A. W.
8-10-54

E. Wm. Ellis, DMEA Member, Uranium Commodity Committee

August 5, 1954

Arthur P. Bahler, Jr., DMEA Member, Uranium Commodity Committee

Final Field Team Report, DMEA Docket 3205 (uranium), J. R. and K. L. Whisenant, applicants, 939 S. Josephine St., Denver, Colorado; Tomahawk claim group, Secs. 26 and 27, T. 37 N., R. 11 W., La Plata County, Colorado

As a result of the examination of the property described in the subject above, the examining members of the Field Team recommended denial of the application for Government assistance in exploration and the application was denied in Region IV.

Comment and Conclusion

Some uranium bearing minerals occur in the silicified central core of a vein cutting diorite and containing quartz, pyrite, zinc, and copper sulfides and a little gold and silver. The uranium is distributed erratically and in half a dozen exposures of the vein is only locally of ore grade. The applicants believe that the exposed vein is the surface expression of the Tomahawk vein. That vein was explored underground by several hundred feet of workings and produced some gold and silver, but is now inaccessible because the long exposed adit that provided access is caved. The surface and underground veins could be correlated only by detailed survey of the now inaccessible workings.

The examining members of the team believe that diamond drilling proposed by the applicant is impractical because of difficult terrain and probable poor core recovery and that potential of the Tomahawk property would be determined properly only by rehabilitation of the mine workings. They do not indicate that the possibility of making a significant discovery is sufficiently good to warrant Government participation in extensive rehabilitation. Denial of the application without prejudice should additional work by the applicants justify re-examination is recommended.

I concur with the recommendations that the application be denied without prejudice.

Copy to: E. Wm. Ellis (2)

Denied by Region IV

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

August 2, 1954

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee, Room 4640

From: H. D. Keiser, Bureau of Mines Member
Uranium Commodity Committee

Subject: DMEA Docket 3205 (Uranium), Joseph B. and Katherine L. Whisnant (Tomahawk group), LaPlata County, Colorado

I have reviewed the subject report and have discussed it with Joseph O. Hosted, representative of the Atomic Energy Commission.

I concur with the recommendation of the Field Team that the application involved under the subject docket be denied.

The report has been forwarded to the Chief, Minerals Division, Bureau of Mines, in accord with the routing slip attached thereto.

H. D. Keiser

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : E. Wm. Ellis, DMEA Member, Uranium Commodity Committee

DATE: August 5, 1954

FROM : Arthur P. Butler, Jr., USGS Member, Uranium Commodity Committee

SUBJECT: Final Field Team Report, DMEA Docket 3205 (uranium), J. B. and K. L. Whisnant, applicants, 959 S. Josephine St., Denver, Colorado; Tomahawk claim group, Secs. 26 and 27, T. 37 N., R. 11 W., La Plata County, Colorado

As a result of the examination of the property discribed in the subject above, the examining members of the Field Team recommended denial of the application for Government assistance in exploration and the application was denied in Region IV.

Comment and Conclusion

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The examining members of the team believe that diamond drilling proposed by the applicant is impractical because of difficult terrain and probable poor core recovery and that potential of the Tomahawk property could be determined properly only by rehabilitation of the mine workings, present information does not indicate that the possibility of making a significant discovery is sufficiently good to warrant Government participation in extensive rehabilitation. Denial of the application without prejudice should additional work by the applicants justify re-examination is recommended.

I concur with the recommendations that the application be denied without prejudice.

Arthur P. Butler, Jr.

Copy to: E. Wm. Ellis (2)

E. Wm. Ellis, DMEA Member, Uranium Commodity Committee

August 5, 1954

Arthur P. Butler, Jr., DMEA Member, Uranium Commodity Committee

Final Field Team Report, DMEA Docket 3205 (uranium), J. H. and K. L. Whitmont, applicants, 999 S. Josephine St., Denver, Colorado; Tomahawk claim group, Secs. 26 and 27, T. 37 N., R. 11 W., La Plata County, Colorado

As a result of the examination of the property described in the subject above, the examining members of the Field Team recommended denial of the application for Government assistance in exploration and the application was denied in Region IV.

Comment and Conclusion

Some uranium bearing minerals occur in the silicified central core of a vein cutting diorite and containing quartz, pyrite, zinc, and copper sulfides and a little gold and silver. The uranium is distributed erratically and in half a dozen exposures of the vein is only locally of ore grade. The applicants believe that the exposed vein is the surface expression of the Tomahawk vein. That vein was explored underground by several hundred feet of workings and produced some gold and silver, but is now inaccessible because the long crosscut adit that provided access is caved. The surface and underground veins could be correlated only by detailed survey of the now inaccessible workings.

The examining members of the team believe that diamond drilling proposed by the applicant is impractical because of difficult terrain and probable poor core recovery and that potential of the Tomahawk property could be determined properly only by rehabilitation of the mine workings, but not indicate that the possibility of making a significant discovery is sufficiently good to warrant Government participation in extensive rehabilitation. Denial of the application without prejudice should additional work by the applicants justify re-examination is recommended.

I concur with the recommendations that the application be denied without prejudice.

Copy to: E. Wm. Ellis (2)

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

224 New Customhouse
Denver 2, Colorado

July 22, 1954.

Mr. Joseph B. Whisnant
959 South Josephine Street
Denver 9, Colorado

Re: Docket No. DMEA-3205

Dear Mr. Whisnant:

Reference is made to your application for Government aid on the Tomahawk Group.

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

A careful study of your property and data available to this agency reveals that the probability of disclosing mineable reserves of Uranium is not considered sufficiently promising to justify Government participation. Under these circumstances, we regret to advise that your application for exploration aid is denied.

Very truly yours,

W H King
W. H. King
Field Team, Region IV

A. H. Koschmann
A. H. Koschmann
Field Team, Region IV

HMC:cwm

cc: Docket
Administrator, DMEA
AHKoschmann
WMTraver
CETowle
Chron.

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

224 New Customhouse
Denver 2, Colorado

July 22, 1954.

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: Code 200

From: Field Team, Region IV

Subject: Report of Examination - DMEA Docket 3205 (Uranium), Joseph B. and Katherine L. Whisnant, Tomahawk Group, La Plata County, Colorado.

Enclosed are four copies of the Report of Examination on the subject docket, a copy of the letter of denial to the applicant, and two copies of Form 3b.

W H King
W. H. King

A. H. Koschmann
A. H. Koschmann

Enclosures

Ld denied
7-27

7/29/54 gla

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

224 New Customhouse
Denver 2, Colorado

July 22, 1954.

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: Code 200

From: Field Team, Region IV

Subject: Report of Examination - DMEA Docket 3205 (Uranium), Joseph B. and Katherine L. Whisnant, Tomahawk Group, La Plata County, Colorado.

Enclosed are four copies of the Report of Examination on the subject docket, a copy of the letter of denial to the applicant, and two copies of Form 3b.

W. H. King

W. H. King

A. H. Koschmann

A. H. Koschmann

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
7-28-54
(date)

COPY

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

July 22, 1954.

224 New Customhouse
Denver 2, Colorado

Mr. Joseph B. Whisnant
959 South Josephine Street
Denver 9, Colorado

Re: Docket No. DMEA-3205

Dear Mr. Whisnant:

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

A careful study of your property and data available to this agency reveals that the probability of disclosing mineable reserves of Uranium is not considered sufficiently promising to justify Government participation. Under these circumstances, we regret to advise that your application for exploration aid is denied.

Very truly yours,

/s/ W. H. KING
W. H. King
Field Team, Region IV

/s/ A. H. KOSCHMANN
A. H. Koschmann
Field Team, Region IV

HMC:cwm

cc: Docket
Administrator, DMEA
AHKoschmann
WMTraver
CETowle
Chron.

Reviewed by
DMEA OPERATING COMMITTEE
7-28-54
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

July 22, 1954.

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Report of Examination - DMEA Docket 3205 (Uranium), Joseph B. and Katherine L. Whisnant, Tomahawk Group, La Plata County, Colorado.

Enclosed are eleven copies of the Report of Examination on the subject docket.

The applicant requested $14,249.02 to explore the Tomahawk by sinking, diamond drilling, and driving around a cave in the Tomahawk adit.

The engineer examiner found that the showing of uranium in the outcrop did not justify the indefinite, but large, expense of rehabilitating the Tomahawk adit. Significant amounts of uranium are unlikely to be developed on this property and he recommends that the application for exploration aid be denied.

We concur in this recommendation.

W H King
W. H. King

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
7-28-54
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 2, Colorado
July 6, 1954

Memorandum

To: Executive Officer, DMEA Field Team, Region IV

From: Chief, Mineral Resources Branch, Mining Division, Region IV

Subject: DMEA 3205 (Uranium), Joseph B. and Katherine L. Whisnant (Tomahawk group), LaPlata County, Colo.

Enclosed are the original and ten copies of a "Summary, Conclusions, and Recommendations" by E. N. Harshman, Geological Survey, and H. M. Connors, Bureau of Mines, and of H. M. Connors' engineering report on the subject docket.

Connors concludes that while there are small amounts of uranium exposed along a vein outcrop shown by the applicants, there is no positive proof that the showings are on the Tomahawk vein developed at depth nor that other concentrations of uranium in this vein are likely to be of greater significance if the requested exploration were authorized. He also considers the applicants' proposal unrealistic with the costs far out of proportion to the results that might be expected. The application is recommended for denial.

I concur with his conclusions and recommendations.

The examiners' decisions were discussed with and cleared by Atomic Energy Commission representatives.

The brochure submitted with your memorandum of November 6, 1953, instructing us to prepare a suitable report, is also enclosed.

W. M. Traver

W. M. Traver

enclosures

WMT/kp
10
cc DMEA 3205
Chron

Reviewed by
DMEA OPERATING COMMITTEE
7-28-54
(date)

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Defense Minerals Exploration Administration
Denver Federal Center
Denver 2, Colorado

July 15, 1954

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 3205, Tomahawk Mine, La Plata County, Colorado

Enclosed are 11 copies of a geologic report by E. N. Harshman of the U. S. Geological Survey covering the above docket.

The Tomahawk vein occupies an east-trending fissure in diorite and diorite-monzonite porphyry. Considerable exploration has been done in the Tomahawk mine but the workings were not accessible for examination. A vein outcrop, possibly the Tomahawk vein, situated 400 feet vertically above the mine portal was sampled. It contained minor amounts of an unknown radioactive mineral.

Harshman concludes that it is impossible to assess definitely the ore potential of the Tomahawk vein with the data at hand but recommends denial without prejudice based on the low uranium content of the vein sampled. Should the applicant rehabilitate the old workings and make them accessible for investigation and sampling, a re-examination of the property may be justified.

I concur with the recommendation.

E. N. Harshman
for A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (11)

Reviewed by
DMEA OPERATING COMMITTEE
7-28-54
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 3205, Tomahawk Group

Joseph B. and Katherine L. Whisnant, Applicants

LaPlata County, Colo.

Uranium

E. N. Harshman, Geologist
Geological Survey

H. M. Connors, Mining Engineer
Bureau of Mines

July 1, 1954

Reviewed by
DMEA OPERATING COMMITTEE
7-28-54
(date)

DMEA 3205

TOMAHAWK GROUP
JOSEPH B. AND KATHERINE L. WHISNANT, APPLICANTS
LaPLATA COUNTY, COLO.

