. Crawford, USBM, respectively, relating to the subject application.

We suggest that the Field Team consider the recommendation Mr. Williams outlines in the final sentence of paragraph four of his memorandum. We will withhold action on the subject application pending further advice from you.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee (GCS)

Enclosures

APPROVED:

O. M. Bishop (OMB)
Member, Bureau of Mines

Thor H. Kiilsgaard (THK)
Member, Geological Survey

FMMurphy/gla
10-24-55

cc to: Admr.'s Reading File
Operating Committee
Docket
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JCHosted, Rm. 3210, GSA
Code 700
Mr. Murphy

P. S. In view of your letter of September 27, 1955, to Mr. R. S. Butler, indicating that a field examinationof his property would be made, arrangements for the examination should be made. The Field Team should avoid making any commitments that may not be followed through.

RCB

10/21/55-gla

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

October 20, 1955

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee, Room 4445

From: John E. Crawford, Bureau of Mines Member
Uranium Commodity Committee

Subject: Application for Assistance, DMEA Docket 3999, Arizona Giant Mining Corporation, Coconino County, Arizona

I have reviewed the attached application for assistance, Arizona Giant Mining Corporation, DMEA Docket 3999; and I have discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

The Arizona Giant Mining Corporation has made application for DMEA aid to explore for uranium on 160 claims located in Township 28 N., R., 3 East, in Coconino County, Arizona. The proposed exploration program will consist of a two-stage drilling project, the first stage to be deep drilling (500 feet) to test the ore horizons if any are present, and the second stage to be shallow drilling (less than 100 feet) in the higher radiation zones. The total estimated cost of the program is $33,638.00.

Preliminary drilling of 42 holes in the Willaha area and 22 holes in the Hot Valley area failed to reveal material even approaching ore grade. AEC drilling in the area was also negative.

The Field Team, upon review of the application, concludes that chances of finding uranium in commercial quantities in the Willaha area are not good. Therefore, the Field Team recommends that the application be denied without a field examination.

We concur in the recommendation of the Field Team that the application be denied.

John E. Crawford

John E. Crawford

Attachment

10/18/55 rgla

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

RECEIVED
OCT 18 1955

October 18, 1955

Memorandum

To: E. W. Ellis, Defense Minerals Exploration Administration

From: W. P. Williams, U. S. Geological Survey

Subject: Review of Application, DMEA 3999, Arizona Giant Mining Corporation, Coconino County, Arizona.

The applicant proposes an exploration drilling program to search for uranium deposits in the Kaibab limestone in Coconino County, Arizona.

There is no significant production in the immediate vicinity of the property. The applicant states that 42 holes have been drilled in the Willaha area, and 22 holes have been drilled in the Hot Valley area. None of the holes penetrated ore. A memorandum from the Grand Junction office states that the AEC drilled the Willaha area, and the results showed that the high radiometric count at surface did not persist with depth.

The applicant has chosen the Hot Valley area, on the basis of radiometric surveys and some curious geological theorizing, as the best place for exploration.

From my limited knowledge of the area and the production history of the vicinity I believe the Field Team has enough information and is probably justified in denying the application without field examination. I am wondering, however, if the same nonpersistence with depth is present in Hot Valley as at Willaha. I think the Field Team should examine the logs of the holes in Hot Valley and discuss the proposed exploration and the geological implications with the applicant or his representative, Mr. D. O. McGoon.

For the sake of public relations it is probably advisable, in this particular instance, to examine this property in the field.

WPWilliams

W. P. Williams

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

RECEIVED
OCT 18 1955

October 18, 1955

Memorandum

To: E. W. Ellis, Defense Minerals Exploration Administration

From: W. P. Williams, U. S. Geological Survey

Subject: Review of Application, DMEA 3999, Arizona Giant Mining Corporation, Coconino County, Arizona.

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For the sake of public relations it is probably advisable, in this particular instance, to examine this property in the field.

WPWilliams:iml
G-10/18/55

W. P. Williams

cc: Director's reading, 4212
Branch reading, 4212
DMEA (3); Docket file, J. E. Crawford, 3641; J. O. Hosted, 3210

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

RECEIVED
OCT 10 1955

October 5, 1955

224 New Customhouse
Denver 2, Colorado

DMEA-3999

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Application for DMEA Aid, (Uranium), Arizona Giant Mining Corporation, Coconino County, Arizona

Enclosed are four copies of a memorandum from the Grand Junction office recommending that the subject application be denied without a field examination.

We concur in this recommendation.

W. M. Traver

E. N. Harshman

Enclosures

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

October 3, 1955

Memorandum

To: E. N. Harshman, Supervising Geologist, DMEA Field Team, Region III EMH.

RECEIVED
OCT 10 1955

From: J. William Hasler and M. H. Salsbury

Subject: Application for DMEA aid (Uranium), Arizona Giant Mining Corporation, Coconino County, Arizona

The above-mentioned application has been reviewed with the Salt Lake branch AEC, since the area under consideration is under their jurisdiction.

A reconnaissance report, RME 2013 AEC, recommended limited drilling to test surface showings of uranium in the Kaibab formation of the Permian age in the Willaha area. The Kaibab formation in the Grand Canyon area is known to have scattered copper deposits in fractured areas, some of which have been mined for small tonnages of ore. The AEC drilled the Willaha area and the results were essentially negative. They report that the uranium occurrences have a good count at the surface, but do not extend in depth. Because of these results, it is concluded that the chances of finding uranium in commercial quantities in the Willaha area are not good and it is, therefore, recommended that the application be denied without a field examination.

The brochure is enclosed.

J. William Hasler
J. William Hasler
Geologist, USGS

M. H. Salsbury
M. H. Salsbury
Mining Engineer, USBM

JWH/alr

Enclosure

Arizona Giant Mining Corporation
220 E. Birch
Flagstaff, Arizona

September 30, 1955
Subject: DMEA-3999
Re: Exploration Assistance
Hot Valley

Gentlemen:

The receipt of your application dated September 23, 1955, for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-3999 and referred to the Rare & Misc. Metals Division.

Kindly identify all future correspondence relating to your application by this docket number.

Sincerely yours,

Robert E. Adams, Chief
Operations Control and
Statistics Division

60932

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

224 New Customhouse
Denver 2, Colorado

September 27, 1955

Memorandum

To: Secretary to the Operating Committee, Defense Minerals Exploration Administration

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA aid (Uranium), Arizona Giant Mining Corporation, Coconino County, Arizona.

Enclosed are two copies of the subject application in the amount of $33,638.00.

One copy of the application has been forwarded to the Grand Junction Office for joint study and recommendations, and one copy is retained in our files.

W. M. Traver

Enclosures

RECEIVED
SEP 30 1955

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

224 New Customhouse
Denver 2, Colorado

September 27, 1955

Memorandum

To: J. W. Hasler

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA aid (Uranium), Arizona Giant Mining Corporation, Coconino County, Arizona.

Enclosed is the subject application in the amount of $33,638.00. Please study and discuss this application with the AEC and Bureau of Mines representatives in Grand Junction, and promptly forward to this office eight copies of your recommendations regarding a field examination of the property.

W. M. Traver

W. M. Traver

Enclosures

JDC:jy
cc: Sec. Op. Comm. (4)
Docket
Harshman
Shaw (2)
Chron.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

224 New Customhouse
Denver 2, Colorado

WASHINGTON 25, D. C.

September 27, 1955

Mr. R. S. Butler
Executive Vice President and General Manager
Arizona Giant Mining Corporation
220 East Birch Avenue
Flagstaff, Arizona

Dear Mr. Butler:

This is to acknowledge receipt of your letter of September 23, 1955 and your application, in quadruplicate, for DMEA aid (Uranium).

Your application has been placed in line for further processing. You will be advised prior to the date of the field examination so that you or your representative can be present to accompany the examining Engineer and Geologist when they visit your property.

W. M. Traver
Executive Officer, DMEA
Field Team, Region III

JDC:jy
cc: Sec. Op. Comm. (2)
Harshman
Hasler
Shaw (2)
Docket
Chron.

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

224 New Customhouse
Denver 2, Colorado

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W. M. Traver
Executive Officer, DMEA
Field Team, Region III

JDC:jy
cc: Sec. Op. Comm. (2)
Harshman
Hasler
Shaw (2)
Docket
Chron.

ARIZONA GIANT MINING CORPORATION

[illegible]
[illegible], ARIZONA

[illegible]
[illegible]
ST. PAUL, MINNESOTA

[illegible]
BUREAU OF MINES
Denver, Colorado

September 23, 1955

Executive Officer, DMEA
234 New Customhouse Building
Denver 2, Colorado

Dear Sir:

I am mailing you under separate cover four sets of applications for a DMEA Exploration Contract.

This has been discussed with C. O. Mittendorf and Frank Johnson in Washington, and they suggested that I send the applications directly to you.

The tract of land involved is completely accessible and is about one and one-half hours distant from Flagstaff. I mention this so that in arranging for the examination, you can advise the field team that no special preparations need be made.

I can be reached here at the Flagstaff office at any time and would be pleased to hear from you at your earliest convenience as to when we might expect the field team.

Yours very truly,

R. S. Butler

R. S. Butler
Exec. V. P. & Gen. Mgr.

RSB/qp

ARIZONA GIANT MINING CORPORATION

TELEPHONE 1778
[illegible] EAST [illegible] AVE.
FLAGSTAFF, ARIZONA

FIRST NATIONAL CENTER
BUILDING
ST. PAUL, MINNESOTA

DMEA
SEP 26
BUREAU OF MINES
Denver, Colorado

September 23, 1955

Executive Officer, DMEA
224 New Customhouse Building
Denver 2, Colorado

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Yours very truly,

R. S. Butler
Exec. V. P. & Gen. Mgr.

RSB/ab

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

Date Rec'd
SEP 26 1955
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. DME 4-3999
Metal or Mineral Uranium
Date Received 9/29/55
Estimated Cost $33,638.00
Participation (Government %)

RECEIVED
SEP 29 1955

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:

ARIZONA GIANT MINING CORPORATION
Please refer to attached sheets, records and maps for all answers.

(*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

(*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

(*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 .....

.....

(*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.

(*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? .....

[X] Money [ ] Use of equipment owned by you [ ] Other

Explain in detail on acompanying paper.

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 Sept. 23, 1955

ARIZONA STATE MINING CORPORATION
(Applicant)

By R. S. Butler, Exec. V.P.

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

D M E A
HOT VALLEY

Application for the Exploration Project

Coconino County, Arizona
Township 28 N. R. 3 E.
(160 Claims)

1.

(a) Arizona Giant Mining Corporation
(b) Incorporated under the laws of Minnesota.

Home office-- W-2681 1st Nat'l. Bank Bldg., St. Paul
Operations office 220 E. Birch, Flagstaff, Arizona
Operations Director R. S. Butler, Exec. V. P.

(c) Officers and Directors:

President - Maynard Clough - 1st. Nat'l Bank Bldg., St. Paul
V. President- Melvin Butler - 1st. Nat'l Bank Bldg., St. Paul
Secretary - Osborn Cowles - 1st. Nat'l Bank Bldg., St. Paul
Treasurer - Hiram S. Lewis - 1015 Plymonth Bldg., Minneapolis
Exec. V. P. - R. S. Butler - Flagstaff, Arizona

3. PROPERTY RIGHTS:

(a) AGM has located, surveyed, filed and Recorded:

Claims	Group	Sections
20	Theta	19, 30, 31
32	Eta	20, 29, 21, 28, 26, 35
51	Epsilon	27, 28, 29
49	Delta	29, 32, 33, 28, 27, 34
8	Zeta	26, 35

160 Claims all in Township 28 N., R., 3 East.

Dates, legal description, book and page numbers are given for all claims on the attached sheets. All 160 claims are included in this application. A property Status map showing the location of these claims as surveyed by Arizona Engineering Co. is attached.

(b) The Property is undeveloped.

Arizona Giant Mining Corporation

(c) AGM is the lessee of 132 claims on State Land
AGM is the owner of 19 claims on Public Domain
AGM is the owner of 9 fractional claims on Public Domain

Total claims 160 in this application.

(d) AGM is not the owner of Arizona State Land claims and can not submit the recorder's stamped location notice since this is retained by the State. AGM has made valid locations and is in the process of applying to the State for mineral leases. McQuatters and Stevenson, 108 N. Leroux, Flagstaff, Arizona, handle the claims matters.

(e) There are no property encumbrances.

(f) See (a) and the attached claims record.

4.

(a) No mining has been done.
Exploration has been done as follows:

1. Aerial radiometric - ½ mile density. 50 ft. Altitude
2. Aerial radiometric - 200 ft. density 50 ft. Altitude
3. Ground radiometric - 100x100 ft. density surface
4. Ground Geologic survey
5. Drilling - 22 holes from 40 ft. to 200 ft. depth.

The area is completely accessible by auto. It lies 1 mile east of Grand Canyon highway 64, forty miles north of Williams, Arizona.

(b) There has been no production or development.

(c) Attach Aerial Iso-rad map
Attach Ground Iso-rad map
Attach Ground Geologic
Attach McGoon report

(d) The terrain is flat or gently rolling. Roads can be built quickly by bulldozer. No bridging necessary. Property lies a mile east of a 4-lane paved highway connecting with U. S. 66 and the Marble Canyon road.

Santa Fe R. R., Willaha station, with siding, lies 8 miles west; reached by good gravel road. Nearest supply point is at Williams, 40 miles. Nearest residence point is Williams.

Arizona Giant Mining Corporation

(e) Manpower - Adequate from sources close by.

Materials- More easily available than is the
Supplies - case in most areas on the
Equipment- plateau.

Water - Must be hauled in.

Power - Must be generated on the job.

5.
(a) Uranium and whatever associated minerals may be present in commercial quantities.

(b) Refer to report by D. O. McGoon, Jr. AGM Geologist.

(c) Work will start within 15 days and will be completed within 3 months from date of contract.

(d) See personnel record.

6.
(a) COST OF EXPLORATION PROJECT:

Drilling:

Charge for moving equipment	$ 300.00	
6 holes - 500 ft = 3000 ft. @ $1.50	4,500.00	
300 holes 75 ft = 22500 ft.@ .65	14,625.00	$ 19,425.00

Stripping:

Charge for moving equipment	300.00	
Bulldozer & operator 200 hrs. @ $12.50	2,500.00	2,800.00

(b) Labor, Supervision Consultants:

1 man - 60 days @ $16.00	960.00	
1 man - 60 days @ 12.00	720.00	
Supervising geologist 3 months.	1,800.00	
Assistant geologist 3 months.	1,200.00	4,680.00

Labor to be used for flagging drill locations, clearing, moving drill, and other work incidental to exploration Geologist and assistant will probe and log holes, sample cuttings and direct the drilling, will survey and map.

(c) OPERATING MATERIALS & SUPPLIES:

None

Arizona Giant Mining Corporation

(d) OPERATING EQUIPMENT:

To be furnished by the company without charge, all neccessary instruments, transit, company owned automotive equipment, office facilities.

