5/23/55

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

224 New Customhouse
Denver 2, Colorado

May 18, 1955

Memorandum

To: Chairman of the Operating Committee, DMEA

From: DMEA Field Team, Region III

Subject: Report of Examination, DMEA Docket 3699 (Uranium), W. C. Kinnon, (Copper Kid claims), Maricopa County, Arizona

Enclosed are the original and three copies of the report pertaining to the above application.

We concur in the recommendations of the field examiners that the application be denied.

It is indicated in the Survey report that the two AEC geologists who are presently mapping the property were contacted and their unfinished map was used by the field examiners.

W. M. Traver

W. M. Traver

E. N. Harshman

E. N. Harshman

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
5-27-55
(date)

TRANSMITTED

MAY 18 1955

DMEA
Date Rec'd

MAY 5 1955

BUREAU OF MINES
Denver, Colorado

May 3, 1955

Memorandum

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

From : Superintendent, Southwest Experiment Station

Subject : Report on Docket DMEA-3699, W. C. Kinman's Copper Kid Uranium Claims, Cave Creek Mining District, Maricopa County, Ariz.

Enclosed are original and 10 copies of the section on Summary, Conclusions and Recommendations by Leonid Bryner of the Geological Survey and T. M. Remale of the Bureau of Mines, and the section on Engineering by Remale for the above report. A separate section on Geology will be submitted by the Survey.

Because uranium is present only in very small amounts and there seems little chance of making a significant discovery by additional exploratory work, the DMEA examiners have recommended that Government exploration assistance be denied the applicant. I concur with this recommendation.

Brochure is enclosed.

Walter R. Storms

Walter R. Storms

CC W. M. Traver (10)
J. N. Faick (with report)
DMEA-3699 (with report)
DF

WRStorms:frj

Reviewed by
DMEA OPERATING COMMITTEE
5-27-55
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

DMEA-3692, W. C. Kimmon's Copper Kid Uranium Claims

Maricopa County, Arizona

Leonid Bryner, Geologist
U. S. Geological Survey

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

May 1955

Reviewed by
DMEA OPERATING COMMITTEE
5-27-55
(date)

TRANSMITTED
MAY 18 1955

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

By Leonid Bryner[1] and T. M. Rosale[2]

W. C. Kinnan applied to the Defense Minerals Exploration Administration in February 1955 for Governmental aid on a proposed exploratory project for uranium ores on the Copper Kid claims in Maricopa County, Ariz. The application, docketed as DMEA-3698, contained a proposed 3-stage project that involved dewatering and rehabilitation of a shallow shaft to determine if conditions were favorable for sinking the shaft an additional 100 feet; and 100 feet of crosscutting and drifting. Cost of the proposed program was estimated at $18,204.00.

The Copper Kid claims were explored for gold and silver probably before 1920 when the claims were known as the Peachentse property. Field evidence indicates no ore was produced from the main workings. These comprise an inclined and a vertical shaft with estimated depths of 70 and 40 feet, respectively, and a 75-foot adit. Since 1920, activity probably has been confined to recent examinations of the claims by the Atomic Energy Commission and the applicant. At present the property is inactive and contains no buildings, nor mining and milling equipment.

The Copper Kid claims are in a belt of pre-Cambrian schist that strikes east-northeast and dips steeply to the northwest near the exploratory workings. Shear zones in the schist in the mine area

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1/ Geologist, Geological Survey
2/ Mining engineer, Bureau of Mines

are thin and discontinuous. Oxidation and hydrothermal alteration are most noticeable in or near two parallel shear zones, each about 1 foot wide, in the inclined shaft. Anomalous radioactivity was found only in one of these shear zones in the inclined shaft, and in a dump containing rock that probably came from the lower portion of this shaft. In the shaft the anomalous radioactivity is confined to a quartz veinlet associated with sulfides of base metals. The veinlet is 1 to 2 inches wide and about 1.5 feet in vertical extent. A sample taken by the examiners across the veinlet for 1.1 feet, the interval of anomalous radioactivity, gave 0.04 percent equivalent U_3O_8 by radiometric analysis. The radioactive dump rock assayed 0.02 percent equivalent U_3O_8. Another sample, taken from the highest grade material exposed in a discovery pit about 40 feet west of the inclined shaft, assayed a trace of equivalent U_3O_8. The uranium is present as small veinlets of uraninite in or near nodules of barite. It is associated with sulfides and oxides of lead, copper and iron, manganese oxide, and altered feldspars.