Summary, Conclusions, and Recommendations

By E. N. Harshman
Geologist
Geological Survey

H. M. Connors
Mining Engineer
Bureau of Mines

DMEA 3205

TOMAHAWK GROUP
JOSEPH B. AND KATHERINE L. WHISNANT, APPLICANTS
LaPLATA COUNTY, COLO.

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By E. N. Harshman and H. M. Connors

Joseph B. and Katherine L. Whisnant, owners of the Tomahawk group, LaPlata County, Colo., made application for Government assistance (DMEA 3205) to explore the Tomahawk group for uranium at an estimated total cost of $14,249.02. The proposed work was to be completed in three stages and consisted of rehabilitating a road to the mine, sinking a 50-foot shaft on the outcrop, diamond drilling, and rehabilitating the Tomahawk level by drifting around the caved portion of the drift.

The application was investigated in the field June 15, 1954, by a Region IV Defense Minerals Exploration Administration examining team.

The more important deposits in the Tomahawk mine area lie within a large diorite stock which intrudes the Dolores and Cutler red beds and is intruded by dikes of diorite-monzonite porphyry.

Several sets of fissures cut the country rock, the most prominent of which trend easterly or northeasterly. The Tomahawk vein, proposed for exploration, occupies an easterly trending fissure.

Underground workings on the Tomahawk vein are not accessible, but the vein is reported to range from a few inches to 6 feet in width. An exposure of a vein on the hillside above the portal of the caved mine workings, which may or may not be the Tomahawk vein, contains 6 to 8 inches of quartz, pyrite, and minor amounts of uranium.

The only logical approach to exploration of this property would be by rehabilitation of the Tomahawk adit which is presently blocked by a cave in the crosscut. The showing of uranium in the outcrop does not justify the indefinite, but large, expense of rehabilitating the Tomahawk adit.

Significant amounts of uranium are unlikely to be developed on the property and it is recommended that the application be denied.

TOMAHAWK MINE

LA PLATA COUNTY, COLORADO

DMEA DOCKET 3205

Geologic Report

By E. N. Harshman
U. S. Geological Survey

Reviewed by
DMEA OPERATING COMMITTEE
7-28-54
(date)

TOMAHAWK MINE
LA PLATA COUNTY, COLORADO

INTRODUCTION

Joseph B. and Katherine L. Whisnant, 959 South Josephine Street, Denver 9, Colorado, have applied for DMEA assistance to explore for uranium ore at the Tomahawk mine by rehabitating the Tomahawk crosscut, 2,000 feet of diamond drilling, and 50 feet of shaft sinking. Their estimated cost of the project is $14,249.02.

The property consists of 17 patented mining claims located in secs. 26 and 27, T. 37 N., R. 11 W., New Mexico Principal Meridian, California Mining District, La Plata County, Colorado. It is 15 miles (airline) northwest of Durango, Colorado, and is reached over 11.6 miles of paved highway (U.S. No. 160 west from Durango), 11 miles of graded county road north along the La Plata River, and one mile of old wagon road, passable for jeeps only.

The examination was made on June 15, 1954, in company with H. M. Connors, U. S. Bureau of Mines, and J. B. Whisnant, one of the applicants. Winter snows made examination impossible until that date.

Although minor amounts of uranium occur in the vein material samples, denial of the proposed exploration project without prejudice is recommended. Representatives of the A.E.C. concur in this recommendation.

GEOLOGY AND ORE DEPOSITS

The geology and ore deposits of the La Plata Mountains are described by Edwin B. Eckel (1949) in U. S. Geological Survey Professional Paper 219. The following summary of the regional geology is taken from that publication.

The La Plata mountains are composed of sedimentary rocks, ranging in age from Pennsylvanian to Cretaceous, and sills, stocks, and dikes of porphyritic and non-porphyritic igneous rocks of late Cretaceous or early Tertiary age.

The major structural feature is a domal uplift of the sedimentary rocks. The dome is about 15 miles in diameter and is partly bounded by a horseshoe-shaped hinge fold, open toward the south and encircling the central part of the range. Major and minor faults have broken the sedimentary rocks, particularly along the hinge line and along the north and northeast edge of the dome. The maximum uplift is estimated to be about 6,000 feet. Eckel concludes that doming was caused in part by the intrusion of the many sills now exposed in the area, and in part by folding of the basement rocks.

The Tomahawk mine is in the Tomahawk Basin area where a diorite stock intrudes shales, mudstones, and sandstones of the Cutler and Dolores formations. Both the sediments and the diorite have been intruded by sills and dikes of diorite-monzonite porphyry.

The more important veins are within the diorite and occupy 2 sets of prominent, steeply dipping fissures; one set strikes almost due east, the other strikes northeast. The Tomahawk is an easterly striking vein in diorite. In the Tomahawk mine, now inaccessible, the vein is reported to range from several inches to ten feet in width and to have a tendency to pinch and swell within very short distances and to split off into the wall at many places.

The Clydesdale vein is similar to the Tomahawk vein in its general character and lies about 100 feet north of it. Eckel believes that the two structures converge and that they may intersect about

1800 feet east of the Tomahawk adit.

At the Tomahawk mine considerable exploration has been done on both the Tomahawk and the Clydesdale veins. Estimates of drifting on the Tomahawk vein range from 300 to 800 feet and on the Clydesdale vein from 900 to 1200 feet. Figure 2 of the engineering report shows the mine workings according to maps furnished by the applicants. Figure 47 of Professional Paper 219 also shows the mine workings.

Both the Tomahawk and Clydesdale veins are characterized by a silicified central core, flanked by walls of soft altered diorite. The principal minerals in the veins are quartz, pyrite, chalcopyrite, sphalerite, tetrahedrite, and enargite. Gold and silver probably occur as a telluride. Uranium, if present in the Tomahawk and Clydesdale veins, may occur as pitchblende.

At the time of this examination the only vein exposures accessible for examination were in the short adit and in 4 of the 5 shallow pits shown on figure 3 accompanying this report. The applicant believes that the vein exposed in Pits 2, 3, 4, and 5 is the outcrop of the Tomahawk vein developed in the lower workings. The outcrop is at an altitude of about 11,250 feet, 400 feet above the Tomahawk adit, and it is impossible to make any vein correlations without a detailed survey of the old workings (now inaccessible) and the outcrop area.

The vein exposed in Pits 2, 3, 4, and 5 is in diorite and diorite-monzonite porphyry. It is 1 to 2 feet wide and consists of a central quartz core, 6 to 8 inches wide, flanked by altered wall rock. The core contains considerable pyrite and minor amounts of an unknown radioactive mineral. Oxidation and leaching has removed about 1/3 of the pyrite originally in the quartz, leaving numerous pyrite crystal casts. The

sheared and altered wall rock contains no visible sulfide minerals and is stained with iron and manganese oxides. Selective sampling of the vein indicates that uranium is limited to the quartz core of the vein.

The prospect adit (figure 3) was driven along a shear zone in diorite, diorite-monzonite porphyry, and calcareous shale of the Cutler formation. The shear zone is 10 to 13 inches wide and consists of silicified, iron stained wall rock containing some pyrite. It appears to be a split from the vein exposed in Pits No. 2, 3, 4, and 5. No vein is exposed in Pit No. 1.

SAMPLES AND ORE RESERVES

Seven samples of the vein outcrops were cut at the time of the examination (figure 3). The samples were analyzed in the U. S. Bureau of Mines Laboratories, Salt Lake City. Sample descriptions and results of the analyses follow:

Sample No.	Description	$\%U_3O_8$	oz.Av	oz. Ag
HMC-1	13" cut of silicified iron stained shear zone in prospect adit	0.050	0.03	0.3
HMC-2	19" cut of silicified iron stained porphyry in Pit No. 2; some pyrite and chalcopyrite	0.059	0.05	0.4
HMC-3	16" cut of silicified iron stained porphyry in Pit No. 3; some pyrite and chalcopyrite	0.121	0.09	0.3
HMC-4	11" cut of silicified diorite in Pit No. 4 - some pyrite	0.086	0.02	<0.1
HMC-5	12" cut of crushed and oxidized wall rock, footwall of vein in Pit No. 4	0.020	<0.005	<0.1

Sample No.	Description	$\%U_3O_8$	oz. Au	oz. Ag
HMC-6	Composit of three 6" to 8" cuts of silicified vein core in Pit No. 5; some pyrite	0.141	0.84	3.7
HMC-7	Composit of three 6" to 12" cuts of oxidized footwall and hangingwall parts of vein in Pit No. 5	0.040	0.01	<0.1

There are no known ore reserves on the Tomahawk property.

EXPLORATION PROGRAM

The applicants propose a 3-stage exploration program as follows:

Stage A - Rehabilitate one mile of road and sink a 50-foot shaft from surface exposure in vicinity of Pit No. 4 (figure 3).

Stage B - Drill 4 to 6 holes to cut the Tomahawk, Clydesdale, Little Jane, and the Yuba veins. The Little Jane and Yuba veins are reported to have been cut in the Ground Hog tunnel, now caved, but their presence could not be confirmed by this investigation.

Stage C - Rehabilitate the Tomahawk tunnel in order to sample workings on the Tomahawk and Clydesdale veins, and drill 2 to 4 holes, if warranted, to explore these veins at greater depths.

The requested program is not well conceived. The slope below the vein outcrop averages over 35 degrees and by substitution of a short adit for the proposed shaft the same objective could be reached at much less cost. The steep character of the terrain, the lack of water near the drill stations, and the fractured character of the vein material will make drilling costly, and the results uncertain.

The examining team believes that any investigation of the uranium ore potential of the Tomahawk property should start with rehabilitation of the Tomahawk mine workings and a thorough sampling of the 1200 to 2000

feet of drift reported on the Tomahawk and Clydesdale veins. This work was proposed in Stage C of the applicants' program.

CONCLUSIONS AND RECOMMENDATIONS

The ore potential of the Tomahawk property is impossible to assess definitely with the data available to the examining team, but it does not appear to be large. The weighted average of the 7 samples taken from vein exposures on the slope above the Tomahawk mine portal indicates an average content of about 0.07% U_3O_8 and the highest sample contained only 0.14% U_3O_8. The sample widths average 12-1/2 inches. Except for sample HMC-7, gold and silver assays are low.