(e) None

(f) None

(g) MISCELLANEOUS:

Estimated repairs to instruments, principally batteries and tubes for 1 counter, 2 scalers, 1 scintillator	$ 300.00	
Chemical analysis-300 samples @ $7.00	2,100.00	
Mileage on contract pickup. 4800 Mi. @.05	240.00	
Field crew living allowance-60 days @10.00	600.00	
Accounting - 2 mos. @ $100	200.00	
Workmen's Compensation - 8% of $4,680.00	375.00	$3,675.00

(h) CONTINGENCY ALLOWANCE:

(a)	Drilling	$ 19,425.00	
	Stripping	2,800.00	22,225.00
(b)	Labor, supervision		4,680.00
(c)	Materials & Supplies		None
(d)	Equipment		None
(e)	Rehabilitation		None
(f)	New Buildings		None
(g)	Miscellaneous		3,675.00
	Estimated Cost		30,580.00
	Plus 10% Contingencies		3,058.00
	TOTAL Estimated cost		33,638.00

7.
(a) AGM is prepared to furnish its share of this cost in accordance with DMEA regulations.

(b) AGM share will be furnished in cash.

NOTICE OF MINING LOCATION
Coconino County
August 26, 1955

Township 28 N., R., 3 East

Mining Claim	Date of Location	County Record Book No.	County Record Page No.	Description
Epsilon 1	7/8/55	78	423	W½ SW¼ NW¼ Sec. 29
Epsilon 2	7/8/55	78	424	W½ NW¼ SW¼ Sec. 29
Epsilon 3	7/8/55	78	425	E½ SW¼ NW¼ Sec. 29
Epsilon 4	7/8/55	78	426	E½ NW¼ SW¼ Sec. 29
Epsilon 5	7/8/55	78	427	W½ SE¼ NW¼ Sec. 29
Epsilon 6	7/8/55	78	428	W½ NE¼ SW¼ Sec. 29
Epsilon 7	7/8/55	78	429	E½ SE¼ NW¼ Sec. 29
Epsilon 8	7/8/55	78	430	E½ NE¼ SW¼ Sec. 29
Epsilon 9	7/8/55	78	431	W½ SW¼ NE¼ Sec. 29
Epsilon 10	7/8/55	78	432	W½ NW¼ SE¼ Sec. 29
Epsilon 11	7/8/55	78	433	E½ SW¼ NE¼ Sec. 29
Epsilon 12	7/8/55	78	434	E½ NW¼ SE¼ Sec. 29
Epsilon 13	7/8/55	78	435	W½ SE¼ NE¼ Sec. 29
Epsilon 14	7/8/55	78	436	W½ NE¼ SE¼ Sec. 29
Epsilon 15	7/8/55	78	437	E½ SE¼ NE¼ Sec. 29
Epsilon 16	7/8/55	78	438	E½ NE¼ SE¼ Sec. 29
Epsilon 17	7/8/55	78	439	W½ SW¼ NW¼ Sec. 28
Epsilon 18	8/8/55	78	440	W½ NW¼ SW¼ Sec. 28
Epsilon 19	7/8/55	78	441	E½ SW¼ NW¼ Sec. 28
Epsilon 20	7/8/55	78	442	E½ NW¼ SW¼ Sec. 28
Epsilon 21	7/9/55	78	443	W½ SE¼ NW¼ Sec. 28
Epsilon 22	7/9/55	78	444	W½ NE¼ SW¼ Sec. 28
Epsilon 23	7/9/55	78	445	E½ SE¼ NW¼ Sec. 28
Epsilon 24	7/9/55	78	446	E½ NE¼ SW¼ Sec. 28
Epsilon 25	7/9/55	78	447	W½ SW¼ NE¼ Sec. 28
Epsilon 26	7/9/55	78	448	W½ NW¼ SE¼ Sec. 28
Epsilon 27	7/9/55	78	449	E½ SW¼ NE¼ Sec. 28
Epsilon 28	7/9/55	78	450	E½ NW¼ SE¼ Sec. 28
Epsilon 29	7/9/55	78	451	W½ SE¼ NE¼ Sec. 28
Epsilon 30	7/9/55	78	452	W½ NE¼ SE¼ Sec. 28
Epsilon 31	7/9/55	78	453	E½ SE¼ NE¼ Sec. 28
Epsilon 32	7/9/55	78	454	E½ NE¼ SE¼ Sec. 28
Epsilon 33	7/9/55	78	455	Lode Claim Sec. 27
Epsilon 34	7/10/55	78	456	Lode Claim Sec. 27
Epsilon 35	7/10/55	78	457	Lode Claim Sec. 27
Epsilon 36	7/10/55	78	458	Lode Claim Sec. 27
Epsilon 37	7/10/55	78	459	Lode Claim Sec. 27
Epsilon 38	7/10/55	78	460	Lode Claim Sec. 27
Epsilon 39	7/10/55	78	461	Lode Claim Sec. 27
Epsilon 40	7/10/55	78	462	Lode Claim Sec. 27
Epsilon 41	7/10/55	78	463	Lode Claim Sec. 27
Epsilon 42	7/10/55	78	464	Lode Claim Sec. 27
Epsilon 43	7/15/55	78	465	Lode Claim Sec. 27
Epsilon 44	7/15/55	78	466	Lode Claim Sec. 27
Epsilon 45	7/15/55	78	467	Lode Claim Sec. 27
Epsilon 46	7/15/55	78	468	Lode Claim Sec. 27
Epsilon 47	7/15/55	78	469	Lode Claim Sec. 27

NOTICE OF MINING LOCATION
Coconino County
August 26, 1955

Township 28 N., R., 3 East

Mining Claim	Date of Location	County Record Book No.	Page No.	Description
Epsilon 48	7/15/55	78	470	Lode Claim Sec. 27
Epsilon 49	7/15/55	78	471	Lode Claim Sec. 27
Epsilon 50	7/15/55	78	472	Lode Claim Sec. 27
Epsilon 51	7/15/55	78	473	Lode Claim Sec. 27
Delta 1	7/9/55	78	474	W½ SW¼ SW¼ Sec. 29
Delta 2	7/9/55	78	475	W½ NW¼ NW¼ Sec. 34
Delta 3	7/9/55	78	476	E½ SW¼ SW¼ Sec. 29
Delta 4	7/9/55	78	477	E½ NW¼ NW¼ Sec. 32
Delta 5	7/9/55	78	478	W½ SE¼ SW¼ Sec. 29
Delta 6	7/9/55	78	479	W½ NE¼ NW¼ Sec. 32
Delta 7	7/9/55	78	480	E½ SE¼ SW¼ Sec. 29
Delta 8	7/9/55	78	481	E½ NE¼ NW¼ Sec. 32
Delta 9	7/9/55	78	482	W½ SW¼ SE¼ Sec. 29
Delta 10	7/9/55	78	483	W½ NW¼ NE¼ Sec. 32
Delta 11	7/9/55	78	484	E½ SW¼ SE¼ Sec. 29
Delta 12	7/9/55	78	485	E½ NW¼ NE¼ Sec. 32
Delta 13	7/9/55	78	486	W½ SE¼ SE¼ Sec. 29
Delta 14	7/9/55	78	487	W½ NE¼ NE¼ Sec. 32
Delta 15	7/9/55	78-	488	E½ SE¼ SE¼ Sec. 29
Delta 16	7/9/55	78	489	E½ NE¼ NE¼ Sec. 32
Delta 17	7/9/55	78	490	W½ SW¼ SW¼ Sec. 28
Delta 18	7/9/55	78	491	W½ NW¼ NW¼ Sec. 33
Delta 19	7/9/55	78	492	E½ SW¼ SW¼ Sec. 28
Delta 20	7/9/55	78	493	E½ NW¼ NW¼ Sec. 33
Delta 21	7/9/55	78	494	W½ SE¼ SW¼ Sec. 28
Delta 22	7/9/55	78	495	W½ NE¼ NW¼ Sec. 33
Delta 23	7/9/55	78	496	E½ SE¼ SW¼ Sec. 28
Delta 24	7/9/55	78	497	E½ NE¼ NW¼ Sec. 33
Delta 25	7/9/55	78	498	W½ SW¼ SE¼ Sec. 28
Delta 26	7/9/55	78	499	W½ NW¼ NE¼ Sec. 33
Delta 27	7/9/55	78	500	E½ SW¼ SE¼ Sec. 28
Delta 28	7/9/55	78	501	E½ NW¼ NE¼ Sec. 33
Delta 29	7/9/55	78	502	W½ SE¼ SE¼ Sec. 28
Delta 30	7/9/55	78	503	W½ NE¼ NE¼ Sec. 33
Delta 31	7/9/55	78	504	E½ SE¼ SE¼ Sec. 28
Delta 32	7/9/55	78	505	E½ NE¼ NE¼ Sec. 33
Delta 33	7/9/55	78	506	Lode Claim Sec. 27
Delta 34	7/9/55	78	507	W½ NW¼ NW¼ Sec. 34
Delta 35	7/10/55	78	508	Lode Claim Sec. 27
Delta 36	7/9/55	78	509	E½ NW¼ NW¼ Sec. 34
Delta 37	7/10/55	78	510	Lode Claim Sec. 27
Delta 38	7/9/55	78	511	W½ NE¼ NW¼ Sec. 34
Delta 39	7/10/55	78	512	Lode Claim Sec. 27
Delta 40	7/9/55	78	513	E½ NE¼ NW¼ Sec. 34
Delta 41	7/10/55	78	514	Lode Claim Sec. 27
Delta 42	7/9/55	78	515	W½ NW¼ NE¼ Sec. 34

NOTICE OF MINING LOCATION
Coconino County
August 26, 1955

Township 28 N., R., 3 East

Mining Claim	Date of Location	County Record Book No.	County Record Page No.	Description
Delta 43	7/9/55	78	516	Lode Claim Sec. 27
Delta 44	7/9/55	78	517	E½ NW¼ NE¼ Sec. 34
Delta 45	7/9/55	78	518	Lode Claim Sec. 27
Delta 46	7/9/55	78	519	W½ NE¼ NE¼ Sec. 34
Delta 47	7/9/55	78	520	Lode Claim Sec. 27
Delta 48	7/9/55	78	521	E½ NE¼ NE¼ Sec. 34
Delta 49	7/9/55	78	522	Lode Claim Sec. 27
Theta 1	7/19/55	79	270	W½ NW¼ SE¼ Sec. 19
Theta 2	7/19/55	79	271	W½ SW¼ SE¼ Sec. 19
Theta 3	7/19/55	79	272	E½ NW¼ SE¼ Sec. 19
Theta 4	7/19/55	79	273	E½ SW¼ SE¼ Sec. 19
Theta 5	7/19/55	79	274	W½ NE¼ SE¼ Sec. 19
Theta 6	7/19/55	79	275	E½ SE¼ SE¼ Sec. 19
Theta 7	7/19/55	79	276	E½ NE¼ SE¼ Sec. 19
Theta 8	7/19/55	79	277	E½ SE¼ SE¼ Sec. 19
Theta 9	7/19/55	79	278	W½ NW¼ SE¼ Sec. 30
Theta 10	7/19/55	79	279	W½ SW¼ SE¼ Sec. 30
Theta 11	7/19/55	79	280	E½ NW¼ SE¼ Sec. 30
Theta 12	7/19/55	79	281	E½ SW¼ SE¼ Sec. 30
Theta 13	7/19/55	79	282	W½ NE¼ SE¼ Sec. 30
Theta 14	7/19/55	79	283	W½ SE¼ SE¼ Sec. 30
Theta 15	7/19/55	79	284	E½ NE¼ SE¼ Sec. 30
Theta 16	7/19/55	79	285	E½ SE¼ SE¼ Sec. 30
Theta 17	7/19/55	79	286	W½ NW¼ NE¼ Sec. 31
Theta 18	7/19/55	79	287	E½ NW¼ NE¼ Sec. 31
Theta 19	7/19/55	79	288	W½ NE¼ NE¼ Sec. 31
Theta 20	7/19/55	79	289	E½ NE¼ NE¼ Sec. 31

NOTICE OF MINING LOCATION
Coconino County
August 26, 1955

Township 28 N., R., 3 East

Mining Claim	Date of Location	Book No.	Page No.	Description
Eta No. 1	7/13/55	78	359	W½ SW¼ SW¼ SEC. 20
Eta No. 2	7/13/55	78	360	W½ NW¼ NW¼ SEC. 29
Eta No. 3	7/13/55	78	361	E½ SW¼ SW¼ Sec. 20
Eta No. 4	7/13/55	78	362	E½ NW¼ NW¼ Sec. 29
Eta No. 5	7/13/55	78	363	W½ SE¼ SW¼ SSec. 20
Eta No. 6	7/13/55	78	364	W½ NE¼ NW¼ Sec. 29
Eta No. 7	7/13/55	78	365	E½ SE¼ SW¼ Sec. 20
Eta No. 8	7/13/55	78	366	E½ NE¼ NW¼ Sec. 29
Eta No. 9	7/13/55	78	367	W½ SW¼ SE¼ Sec. 20
Eta No. 10	7/13/55	78	368	W½ NW¼ NE¼ Sec. 29
Eta No. 11	7/13/55	78	369	E½ SW¼ SE¼ Sec. 20
Eta No. 12	7/13/55	78	370	E½ NW¼ NE¼ Sec. 29
Eta No. 13	7/13/55	78	371	W½ SW¼ SW¼ Sec. 20
Eta No. 14	7/13/55	78	372	W½ NE¼ NE¼ Sec. 29
Eta No. 15	7/13/55	78	373	E½ SE¼ SE¼ Sec. 20
Eta No. 16	7/13/55	78	374	E½ NE¼ NE¼ Sec. 29
Eta No. 17	7/13/55	78	375	W½ SW¼ SW¼ Sec. 21
Eta No. 18	7/14/55	78	376	W½ NW¼ NW¼ Sec. 28
Eta No. 19	7/14/55	78	377	E½ SW¼ SW¼ Sec. 21
Eta No. 20	7/14/55	78	378	E½ NW¼ NW¼ Sec. 28
Eta No. 21	7/14/55	78	379	W½ SE¼ SW¼ Sec. 21
Eta No. 22	7/14/55	78	380	W½ NE¼ NW¼ Sec. 28
Eta No. 23	7/14/55	78	381	E½ SE¼ SW¼ Sec. 20
Eta No. 24	7/14/55	78	382	E½ NE¼ NW¼ Sec. 28
Eta No. 25	7/14/55	78-	383	W½ SW¼ SE¼ Sec. 21
Eta No. 26	7/14/55	78	384	W½ NW¼ NE¼ Sec. 28
Eta No. 27	7/14/55	78	385	E½ SW¼ SE¼ Sec. 21
Eta Nol 28	7/14/55	78	386	E½ NW¼ NE¼ Sec. 28
Eta No. 29	7/14/55	78	387	W½ SE¼ SE¼ Sec. 21
Eta No. 30	7/14/55	78	388	W½ NE¼ NE¼ Sec. 28
Eta No. 31	7/14/55	78	389	E½ SE¼ SE¼ Sec. 21
Eta No. 32	7/14/55	78	390	E½ NE¼ NE¼ Sec. 28
Zeta 1	7/12/55	78	391	W½ SW¼ SW¼ Sec. 26
Zeta 2	7/12/55	78	392	W½ NW¼ NW¼ Sec. 35
Zeta 3	7/12/55	78	393	E½ SW¼ SW¼ Sec. 26
Zeta 4	7/12/55	78	394	E½ NW¼ NW¼ Sec. 35
Zeta 5	7/12/55	78	395	W½ SE¼ SW¼ Sec. 26
Zeta 6	7/12/55	78	396	W½ NE¼ NW¼ Sec. 35
Zeta 7	7/12/55	78	397	E½ SE¼ SW¼ Sec. 26
Zeta 8	7/12/55	78	398	E½ NE¼ NW¼ Sec. 35

WILLAHA - HOT VALLEY PROPERTIES

of

ARIZONA GIANT MINING CORPORATION

BY D. O. McGoon, Jr.
Exploration Geologist
Flagstaff, Arizona
August 15, 1955

WILLAHA
Hot Valley Properties

TITLE	PAGE
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Weather and Water	1
Transport	1
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Regional Faulting	2
Mineralization	2
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WILLAHA
Hot Valley Properties

LOCATION:

Proceed west from Flagstaff, Arizona on highway 66 to the Grand Canyon turn off. Turn north and proceed to the Red Butte area then refer to attached Regional Map. The Red Butte area is approximately 60 miles from Flagstaff.