Denial of the requested assistance in exploration of the deposit is recommended because known uranium and base metal mineralization is present in meager amounts and there is no reason to believe significant reserves of the minerals exist.

DMEA-3699, W. G. KIRKON'S COPPER KID URANIUM CLAIMS
MARICOPA COUNTY, ARIZONA

Engineering Report

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

May 1955

Transmitted to
DMEA CONTRACTS SUPERVISOR
5-27-55
(Date)

DMEA-3599, W. C. KIDSON'S COPPER KID URANIUM CLAIMS
MARICOPA COUNTY, ARIZONA

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ILLUSTRATIONS

Figure No.		Following page
1	Location map	1
2	Claim map	(Not available)
3	Geologic map	(See Geologic report)

INTRODUCTION

W. C. Kinnon of Phoenix, Ariz. made application in February 1955 for Governmental aid in exploring the Copper Kid claims in Maricopa County, Ariz. for uranium ore. The application was made to the Defense Minerals Exploration Administration where it was docketed as DMEA-3698, reviewed by the Operating Committee, and sent to the Field Team, Region III, for a field investigation. It contained a proposed 2-stage exploratory project, costing an estimated total of $10,204.00. The proposed project called for dewatering and rehabilitation of a 70 to 100-feet deep shaft to determine if conditions warranted deepening the shaft an additional 100 feet; and 100 feet of drifts and crosscuts.

The field investigations were made on April 13 and 14, 1955 by L. Bryner, geologist, U. S. Geological Survey and T. M. Romale, mining engineer, U. S. Bureau of Mines. The applicant accompanied the examining team during the first day of the investigations and assisted them in making the inclined shaft accessible to a depth of about 28 feet.

LOCATION AND ACCESSIBILITY

The Copper Kid claims are situated in sec. 10, T. 6 N., R. 4 E., Maricopa County, Ariz. (figure 1). They are about 2.5 air miles north of Cave Creek, a village at 26 miles north of Phoenix via the paved Phoenix-Cave Creek road. To reach the claims from Cave

Creek, follow the signed "Sierra Vista Ranch" graded road 4.0 miles to the junction with an unimproved road that branches to the left. From the junction to the inclined shaft via the unimproved road is about 0.4 mile of which the last 0.1 mile is presently impassable by automobile.

PHYSICAL FEATURES AND CLIMATE

The Cave Creek claims are situated near the foot of the south slope of an unnamed mountain that attains a peak altitude of 3,301 feet. They are in an area of moderately rugged topography at an average altitude of about 2,400 feet.

There are no permanent streams in the immediate vicinity of the property. Drainage is southwesterly to Cave Creek.

Vegetation and climate are characteristic of the lower altitudes of central Arizona.

HISTORY AND PRODUCTION

There is no readily available information about the early history of the Copper Kid claims. It is believed that some of the claims first may have been located and worked as the Pocahontas property prior to 1920 when several nearby mines produced significant amounts of gold, silver, and copper. Since then, activity probably has been confined to the construction of a few shallow pits and trenches, and examinations of the property by both the applicant and the Atomic Energy Commission. This work was done during late 1954 and early 1955.

Field evidence indicates that no ore has been produced from the property.

PROPERTY AND OWNERSHIP

The Property comprises a group of 6 unpatented lode mining claims, the Copper Kid and Copper Kid No. 1 to 5. It is owned by the applicant, Mr. W. G. Kinnan, 20 S. Catalina Ave., Phoenix, Ariz.

An unsuccessful attempt was made to secure a claim map from the applicant.

PRESENT STATUS

The property is inactive and contains no buildings nor mining or milling equipment.