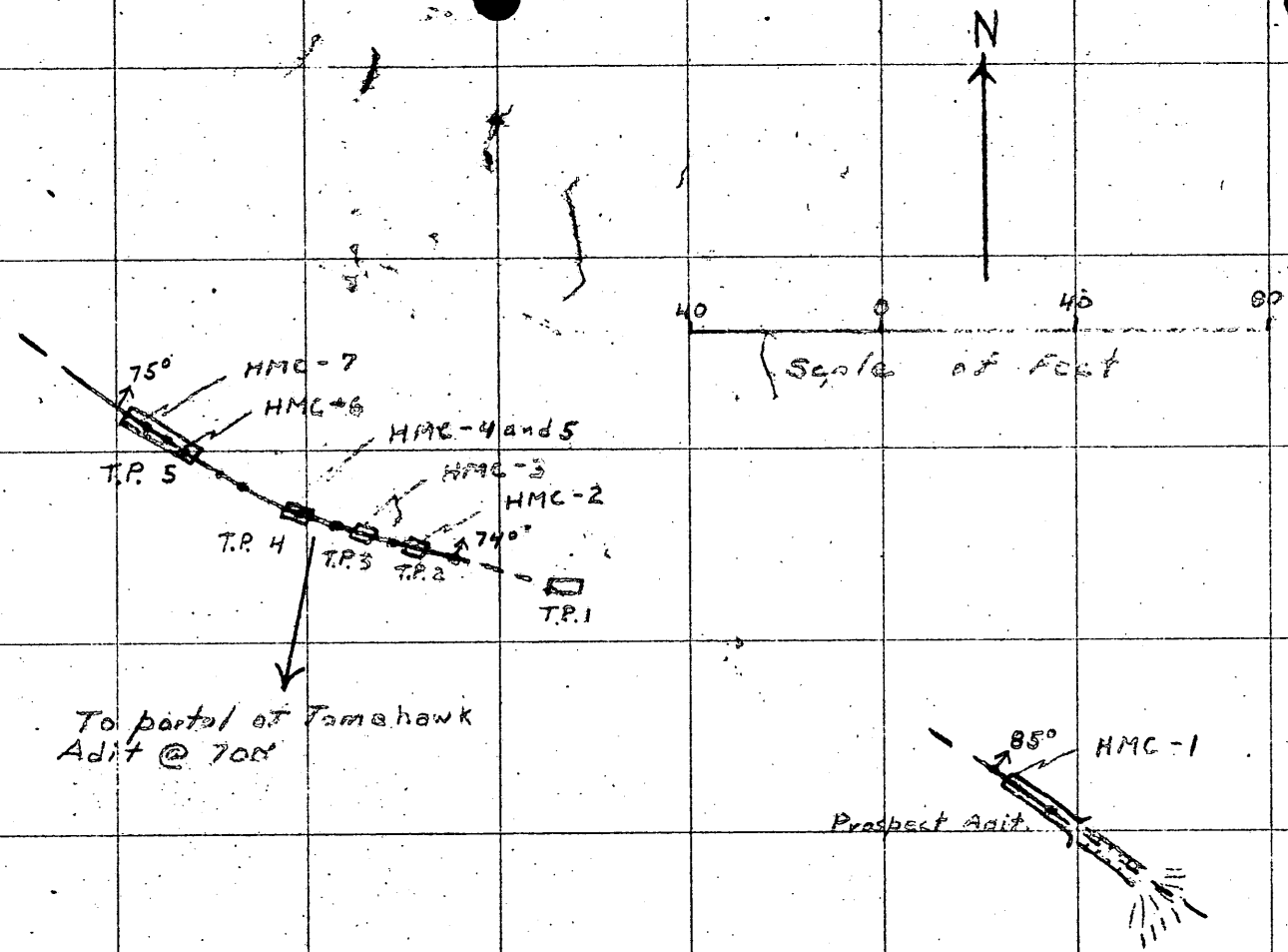
It is not certain if the vein sampled is the Tomahawk vein, as reported by the applicants, but an examination of the Tomahawk mine dump and testing of mineralized specimens found there, indicates that "ore" from the Tomahawk and Clydesdale veins is similar to that sampled.

Denial of the application for exploration assistance, DMEA Docket 3205, without prejudice is recommended. Rehabilitation of the old workings is not considered to be justified by the data available to the examining team. Should the applicant make the old workings accessible for investigation and sampling, re-examination of the property may be justified.

The application has been discussed with representatives of the Atomic Energy Commission; they concur with the above recommendation.

REFERENCES

Eckel, Edwin B. (1949), Geology and Ore Deposits of the La Plata Mountains; U. S. Geol. Survey, Professional Paper 219.



Explanation

TP4 ☐ — Test Pit

— — Mineralized vein dashed where location is approximate

Adit

HMC-1 Sample location

Department of the Interior

U.S. Geological Survey

Tomahawk Mine, La Plata County Colorado

Fig 3 DMEA 3205

Plan Map of Prospect Workings

Brunton & Tape. E.N. Harshman June '54

K&E ALBANENE 196M TRACING PAPER

DMEA 3205

TOMAHAWK GROUP
JOSEPH B. AND KATHERINE L. WHISNANT, APPLICANTS
LaPLATA COUNTY, COLO.

Engineering Report

By Hugh M. Connors
Mining Engineer
Bureau of Mines

DMEA 3205

TOMAHAWK GROUP
JOSEPH B. AND KATHERINE L. WHISNANT, APPLICANTS
LaPLATA COUNTY, COLO.

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Ownership and extent..... 2
History and production..... 3
Description of the deposit..... 3
Conclusions..... 5
Recommendations..... 6

ILLUSTRATIONS

Figure — Follows page

1. Location map, Tomahawk group, LaPlata County, Colo..... 2
2. Claim map, Tomahawk group, LaPlata County, Colo..... 2

DMEA 3205

TOMAHAWK GROUP
JOSEPH B. AND KATHERINE L. WHISNANT, APPLICANTS
LaPLATA COUNTY, COLO.

ENGINEERING REPORT

By Hugh M. Connors

INTRODUCTION

Joseph B. and Katherine L. Whisnant, 959 South Josephine Street, Denver 9, Colo., applied for aid in an exploration project, pursuant to DMEA Order-1, Defense Production Act of 1950, as amended (Docket No. DMEA 3205). The applicants--owners of the Tomahawk group, LaPlata County, Colo.--proposed to explore that property for uranium at an estimated total cost of $14,249.02. The proposed work was to be completed in three stages as follows:

Stage A

Rehabilitate 1 mile of road to mine.

Sink a shaft 50 feet deep at the best assay point on the outcrop of the Tomahawk vein.

Stage B

Assuming Stage A gives satisfactory results, drill four to six core holes at an angle to cut the Tomahawk, Clydesdale, Little Jane, and Yuba veins. Drill two holes from surface below exploratory shaft aimed to cut veins between bottom of shaft and Tomahawk level.

Stage C

Open Tomahawk level by drifting around cave.

Drill two to four holes from the main Tomahawk tunnel level to

hit intersection of Tomahawk and Clydesdale veins at depth. Additional drilling will depend on results of previous exploration.

The property was examined June 15, 1954, with E. N. Harshman of the Geological Survey, and Joseph B. Whisnant.

LOCATION

The applicants' property consists of 17 patented lode mining claims located in secs. 26 and 27, T. 37 N., R. 11 W., in the California mining district, LaPlata County, Colo. (fig. 1). It is accessible from Durango via paved U. S. Highway 160 to a road junction 12 miles west of Durango, thence 9 miles northwest on the county road to a point 1 mile northwest of LaPlata City. A jeep trail extends from this point to within a quarter of a mile from the Tomahawk mill, which has an altitude of approximately 10,850 feet. The altitude of the outcrop purported to be the Tomahawk vein is 11,250 feet.

OWNERSHIP AND EXTENT

The applicants' property consists of 17 patented claims (fig. 2) recorded in Book 267, page 33-34 in official records of LaPlata County, Colo., as follows:

Claim	U. S. Mineral Survey No.	Claim	U. S. Mineral Survey No.
Tomahawk No. 1	18533	Little Jane	12239
Tomahawk No. 2	18533	Columbine	13611
Yuba	12901	Surprise	12918
Ground Hog	12901	Gertrude	12369
Night Watch	14635	American Eagle	18711
Side Cut	13607	Trail	12901
Bluff	13607	Klondike	12901
Castaway	13607	Ben Hill	12918
Clydesdale	12967		

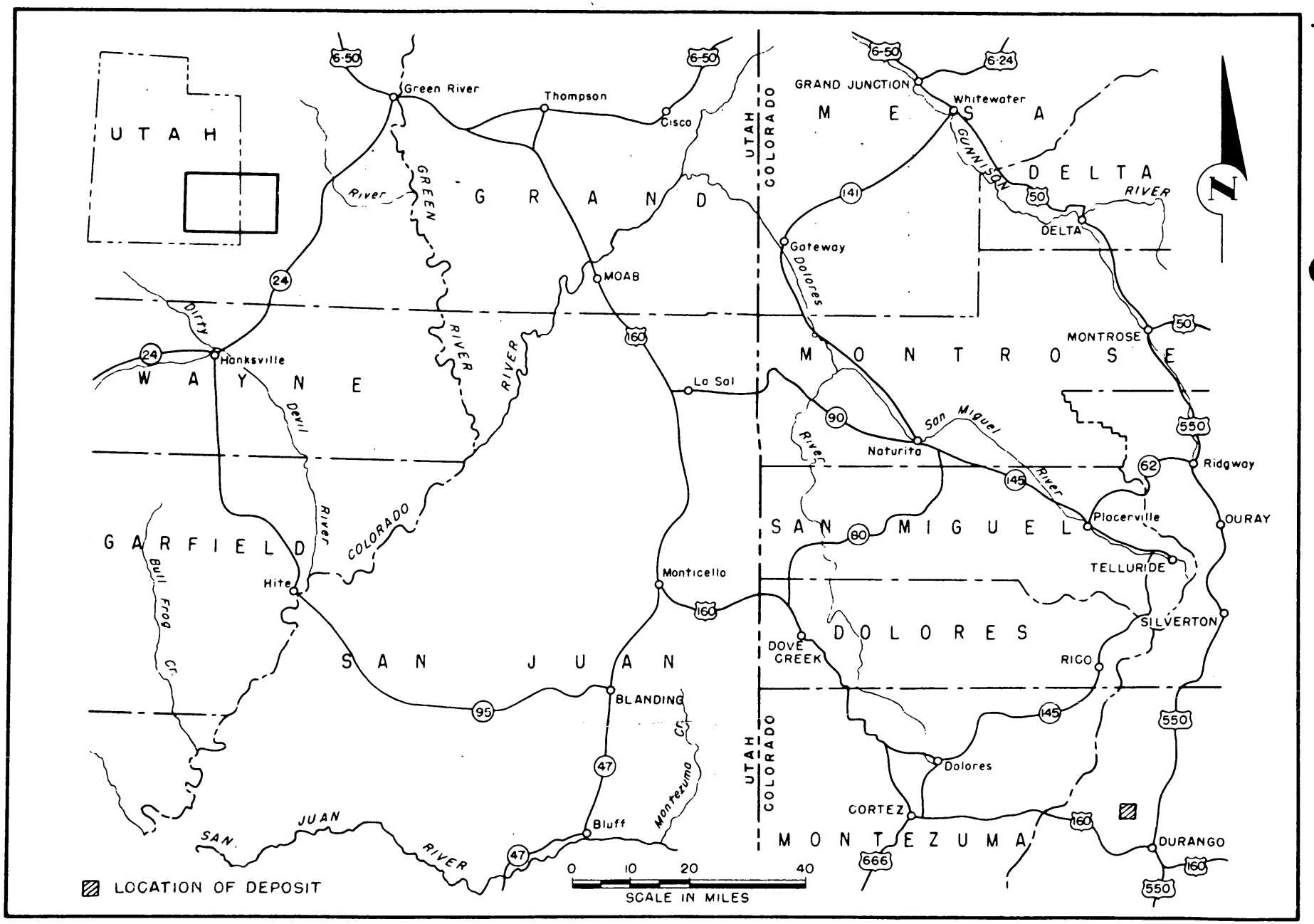


FIGURE 1 - LOCATION MAP, TOMAHAWK GROUP, LA PLATA COUNTY, COLO. (DMEA 3205)