ACCESSIBILITY:

A state highway of good condition enters the Red Butte area. Rock roads of fair condition exist throughout the area. The off-road country may be traversed by jeep with little difficulty. However, when wet the off-road country requires the use of four-wheel drive.

WEATHER AND WATER--

The Red Butte area may be considered semi-arid. Most of the surface water is derived from winter snows, which are considered severe by the local ranchers. The water table may be expected to exist at a depth in excess of 500 feet.

TRANSPORT--

A spur line of the Sante Fe railroad to the Grand Canyon passes through Willaha. See attached Regional Map.

REGIONAL STRATIGRAPHY: The generalized section is:

Formation	Age	Approx. Thickness	Lithology
Malapai	Late tertiary	200'	Basalt flow
Moenkopi	Permian	300'	Alt. red SS-MS
Kaibab	Permian	300'	LS - SS - MS
Toroweap	Permian	250'	SS- LS - MS
Coconino	Permian	300'	SS
Hermit	Permian	300'	MS
Supai	Permian	800'	SS - MS
Red Wall	Mississippian	550'	LS
Temple Butte	Devonian	?	LS - SS
Tonto	Cambrian	?	SS - MS - LS
---	Pre-Cambrian	?	Igneous

SS - Sandstone
MS - Mudstone-Shale
LS - Limestone

The Red Butte area has on outcrop Kaibab and possibly Toroweap. However, Red Butte itself is capped with Malapai. (See attached Ground Geologic map for Kaibab members).

REGIONAL STRUCTURE

The Red Butte area occupys a position on the south flank of the Kaibab uplift. The writer has observed a positive flexure on this flank. It is believed that the flexure axis tends NW - SE. (see regional map) Minor folds have been observed to occur parallel to this flexure.

REGIONAL FAULTING

G. S. A. Vol. 59 No. 6 PP 527 "A fair number of subsequent streams have evacuated along virtually every fault line". PP 515 "Regional fault trend is NE - SW to NNE - SSW. All faults noted have the upthrown side to the Se."

MINERALIZATION--(See regional map)

Anita (1)

The minerals present are malachite, azurite and copper sulfides. Grand Canyon Nature. Notes, February 1953, PP 109 "The mineralization at Anita is in a brecciated zone several hundred feet wide trending NE-SW." The writer has recorded the shaft log of the Anita Copper Company dated October 30, 1904. This log shows mineralization of a thickness in excess of 200 feet. It is believed that most of the mineralization occurs below the basal or Gamma member of the Kaibab formation. The dump material is not excessively radioactive.

WILLAHA (2)

The minerals present are malachite, azurite, chalcocite, bornite, chalcopyrite, uraninite, and a carnotite type mineral. It has been observed that the uranium mineralization overlies the copper mineralization. Although approximately 40 tons of .25% U_3O_8 mineralized rock has been mucked out or exposed, drill hole information indicates that this deposit is small and isolated. This deposit occurs above the beta member of the Kaibab formation and appears to occur near the apex a fold in the Kaibab Alpha.

VALLE (3)

The minerals present are malachite, azurite, chalcocite, chalcopyrite and uraninite. The uranium mineralization overlies the copper mineralization. It is believed that this deposit occurs within the Beta member of the Kaibab formation and occurs near the apex of a local fold.

HOT VALLEY (4)

The mineral present is malachite in the exposed Kaibab Gamma. (see attached Ground Geologic map) It is believed that this outcrop is the apex of a positive structure which cuts the southern edge of a NE trending fault zone.

ALTERATION:

Every mineralized deposit inspected in the Red Butte area has been adjacent to green-blue mudstone stratigraphic units.

OXIDATION--

Every mineralized deposit inspected in the Red Butte area occurs in the presence of limonite. However, it may be noted that the copper sulfides at Willaha (2) have been completely oxidized, in zones, leaving the uraninite intact.

RADIATION EQUILIBRIUM--

Based on lead chamber-scaler calculations, the uranium mineralization in the Red Butte area is in equilibrium with the ores of the Gateway District, Colorado. The oxidized and sulfide zones were both tested with the same results.

MINERALIZATION THEORY

The mineralized zonal migration up section towards the axis of the flexure accompanied by mineral localization near the apex of folds may only be explained by the movement of mineralized solutions up dip. Based on this assumption, the paragenetic sequence of mineral localization would be copper sulfides first with uranium oxides second, whether they were introduced together or separately. With this paragenetic sequence, the major portion of uranium localization should be up dip from the copper-uranium localization, providing there were insufficient positive "traps" down dip to deplete the solutions of their mineral content. Airborne radiometric work indicates that there were sufficient "traps" down dip to deplete the solutions of their mineral content. It is believed that one of these "traps" is Hot Valley (4) The mechanics of why the minerals localize near the apex of positive structures or "traps" would be interesting. However, the fact that they do localize there is more useful.

The writer hesitates to indicate that faults were the "plumbing" for the mineralized solutions because of insufficient evidence. However, in referring to the generalized geologic section it may be noted that the Hermit formation is the only competent stratigraphic unit below the Kaibab Beta. The question of whether there was sufficient sediment load on the Hermit formation to

decrease the competency, at the time of faulting, to the point where it would fracture rather than flex, is still unanswered. The question of whether the mineralized solutions were of such a critical nature as to permit the penetration of a formation such as the Hermit, without disturbance, is also unanswered. However, the localization of chalcopyrite and chalcocite indicates that at least some solution constituents were of plutonic origin.

PREVIOUS RADIOMETRIC EXPLORATION

The area covered by the Region map was flown with a Mount Sopris airborne scintillometer and Esterline-Angus recorder, scale.2 bias 30, at an altitude of 50 feet, with a density of less than one half mile. The Hot Valley area was selected as most promising, as a result of this aerial reconnaisance.

The Hot Valley area was then flown, on the same scale, at a density of 200 feet. (see attached Airborne Iso-rad) The low intensity areas represent readings from 1.9 to 2.0 times background. The high intensity areas represent readings in excess of 2 times background, which were off the recorder scale. Five flight days were required to cover the Airborne Iso-rad area, with the last traverse of each day being repeated the following day for correlation purposes. All traverses were transit controlled and made in the same direction so as to give a "picture" with a map vector constant due to recorder time lag. Time recorder units were converted to distance units by use of geometrical proportions.

A 100-foot density ground Iso-rad map was made of the most promising area in Hot Valley. (See attached Ground Iso-rad) The grid was constructed with Brunton-tape, and each station flagged,

in such a manner as to expedite the operation. Each station was checked for radiation by use of a Hoffman scaler on a 2-minute time cycle with a 5 bismuth tube unit of our own design. Background changes were measured twice daily at a previously designated location. The radiation interpretation is located on the Ground Iso-rad map.

RADIATION INTERPRETATION SUMMARY --

1. If a radioactive ore-body is located at or near the surface of the ground, it will be near the low to high radiation areas.

2. If uraniferous solutions have passed through an exposed rock unit and in passing through were detained for a sufficient time to deposit the insoluble radium sulfate, the course will be indicated by the trend of the low to high radiation areas.

3. If a mineralized zone or ore-body has been eroded and consumed in the soil profile, the soil movement trend will be indicated by the trend of the low to high radiation areas.

PRELIMINARY DRILLING --Mayhew non-core equipment

Forty two holes were punched in the Willaha (2) area. All holes were bottomed in unaltered Kaibab Beta. No ore was encountered. However, altered mudstone was encountered adjacent to mineralized zones.

Nine holes were punched in the Hot Valley area. All holes were bottomed in Kaibab Gamma. No ore was encountered. However, altered Kaibab Beta mudstone was encountered in the radioactive trends shown on attached Airborne Iso-rad map.

The drill holes were punched for economic reasons rather than geologic.

Thirteen additional holes were then drilled in the Hot Valley area, (see property status map). These holes, prefix letter A, were spotted in order to check the geologic section and alteration. All holes were bottomed in Kaibab Gamma. Altered mudstone was encountered at the base of the Kaibab Beta with DHA-5 showing

alteration within the Kaibab Beta. No alteration was noted in holes drilled off the radiometric trend. DH-A10 was drilled as a deep (200 feet) test of the Kaibab Gamma. Limonitic zones were encountered.

SUMMARY INTRODUCTION--

1. Uranium is known to be associated with the copper mineralization and altered mudstone in the Red Butte area.

2. Small uranium deposits have been found near the axis of the local flexure.

3. Mineralization noted is either associated with fault zones (Anita) or positive folds.

4. Mineralization in excess of 200 feet thick has occured in the area. (Anita)

5. The uranium mineralization encountered has been in a primary state and in equilibrium.

6. The mineralized solutions moved up section as they progressed to the southwest.

7. There has been sufficient uranium content remaining in the partially depleted mineralized solutions to cause localization near the axis of the flexure.

SUMMARY--

It is believed that sizable uranium ore-bodies may be encountered within the vicinity of Hot Valley (4). These ore-bodies should occupy a stratigraphic position in or below the Kaibab Gamma. It is the writer's opinion that the Hot Valley area warrants intensive sub-surface investigation controlled by sound geologic procedures. The writer knows of no other uranium district which has been given such an intensive and thorough geologic investigation and uncovered such favorable ore criteria.

PROPOSED DRILLING PROCEDURE--(Hot Valley)

PROPOSED DRILLING PROCEDURE--Hot Valley

First Stage:

The first stage should be the deep test (500 feet) drillingg stage, in order to explore the Toroweap and upper Coconino horizons. It is in these horizons that the thickest mineralization has been encountered in the Red Butte area. (See Anita mineralization) The holes should be spotted off the flank of positive structures, down dip from probable ore localization zones so as to increase the target area in case supergene movement is encountered. Therefore, the following deep test hole locations are recommended.

1. SW corner of Section 28
2. 3200 feet SE of the NW corner of Section 28
3. 800 feet west of the SE corner of Section 28
4. 1600 feet East of the S" corner of Section 29
5. 1600 feet east of the NW corner of Section 29
6. 2400 feet North 20 degrees East of the Se corner of Sec. 28

SECOND STAGE:

The second or shallow drilling stage should be controlled by the attached ground Iso-rad map. It is recommended that the flagged stations located in the significant or higher radiation zones be used as drill sites, the total being 328 drill holes. The holes should penetrate at least 15 feet of Kaibab Gamma, the average depth may be expected to be less than 100 feet.

The deletion and drilling order of the second stage drill holes must be controlled only by the supervising geologist.

PROBABLE ADVERSE DRILLING CONDITIONS--

First Stage:

1. Chert nodules and stringers may be expected in the Kaibab Gamma.

2. Caving conditions may be expected with drill holes in excess of 3 inches in diameter.

3. Penetration of the water table may be expected near 500 feet.

4. Drilling water, if used, will have to be purchased and hauled from the Sante Fe railroad at Willaha.

5. It is doubtful if circulation can be maintained in the Kaibab Gamma.

SECOND STAGE:

No adverse conditions are anticipated providing, a percussion type drill is used properly.

Respectfully submitted

By D. O. McGoon, Jr.
Exploration Geologist
Flagstaff, Arizona
August 15, 1955

ARIZONA GIANT MINING CORP.

Operating Headquarters

220 East Birch Ave. Phone 1778 Flagstaff, Arizona

Professional Records of Staff

R. S. Butler — Exec. V. P. & Gen. Mgr.

1911-15	Sup't-Barnsdall Mines;	Parral, Mexico
1915-28	V. P. & Mgr.- Barnsdall Corp. Mining Division	Joplin, Missouri
1928-31	Director of Research and Development Southwestern Engineering Co.	Los Angeles, Calif.
1931-34	Consulting Engineer Nordberg Mfg. Co.	Milwaukee, Wisc.
1934-42	Consulting Engineer Sullivan Machinery Co. (Joy Mfg.)	Claremont, N. H. Michigan City, Ind. Chicago, Ill.
1942-44	Chairman, Ordance Committee	Chicago, Wash., D. C.
1944-48	Consulting Engineer Hosdreg Mfg. C. Fairbanks-Morse Ingersoll Steel	
1948-52	Gen. Mgr.-Interamericana, S. A.	Bogota, Columbia
	V. P. & Gen. Mgr.-Las Playas Mfg. Co.	" "
1952-55	Engineer-Defense Minerals Production Agency Mining Consultant Interior Committee H of R.	Washington, D. C.
1955--	V. P. and Gen. Mgr. Arizona Giant Mining Corp.	Window Rock-Flagstaff, Arizona
1917---	Member American Institute of Mining Engineers	

D.O.McGoon, Jr.

1944-46	University of Florida. A. A.
1946-52	Studies, Professional Activities
1952-54	Colorado School of Mines
1954-55	Bear Creek Mfg. Co.-Engineering and Geology Atomic Power Uranium Corp. - Geology Arizona Giant Mining Corp. - Geology

Mike Brodie

1948-51	Operating Sub-lease Vanadium Corp. of America	Monument Valley, Ariz.
1951-53	1951-53 - Field Sup't Thoruburg Mfg. Co.	Navajo Reservation
1953-54	Arizona State Employment Service Navajo Tribe-- Prospecting for various Companies.	Arizona, Colorado
1954-55	Ass't Field Sup't Arizona Giant Mg. Corp.	

Donald Wright

1948-50	Mining and surveying Chester Wright Mg. Co.	Colorado Plateau
1950-52	Field Engineer J. R. Simplot Corp;	" "
1952-53	Mine Foreman-Tomboy Mines	" "
1953-55	Field Chief-Giant Uranium, Inc.	" "
1955-	Field Sup't. Arizona Giant Mining Corp.	" "

Carlotta Preston

1953	Ganado Mission (graduate)	Ganado, Arizona
1953-55	Haskell Institute (graduate)	Lawrence, Kansas
1955--	Arizona Giant Mining Corp.	Flagstaff, Arizona

Geo. W. Gilmore, Jr.

Consulting Geologist — Durango, Colo.

Winston Marks

Contract guide — Farmington, N. M.

Technical Service, Inc.

Contract Engineers — Grand Junction, Colo.

Arizona Engineering Co.

Contract geology and survey — Flagstaff, Ariz.

H & H Exploration Co.

Contract Aerial radiometric — Grand Junction, Colo.

National Accounting Service

Auditors & Accountants — Flagstaff, Arizona

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

October 5, 1955

224 New Customhouse
Denver 2, Colorado

3999

RECEIVED
OCT 10 1955

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Application for DMEA Aid, (Uranium), Arizona Giant Mining Corporation, Coconino County, Arizona

Enclosed are four copies of a memorandum from the Grand Junction office recommending that the subject application be denied without a field examination.