The principal workings comprise an inclined shaft, a vertical shaft, an adit, and several shallow pits and trenches (figure 3). The inclined shaft, about 5 feet by 8 feet in section, is believed to be about 70 feet deep. It is open to a collapsed timber at a depth of about 28 feet. Water stands at an estimated 13 feet below the timber. The vertical shaft, within a few tens of feet of the inclined shaft, is cased at its collar. It is now about 25 feet deep and probably was approximately 10 feet deeper. The adit, outside the area of proposed exploration, is accessible for its full length of about 75 feet. A winze near the face of the adit is about 10 feet deep.

DESCRIPTION OF THE DEPOSIT

The workings of the Copper Kid claims are in an east-northeast trending belt of pre-Cambrian schist that is 600 to 1,200 feet wide and about 10 miles long. Numerous readings for radioactivity were taken with El-Tronic Beta-Gamma Survey meter at rock outcrops and at all of the mine workings in and adjacent to the proposed

exploratory project. Significant radioactivity was found only at one small zone in the shaft and at a dump containing an estimated 20 tons of rock (figure 3). Field evidence indicates the dump rock came from the lower portion of the shaft.

The schist around the inclined shaft strikes east-northeast and dips steeply northwest. Minor crumpling and alteration of the schist is associated with several narrow shear zones that follow planes of schistosity. Other rocks in the immediate vicinity are patches of cemented gravel and a body of diabase(?) that crops out about 80 feet to the north of the shaft.

Significant radioactivity in the inclined shaft is concentrated in a quartz-galena veinlet that occurs in a 1-foot wide shear zone at the footwall of the shaft. The veinlet, 1 to 2 inches wide and about 1.5 feet in vertical extent, is exposed only in the west wall of the shaft at a depth of about 35 feet below the collar. Measurements at right angles to the veinlet showed no appreciable radioactivity beyond about 0.5 feet in either direction. Persistence of the veinlet below the accessible portion of the shaft is unknown.

The following are the assay results of 3 samples taken by the examining team:

NMMA No.	Length (feet)	Percent U$_3$O$_8$	Description
11437	1.1	0.04	Chip sample that includes high-grade veinlet of inclined shaft.
11438	—	0.02	33 lbs. from walls of trench in dump from shaft.
11439	1.0	Tr	Highest grade material exposed by discovery shaft.

Pieces of the radioactive rock from the veinlet in the shaft (U.S.B.M. 11437) contain significant amounts of galena. Anomalous radioactivity in rock from the dump was found also with azurite, malachite, limonite, and manganese oxides. The Bureau of Mines made a microscopic examination of a specimen (F-0220, AEC; UPP-673, U.S.B.M.) submitted by the Atomic Energy Commission. It contained barite, quartz, calcite, limonite, hematite, clay, altered feldspar, manganese oxide coatings, a small amount of sooty uraninite, galena, covellite, chalcocite, pyrite, chalcopyrite, and a green mineral that possibly is brochantite. The uraninite occurs around nodules of barite as small veinlets that are closely associated with the sulfides. N o thorium was found, the excess radioactivity being due to an accumulation of radioactive products. The chemical analysis of this sample was 0.77 percent U_3O_8 and the radiometric determination was 1.13 percent equivalent U_3O_8. Based on information obtained from the applicant, the assays and microscopic analysis probably were made on selected high-grade material from the 1 to 2 inch wide veinlet in the shaft.

ORE RESERVES

The deposit contains no measurable ore reserves.

Indicated and inferred reserves are in the order of 1 to 5 tons of material containing less than 0.1 percent U_3O_8.

CONCLUSIONS AND RECOMMENDATION

Uranium mineralization and associated sulfides of base metals occur in very minor amounts in this and discontinuous shear zones. There is no reason to believe that either the degree or extent of mineralization is of economic significance in terms of possible extension.

Denial of the requested assistance in the proposed exploration of the Copper Kid claim is recommended.