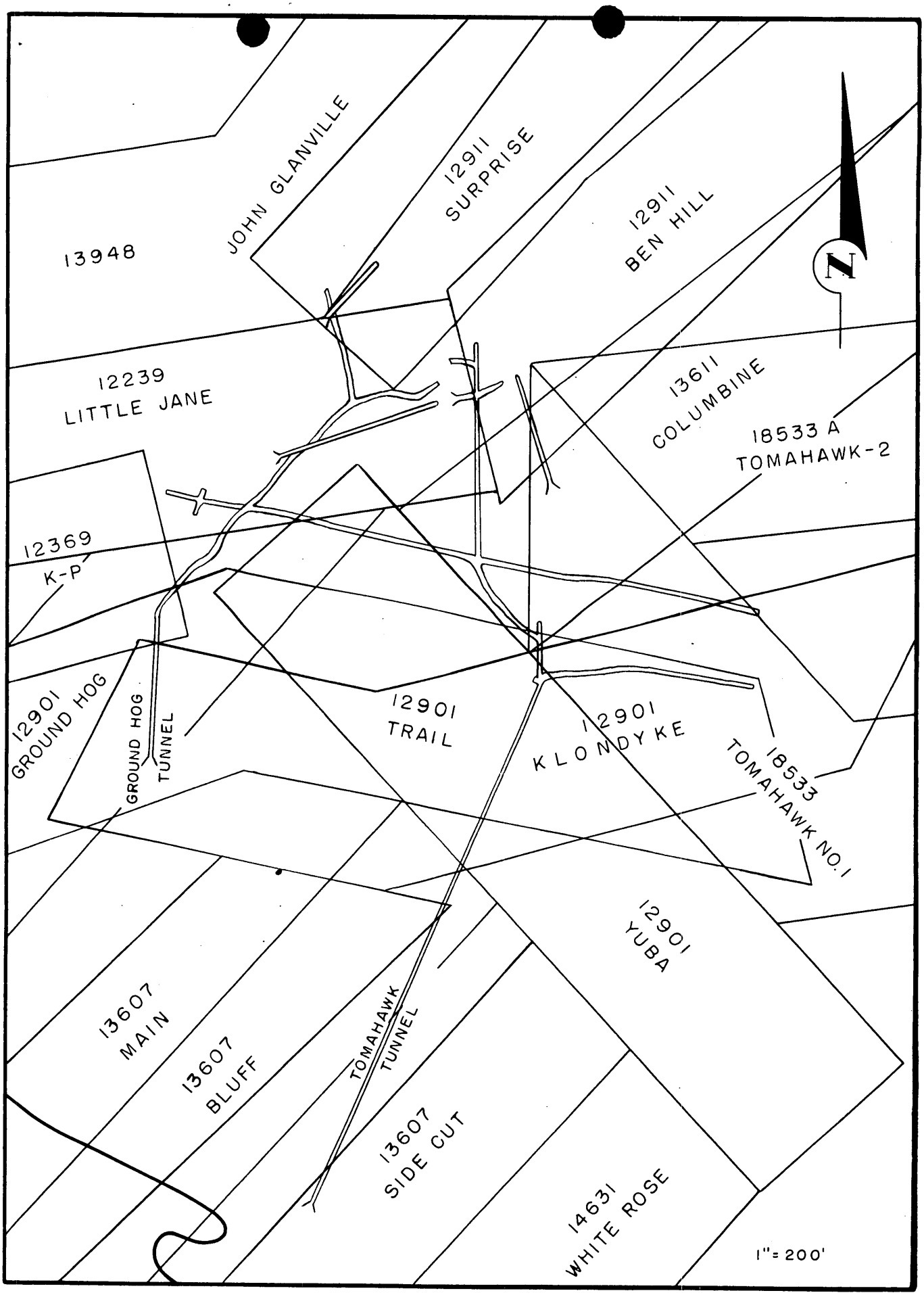


FIGURE 2 - CLAIM MAP, TOMAHAWK GROUP, LA PLATA COUNTY, COLO. (DMEA 3205)

The applicant stated that the property had approximately 1,700 feet of adits and 2,000 feet of drifts which are now inaccessible due to caves. A 20-stamp mill, boarding house, and assay office are on the property but are almost useless from lack of repair.

HISTORY AND PRODUCTION

The applicants claim good and sufficient tax title, "suit" having been instituted in 1947 and adjudicated in open court July 8, 1947. All of the work on the property was done prior to the applicants' ownership.

The production record of the Tomahawk mine is as follows:

1901-1907:	None
1908:	60 tons, containing 120.02 oz. gold and 900 oz. silver
1909:	40 tons, containing 57.14 oz. gold and 703 oz. silver
1910:	None
1911:	7 tons, containing 10.66 oz. gold and 43 oz. silver
1912-1914:	None
1915:	148 tons, containing 263.52 oz. gold and 365 oz. silver
1916:	60 tons, containing 19.00 oz. gold and 200 oz. silver
1917-1918:	None
1919:	20 tons, containing 26.20 oz. gold and 142 oz. silver

On the 1908 report there is a note to the effect that there were 1,700 feet of crosscut tunnel, and approximately 900 feet of drifts on the vein. The 1910 report stated there were 1,700 feet of tunnels and 4,000 feet of drifts and raises, and a 20-stamp mill. There is no record of any production after 1919.

DESCRIPTION OF THE DEPOSIT

The two main adits, Tomahawk and Ground Hog, are inaccessible due to caving. At an altitude of approximately 11,250 feet the applicants have exposed an outcrop, in an intrusive shear zone, by digging four

test pits at intervals along approximately 75 feet of the outcrop which has a maximum width of 23 inches. The vein material consists of quartz showing heavy iron stains and a highly silicious and oxidized gouge. There is no positive proof that this outcrop is the Tomahawk vein. The strike of the outcrop is N. 75° W. and the dip is 77° N. The surface slope above and below the outcrop varies from 37° to 40°. The examiners found an old prospect adit 40 feet below and approximately 50 feet east of the applicants' easternmost test pit. It had been driven 18 feet in a porphyry shear zone, and the portal is on the contact between the sediments and the porphyry sill. The vein, striking N. 55° W., is possibly a split of the vein purported to be the Tomahawk. Samples taken at the adit and along the outcrop gave the following results:

Sample No.	Width of sample (inches)	Description	Gold (ounces)	Silver (ounces)	U_3O_8 (percent)
HMC-1	13	13-inch shear zone-Face of Prospect adit.....	0.03	0.3	0.050
HMC-2	19	Easternmost pit on outcrop. Vein 19 inches wide.....	0.05	0.4	0.059
HMC-3	16	Second pit, vein 16 inches wide.....	0.09	0.3	0.121
HMC-4	11	Silicified diorite-Vein 23 inches wide in third pit.....	0.02	<0.1	0.086
HMC-5	12	Oxidized portion of vein 23 inches wide in third pit.....	<0.005	<0.1	0.020
HMC-6	6 to 8	West pit, composite of three cuts of silicified vein material containing pyrite. Vein width 20 inches.....	0.84	3.7	0.141
HMC-7	12	West pit, composite of three cuts of oxidized portion of vein. Vein width 20 inches.....	0.01	<0.1	0.040

< less than

CONCLUSIONS

E. N. Harshman, Geological Survey member of the examining team, has discussed this application with geologists of the Atomic Energy Commission.

While the outcrop contains small amounts of uranium along the exposed section and may be similarly mineralized at other locations along its probable extensions, there is no indication that other such occurrences will be more extensive or of greater concentration. Vein material found around the old mill which had undoubtedly been transported through the Tomahawk adit, approximately 400 feet below the outcrop, showed no appreciable radioactivity on the Geiger counter. The uranium concentrations in the outcrop appear too low in grade and too limited in extent for possible economic extraction. The possibility of discovering any appreciable reserve of uranium at a reasonable cost in a deposit of this type is unlikely and exploration of the property for uranium is considered unwarranted.

The applicants' proposed exploration program and estimate of costs are unrealistic. Sinking a shaft on a slope that averages more than 37° is not practical and the estimate of $4.00 per foot for diamond drilling in that location is not realistic. It is doubtful if 2,000 feet of diamond drilling could be contracted in this location for as little as $10.00 per foot. The only logical approach to exploration on this property would be to rehabilitate the Tomahawk adit, and because it is blocked by a cave in the crosscut, there is no knowledge of the condition of the drifts which may also be caved. The showing

of uranium in the outcrop does not justify the indefinite, but large, expense of rehabilitating the Tomahawk adit.

RECOMMENDATIONS

Significant amounts of uranium are unlikely to be developed on this property and it is recommended that the application be denied.

/kp

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

July 22, 1954.

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Report of Examination - DMEA Docket 3205 (Uranium), Joseph B. and Katherine L. Whisnant, Tomahawk Group, La Plata County, Colorado.

Enclosed are eleven copies of the Report of Examination on the subject docket.

The applicant requested $14,249.02 to explore the Tomahawk by sinking, diamond drilling, and driving around a cave in the Tomahawk adit.

The engineer examiner found that the showing of uranium in the outcrop did not justify the indefinite, but large, expense of rehabilitating the Tomahawk adit. Significant amounts of uranium are unlikely to be developed on this property and he recommends that the application for exploration aid be denied.

We concur in this recommendation.

W. H. King

W. H. King

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 2, Colorado
July 6, 1954

Memorandum

To: Executive Officer, DMEA Field Team, Region IV

From: Chief, Mineral Resources Branch, Mining Division, Region IV

Subject: DMEA 3805 (Uranium), Joseph R. and Katherine L. Whisenant (Tomahawk group), LaPlata County, Colo.

Enclosed are the original and ten copies of a "Summary, Conclusions, and Recommendations" by E. N. Harshman, Geological Survey, and H. M. Connors, Bureau of Mines, and of H. M. Connors' engineering report on the subject docket.

Connors concludes that while there are small amounts of uranium exposed along a vein outcrop shown by the applicants, there is no positive proof that the showings are on the Tomahawk vein developed at depth nor that other concentrations of uranium in this vein are likely to be of greater significance if the requested exploration were authorized. He also considers the applicants' proposal unrealistic with the costs far out of proportion to the results that might be expected. The application is recommended for denial.

I concur with his conclusions and recommendations.

The examiners' decisions were discussed with and cleared by Atomic Energy Commission representatives.

The brochure submitted with your memorandum of November 6, 1953, instructing us to prepare a suitable report, is also enclosed.

W. M. Traver

W. M. Traver

enclosures

WMT/kp
10
cc DMEA 3805
Chron

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Defense Minerals Exploration Administration
Denver Federal Center
Denver 2, Colorado

July 15, 1954

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 3205, Tomahawk Mine, La Plata County, Colorado

Enclosed are 11 copies of a geologic report by E. N. Harshman of the U. S. Geological Survey covering the above docket.

The Tomahawk vein occupies an east-trending fissure in diorite and diorite-monzonite porphyry. Considerable exploration has been done in the Tomahawk mine but the workings were not accessible for examination. A vein outcrop, possibly the Tomahawk vein, situated 400 feet vertically above the mine portal was sampled. It contained minor amounts of an unknown radioactive mineral.

Harshman concludes that it is impossible to assess definitely the ore potential of the Tomahawk vein with the data at hand but recommends denial without prejudice based on the low uranium content of the vein sampled. Should the applicant rehabilitate the old workings and make them accessible for investigation and sampling, a re-examination of the property may be justified.

I concur with the recommendation.

E. N. Harshman
for A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (11)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 1865, Tungsten Group

Joseph H. and Katherine L. Weissert, Applicants

LaPlata County, Colo.

Tungsten

E. N. Harshman, Geologist
Geological Survey

E. M. Gennaro, Mining Engineer
Bureau of Mines

July 1, 1954

DMEA 3205

TOMAHAWK GROUP
JOSEPH B. AND KATHERINE L. WEISHANT, APPLICANTS
LaPLATA COUNTY, COLO.