We concur in this recommendation.

W. M. Traver

W. M. Traver

E. N. Harshman

E. N. Harshman

Enclosures

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DMEA
Date Rec'd.
OCT 8 1955
BUREAU OF MINES
Denver, Colorado

October 3, 1955

Memorandum

To: E. N. Harshman, Supervising Geologist, DMEA Field Team, Region III E.N.H.

RECEIVED
OCT 10 1955

From: J. William Hasler and M. H. Salsbury

Subject: Application for DMEA aid (Uranium), Arizona Giant Mining Corporation, Coconino County, Arizona

The above-mentioned application has been reviewed with the Salt Lake branch AEC, since the area under consideration is under their jurisdiction.

A reconnaissance report, RME 2013 AEC, recommended limited drilling to test surface showings of uranium in the Kaibab formation of the Permian age in the Willaha area. The Kaibab formation in the Grand Canyon area is known to have scattered copper deposits in fractured areas, some of which have been mined for small tonnages of ore. The AEC drilled the Willaha area and the results were essentially negative. They report that the uranium occurrences have a good count at the surface, but do not extend in depth. Because of these results, it is concluded that the chances of finding uranium in commercial quantities in the Willaha area are not good and it is, therefore, recommended that the application be denied without a field examination.

The brochure is enclosed.

J. William Hasler
J. William Hasler
Geologist, USGS

M. H. Salsbury
M. H. Salsbury
Mining Engineer, USBM

JWH/mlr

Enclosure

Grandfield

RECEIVED
OCT 10 1955

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

October 5, 1955

224 New Customhouse
Denver 2, Colorado

Memorandum

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From: Field Team, Region III 3999

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W. M. Traver

E. N. Harshman
E. N. Harshman

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GEOLOGICAL SURVEY

DMEA
Date Rec'd
OCT 5

RECEIVED
OCT 10 1955

BUREAU
Denver

October 3, 1955

Memorandum

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From: Field Team, Region III

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We concur in this recommendation.

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OCT 10 1955

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JWH/mlr

Enclosure

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

224 New Customhouse
Denver 2, Colorado

September 27, 1955

Memorandum

To: Secretary to the Operating Committee, Defense Minerals Exploration Administration

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA aid (Uranium), Arizona Giant Mining Corporation, Coconino County, Arizona.

Enclosed are two copies of the subject application in the amount of $33,638.00.

One copy of the application has been forwarded to the Grand Junction Office for joint study and recommendations, and one copy is retained in our files.

W. M. Traver

W. M. Traver

Enclosures

RECEIVED
SEP 29 1955

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

224 New Customhouse
Denver 2, Colorado

September 27, 1955

Memorandum

To: J. W. Hasler

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA aid (Uranium), Arizona Giant Mining Corporation, Coconino County, Arizona.

Enclosed is the subject application in the amount of $33,638.00. Please study and discuss this application with the AEC and Bureau of Mines representatives in Grand Junction, and promptly forward to this office eight copies of your recommendations regarding a field examination of the property.

W. M. Traver

W. M. Traver

Enclosures

JDC:jy
cc: Sec. Op. Comm. (4)
Docket
Harshman
Shaw (2)
Chron.

RECEIVED

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

224 New Customhouse
Denver 2, Colorado

September 27, 1955

Memorandum

To: J. W. Hasler

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Subject: Application for DMEA aid (Uranium), Arizona Giant Mining Corporation, Coconino County, Arizona.

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Enclosures

JDC:jy
cc: Sec. Op. Comm. (4)
Docket
Harshman
Shaw (2)
Chron.

RECEIVED
SEP 28 1955

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

224 New Customhouse
Denver 2, Colorado

September 27, 1955

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From: Executive Officer, DMEA Field Team, Region III

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W. M. Traver

Enclosures

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cc: Sec. Op. Comm. (4)
Docket
Harshman
Shaw (2)
Chron.

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

DMEA
Date Rec'd
SEP 26 1955

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

RECEIVED
SEP 22 1955
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. DMEA-3999
Metal or Mineral Uranium
Date Received 9/29/55
Estimated Cost $33,638.00
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:

ARIZONA GIANT MINING CORPORATION
Please refer to attached sheets, records and maps for all answers.

(*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

(*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

(*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 .....

.....

(*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.

(*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?

[X] Money [ ] Use of equipment owned by you [ ] Other

Explain in detail on acompanying paper.

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__

.....
(Applicant)

By.....

.....

.....

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

D M E A
HOT VALLEY

Application for the Exploration Project

Coconino County, Arizona
Township 28 N. R. 3 E.
(160 Claims)

1.

(a) Arizona Giant Mining Corporation
(b) Incorporated under the laws of Minnesota.

Home office-- W-2681 1st Nat'l. Bank Bldg., St. Paul
Operations office 220 E. Birch, Flagstaff, Arizona
Operations Director R. S. Butler, Exec. V. P.

(c) Officers and Directors:

President - Maynard Clough - 1st. Nat'l Bank Bldg., St. Paul
V. President- Melvin Butler - 1st. Nat'l Bank Bldg., St. Paul
Secretary - Osborn Cowles - 1st. Nat'l Bank Bldg., St. Paul
Treasurer - Hiram S. Lewis - 1015 Plymonth Bldg., Minneapolis
Exec. V. P. - R. S. Butler - Flagstaff, Arizona

3. PROPERTY RIGHTS:

(a) AGM has located, surveyed, filed and Recorded:

Claims	Group	Sections
20	Theta	19, 30, 31
32	Eta	20, 29, 21, 28, 26, 35
51	Epsilon	27, 28, 29
49	Delta	29, 32, 33, 28, 27, 34
8	Zeta	26, 35

160 Claims all in Township 28 N., R., 3 East.

Dates, legal description, book and page numbers are given for all claims on the attached sheets. All 160 claims are included in this application. A property Status map showing the location of these claims as surveyed by Arizona Engineering Co. is attached.

(b) The Property is undeveloped.

Arizona Giant Mining Corporation

(c) AGM is the lessee of 132 claims on State Land
AGM is the owner of 19 claims on Public Domain
AGM is the owner of 9 fractional claims on Public Domain

Total claims 160 in this application.

(d) AGM is not the owner of Arizona State Land claims and can not submit the recorder's stamped location notice since this is retained by the State. AGM has made valid locations and is in the process of applying to the State for mineral leases. McQuatters and Stevenson, 108 N. Leroux, Flagstaff, Arizona, handle the claims matters.

(e) There are no property encumbrances.

(f) See (a) and the attached claims record.

4.

(a) No mining has been done.
Exploration has been done as follows:

1. Aerial radiometric - ½ mile density. 50 ft. Altitude
2. Aerial radiometric - 200 ft. density 50 ft. Altitude
3. Ground radiometric - 100x100 ft. density surface
4. Ground Geologic survey
5. Drilling - 22 holes from 40 ft. to 200 ft. depth.

The area is completely accessible by auto. It lies 1 mile east of Grand Canyon highway 64, forty miles north of Williams, Arizona.

(b) There has been no production or development.

(c) Attach Aerial Iso-rad map
Attach Ground Iso-rad map
Attach Ground Geologic
Attach McGoon report

(d) The terrain is flat or gently rolling. Roads can be built quickly by bulldozer. No bridging necessary. Property lies a mile east of a 4-lane paved highway connecting with U. S. 66 and the Marble Canyon road.

Santa Fe R. R., Willaha station, with siding, lies 8 miles west; reached by good gravel road. Nearest supply point is at Williams, 40 miles. Nearest residence point is Williams.

Arizona Giant Mining Corporation

(e) Manpower - Adequate from sources close by.

Materials- More easily available than is the
Supplies - case in most areas on the
Equipment- plateau.

Water - Must be hauled in.

Power - Must be generated on the job.

5.
(a) Uranium and whatever associated minerals may be present in commercial quantities.

(b) Refer to report by D. O. McGoon, Jr. AGM Geologist.

(c) Work will start within 15 days and will be completed within 3 months from date of contract.

(d) See personnel record.

6.
(a) COST OF EXPLORATION PROJECT:

Drilling:

Charge for moving equipment	$ 300.00	
6 holes - 500 ft = 3000 ft. @ $1.50	4,500.00	
300 holes 75 ft = 22500 ft.@ .65	14,625.00	$ 19,425.00

Stripping:

Charge for moving equipment	300.00	
Bulldozer & operator 200 hrs. @ $12.50	2,500.00	2,800.00

(b) Labor, Supervision Consultants:

1 man - 60 days @ $16.00	960.00	
1 man - 60 days @ 12.00	720.00	
Supervising geologist 3 months.	1,800.00	
Assistant geologist 3 months.	1,200.00	4,680.00

Labor to be used for flagging drill locations, clearing, moving drill, and other work incidental to exploration Geologist and assistant will probe and log holes, sample cuttings and direct the drilling, will survey and map.

(c) OPERATING MATERIALS & SUPPLIES:

None

Arizona Giant Mining Corporation

(d) OPERATING EQUIPMENT:

To be furnished by the company without charge, all necessary instruments, transit, company owned automotive equipment, office facilities.

(e) None

(f) None

(g) MISCELLANEOUS:

Estimated repairs to instruments, principally batteries and tubes for 1 counter, 2 scalers, 1 scintillator	$ 300.00	
Chemical analysis-300 samples @ $7.00	2,100.00	
Mileage on contract pickup. 4800 Mi. @.05	240.00	
Field crew living allowance-60 days @10.00	600.00	
Accounting - 2 mos. @ $100	200.00	
Workmen's Compensation - 8% of $4,680.00	375.00	$3,675.00

(h) CONTINGENCY ALLOWANCE:

(a)	Drilling	$ 19,425.00	
	Stripping	2,800.00	22,225.00
(b)	Labor, supervision		4,680.00
(c)	Materials & Supplies		None
(d)	Equipment		None
(e)	Rehabilitation		None
(f)	New Buildings		None
(g)	Miscellaneous		3,675.00
	Estimated Cost		30,580.00
	Plus 10% Contingencies		3,058.00
	TOTAL Estimated cost		33,638.00

7.

(a) AGM is prepared to furnish its share of this cost in accordance with DMEA regulations.

(b) AGM share will be furnished in cash.

NOTICE OF MINING LOCATION
Coconino County
August 26, 1955

Township 28 N., R., 3 East

Mining Claim	Date of Location	County Record Book No.	County Record Page No.	Description
Epsilon 1	7/8/55	78	423	W½ SW¼ NW¼ Sec. 29
Epsilon 2	7/8/55	78	424	W½ NW¼ SW¼ Sec. 29
Epsilon 3	7/8/55	78	425	E½ SW¼ NW¼ Sec. 29
Epsilon 4	7/8/55	78	426	E½ NW¼ SW¼ Sec. 29
Epsilon 5	7/8/55	78	427	W½ SE¼ NW¼ Sec. 29
Epsilon 6	7/8/55	78	428	W½ NE¼ SW¼ Sec. 29
Epsilon 7	7/8/55	78	429	E½ SE¼ NW¼ Sec. 29
Epsilon 8	7/8/55	78	430	E½ NE¼ SW¼ Sec. 29
Epsilon 9	7/8/55	78	431	W½ SW¼ NE¼ Sec. 29
Epsilon 10	7/8/55	78	432	W½ NW¼ SE¼ Sec. 29
Epsilon 11	7/8/55	78	433	E½ SW¼ NE¼ Sec. 29
Epsilon 12	7/8/55	78	434	E½ NW¼ SE¼ Sec. 29
Epsilon 13	7/8/55	78	435	W½ SE¼ NE¼ Sec. 29
Epsilon 14	7/8/55	78	436	W½ NE¼ SE¼ Sec. 29
Epsilon 15	7/8/55	78	437	E½ SE¼ NE¼ Sec. 29
Epsilon 16	7/8/55	78	438	E½ NE¼ SE¼ Sec. 29
Epsilon 17	7/8/55	78	439	W½ SW¼ NW¼ Sec. 28
Epsilon 18	7/8/55	78	440	W½ NW¼ SW¼ Sec. 28
Epsilon 19	7/8/55	78	441	E½ SW¼ NW¼ Sec. 28
Epsilon 20	7/8/55	78	442	E½ NW¼ SW¼ Sec. 28
Epsilon 21	7/9/55	78	443	W½ SE¼ NW¼ Sec. 28
Epsilon 22	7/9/55	78	444	W½ NE¼ SW¼ Sec. 28
Epsilon 23	7/9/55	78	445	E½ SE¼ NW¼ Sec. 28
Epsilon 24	7/9/55	78	446	E½ NE¼ SW¼ Sec. 28
Epsilon 25	7/9/55	78	447	W½ SW¼ NE¼ Sec. 28
Epsilon 26	7/9/55	78	448	W½ NW¼ SE¼ Sec. 28
Epsilon 27	7/9/55	78	449	E½ SW¼ NE¼ Sec. 28
Epsilon 28	7/9/55	78	450	E½ NW¼ SE¼ Sec. 28
Epsilon 29	7/9/55	78	451	W½ SE¼ NE¼ Sec. 28
Epsilon 30	7/9/55	78	452	W½ NE¼ SE¼ Sec. 28
Epsilon 31	7/9/55	78	453	E½ SE¼ NE¼ Sec. 28
Epsilon 32	7/9/55	78	454	E½ NE¼ SE¼ Sec. 28
Epsilon 33	7/9/55	78	455	Lode Claim Sec. 27
Epsilon 34	7/10/55	78	456	Lode Claim Sec. 27
Epsilon 35	7/10/55	78	457	Lode Claim Sec. 27
Epsilon 36	7/10/55	78	458	Lode Claim Sec. 27
Epsilon 37	7/10/55	78	459	Lode Claim Sec. 27
Epsilon 38	7/10/55	78	460	Lode Claim Sec. 27
Epsilon 39	7/10/55	78	461	Lode Claim Sec. 27
Epsilon 40	7/10/55	78	462	Lode Claim Sec. 27
Epsilon 41	7/10/55	78	463	Lode Claim Sec. 27
Epsilon 42	7/10/55	78	464	Lode Claim Sec. 27
Epsilon 43	7/15/55	78	465	Lode Claim Sec. 27
Epsilon 44	7/15/55	78	466	Lode Claim Sec. 27
Epsilon 45	7/15/55	78	467	Lode Claim Sec. 27
Epsilon 46	7/15/55	78	468	Lode Claim Sec. 27
Epsilon 47	7/15/55	78	469	Lode Claim Sec. 27