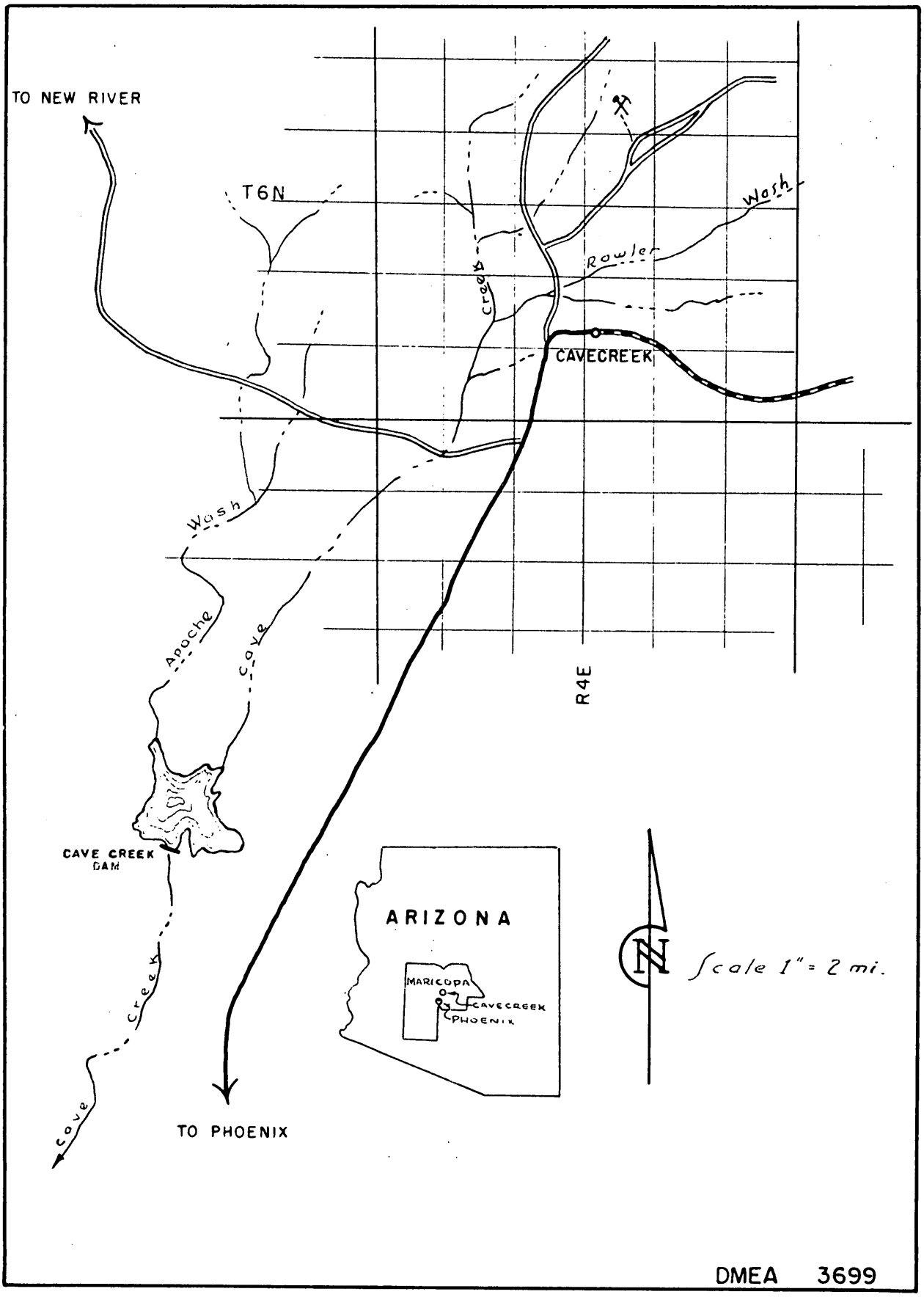

FIGURE 1 LOCATION MAP
W.C. KINNON, COPPER KID CLAIMS (URANIUM)
MARICOPA COUNTY, ARIZONA

IN REPLY REFER TO: DMEA

Date Rec'd, MAY 2 1955

BUREAU OF MINES
Denver, Colorado

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Defense Minerals Exploration Administration
Denver Federal Center
Denver, Colorado

April 29, 1955

TRANSMITTED
MAY 18 1955

Memorandum

To: Field Team, Region III

From: E. N. Harshman

Subject: DMEA Docket 3699 (Uranium), W. C. Kinnon, Copper Kid claims, Maricopa County, Arizona

Enclosed are the original and 9 copies of a geologic report by Leonid Bryner, U. S. Geological Survey, covering his examination of the subject property.