Summary, Conclusions, and Recommendations

By R. M. Burchman
Geologist
Geological Survey

R. M. Connors
Mining Engineer
Bureau of Mines

DMEA 3805

TUNAHANK GROUP
JOSEPH B. AND KATHERINE L. WHISMANT, APPLICANTS
LaPLATA COUNTY, COLO.

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By E. B. Hawkins and E. N. Cameron

Joseph B. and Katherine L. Whismant, owners of the Tunahank group, LaPlata County, Colo., made application for Government assistance (DMEA 3805) to explore the Tunahank group for uranium at an estimated total cost of $14,869.00. The proposed work was to be completed in three stages and consisted of rehabilitating a road to the mine, sinking a 30-foot shaft on the outcrop, diamond drilling, and rehabilitating the Tunahank level by drifting around the caved portion of the drift.

The application was investigated in the field June 15, 1954, by a Region IV Defense Minerals Exploration Administration examining team.

The more important deposits in the Tunahank mine area lie within a large diorite stock which intrudes the Dolores and Cutler red beds and is intruded by dikes of diorite-monzonite porphyry.

Several sets of fissures cut the country rock, the most prominent of which trend easterly or northeasterly. The Tunahank vein, proposed for exploration, occupies an easterly trending fissure.

Underground workings on the Tunahank vein are not accessible, but the vein is reported to range from a few inches to 6 feet in width. An exposure of a vein on the hillside above the portal of the caved mine workings, which may or may not be the Tunahank vein, contains 6 to 8 inches of quartz, pyrite, and minor amounts of uranium.

The only logical approach to exploration of this property would be by rehabilitation of the Tomahawk adit which is presently blocked by a cave in the crosscut. The showing of uranium in the outcrop does not justify the indefinite, but large, expense of rehabilitating the Tomahawk adit.

Significant amounts of uranium are unlikely to be developed on the property and it is recommended that the application be denied.

TOMAHAWK MINE

LA PLATA COUNTY, COLORADO

DNEA DOCKET 3205

Geologic Report

By E. H. Harshman
U. S. Geological Survey

TOMAHAWK MINE
LA PLATA COUNTY, COLORADO

INTRODUCTION

Joseph S. and Katherine L. Whisnant, 939 South Josephine Street, Denver 9, Colorado, have applied for DMEA assistance to explore for uranium ore at the Tomahawk mine by rehabilitating the Tomahawk crosscut, 2,000 feet of diamond drilling, and 30 feet of shaft sinking. Their estimated cost of the project is $14,249.02.

The property consists of 17 patented mining claims located in secs. 26 and 27, T. 37 N., R. 11 W., New Mexico Principal Meridian, California Mining District, La Plata County, Colorado. It is 15 miles (airline) northwest of Durango, Colorado, and is reached over 11.5 miles of paved highway (U.S. No. 160 west from Durango), 11 miles of graded county road north along the La Plata River, and one mile of old wagon road, passable for jeeps only.

The examination was made on June 15, 1954, in company with H. M. Connors, U. S. Bureau of Mines, and J. S. Whisnant, one of the applicants. Winter snows made examination impossible until that date.

Although minor amounts of uranium occur in the vein material samples, denial of the proposed exploration project without prejudice is recommended. Representatives of the A.E.C. concur in this recommendation.

GEOLOGY AND ORE DEPOSITS

The geology and ore deposits of the La Plata Mountains are described by Edwin B. Eckel (1949) in U. S. Geological Survey Professional Paper 219. The following summary of the regional geology is taken from that publication.

The La Plata mountains are composed of sedimentary rocks, ranging in age from Pennsylvanian to Cretaceous, and sills, stocks, and dikes of porphyritic and non-porphyritic igneous rocks of late Cretaceous or early Tertiary age.

The major structural feature is a domal uplift of the sedimentary rocks. The dome is about 15 miles in diameter and is partly bounded by a horseshoe-shaped hinge fold, open toward the south and encircling the central part of the range. Major and minor faults have broken the sedimentary rocks, particularly along the hinge line and along the north and northeast edge of the dome. The maximum uplift is estimated to be about 6,000 feet. Eckel concludes that doming was caused in part by the intrusion of the many sills now exposed in the area, and in part by folding of the basement rocks.

The Tomahawk mine is in the Tomahawk Basin area where a diorite stock intrudes shales, mudstones, and sandstones of the Cutler and Solares formations. Both the sediments and the diorite have been intruded by sills and dikes of diorite-monzonite porphyry.

The more important veins are within the diorite and occupy 2 sets of prominent, steeply dipping fissures; one set strikes almost due east, the other strikes northeast. The Tomahawk is an easterly striking vein in diorite. In the Tomahawk mine, now inaccessible, the vein is reported to range from several inches to ten feet in width and to have a tendency to pinch and swell within very short distances and to split off into the wall at many places.

The Clydendale vein is similar to the Tomahawk vein in its general character and lies about 100 feet north of it. Eckel believes that the two structures converge and that they may intersect about

1300 feet east of the Tomahawk adit.

At the Tomahawk mine considerable exploration has been done on both the Tomahawk and the Clydesdale veins. Estimates of drifting on the Tomahawk vein range from 300 to 800 feet and on the Clydesdale vein from 900 to 1200 feet. Figure 2 of the engineering report shows the mine workings according to maps furnished by the applicants. Figure 47 of Professional Paper 219 also shows the mine workings.

Both the Tomahawk and Clydesdale veins are characterized by a silicified central core, flanked by walls of soft altered diorite. The principal minerals in the veins are quartz, pyrite, chalcopyrite, sphalerite, tetrahedrite, and energite. Gold and silver probably occur as a telluride. Uranium, if present in the Tomahawk and Clydesdale veins, may occur as pitchblende.

At the time of this examination the only vein exposures accessible for examination were in the short adit and in 4 of the 5 shallow pits shown on figure 3 accompanying this report. The applicant believes that the vein exposed in Pits 2, 3, 4, and 5 is the outcrop of the Tomahawk vein developed in the lower workings. The outcrop is at an altitude of about 11,250 feet, 400 feet above the Tomahawk adit, and it is impossible to make any vein correlations without a detailed survey of the old workings (now inaccessible) and the outcrop area.

The vein exposed in Pits 2, 3, 4, and 5 is in diorite and diorite-monzonite porphyry. It is 1 to 2 feet wide and consists of a central quartz core, 6 to 8 inches wide, flanked by altered wall rock. The core contains considerable pyrite and minor amounts of an unknown radioactive mineral. Oxidation and leaching has removed about 1/3 of the pyrite originally in the quartz, leaving numerous pyrite crystal casts. The

sheared and altered wall rock contains no visible sulfide minerals and is stained with iron and manganese oxides. Selective sampling of the vein indicates that uranium is limited to the quartz core of the vein.

The prospect adit (figure 3) was driven along a shear zone in diorite, diorite-monzonite porphyry, and micaceous shale of the Cutler formation. The shear zone is 10 to 15 inches wide and consists of silicified, iron stained wall rock containing some pyrite. It appears to be split from the vein exposed in Pits No. 2, 3, 4, and 5. No vein is exposed in Pit No. 1.

SAMPLES AND ORE RESERVES

Seven samples of the vein outcrops were cut at the time of the examination (figure 3). The samples were analyzed in the U. S. Bureau of Mines Laboratories, Salt Lake City. Sample descriptions and results of the analyses follow:

Sample No.	Description	U3O8	eq.Ux	eq.Ad
MMC-1	13" cut of silicified iron stained shear zone in prospect adit	0.020	0.03	0.3
MMC-2	19" cut of silicified iron stained porphyry in Pit No. 2; some pyrite and chalcopyrite	0.030	0.05	0.4
MMC-3	16" cut of silicified iron stained porphyry in Pit No. 3; some pyrite and chalcopyrite	0.121	0.09	0.3
MMC-4	11" cut of silicified diorite in Pit No. 4 - some pyrite	0.085	0.02	<0.1
MMC-5	12" cut of crushed and oxidized wall rock, footwall of vein in Pit No. 4	0.030	<0.005	<0.1

Sample No.	Description	U_3O_8	Sd. Au.	ex. Ag
HMC-6	Composit of three 6" to 8" cuts of silicified vein core in Pit No. 5; some pyrite	0.141	0.84	3.7
HMC-7	Composit of three 6" to 12" cuts of oxidized footwall and hangingwall parts of vein in Pit No. 5	0.040	0.01	<0.1

There are no known ore reserves on the Tomahawk property.

EXPLORATION PROGRAM

The applicants propose a 3-stage exploration program as follows:

Stage A - Rehabilitate one mile of road and sink a 50-foot shaft from surface exposure in vicinity of Pit No. 4 (figure 3).

Stage B - Drill 4 to 6 holes to cut the Tomahawk, Clydesdale, Little Jane, and the Yuba veins. The Little Jane and Yuba veins are reported to have been cut in the Ground Hog tunnel, now caved, but their presence could not be confirmed by this investigation.

Stage C - Rehabilitate the Tomahawk tunnel in order to sample workings on the Tomahawk and Clydesdale veins, and drill 2 to 4 holes, if warranted, to explore these veins at greater depths.

The requested program is not well conceived. The slope below the vein outcrop averages over 35 degrees and by substitution of a short adit for the proposed shaft the same objective could be reached at much less cost. The steep character of the terrain, the lack of water near the drill stations, and the fractured character of the vein material will make drilling costly, and the results uncertain.

The examining team believes that any investigation of the uranium ore potential of the Tomahawk property should start with rehabilitation of the Tomahawk mine workings and a thorough sampling of the 1200 to 2000

feet of drift reported on the Tomahawk and Clydesdale veins. This work was proposed in Stage C of the applicants' program.

CONCLUSIONS AND RECOMMENDATIONS

The ore potential of the Tomahawk property is impossible to assess definitely with the data available to the examining team, but it does not appear to be large. The weighted average of the 7 samples taken from vein exposures on the slope above the Tomahawk mine portal indicates an average content of about 0.07% U_3O_8 and the highest sample contained only 0.14% U_3O_8. The sample widths average 12-1/2 inches. Except for sample MMC-7, gold and silver assays are low.