NOTICE OF MINING LOCATION
Coconino County
August 26, 1955

Township 28 N., R., 3 East

Mining Claim	Date of Location	County Record Book No.	Page No.	Description
Epsilon 48	7/15/55	78	470	Lode Claim Sec. 27
Epsilon 49	7/15/55	78	471	Lode Claim Sec. 27
Epsilon 50	7/15/55	78	472	Lode Claim Sec. 27
Epsilon 51	7/15/55	78	473	Lode Claim Sec. 27
Delta 1	7/9/55	78	474	W½ SW¼ SW¼ Sec. 29
Delta 2	7/9/55	78	475	W½ NW¼ NW¼ Sec. 34
Delta 3	7/9/55	78	476	E½ SW¼ SW¼ Sec. 29
Delta 4	7/9/55	78	477	E½ NW¼ NW¼ Sec. 32
Delta 5	7/9/55	78	478	W½ SE¼ SW¼ Sec. 29
Delta 6	7/9/55	78	479	W½ NE¼ NW¼ Sec. 32
Delta 7	7/9/55	78	480	E½ SE¼ SW¼ Sec. 29
Delta 8	7/9/55	78	481	E½ NE¼ NW¼ Sec. 32
Delta 9	7/9/55	78	482	W½ SW¼ SE¼ Sec. 29
Delta 10	7/9/55	78	483	W½ NW¼ NE¼ Sec. 32
Delta 11	7/9/55	78	484	E½ SW¼ SE¼ Sec. 29
Delta 12	7/9/55	78	485	E½ NW¼ NE¼ Sec. 32
Delta 13	7/9/55	78	486	W½ SE¼ SE¼ Sec. 29
Delta 14	7/9/55	78	487	W½ NE¼ NE¼ Sec. 32
Delta 15	7/9/55	78	488	E½ SE¼ SE¼ Sec. 29
Delta 16	7/9/55	78	489	E½ NE¼ NE¼ Sec. 32
Delta 17	7/9/55	78	490	W½ SW¼ SW¼ Sec. 28
Delta 18	7/9/55	78	491	W½ NW¼ NW¼ Sec. 33
Delta 19	7/9/55	78	492	E½ SW¼ SW¼ Sec. 28
Delta 20	7/9/55	78	493	E½ NW¼ NW¼ Sec. 33
Delta 21	7/9/55	78	494	W½ SE¼ SW¼ Sec. 28
Delta 22	7/9/55	78	495	W½ NE¼ NW¼ Sec. 33
Delta 23	7/9/55	78	496	E½ SE¼ SW¼ Sec. 28
Delta 24	7/9/55	78	497	E½ NE¼ NW¼ Sec. 33
Delta 25	7/9/55	78	498	W½ SW¼ SE¼ Sec. 28
Delta 26	7/9/55	78	499	W½ NW¼ NE¼ Sec. 33
Delta 27	7/9/55	78	500	E½ SW¼ SE¼ Sec. 28
Delta 28	7/9/55	78	501	E½ NW¼ NE¼ Sec. 33
Delta 29	79/55	78	502	W½ SE¼ SE¼ Sec. 28
Delta 30	7/9/55	78	503	W½ NE¼ NE¼ Sec. 33
Delta 31	7/9/55	78	504	E½ SE¼ SE¼ Sec. 28
Delta 32	7/9/55	78	505	E½ NE¼ NE¼ Sec. 33
Delta 33	7/9/55	78	506	Lode Claim Sec. 27
Delta 34	7/9/55	78	507	W½ NW¼ NW¼ Sec. 34
Delta 35	7/10/55	78	508	Lode Claim Sec. 27
Delta 36	7/9/55	78	509	E½ NW¼ NW¼ Sec. 34
Delta 37	7/10/55	78	510	Lode Claim Sec. 27
Delta 38	7/9/55	78	511	W½ NE¼ NW¼ Sec. 34
Delta 39	7/10/55	78	512	Lode Claim Sec. 27
Delta 40	7/9/55	78	513	E½ NE¼ NW¼ Sec. 34
Delta 41	7/10/55	78	514	Lode Claim Sec. 27
Delta 42	7/9/55	78	515	W½ NW¼ NE¼ Sec. 34

NOTICE OF MINING LOCATION

Coconino County
August 26, 1955

Township 28 N., R., 3 East

Mining Claim	Date of Location	County Record Book No.	County Record Page No.	Description
Delta 43	7/9/55	78	516	Lode Claim Sec. 27
Delta 44	7/9/55	78	517	E½ NW¼ NE¼ Sec. 34
Delta 45	7/9/55	78	518	Lode Claim Sec. 27
Delta 46	7/9/55	78	519	W½ NE¼ NE¼ Sec. 34
Delta 47	79//55	78	820	Lode Claim Sec. 27
Delta 48	7/9/55	78	521	E½ NE¼ NE¼ Sec. 34
Delta 49	7/9/55	78	522	Lode Claim Sec. 27
Theta 1	7/19/55	79	270	W½ NW¼ SE¼ Sec. 19
Theta 2	7/19/55	79	271	W½ SW¼ SE¼ Sec. 19
Theta 3	7/19/55	79	272	E½ NW¼ SE¼ Sec. 19
Theta 4	7/19/55	79	273	E½ SW¼ SE¼ Sec. 19
Theta 5	7/19/55	79	274	W½ NE¼ SE¼ Sec. 19
Theta 6	7/19/55	79	275	E½ SE¼ SE¼ Sec. 19
Theta 7	7/19/55	79	276	E½ NE¼ SE¼ Sec. 19
Theta 8	7/19/55	79	277	E½ SE¼ SE¼ Sec. 19
Theta 9	7/19/55	79	278	W½ NW¼ SE¼ Sec. 30
Theta 10	7/19/55	79	279	W½ SW¼ SE¼ Sec. 30
Theta 11	7/19/55	79	280	E½ NW¼ SE¼ Sec. 30
Theta 12	7/19/55	79	281	E½ SW¼ SE¼ Sec. 30
Theta 13	7/19/55	79	282	W½ NE¼ SE¼ Sec. 30
Theta 14	7/19/55	79	283	W½ SE¼ SE¼ Sec. 30
Theta 15	7/19/55	79	284	E½ NE¼ SE¼ Sec. 30
Theta 16	7/19/55	79	285	E½ SE¼ SE¼ Sec. 30
Theta 17	7/19/55	79	286	W½ NW¼ NE¼ Sec. 31
Theta 18	7/19/55	79	287	E½ NW¼ NE¼ Sec. 31
Theta 19	7/19/55	79	288	W½ NE¼ NE¼ Sec. 31
Theta 20	7/19/55	79	289	E½ NE¼ NE¼ Sec. 31

NOTICE OF MINING LOCATION
Coconino County
August 26, 1955

Township 28 N., R., 3 East

Mining Claim	Date of Location	Book No.	Page No.	Description
Eta No. 1	8/13/55	78	359	W½ SW¼ SW¼ SEC. 20
Eta No. 2	7/13/55	78	360	W½ NW¼ NW¼ SEC. 29
Eta No. 3	7/13/55	78	361	E½ SW¼ SW¼ Sec. 20
Eta No. 4	7/13/55	78	362	E½ NW¼ NW¼ Sec. 29
Eta No. 5	7/13/55	78	363	W½ SE¼ SW¼ SSec. 20
Eta No. 6	7/13/55	78	364	W½ NE¼ NW¼ Sec. 29
Eta No. 7	7/13/55	78	365	E½ SE¼ SW¼ Sec. 20
Eta No. 8	7/13/55	78	366	E½ NE¼ NW¼ Sec. 29
Eta No. 9	7/13/55	78	367	W½ SW¼ SE¼ Sec. 20
Eta No. 10	7/13/55	78	368	W½ NW¼ NE¼ Sec. 29
Eta No. 11	7/13/55	78	369	E½ SW¼ SE¼ Sec. 20
Eta No. 12	7/13/55	78	370	E½ NW¼ NE¼ Sec. 29
Eta No. 13	7/13/55	78	371	W½ SW¼ SW¼ Sec. 20
Eta No. 14	7/13/55	78	372	W½ NE¼ NE¼ Sec. 29
Eta No. 15	7/13/55	78	373	E½ SE¼ SE¼ Sec. 20
Eta No. 16	7/13/55	78	374	E½ NE¼ NE¼ Sec. 29
Eta No. 17	7/13/55	78	375	W½ SW¼ SW¼ Sec. 21
Eta No. 18	7/14/55	78	376	W½ NW¼ NW¼ Sec. 28
Eta No. 19	7/14/55	78	377	E½ SW¼ SW¼ Sec. 21
Eta No. 20	7/14/55	78	378	E½ NW¼ NW¼ Sec. 28
Eta No. 21	7/14/55	78	379	W½ SE¼ SW¼ Sec. 21
Eta No. 22	7/14/55	78	380	W½ NE¼ NW¼ Sec. 28
Eta No. 23	7/14/55	78	381	E½ SE¼ SW¼ Sec. 20
Eta No. 24	7/14/55	78	382	E½ NE¼ NW¼ Sec. 28
Eta No. 25	7/14/55	78-	383	W½ SW¼ SE¼ Sec. 21
Eta No. 26	7/14/55	78	384	W½ NW¼ NE¼ Sec. 28
Eta No. 27	7/14/55	78	385	E½ SW¼ SE¼ Sec. 21
Eta Nol 28	7/14/55	78	386	E½ NW¼ NE¼ Sec. 28
Eta No. 29	7/14/55	78	387	W½ SE¼ SE¼ Sec. 21
Eta No. 30	7/14/55	78	388	W½ NE¼ NE¼ Sec. 28
Eta No. 31	7/14/55	78	389	E½ SE¼ SE¼ Sec. 21
Eta No. 32	7/14/55	78	390	E½ NE¼ NE¼ Sec. 28
Zeta 1	7/12/55	78	391	W½ SW¼ SW¼ Sec. 26
Zeta 2	7/12/55	78	392	W½ NW¼ NW¼ Sec. 35
Zeta 3	7/12/55	78	393	E½ SW¼ SW¼ Sec. 26
Zeta 4	7/12/55	78	394	E½ NW¼ NW¼ Sec. 35
Zeta 5	7/12/55	78	395	W½ SE¼ SW¼ Sec. 26
Zeta 6	7/12/55	78	396	W½ NE¼ NW¼ Sec. 35
Zeta 7	7/12/55	78	397	E½ SE¼ SW¼ Sec. 26
Zeta 8	7/12/55	78	398	E½ NE¼ NW¼ Sec. 35

WILLARA - HOT VALLEY PROPERTIES

of

ARIZONA GIANT MINING CORPORATION

BY D. O. McGoon, Jr.
Exploration Geologist
Flagstaff, Arizona
August 15, 1955

WILLAHA
Hot Valley Properties

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WILLAHA
Hot Valley Properties

LOCATION:

Proceed west from Flagstaff, Arizona on highway 66 to the Grand Canyon turn off. Turn north and proceed to the Red Butte area then refer to attached Regional Map. The Red Butte area is approximately 60 miles from Flagstaff.

ACCESSIBILITY:

A state highway of good condition enters the Red Butte area. Rock roads of fair condition exist throughout the area. The off-road country may be traversed by jeep with little difficulty. However, when wet the off-road country requires the use of four-wheel drive.

WEATHER AND WATER--

The Red Butte area may be considered semi-arid. Most of the surface water is derived from winter snows, which are considered severe by the local ranchers. The water table may be expected to exist at a depth in excess of 500 feet.

TRANSPORT--

A spur line of the Sante Fe railroad to the Grand Canyon passes through Willaha. See attached Regional Map.

REGIONAL STRATIGRAPHY: The generalized section is:

Formation	Age	Approx. Thickness	Lithology
Malapai	Late tertiary	200'	Basalt flow
Moenkopi	Permian	300'	Alt. red SS-MS
Kaibab	Permian	300'	LS - SS - MS
Toroweap	Permian	250'	SS- LS - MS
Coconino	Permian	300'	SS
Hermit	Permian	300'	MS
Supai	Permian	800'	SS - MS
Red Wall	Mississippian	550'	LS
Temple Butte	Devonian	?	LS - SS
Tonto	Cambrian	?	SS - MS - LS
---	Pre-Cambrian	?	Igneous

SS - Sandstone
MS - Mudstone-Shale
LS - Limestone

The Red Butte area has on outcrop Kaibab and possibly Toroweap. However, Red Butte itself is capped with Malapai. (See attached Ground Geologic map for Kaibab members).

REGIONAL STRUCTURE

The Red Butte area occupys a position on the south flank of the Kaibab uplift. The writer has observed a positive flexure on this flank. It is believed that the flexure axis tends NW - SE. (see regional map) Minor folds have been observed to occur parallel to this flexure.

REGIONAL FAULTING

G. S. A. Vol. 59 No. 6 PP 527 "A fair number of subsequent streams have evacuated along virtually every fault line". PP 515 "Regional fault trend is NE - SW to NNE - SSW. All faults noted have the upthrown side to the Se."

MINERALIZATION--(See regional map)

Anita (1)

The minerals present are malachite, azurite and copper sulfides. Grand Canyon Nature. Notes, February 1953, PP 109 "The mineralization at Anita is in a brecciated zone several hundred feet wide trending NE-SW." The writer has recorded the shaft log of the Anita Copper Company dated October 30, 1904. This log shows mineralization of a thickness in excess of 200 feet. It is believed that most of the mineralization occurs below the basal or Gamma member of the Kaibab formation. The dump material is not excessively radioactive.

WILLAHA (2)

The minerals present are malachite, azurite, chalcocite, bornite, chalcopyrite, uraninite, and a carnotite type mineral. It has been observed that the uranium mineralization overlies the copper mineralization. Although approximately 40 tons of .25% U_3O_8 mineralized rock has been mucked out or exposed, drill hole information indicates that this deposit is small and isolated. This deposit occurs above the beta member of the Kaibab formation and appears to occur near the apex a fold in the Kaibab Alpha.

VALLE (3)

The minerals present are malachite, azurite, chalcocite, chalcopyrite and uraninite. The uranium mineralization overlies the copper mineralization. It is believed that this deposit occurs within the Beta member of the Kaibab formation and occurs near the apex of a local fold.

ANT VALLEY (4)

The mineral present is malachite in the exposed Kaibab Gamma. (see attached Ground Geologic map) It is believed that this outcrop is the apex of a positive structure which cuts the southern edge of a NE trending fault zone.

ALTERATION:

Every mineralized deposit inspected in the Red Butte area has been adjacent to green-blue mudstone stratigraphic units.

OXIDATION--

Every mineralized deposit inspected in the Red Butte area occurs in the presence of limonite. However, it may be noted that the copper sulfides at Willaha (2) have been completely oxidized, in zones, leaving the uraninite intact.

RADIATION EQUILIBRIUM--

Based on lead chamber-scaler calculations, the uranium mineralization in the Red Butte area is in equilibrium with the ores of the Gateway District, Colorado. The oxidized and sulfide zones were both tested with the same results.

MINERALIZATION THEORY

The mineralized zonal migration up section towards the axis of the flexure accompanied by mineral localization near the apex of folds may only be explained by the movement of mineralized solutions up dip. Based on this assumption, the paragenetic sequence of mineral localization would be copper sulfides first with uranium oxides second, whether they were introduced together or separately. With this paragenetic sequence, the major portion of uranium localization should be up dip from the copper-uranium localization, providing there were insufficient positive "traps" down dip to deplete the solutions of their mineral content. Airborne radiometric work indicates that there were sufficient "traps" down dip to deplete the solutions of their mineral content. It is believed that one of these "traps" is Hot Valley (4) The mechanics of why the minerals localize near the apex of positive structures or "traps" would be interesting. However, the fact that they do localize there is more useful.

The writer hesitates to indicate that faults were the "plumbing" for the mineralized solutions because of insufficient evidence. However, in referring to the generalized geologic section it may be noted that the Hermit formation is the only competent stratigraphic unit below the Kaibab Beta. The question of whether there was sufficient sediment load on the Hermit formation to

decrease the competency, at the time of faulting, to the point where it would fracture rather than flex, is still unanswered. The question of whether the mineralized solutions were of such a critical nature as to permit the penetration of a formation such as the Hermit, without disturbance, is also unanswered. However, the localization of chalcopyrite and chalcocite indicates that at least some solution constituents were of plutonic origin.