The Copper Kid claims are in an area of pre-Cambrian Yavapai schist 600 to 1,200 feet wide and 10 miles long, in part covered by later volcanic rocks, and intruded by diabase.

Copper, lead and iron sulfides and very minor amounts of a uranium mineral, identified by the U. S. Bureau of Mines as uraninite occur in shear zones which are parallel to the planes of schistosity.

The deposit has been prospected by an inclined shaft, now flooded to within 40 feet of the surface and inaccessible below a point 28 feet from the surface, by a vertical shaft, caved at a point 20 feet below the collar and be several shallow pits and trenches. These workings are shown on figure 3 accompanying the enclosed report.

Bryner concludes that uranium occurs as thin seams and lenses of low-grade material dispersed along shear zones in schist and that significant deposits of uranium ore will not be found by exploration on the property. He, therefore, recommends that the application for Government exploration assistance be denied.

I concur with this recommendation.

Coordination with the AEC is indicated in the introduction of the Bryner report although no positive statement to that effect is made. Conformation of this coordination may be required.

Reviewed by
DMEA OPERATING COMMITTEE
5-27-55
(date)

E. N. Harshman

E. N. Harshman
Member, Field Team

Enclosures
ENHarshman:arh

Box 4126 University Station
Tucson, Arizona

April 26, 1955

MEMORANDUM

To: Mr. E. N. Harshman

From: J. N. Faick

Subject: DMEA 3699 (Uranium), W. C. Kinzon (Copper Kid Claims)
Maricopa County, Arizona

Enclosed are the original and ten copies of an examination report by Leonid Kryzer on the above subject property. This report recommends denial of Government participation in exploration because geological conditions indicate that significant reserves of ore do not exist in the deposit. The report has my approval.

One copy of the application is returned herewith.

John N. Faick
John N. Faick

JNF:ms

cc - 10 to Mr. Harshman
1 to Mr. Storms

Reviewed by
DMEA OPERATING COMMITTEE
5-27-55.
(Date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REGION III

GEOLOGY
EXAMINATION REPORT

DMEA 3699, Copper Kid Mine of W. C. Kirmen

Maricopa County, Arizona

(Uranium)

By
Leonid Bryner
Geologist
U. S. Geological Survey

April 25, 1955

Reviewed by
DMEA OPERATING COMMITTEE

5-27-55
(date)

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

GEOLOGY
EXAMINATION REPORT
DMEA 3699, COPPER KING MINE OF W. C. KIMMON
MARICOPA COUNTY, ARIZONA

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ILLUSTRATIONS

Fig. 1	LOCATION MAP	See Engineering Report
Fig. 2	CLAIM MAP (may not be available)	" " "
Fig. 3	GEOLOGIC AND ASSAY MAP	Following page 2

INTRODUCTION

In an application to the Defense Minerals Exploration Administration, dated February 9th, 1955, W. C. Kimmon requested government participation in a program estimated to cost $10,204, to explore for uranium on the Copper Kid claims, Maricopa County, Arizona.

The property is located in Sec. 10, T. 6 N., R. 4 E. It is 4 miles north of the village of Cave Creek, via a graded dirt road that leads to the Sierra Vista Ranch. Six unpatented claims belonging to W. C. Kimmon comprise the property.

The examination was made during April 13 and 14 by T. M. Ramalo, of the U. S. Bureau of Mines, and by the writer. Kimmon accompanied the examiners during the first day.

The following report summarizes the geologic results of the examination. This examination consisted of a geologic reconnaissance of an area surrounding the workings, sketching by Brunton Survey of some of the pertinent geologic features in the immediate vicinity of the most radioactive ground, a radiometric survey of the inclined shaft, as well as of the mine area, and sampling some of the workings and dumps. The purpose of this work was to appraise the possibility of discovering a significant tonnage of uranium ore on the property. It is the conclusion of the examiners that a significant tonnage of uranium ore is not likely to exist on this property; therefore government participation in its exploration is not justified.