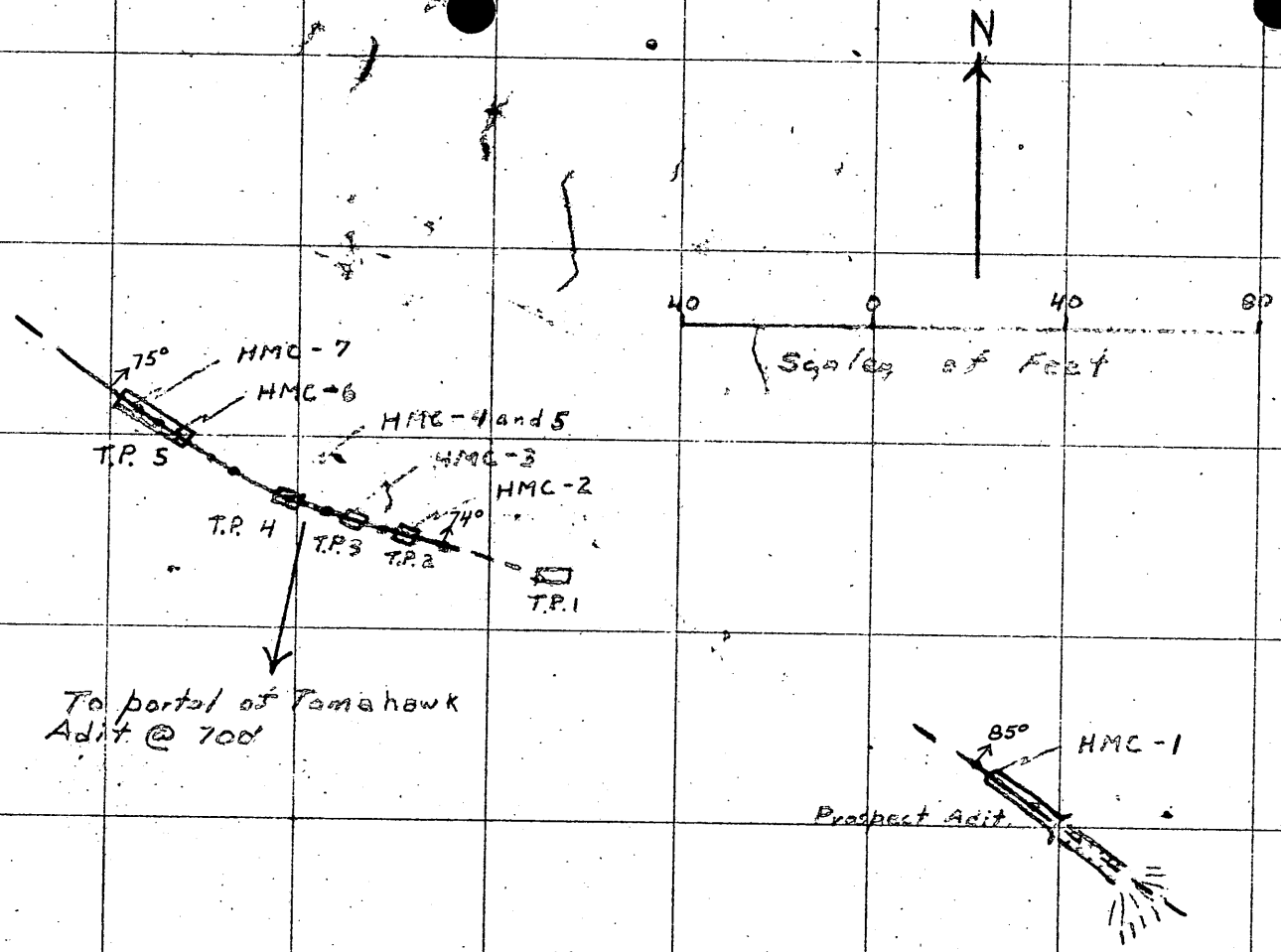
It is not certain if the vein sampled is the Tomahawk vein, as reported by the applicants, but an examination of the Tomahawk mine dump and testing of mineralized specimens found there, indicates that "ore" from the Tomahawk and Clydesdale veins is similar to that sampled.

Denial of the application for exploration assistance, DMEA Docket 3205, without prejudice is recommended. Rehabilitation of the old workings is not considered to be justified by the data available to the examining team. Should the applicant make the old workings accessible for investigation and sampling, re-examination of the property may be justified.

The application has been discussed with representatives of the Atomic Energy Commission; they concur with the above recommendation.

REFERENCES

Eckel, Edwin B. (1949), Geology and Ore Deposits of the La Plata Mountains; U. S. Geol. Survey, Professional Paper 219.



Explanation

TP4 □ – Test Pit

— — Mineralized vein dashed where location is approximate

Adit

HMC-1 Sample location

Department of the Interior

U.S. Geological Survey

Tomahawk Mine, La Plata County Colorado

Fig 3 DMEA 3205

Plan Map of Prospect Workings

Brunton & Tape

E.N. Harshman June '54

IDRA 3805

TOMBIANK GROUP
JOSEPH D. AND KATHERINE L. WEINHARD, APPLICANTS
LaPLATA COUNTY, COLO.

Engineering Report

By Hugh M. Connors
Mining Engineer
Bureau of Mines

DMRA 3805

TOMAHAWK GROUP
JOSEPH B. AND KATHERINE L. WEISHAPP, APPLICANTS
LaPLATA COUNTY, COLO.

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Description of the deposit	3
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2. Claim map, Tomahawk group, LaPlata County, Colo.	2

DMEA 3805

TOMAHAWK GROUP
JOSEPH B. AND KATHERINE L. WEISHAPP, APPLICANTS
LaPLATA COUNTY, COLO.

EXPLORATION REPORT

By Hugh M. Connors

INTRODUCTION

Joseph B. and Katharine L. Weishapp, 959 South Josephine Street, Denver 9, Colo., applied for aid in an exploration project, pursuant to DMEA Order-1, Defense Production Act of 1950, as amended (Docket No. DMEA 3805). The applicants--owners of the Tomahawk group, LaPlata County, Colo.--proposed to explore that property for uranium at an estimated total cost of $14,949.00. The proposed work was to be completed in three stages as follows:

Stage A

Rehabilitate 1 mile of road to mine.

Sink a shaft 50 feet deep at the best assay point on the outcrop of the Tomahawk vein.

Stage B

Assuming Stage A gives satisfactory results, drill four to six core holes at an angle to cut the Tomahawk, Clydesdale, Little Jane, and Tuba veins. Drill two holes from surface below exploratory shaft aimed to cut veins between bottom of shaft and Tomahawk level.

Stage C

Open Tomahawk level by drifting around curve.

Drill two to four holes from the main Tomahawk tunnel level to

hit intersection of Tomahawk and Clydesdale veins at depth. Additional drilling will depend on results of previous exploration.

The property was examined June 15, 1954, with E. E. Hansmann of the Geological Survey, and Joseph B. Whisenant.

LOCATION

The applicants' property consists of 17 patented lode mining claims located in secs. 26 and 27, T. 37 N., R. 11 W., in the California mining district, LaPlata County, Colo. (fig. 1). It is accessible from Durango via paved U. S. Highway 160 to a road junction 12 miles west of Durango, thence 9 miles northwest on the county road to a point 1 mile northwest of LaPlata City. A jeep trail extends from this point to within a quarter of a mile from the Tomahawk mill, which has an altitude of approximately 10,850 feet. The altitude of the outcrop purported to be the Tomahawk vein is 11,250 feet.

OWNERSHIP AND EXTENT

The applicants' property consists of 17 patented claims (fig. 2) recorded in Book 267, page 33-34 in official records of LaPlata County, Colo., as follows:

Claim	U. S. Mineral Survey No.	Claim	U. S. Mineral Survey No.
Tomahawk No. 1	18533	Little Jack	18839
Tomahawk No. 2	18533	Columbine	13611
Yukon	12901	Surprise	12918
Ground Hog	12901	Gertrude	12369
Night Watch	14635	American Eagle	18711
Side Cut	13607	Trail	12901
Bluff	13607	Klondike	12901
Gastaway	13607	Bon Hill	12918
Clydesdale	12967		

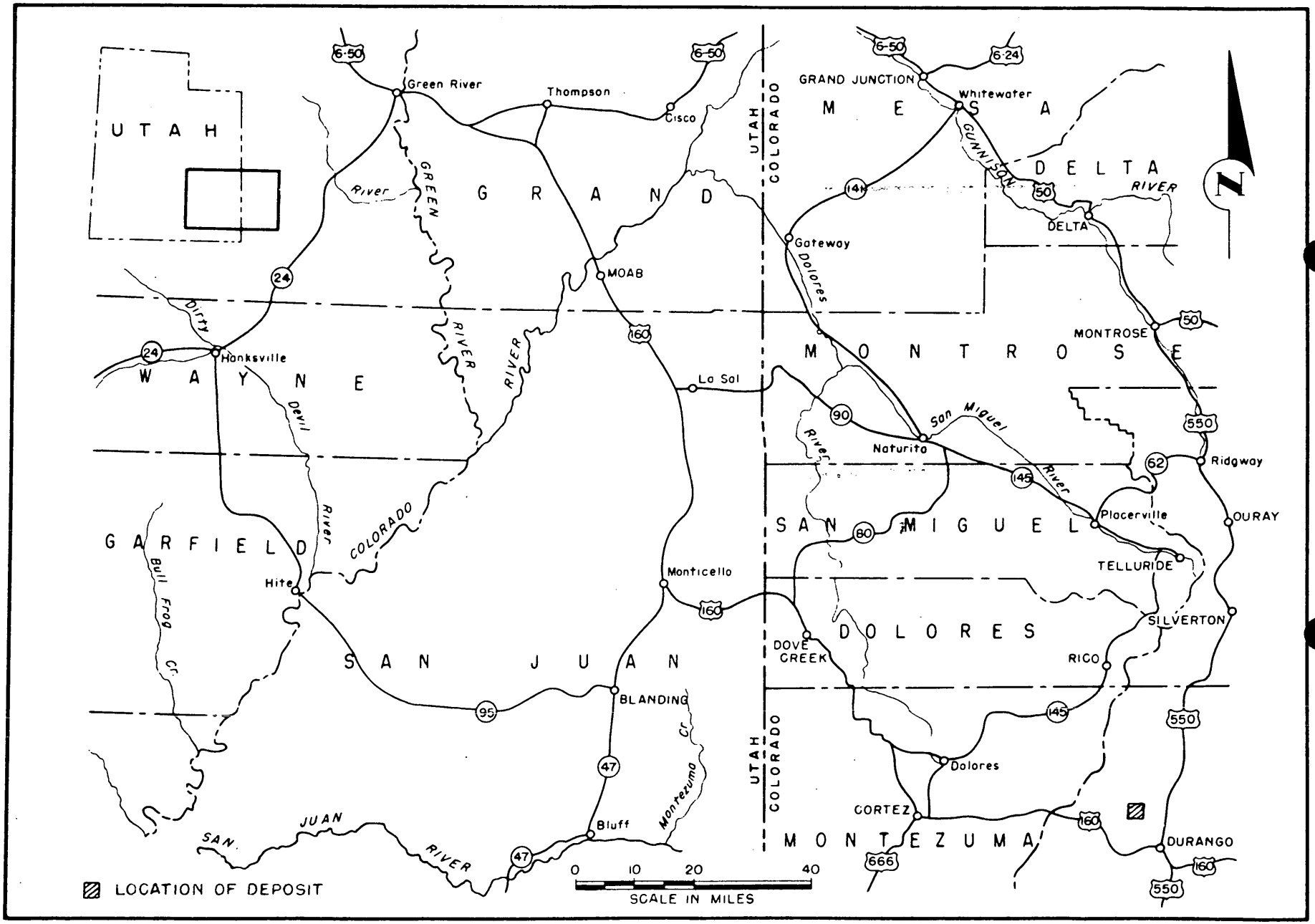

FIGURE 1 - LOCATION MAP, TOMAHAWK GROUP, LA PLATA COUNTY, COLO. (DMEA 3205)