PREVIOUS RADIOMETRIC EXPLORATION

The area covered by the Region map was flown with a Mount Sopris airborne scintillometer and Esterline-Angus recorder, scale.2 bias 39, at an altitude of 50 feet, with a density of less than one half mile. The Hot Valley area was selected as most promising, as a result of this aerial reconnaisance.

The Hot Valley area was then flown, on the same scale, at a density of 200 feet. (see attached Airborne Iso-rad) The low intensity areas represent readings from 1.9 to 2.0 times background. The high intensity areas represent readings in excess of 2 times background, which were off the recorder scale. Five flight days were required to cover the Airborne Iso-rad area, with the last traverse of each day being repeated the following day for correlation purposes. All traverses were transit controlled and made in the same direction so as to give a "picture" with a map vector constant due to recorder time lag. Time recorder units were converted to distance units by use of geometrical proportions.

A 100-foot density ground Iso-rad map was made of the most promising area in Hot Valley. (See attached Ground Iso-rad) The grid was constructed with Brunton-tape, and each station flagged,

in such a manner as to expedite the operation. Each station was checked for radiation by use of a Hoffman scaler on a 2-minute time cycle with a 5 bismuth tube unit of our own design. Background changes were measured twice daily at a previously designated location. The radiation interpretation is located on the Ground Iso-rad map.

RADIATION INTERPRETATION SUMMARY --

1. If a radioactive ore-body is located at or near the surface of the ground, it will be near the low to high radiation areas.

2. If uraniferous solutions have passed through an exposed rock unit and in passing through were detained for a sufficient time to deposit the insoluble radium sulfate, the course will be indicated by the trend of the low to high radiation areas.

3. If a mineralized zone or ore-body has been eroded and consumed in the soil profile, the soil movement trend will be indicated by the trend of the low to high radiation areas.

PRELIMINARY DRILLING --Mayhew non-core equipment

Forty two holes were punched in the Willaha (2) area. All holes were bottomed in unaltered Kaibab Beta. No ore was encountered. However, altered mudstone was encountered adjacent to mineralized zones.

Nine holes were punched in the Hot Valley area. All holes were bottomed in Kaibab Gamma. No ore was encountered. However, altered Kaibab Beta mudstone was encountered in the radioactive trends shown on attached Airborne Iso-rad map.

The drill holes were punched for economic reasons rather than geologic.

22 holes

Tairteen additional holes were then drilled in the Hot Valley area, (see property status map). These holes, prefix letter A, were spotted in order to check the geologic section and alteration. All holes were bottomed in Kaibab Gamma. Altered mudstone was encountered at the base of the Kaibab Beta with DHA-5 showing

alteration within the Kaibab Beta. No alteration was noted in holes drilled off the radiometric trend. DH-A10 was drilled as a deep (200 feet) test of the Kaibab Gamma. Limonitic zones were encountered.

SUMMARY INTRODUCTION--

1. Uranium is known to be associated with the copper mineralization and altered mudstone in the Red Butte area.

2. Small uranium deposits have been found near the axis of the local flexure.

3. Mineralization noted is either associated with fault zones (Anita) or positive folds.

4. Mineralization in excess of 200 feet thick has occured in the area. (Anita)

5. The uranium mineralization encountered has been in a primary state and in equilibrium.

6. The mineralized solutions moved up section as they progressed to the southwest.

7. There has been sufficient uranium content remaining in the partially depleted mineralized solutions to cause localization near the axis of the flexure.

SUMMARY--

It is believed that sizable uranium ore-bodies may be encountered within the vicinity of Hot Valley (4). These ore-bodies should occupy a stratigraphic position in or below the Kaibab Gamma. It is the writer's opinion that the Hot Valley area warrants intensive sub-surface investigation controlled by sound geologic procedures. The writer knows of no other uranium district which has been given such an intensive and thorough geologic investigation and uncovered such favorable ore criteria.

PROPOSED DRILLING PROCEDURE--(Hot Valley)

PROPOSED DRILLING PROCEDURE--Hot Valley

First Stage:

The first stage should be the deep test (500 feet) drilling stage, in order to explore the Toroweap and upper Coconino horizons. It is in these horizons that the thickest mineralization has been encountered in the Red Butte area. (See Anita mineralization) The holes should be spotted off the flank of positive structures, down dip from probable ore localization zones so as to increase the target area in case supergene movement is encountered. Therefore, the following deep test hole locations are recommended.

1. SW corner of Section 28
2. 2200 feet SE of the NW corner of Section 28
3. 800 feet west of the SE corner of Section 28
4. 1600 feet East of the S" corner of Section 29
5. 1600 feet east of the NW corner of Section 29
6. 2400 feet North 20 degrees East of the Se corner of Sec. 28

SECOND STAGE:

The second or shallow drilling stage should be controlled by the attached ground Iso-rad map. It is recommended that the flagged stations located in the significant or higher radiation zones be used as drill sites, the total being 328 drill holes. The holes should penetrate at least 15 feet of Kaibab Gamma, the average depth may be expected to be less than 100 feet.

The deletion and drilling order of the second stage drill holes must be controlled only by the supervising geologist.

PROBABLE ADVERSE DRILLING CONDITIONS--

First Stage:

1. Chert nodules and stringers may be expected in the Kaibab Gamma.

2. Caving conditions may be expected with drill holes in excess of 3 inches in diameter.

3. Penetration of the water table may be expected near 500 feet.

4. Drilling water, if used, will have to be purchased and hauled from the Sante Fe railroad at Willaha.

5. It is doubtful if circulation can be maintained in the Kaibab Gamma.

SECOND STAGE:

No adverse conditions are anticipated providing, a percussion type drill is used properly.

Respectfully submitted

By D. O. McGoon, Jr.
Exploration Geologist
Flagstaff, Arizona
August 15, 1955

ARIZONA GIANT MINING CORP.

Operating Headquarters

220 East Birch Ave. Phone 1778 Flagstaff, Arizona

Professional Records of Staff

R. S. Butler — Exec. V. P. & Gen. Mgr.

1911-15	Sup't-Barnsdall Mines;	Parral, Mexico
1915-28	V. P. & Mgr.- Barnsdall Corp. Mining Division	Joplin, Missouri
1928-31	Director of Research and Development Southwestern Engineering Co.	Los Angeles, Calif.
1931-34	Consulting Engineer Nordberg Mfg. Co.	Milwaukee, Wisc.
1934-42	Consulting Engineer Sullivan Machinery Co. (Joy Mfg.)	Claremont, N. H. Michigan City, Ind. Chicago, Ill.
1942-44	Chairman, Ordance Committee	Chicago, Wash., D. C.
1944-48	Consulting Engineer Hoadrey Mfg. C. Fairbanks-Morse Ingersoll Steel	
1948-52	Gen. Mgr.-Interamericana, S. A.	Bogota, Columbia
	V. P. & Gen. Mgr.-Las Playas Mfg. Co.	" "
1952-55	Engineer-Defense Minerals Production Agency Mining Consultant Interior Committee R of R.	Washington, D. C.
1955--	V. P. and Gen. Mgr. Arizona Giant Mining Corp.	Window Rock-Flagstaff, Arizona
1917---	Member American Institute of Mining Engineers	

L.O.McCoon, Jr.

1944-48	University of Florida. A. A.
1948-52	Studies, Professional Activities
1952-54	Colorado School of Mines
1954-55	Bear Creek Mfg. Co.-Engineering and Geology
	Atomic Power Uranium Corp. - Geology
	Arizona Giant Mining Corp. - Geology

Mike Brodie

1948-51	Operating Sub-lease Vanadium Corp. of America	Monument Valley, Ariz.
1951-53	1951-53 - Field Sup't Thoruburg Mfg. Co.	Navajo Reservation
1953-54	Arizona State Employment Service Navajo Tribe-- Prospecting for various Companies.	Arizona, Colorado
1954-55	Ass't Field Sup't Arizona Giant Mg. Corp.	

Donald Wright

1946-50	Mining and surveying Chester Wright Mg. Co.	Colorado Plateau
1950-52	Field Engineer J. R. Simplot Corp;	" "
1952-53	Mine Foreman-Tomboy Mines	" "
1953-55	Field Chief-Giant Uranium, Inc.	" "
1955-	Field Sup't. Arizona Giant Mining Corp.	" "

Carlotta Preston

1953	Ganado Mission (graduate)	Ganado, Arizona
1953-55	Haskell Institute (graduate)	Lawrence, Kansas
1955--	Arizona Giant Mining Corp.	Flagstaff, Arizona

Geo. W. Gilmore, Jr.

	Consulting Geologist	Durango, Colo.

Winston Marks

	Contract guide	Farmington, N. M.

Technical Service, Inc.

	Contract Engineers	Grand Junction, Colo.

Arizona Engineering Co.

	Contract geology and survey	Flagstaff, Ariz.

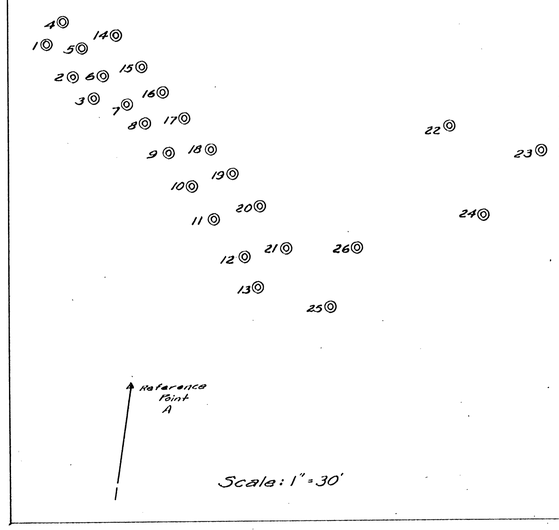
H & H Exploration Co.

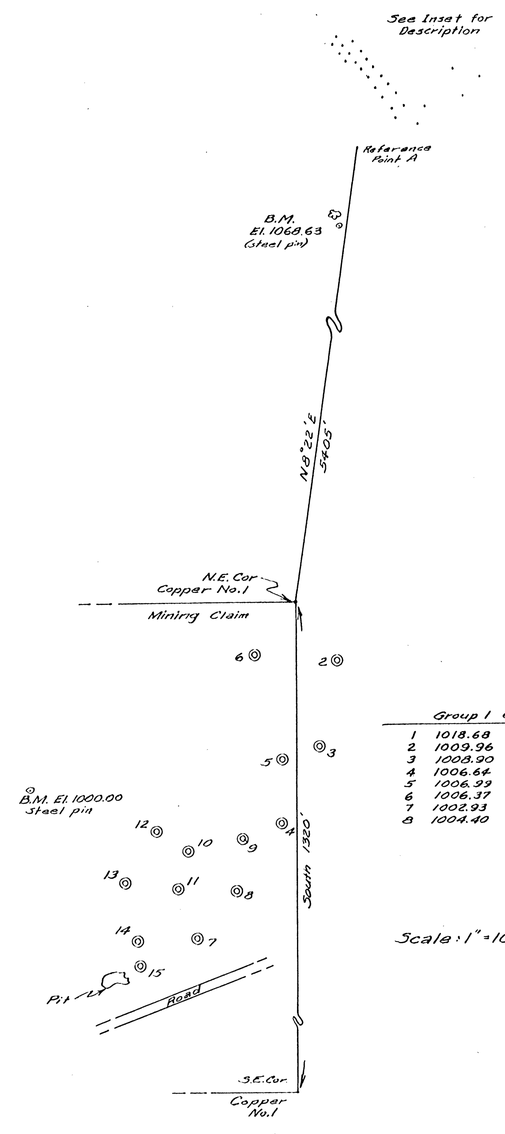
	Contract Aerial radiometric	Grand Junction, Colo.

National Accounting Service

	Auditors & Accountants	Flagstaff, Arizona

Group 2 Collar Elevations			
1	1059.04	14	1060.75
2	1060.51	15	1061.38
3	1061.23	16	1061.90
4	1060.28	17	1062.64
5	1060.42	18	1063.33
6	1061.05	19	1063.85
7	1061.52	20	1064.29
8	1062.27	21	1064.70
9	1063.06	22	1059.22
10	1063.53	23	1059.79
11	1064.74	24	1061.17
12	1065.11	25	1063.19
13	1065.28	26	1064.65

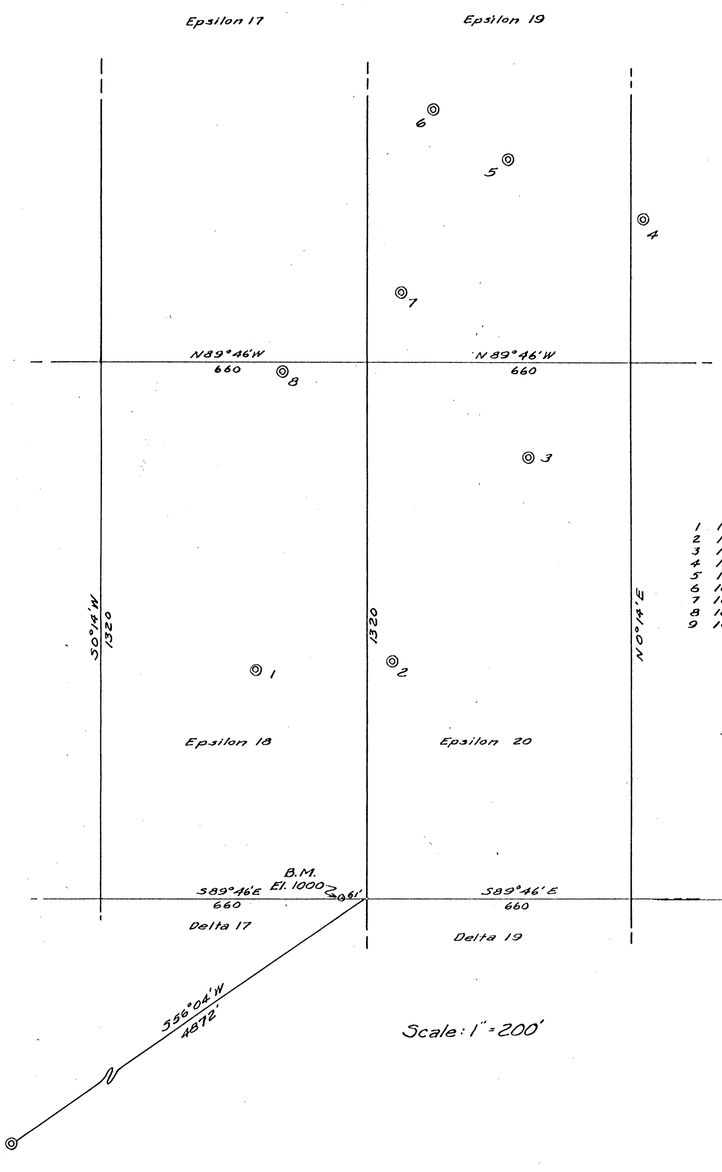




Group 1 Collar Elevations			
1	1018.68	9	1004.49
2	1009.96	10	1001.42
3	1008.90	11	1001.62
4	1006.64	12	999.92
5	1006.99	13	998.43
6	1006.37	14	999.82
7	1002.93	15	1000.79
8	1004.40		

Scale: 1" = 100'