A preliminary reconnaissance report by ABS geologists M. L. Reynor and W. R. Ashwill evaluated the property as "possibly a small producer" and warranting further attention, if the shaft is opened and unwatered. Geologic mapping of the property by Reynor and Ashwill is in progress. The topographic base and the workings in figure 3 are from Reynor and Ashwill's unfinished map. The writer wishes to thank these men for the use of their map.

The chief reference to the area that was found in the literature is an article by Alfred Strong Lewis, "Ore Deposits of Cave Creek Mining District of Arizona", Engineering and Mining Journal, vol. 110, No. 15, pp. 713-716, October 9, 1920.

GEOLOGY

General

The Copper Kid workings are in an E-NE-trending belt of pre-Cambrian Yavapai schist. In his reconnaissance map of the Cave Creek District Lewis indicates that this belt of "mineralized schist" is 600 to 1200 feet in width, and ten miles in length; for about three miles of its length it is covered by volcanics. Regarding the mineralization of this belt, Lewis (p. 716) only has this to say: "Very little copper is in evidence in the outcrops, but several location cuts exposed copper a few feet beneath the surface."

Copper Kid Mine

The main workings consist of two shallow, caved shafts (fig. 3) on the south flank of a ridge that trends E-NE. The schist around the workings exhibits E-NE foliation that dips steeply NW (fig. 3). It is covered in places by cemented Tertiary or Quaternary