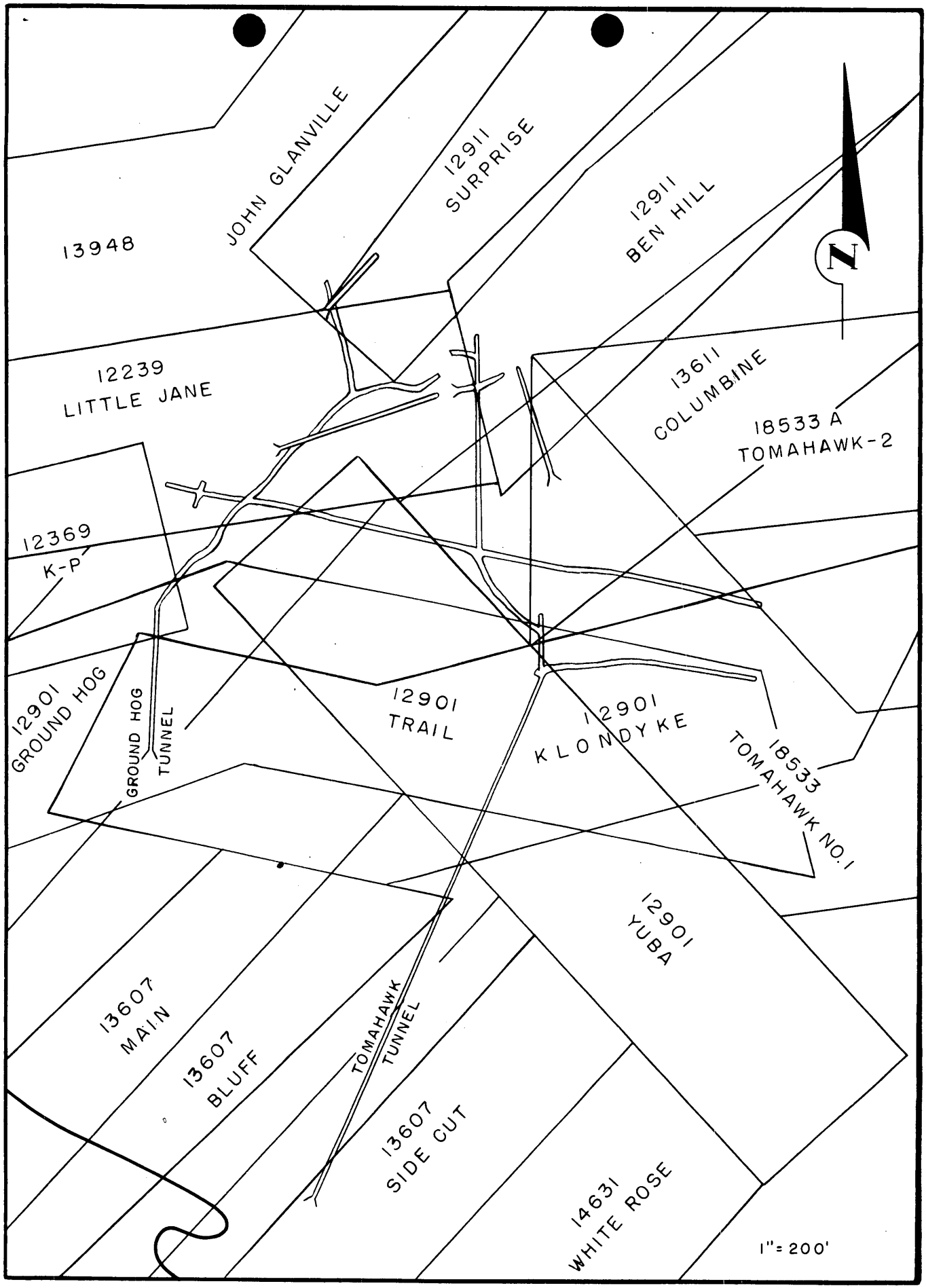

FIGURE 2- CLAIM MAP, TOMAHAWK GROUP, LA PLATA COUNTY, COLO. (DMEA 3205)

The applicant stated that the property had approximately 1,700 feet of adits and 2,000 feet of drifts which are now inaccessible due to caves. A 20-stamp mill, boarding house, and assay office are on the property but are almost useless from lack of repair.

HISTORY AND PRODUCTION

The applicants claim good and sufficient tax title, "suit" having been instituted in 1947 and adjudicated in open court July 8, 1947. All of the work on the property was done prior to the applicants' ownership.

The production record of the Tomahawk mine is as follows:

1901-1907:	None
1908:	60 tons, containing 180.02 oz. gold and 900 oz. silver
1909:	40 tons, containing 57.14 oz. gold and 703 oz. silver
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On the 1908 report there is a note to the effect that there were 1,700 feet of crosscut tunnel, and approximately 900 feet of drifts on the vein. The 1910 report stated there were 1,700 feet of tunnels and 4,000 feet of drifts and raises, and a 20-stamp mill. There is no record of any production after 1919.

DESCRIPTION OF THE DEPOSIT

The two main adits, Tomahawk and Ground Hog, are inaccessible due to caving. At an altitude of approximately 11,250 feet the applicants have exposed an outcrop, in an intrusive shear zone, by digging four

test pits at intervals along approximately 75 feet of the outcrop which has a maximum width of 23 inches. The vein material consists of quartz showing heavy iron stains and a highly siliceous and oxidized gouge. There is no positive proof that this outcrop is the Tomahawk vein. The strike of the outcrop is N. 75° W. and the dip is 77° N. The surface slope above and below the outcrop varies from 37° to 40°. The examiners found an old prospect adit 40 feet below and approximately 30 feet east of the applicants' assessment test pit. It had been driven 16 feet in a porphyry shear zone, and the portal is on the contact between the sediments and the porphyry sill. The vein, striking N. 55° W., is possibly a split of the vein purported to be the Tomahawk. Samples taken at the adit and along the outcrop gave the following results:

Sample No.	Width of sample (inches)	Description	Gold (ounces)	Silver (ounces)	U_3O_8 (percent)
MMC-1	13	13-inch shear zone-Face of Prospect adit.....	0.03	0.3	0.050
MMC-2	19	Assessment pit on outcrop. Vein 19 inches wide.....	0.05	0.4	0.059
MMC-3	16	Second pit, vein 16 inches wide.....	0.09	0.3	0.181
MMC-4	11	Silicified diorite-Vein 23 inches wide in third pit.....	0.02	<0.1	0.086
MMC-5	18	Oxidized portion of vein 23 inches wide in third pit.....	<0.005	<0.1	0.080
MMC-6	6 to 8	West pit, composite of three cuts of silicified vein material containing pyrite. Vein width 20 inches.....	0.04	3.7	0.141
MMC-7	18	West pit, composite of three cuts of oxidized portion of vein. Vein width 20 inches.....	0.01	<0.1	0.040

< less than

CONCLUSIONS

H. H. Hardman, Geological Survey member of the examining team, has discussed this application with geologists of the Atomic Energy Commission.

While the outcrop contains small amounts of uranium along the exposed section and may be similarly mineralized at other locations along its probable extensions, there is no indication that other such occurrences will be more extensive or of greater concentration. Vein material found around the old mill which had undoubtedly been transported through the Tomahawk adit, approximately 400 feet below the outcrop, showed no appreciable radioactivity on the Geiger counter. The uranium concentrations in the outcrop appear too low in grade and too limited in extent for possible economic extraction. The possibility of discovering any appreciable reserve of uranium at a reasonable cost in a deposit of this type is unlikely and exploration of the property for uranium is considered unwarranted.

The applicants' proposed exploration program and estimate of costs are unrealistic. Sinking a shaft on a slope that averages more than 37° is not practical and the estimate of $4.00 per foot for diamond drilling in that location is not realistic. It is doubtful if 2,000 feet of diamond drilling could be contracted in this location for as little as $16.00 per foot. The only logical approach to exploration on this property would be to rehabilitate the Tomahawk adit, and because it is blocked by a cave in the crosscut, there is no knowledge of the condition of the drifts which may also be caved. The showing

of uranium in the outcrop does not justify the indefinite, but large, expense of rehabilitating the Tomahawk adit.

RECOMMENDATIONS

Significant amounts of uranium are unlikely to be developed on this property and it is recommended that the application be denied.

/mp

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

November 9, 1953

Memorandum

To: Executive Officer, DMEA Field Team, Region IV

From: Chief, Operation's Control and Statistics Division

Subject: Assignment of Docket Number DMEA-3205

There is listed below the assigned docket number to an application recently received from Region IV.

DMEA - 3205 Whisnant, Joseph B. & Katherine L.

ROBERT E. ADAMS

Robert E. Adams
Chief, Operation's Control
and Statistics Division

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED

Not to be filled in by applicant

Docket No. DMEA-3205
Metal or Mineral
Date Received 11-9-53
Estimated Cost
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: Joseph B. Whisnant and Katherine L. Whisnant
959 South Josephine Street
Denver 9, Colorado

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

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

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

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

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

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

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

(*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 None

(*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.

16—66551-1

See attached sheet

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

(*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. See attached sheet

(*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 November 2, 1953

Joseph B. Whisnant
(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

In Explanation of Item 3.--(a)

3. (a) Applicant's property consists of 17 patented mining claims, situate, lying and being in T. 37 N. - R. 11 W. - Sec. 26 & 27 in the California Mining District, County of La Plata, State of Colorado, to-wit:

Tomahawk No. 1, Survey No. 18533, Tomahawk No. 2, Survey No. 18533, Yuba, Survey No. 12201, Ground Hog, Survey No. 12901, Night Watch, Survey No. 14635, Side Cut, Survey No. 13607, Bluff, Survey No. 13607, Castaway, Survey No. 13607, Clydesdale, Survey No. 12967, Little Jane, Survey No. 12239, Columbine, Survey No. 13611, Surprise, Survey No. 12918, Gertrude, Survey No. 12369, American Eagle, Survey No. 18711, Trail, Survey No. 12901, Klondike, Survey No. 12901, Ben Hill, Survey No. 12918.

The owners are vested with a good and sufficient title. Suit having been instituted in 1947 and adjudicated in open court on the 8th day of July, 1947. Recorded in Book 267 - P. 33-34, La Plata County, Durango, Colorado.

In Explanation of Item 4.--(a) - (b) - (c) - (d)

4. (a) Approximately 1700 feet of tunnels, about 2000 feet of drifts and raises, a 20-stamp mill, an old boarding house and assay building. The buildings are in need of rehabilitation.

The above work was executed prior to our ownership of said property.

The principal workings are at present inaccessible due to caved conditions. There are two upper tunnels accessible, showing ore veins.

(b) Reference is made to the United States Department of the Interior, Bureau of Mines, of the production from 1901 to 1920, inclusive. See attached sheet.
The present owners examined several veins in the past while workings were accessible and found considerable amount of gold and silver on more than 1800 feet of veins with very little stoping having been done on the veins.

(c) As to the geologic features of the property, reference is made to the Geology and Ore Deposits of the La Plata District, Colorado, Geological Survey Professional Paper 219
By Edwin B. Eckel, J. S. Williams, F. W. Galbraith and others.

Our reason for wishing to explore the aforementioned veins is for the purpose of determining the amount and extent, both horizontally and vertically, of the Uranium which has been exposed in veins on the surface, in two tunnels and also ore found in dump from lower workings which gave a satisfactory chemical assay of Uranium.
See Herbert M. Ochs - Chemical assay - sheets attached.

(d) Said mine lies 22 miles northwest of Durango, Colorado, 12 miles of which is black top highway, about 9 miles of County unpaved road which is utilized by public travel. The 1 mile road from County road to mine is passable by means of Jeep transportation.

4. (d) Residence accommodation can be had at the old town of La Plata City, some 4 mile distant from mine.

(e) The owner having spent many years in this general area knows many miners in and around Durango, Silverton and other nearby mining camps, some of which will be available for this project.

The nearest supply point for supplies and equipment is Durango, Colorado.

There is adequate water to supply the needs of mining and milling on this property. A power line extends to within the distance of 7 miles of mine.

In Explanation of Item 5.--(b) - (d)

5. (b) Work to be completed in 3 stages.