Drill Hole Locations
West Area



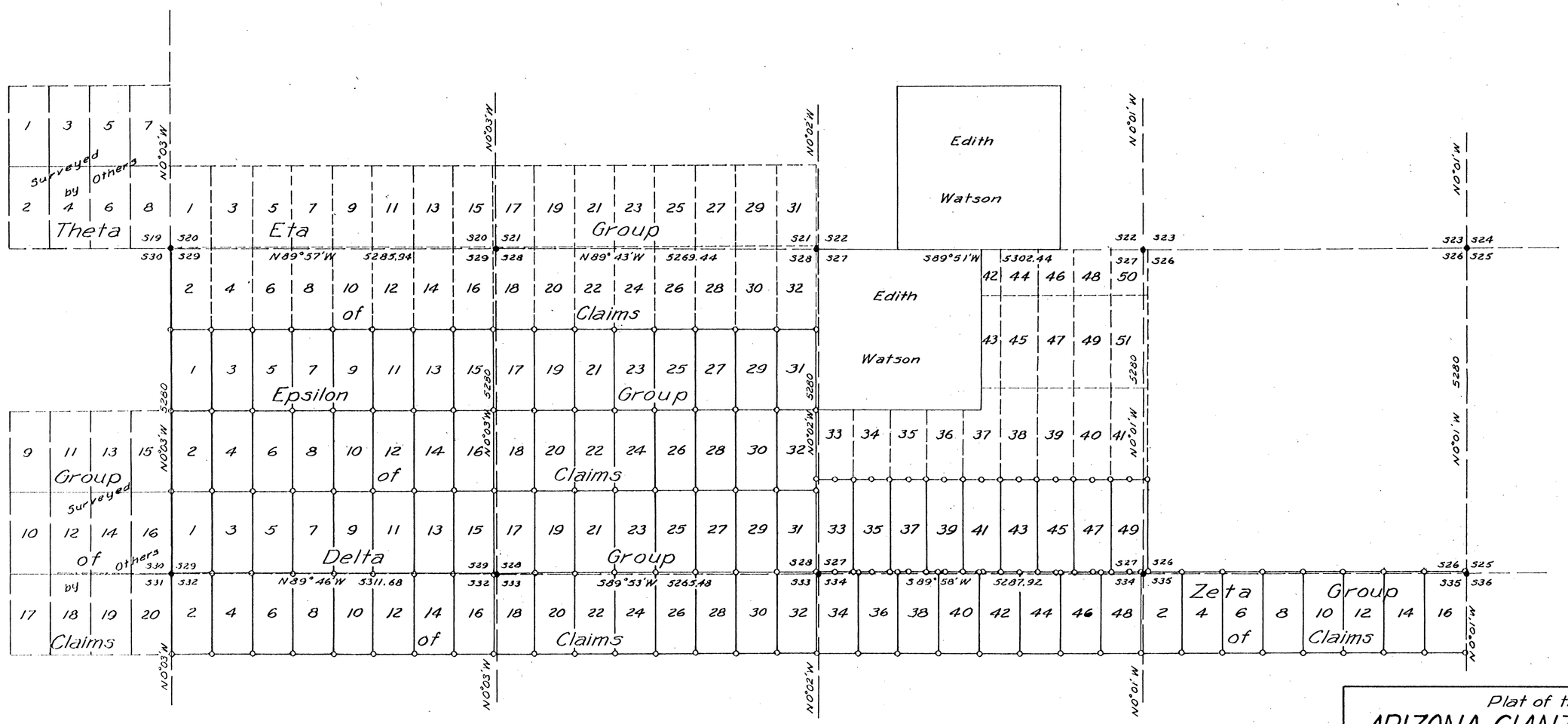
1	1007.64
2	1008.75
3	1015.79
4	1052.34
5	1032.73
6	1034.57
7	1021.08
8	1031.84
9	1022.39

Scale: 1" = 200'

Drill Hole Locations
Delta & Epsilon Claims

Plat of the
ARIZONA GIANT MINING CORP.
Mining Claims
Showing Drill Hole Locations and
Collar Elevations

Scale: as shown July 22, 1955
ARIZONA ENGINEERING CO., FLAGSTAFF



Plat of the

ARIZONA GIANT MINING CORP.

Delta, Epsilon Zeta & Eta
Group of Claims

Sec. 20, 21, 22, 23, 26, 27, 28, 29, 32, 33, 34 & 35
T28N, R3E, G. & S. R. B. & M.
Coconino County, Arizona

Scale: 1" = 1200'

July 7, 1955

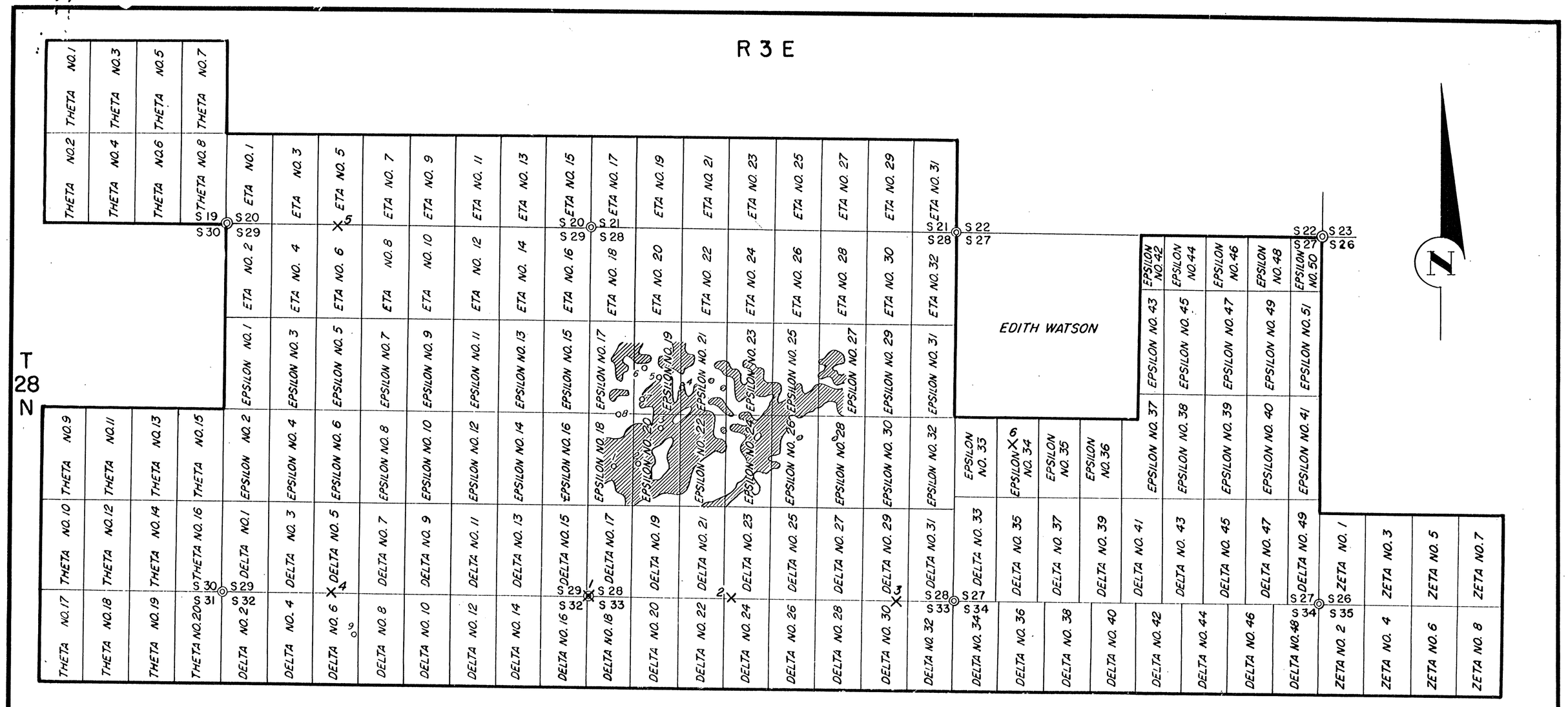
ARIZONA ENGINEERING CO., FLAGSTAFF

This is to certify that the above map was prepared from field notes of actual surveys made by me or under my supervision and that the same are true and correct to the best of my knowledge and belief.

Signed: C.W. Dryden, Reg. Prof. Engr.

• Section Corners
o 4"x4" Posts at claim Corners
Unsurveyed claims shown by dashed line boundaries

Revised 8-26-55



LEGEND

HOLES ALREADY DRILLED

HOLES PROPOSED FOR STAGE I

AREAS SHOWING RADIOACTIVITY WHERE HOLES FOR STAGE II ARE PROPOSED ON 100-FOOT SPACING.

NOTE

DATA TAKEN FROM APPLICANT'S MAP.

0 1000 2000 3000

SCALE OF FEET

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Fig. 2 DMEA Docket No. 3999

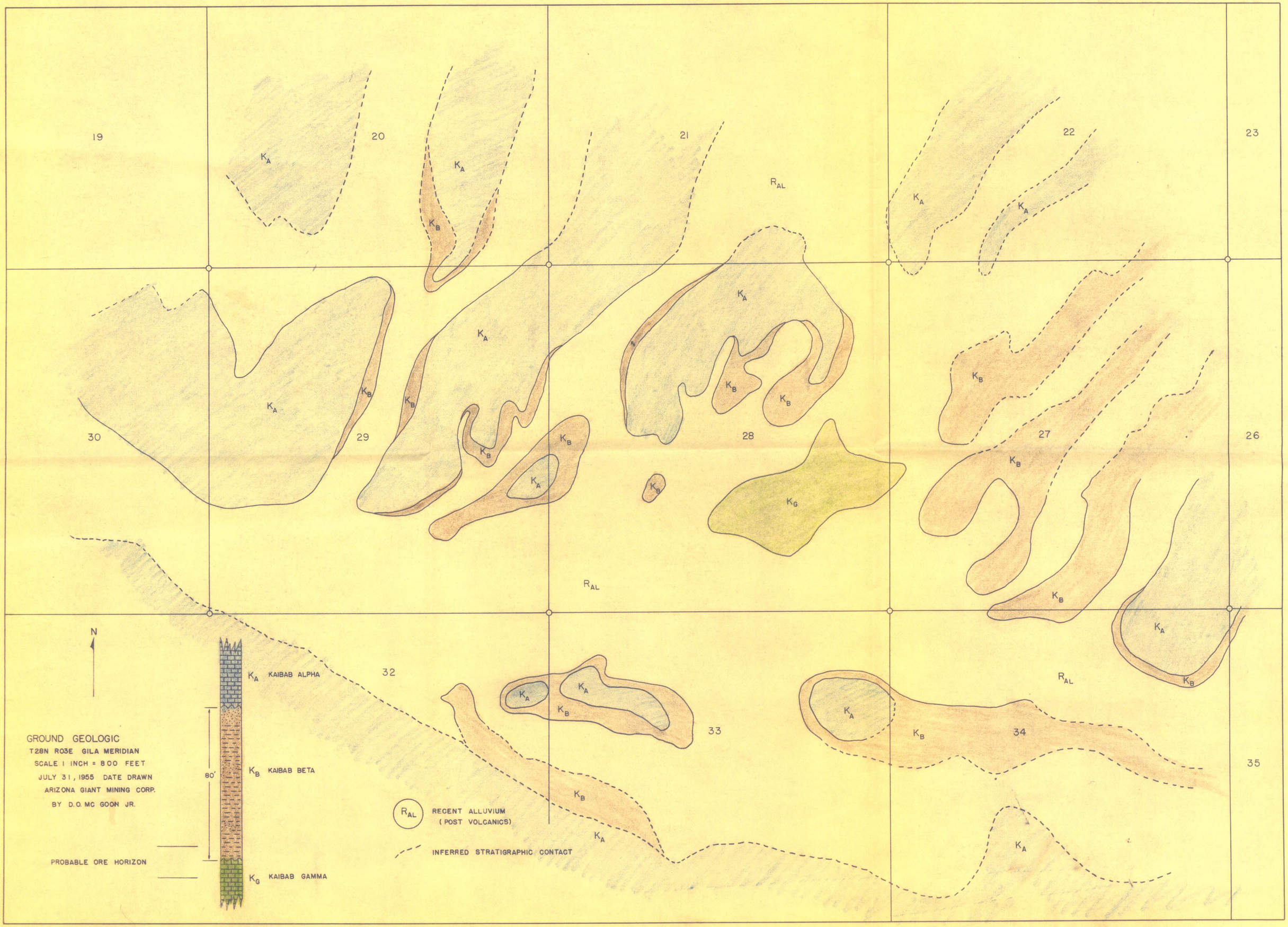
Claim Map

ARIZONA GIANT MINING CORP.

(HOT VALLEY PROPERTY)

COCONINO COUNTY, ARIZONA

ENGINEER: M. H. HOWES	DATE: FEB. 8, 1956
TRACED: FEB., 1955; BY: A. P. T. S.	1900 - 374 - D
CHECKED:	