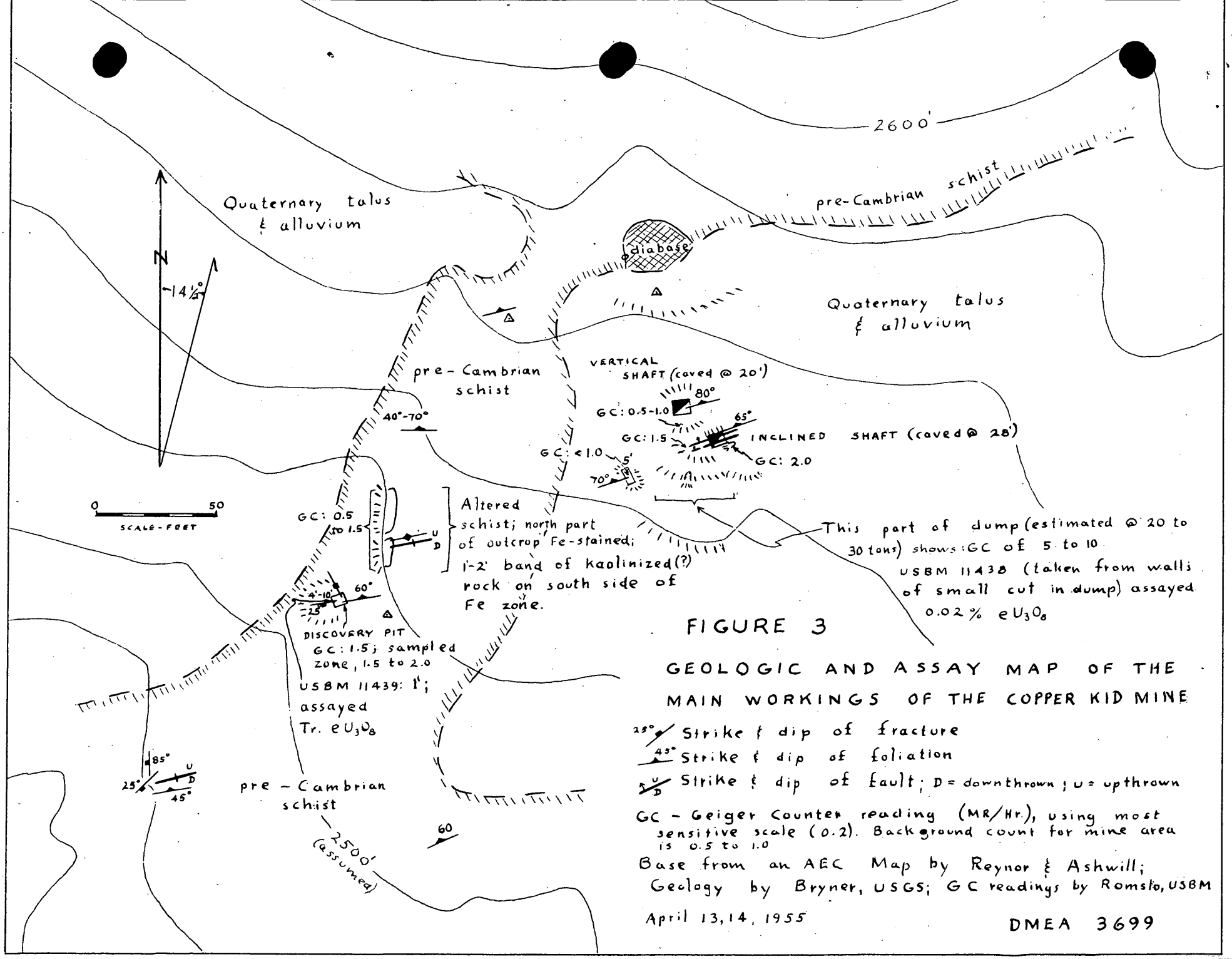

FIGURE 3

GEOLOGIC AND ASSAY MAP OF THE MAIN WORKINGS OF THE COPPER KID MINE

25° Strike & dip of fracture

45° Strike & dip of foliation

U/D Strike & dip of fault; D = downthrown; U = upthrown

GC - Geiger Counter reading (MR/Hr.), using most sensitive scale (0.2). Background count for mine area is 0.5 to 1.0

Base from an AEC Map by Reynor & Ashwill; Geology by Bryner, USGS; GC readings by Romslo, USBM

April 13, 14, 1955

DMEA 3699

gravels. A body of igneous rock that is tentatively identified as a fine-grained diabase crops out eighty feet north of the inclined shaft. At the west edge of the diabase its contact with the schist is an almost vertical, north-trending plane that crosscuts the foliation of the schist. The other parts of this contact were covered by talus or gravel.

Near the mine there are several narrow shear zones which correspond in direction to the plane of schistosity. These shears are recognized by minor crumpling of beds and by alteration along them rather than by any evidence of offset. Probably the offset amounts to only a few feet.

The U. S. Bureau of Mines made a microscopic examination of a sample (P-[illegible], AEC; WFF-673, [illegible]) submitted by the applicant. The following minerals were recognized: barite, quartz, calcite, limonite, hematite, clay, altered feldspar, manganese oxide coatings, a small amount of sooty uraninite, galena, covellite, chalcocite, pyrite, chalcopyrite and a green mineral which possibly is brochantite. Uraninite as small veinlets is closely associated with the sulfides. The uraninite occurs around nodules of barite. The specimen did not contain thorium, the excess radioactivity being due to an accumulation of radioactive decay products.

Pieces of the most radioactive rock that could be found in the shaft ([illegible] 11437) contain a higher than average percentage of galena. This consistent association of higher radioactivity with

galena is quite striking. On the dump, however, higher radioactivity was found also with azurite, malachite, limonite and manganese oxide. The radioactive mineral that is associated with these metallic minerals was not recognized in any of the hand specimens that were examined. However, judging from the results of the above-mentioned microscopic analysis, the radioactive mineral probably is uraninite.

Water in the inclined shaft stands about 40 feet below the collar and, judging by the minerals found on the dump and in the shaft, oxidation probably extends about to that depth.