Stage A.
Road work--rehabilitate one mile of road to mine.

Sink 50 feet on vein as exposed on the surface. Shaft to be at best assay point.

See Figure 47.--Map showing geologic features, veins, and mine workings in Tomahawk Basin. (herewith attached)

Stage B.
Assuming Stage 1 gives satisfactory results drill 4-6 angle core holes to cut Tomahawk, Clydesdale, Little Jane and Yuba veins. Drill 2 holes from surface below exploration shaft aimed to cut veins between base of shaft and Tomahawk level.

Stage C.
Open Tomahawk Tunnel by drifting around cave.
Drill 2-4 holes from the main Tomahawk Tunnel level to hit intersection of Tomahawk and Clydesdale veins at depth. Other additional drilling depending on results of previous exploration.

(d) The owner having spent many years of underground work in mining feels competent to direct the operations of a project of this nature, so far as the actual mining operations extend.

6. Estimate of costs.--Stage A.

(a)	Road work		
	Bulldozer--$80.00 per day		
	5 days	$ 400.00	
(b)	Labor		
	1 miner 16.00 per day		
	3 days	48.00	
	(Rock drilling and blasting to remove rock obstruction on road.)		
(c)	Supplies		
	Powder - fuse - caps - gas - oil - bits	115.50	
(d)	Operating equipment - rental on monthly basis for 3 days	20.00	
	Compressor and other items to be used elsewhere on property.		
(e)	None in Stage A & B		
(f)	None		
(g)	Workmen's Compensation and employers' liability insurance, and payroll taxes are based on monthly payroll.	10.60	$ 594.10
	Sinking shaft on vein.		
	Labor		
	2 miners @ $16.00 = $32.00 per day		
	Estimate 36 days work @ 32.00	1,152.00	
	1 supervisor 36 days @ 16.00	576.00	
	Supplies		
	Powder - fuse - caps - gas - oil - bits	750.00	
	Equipment - rental on monthly basis for six weeks . . .	456.75	
	Compressor - jack hammer - hoist - air hose water liner & hose		
	Timber	55.00	
	Workmen's Compensation and employers' liability insurance, and payroll taxes are based on monthly payroll. . . .	70.00	3,059.75
	Estimate of costs.--Stage B.		
	Diamond Drilling		
	2000 feet @ $4.00 per foot		8,000.00
	Estimate of costs.--Stage C.		
	Open Tomahawk Tunnel by drifting around cave.		
	Labor		
	2 miners @ $16.00 = $32.00 per day		
	Estimate 18 days work @ 32.00	576.00	
	1 supervisor 18 days @ 16.00	288.00	
	(This includes timbering a distance of 20 feet)		
	Supplies		
	Powder - fuse - caps - gas - oil - bits	360.10	
	Timber	280.00	
	Equipment - rental on monthly basis for three weeks . .	150.75	
	Compressor - drifter		
	Rehabilitation - pipe, etc.		
	150 feet - 12 inch vent pipe	141.00	
	200 feet - 3 inch air pipe	120.00	
	100 feet - 12 lb. rail	40.32	
	Blower and motor	75.00	
	Workmen's Compensation and employers' liability insurance, and payroll taxes are based on monthly payroll.	34.00	2,045.17
(h)	Contingencies		500.00
	Accounting services		50.00
			$14,243.02

Note: The prices for equipment rental have been submitted to me by the Western Machinery Company.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

906 U. S. National Bank Bldg.
Denver, Colo.

~~315 U. S. CUSTOMHOUSE~~
DENVER, COLO.

MINERAL PRODUCTION AND ECONOMICS DIVISION

January 4, 1946.

Mr. J. B. Whisnant,
959 So. Josephine St.,
Denver, Colo.

Dear Mr. Whisnant:

With reference to your request for the back production record of the Tomahawk Mine, in La Plata County, Colo., the record has been looked up from 1901 to 1920, inclusive, and is as follows:

1901-1907:	None							
1908:	60 tons,	containing	120.02 oz.	gold,	and	900 oz.	silver	
1909:	40 "	"	57.14 oz.	"	"	703 oz.	"	
1910:	None							
1911:	7 tons,	"	10.66 oz.	"	"	43 oz.	"	
1912-1914:	None							
1915:	148 tons	"	263.52 oz.	"	"	365 oz.	",	270# lead.
1916:	60 tons	"	19.00 oz.	"	"	200 oz.	"	
1917-1918:	None							
1919:	20 tons	"	26.20 oz.	"	"	142 oz.	"	
1920:	None							

On the 1908 report there is a note to the effect that there were 1700 ft. of cross-cut tunnel, and about 900 ft. of drifts on vein.

The 1910 report stated there were 1700 ft. Tunnels and 4,000 ft. of drifts and raises, and a 20-stamp mill.

The above was smelting ore, and was shipped by the Tomahawk Mines Co.

Very truly yours,

Florence H. Scott.
Clerk.

S.

HERBERT M. OCHS
CHEMIST & SPECTROGRAPHER
1138 Kalamath Street -:- P. O. Box 924
DENVER 1, COLORADO

September 24, 1953

Mr. J. B. Whisnant
959 So. Josephine St.
Denver, Colorado

Uranium Oxide (U_3O_8) - - 0.79%

H M Ochs

HERBERT M. OCHS
CHEMIST & SPECTROGRAPHER
1138 Kalamath Street -:- P. O. Box 924
DENVER 1, COLORADO

Mr. J. B. Whisnant
959 So. Josephine St.
Denver, Colorado

September 24, 1953

COMPLETE QUALITATIVE SPECTROGRAPHIC ANALYSIS

Figures Are Percentage Estimates

	Antimony
.01	Arsenic
.5	Aluminum
	Boron
.1	Barium
	Beryllium
	Bismuth
.1	Calcium
	Columbium
	Cadmium
	Cerium
.001	Cobalt
.001	Chromium
	Caesium
.1	Copper
	Dysprosium
	Erbium
	Europium
	Gallium
	Gadolinium
	Germanium
1 oz.	Gold per ton
	Hafnium
	Holmium
	Indium
5	Iron
	Iridium
	Lanthanum
.5	Lead
	Lithium
	Lutecium
.1	Magnesium
.01	Manganese
	Mercury
.01	Molybdenum
	Neodymium
.001	Nickel
	Osmium
	Palladium
.01	Potassium
	Praseodymium
	Platinum
	Radium
	Rubidium
	Rhenium
	Rhodium
	Ruthenium
	Scandium
Major	Silicon
	Samarium
	Strontium
2 oz.	Silver per ton
.01	Sodium
	Tantalum
	Terbium
	Thallium
	Thulium
	Thorium
	Tin
.01	Titanium
	Tungsten
* 1	Uranium
.01	Vanadium
.01	Yttrium
.01	Ytterbium
.1	Zinc
.01	Zirconium

A geiger counter test shows Strong radioactivity.

* Chemical determination: U_3O_8 0.79%

Charges: $7.50

Herb Ochs

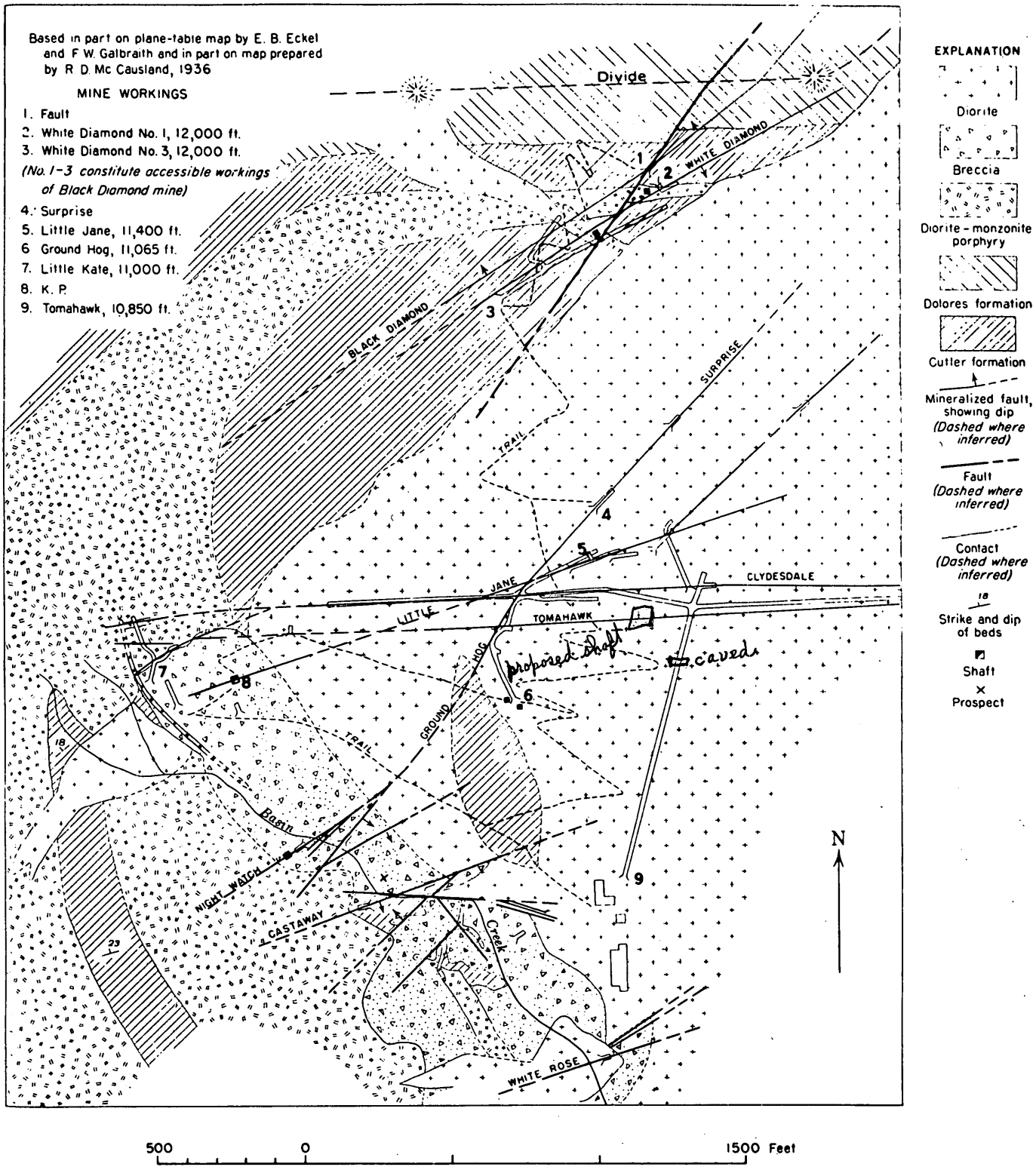
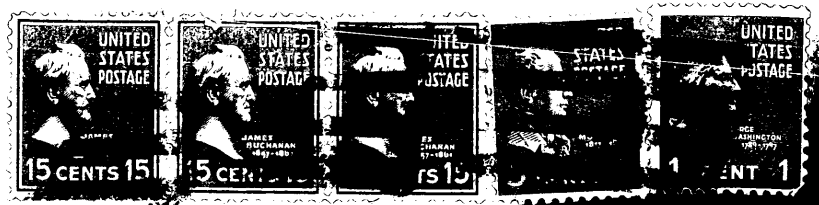


FIGURE 47.—Map showing geologic features, veins, and mine workings in Tomahawk Basin.



DENVER
NOV
6
6.30PM
1953
COLO.