19
20
21
22
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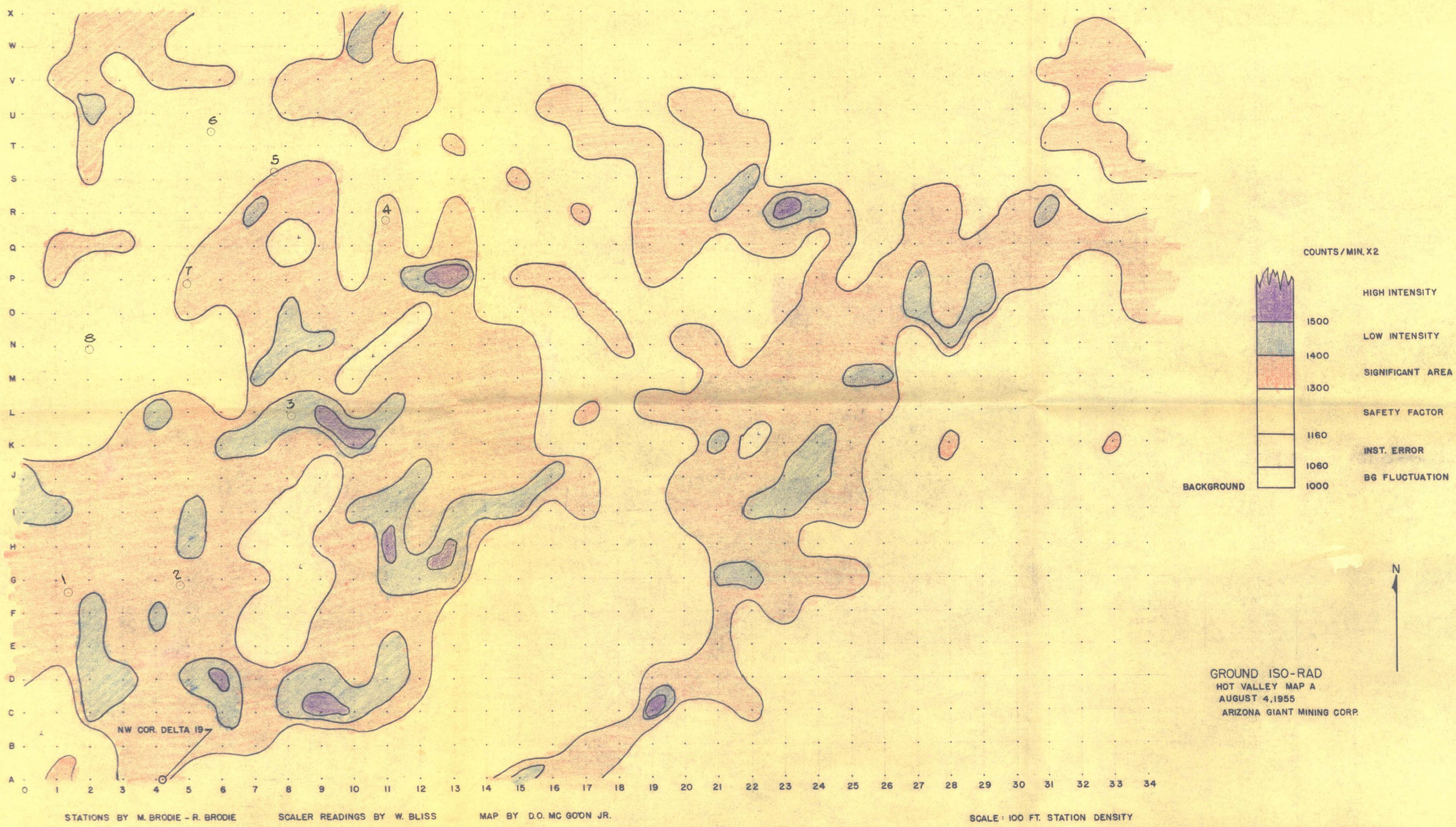
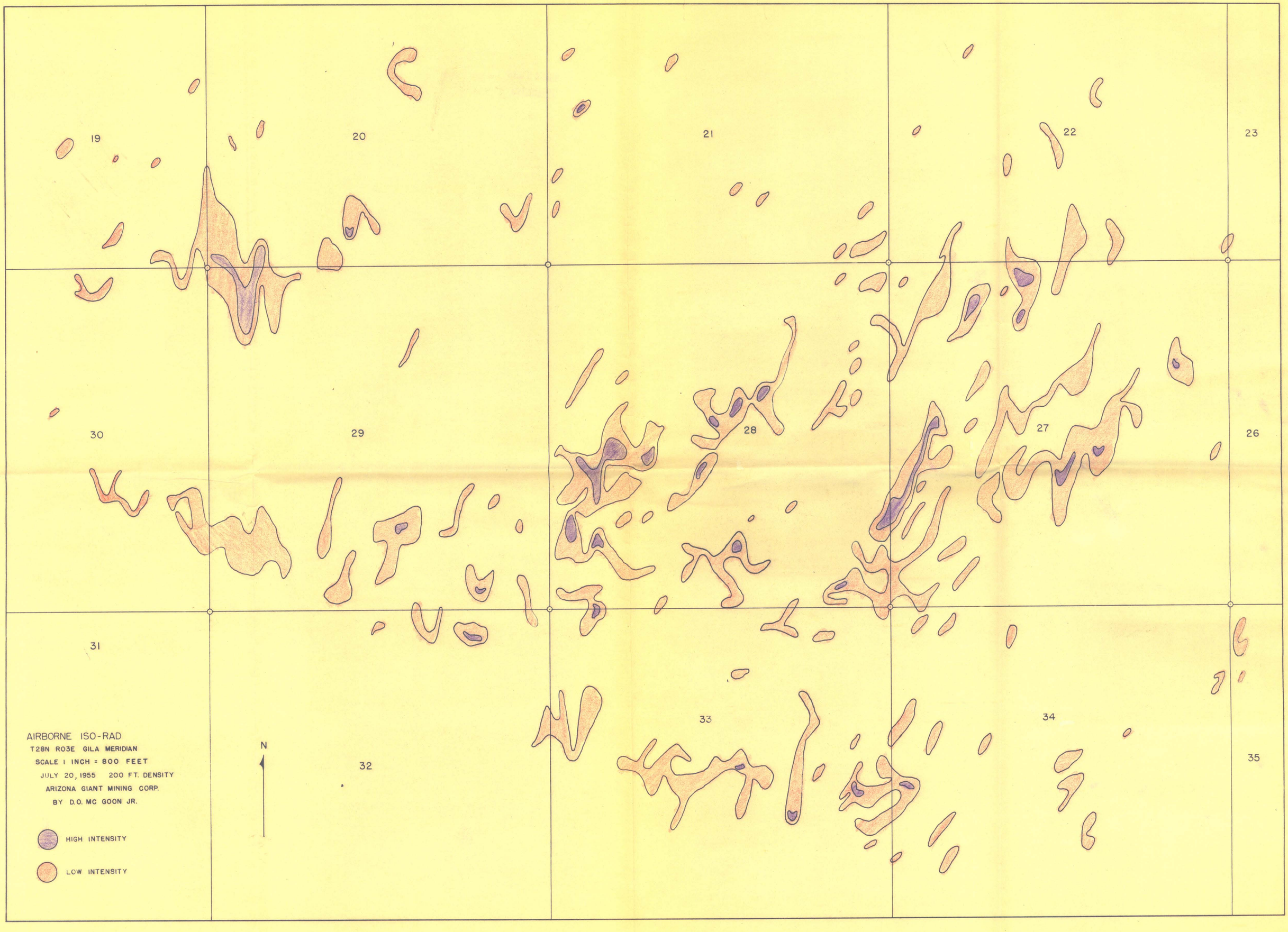
27
26
32
33
34
35
K_A
K_B
K_G
R_{AL}
N
GROUND GEOLOGIC
T28N R03E GILA MERIDIAN
SCALE 1 INCH = 800 FEET
JULY 31, 1955 DATE DRAWN
ARIZONA GIANT MINING CORP.
BY D.O. MC GOON JR.
80'
K_A KAIBAB ALPHA
K_B KAIBAB BETA
K_G KAIBAB GAMMA
PROBABLE ORE HORIZON
R_{AL} RECENT ALLUVIUM (POST VOLCANICS)
INFERRED STRATIGRAPHIC CONTACT



STATIONS BY M. BRODIE - R. BRODIE SCALER READINGS BY W. BLISS MAP BY D.O. MC GOON JR.

SCALE : 100 FT. STATION DENSITY

TO BE USED IN THE FIELD ONLY


19
20
21
22
23
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26
31
32
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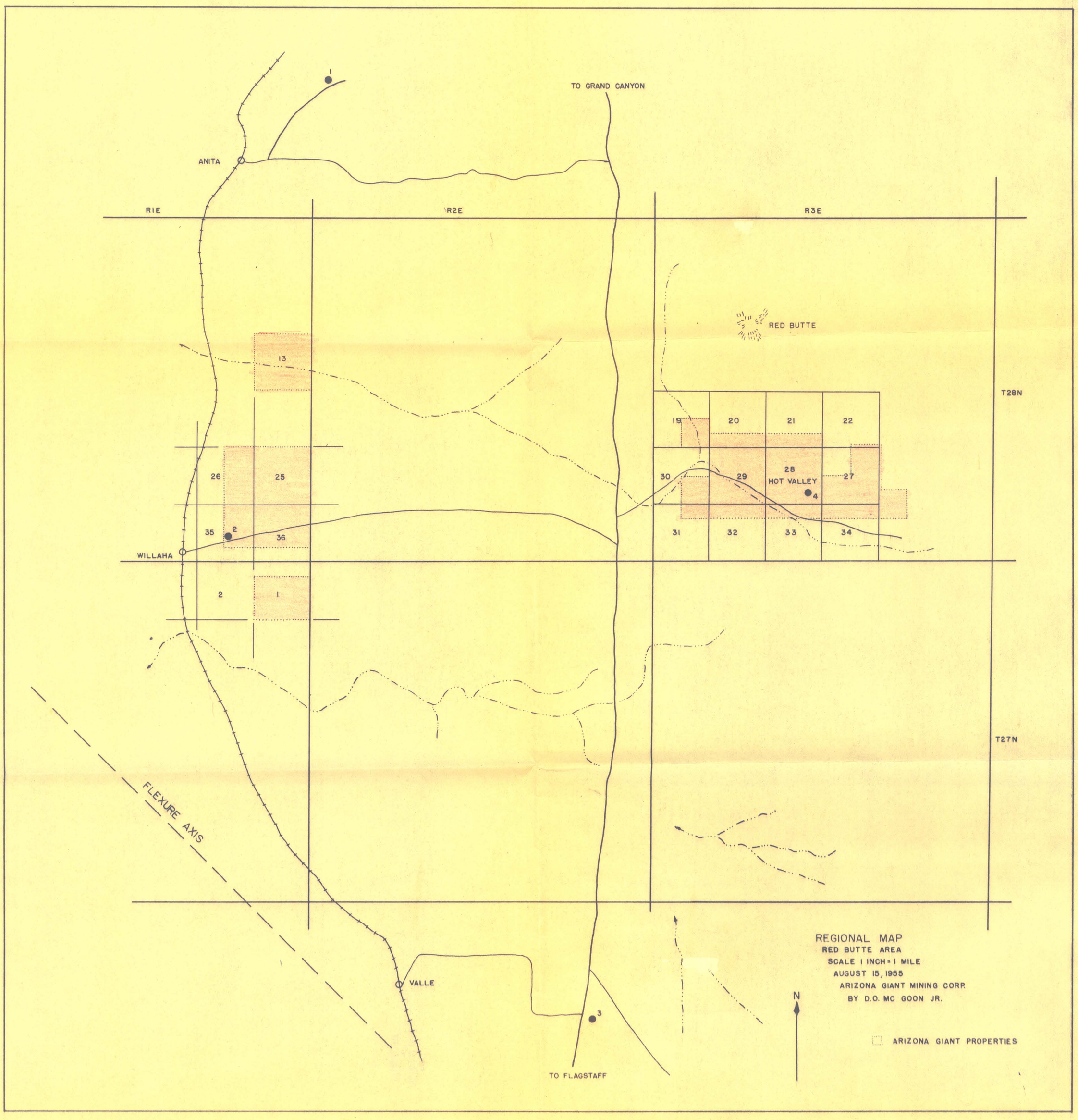
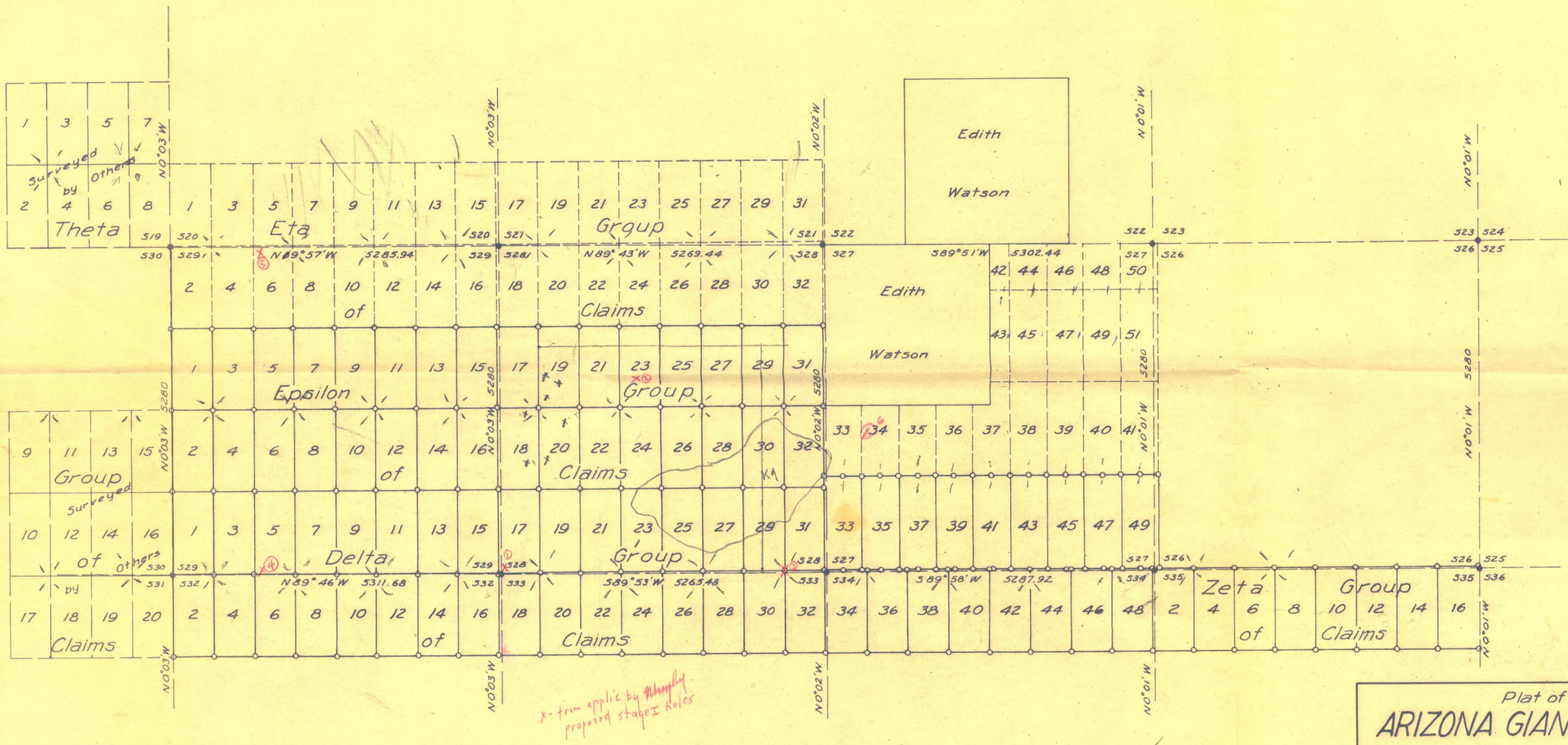
34
35
N
AIRBORNE ISO-RAD
T28N R03E GILA MERIDIAN
SCALE 1 INCH = 800 FEET
JULY 20, 1955 200 FT. DENSITY
ARIZONA GIANT MINING CORP.
BY D.O. MC GOON JR.
HIGH INTENSITY
LOW INTENSITY


TO GRAND CANYON
ANITA
R1E
R2E
R3E
T28N
T27N
RED BUTTE
13
26
25
35
36
2
1
19
20
21
22
30
29
28
HOT VALLEY
27
4
31
32
33
34
WILLAHA
FLEXURE AXIS
VALLE
3
TO FLAGSTAFF
N
REGIONAL MAP
RED BUTTE AREA
SCALE 1 INCH = 1 MILE
AUGUST 15, 1955
ARIZONA GIANT MINING CORP.
BY D.O. MC GOON JR.
ARIZONA GIANT PROPERTIES



Plat of the

ARIZONA GIANT MINING CORP.

Delta, Epsilon Zeta & Eta
Group of Claims

Sec. 20, 21, 22, 23, 26, 27, 28, 29, 32, 33, 34 & 35
T28N. R3E, G. & S. R. B. & M.
Coconino County, Arizona

Scale: 1" = 1200' July 7, 1955

ARIZONA ENGINEERING CO., FLAGSTAFF

This is to certify that the above map was prepared from field notes of actual surveys made by me or under my supervision and that the same are true and correct to the best of my knowledge and belief.

Signed: C.W. Dryden, Reg. Prof. Engr.

REGISTERED CIVIL ENGINEER
ARIZONA
CHARLES W. DRYDEN
No. 2111
U.S.A.

• Section Corners
o 4"x4" Posts at claim Corners
Unsurveyed claims shown by dashed line boundaries

Revised 8-26-55