The alteration of the schist appears to consist of kaolinization, silicification and perhaps other processes. Silicification seems to have taken the form of a network of quartz veinlets in or near the shear zones. Oxidation as well as hydrothermal alteration is most noticeable in or near two parallel shear zones, each about one foot thick, in the inclined shaft. The only part of the deposit where radioactive rock was seen in place is the southerly of these two shear zones, called here the "footwall shear" because its footwall coincides with the footwall of the shaft. In the footwall shear radioactivity is concentrated in a quartz-galena veinlet one to two inches thick. This veinlet crops out in the west wall of the shaft, about 25 feet below the collar. It is about 1½ feet in vertical extent and is not present across the shaft in the east wall. Radioactivity declines to background intensity within about half a foot in either direction,

away from the veinlet and at right angles to it. The footwall shear zone, but not the included radioactive veinlet, persists upward to within about 10 feet of the collar of the shaft. Persistence at depth of the footwall shear is unknown since the shaft is inaccessible about 28 feet below the collar. A radiometric survey of the accessible upper 28 feet of the shaft indicates that parts of the footwall shear other than the radioactive veinlet as well as all of the adjacent shear zone show only a background count. Likewise on the surface the ground along the horizontal extensions of the shears shows no anomalous radioactivity.

The vertical shaft immediately north of the inclined shaft is caved at about 20 feet below the collar. But the dump from this shaft is non-radioactive, relatively unaltered schist.

PRODUCTION AND GRADE

There is no field evidence or record of production from this property, and it is reasonably certain that little or no ore was ever shipped from here. In the year 1919 when Lewis was studying the district there were no producing mines except the "Red Rover" about 10 miles north of the Copper Kid. The Copper Kid at that time was known as the Pocahontas. It apparently was a lead, copper, and perhaps silver prospect, but the grade of ore is unknown. However, its non-productivity, considered together with the intimate association in the deposit of lead and copper with uranium, suggests poverty in uranium as well as in base metals. No uranium ore has been shipped

from the mine. The assay results of samples taken on this field trip were as follows:

U.S.B.M. No.	Width (feet)	eU_3O_8 (percent)	Remarks
11437	1.1	0.04	Includes a relatively high grade veinlet 1" to 2" wide.
11438	-	0.02	Sample taken from the walls of a trench in dump from inclined shaft.
11439	1.0	Tr.	Highest grade material in discovery pit.

The low grade of the equivalent uranium values indicate that chemical assays would be superfluous.

The dump material where sample 11438 was taken probably is from the inclined shaft near the radioactive veinlet.

The select sample (F-0280) described on page 3, assayed 1.13 percent equivalent U_3O_8 and 0.77 percent chemical U_3O_8. This is the highest assay obtained from the property. But from a knowledge of the mode of occurrence of the ore, it is obvious that this sample cannot be even approximately representative of the grade of the deposit.

Radiometric observations on the property are shown in figure 3. They indicate that the only markedly anomalous radioactivity is in the inclined shaft, and here the radioactive zone is very limited.

EXPLORATION

The property was explored during its earlier history mainly by the two shafts. These probably did not penetrate much beyond 40 feet, the depth of the water in the inclined shaft, and apparently no appreciable amount of ore was discovered.

The discovery pit and the two trenches 40 feet northeast of them are on the westerly extension of the shear zones exposed in the inclined shaft, and at about the same elevation as the uraniferous seam in the inclined shaft. The lack of radioactivity in this pit and the trenches indicates that the radioactivity in the shear does not extend this far west. In fact, the 5-foot deep trench 40 feet west of the shaft also is on the trend of the uraniferous shear, but no anomalous radioactivity was detected in this trench. This trench, however, does not penetrate to the depth of the radioactive seam in the shaft.

The applicant proposes two stages of exploration as follows:

> "First, to rehabilitate the (inclined) shaft by unwatering, making out and timbering for safe and thorough examination of the ground. Second, to sink, drift and crosscut to explore the mineralized structure."

RESERVES

The indicated and inferred reserves in this deposit are on the order of 1 to 5 tons of ore averaging 0.04 percent U_3O_8. This estimate is based on a probable westerly extension of the uranium mineralization in the footwall shear. Probably there are other undiscovered uraniferous lenses of this type in the deposit but they are likely to be too small and low grade to justify exploration.

CONCLUSIONS AND RECOMMENDATIONS

The low grade, the thinness, and the discontinuity of the shear zones, together with the very limited distribution of the uranium

within the shears, as well as the very poor showing of the sulphide minerals associated with uranium, all indicate that a substantial tonnage of uranium ore probably does not exist in this deposit. It is recommended, therefore, that the exploration loan be denied.