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DMA Docket No. DMEA-2842

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

FEB - 1 1954

224 New Customhouse
Denver 2, Colorado

January 22, 1954.

Memorandum

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

From: Field Team, Region IV

Subject: Report of Examination - DMEA Docket 2842 (Uranium), Holmes Uranium Corporation, Marysvale, Piute County, Utah.

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

In view of the absence of encouraging showings of uranium mineralization on the subject property and the indefinite abandonment of additional exploratory work by the A.E.C., it is recommended that the application be denied.

W. H. King

A. H. Koschmann

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
2-5-54

IN REPLY REFER TO:

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

RECEIVED
FEB 1 1954

January 19, 1954

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 2842, Holmes Uranium Corporation, Piute County, Kanab, Utah

Enclosed are 11 copies of the geological report by J. W. Hasler and C. G. Tillman of the U. S. Geological Survey covering the above docket, also 11 copies of a memorandum report from C. G. Tillman.

In view of the absence of encouraging showings of uranium mineralization on subject property and the indefinite abandonment of additional exploratory work by the A.E.C., it has been recommended that the loan be denied.

The brochure is enclosed.

A. H. Koschmann

A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (12)

Reviewed by
DMEA OPERATING COMMITTEE
2-5-52
(Date)

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Room 208 - 222 So. West Temple
Salt Lake City 1, Utah
January 15, 1954

Memorandum

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

From: C. G. Tillman for R. J. Roberts,
Utah-Nevada District Office

Subject: DMEA Docket 2842, Holmes Uranium Corporation, Marysvale, Piute County, Utah

The Holmes Uranium Corporation claims in the Marysvale area, Utah were examined in February 1953 by J. W. Hasler and C. G. Tillman relative to an application by this company for an exploration loan.

The report of the examination stated that "another diamond drill hole is tentatively scheduled to be drilled by the A.E.C. several hundred feet west of the Scorpion No. 8 claim in the summer of 1953." Advice from the staff of the A.E.C., Richfield, Utah, indicates that an inclined adit was to have been substituted for this drill hole but that this alternate plan has been shelved indefinitely. Thus, no new A.E.C. information is available which would alter the chances of finding uranium ore on these claims.

In view of the absence of encouraging showings of uranium mineralization on the claims in question and the indefinite abandonment of additional exploratory work by the A.E.C. on these claims at the present time it is recommended that the application be denied.

Ralph J. Roberts

By: /s/ C. G. Tillman
C. G. Tillman

CGT/rs

Reviewed by
DMEA OPERATING COMMITTEE
2-5-54

Room 208 - 222 So. West Temple
Salt Lake City 1, Utah
March 11, 1953

Memorandum

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

From: Ralph J. Roberts
Utah--Nevada District Office

Subject: DMEA Docket 2842, Holmes Uranium Corporation, Piute County, Kanab, Utah

Enclosed are 11 copies of the geologic report on the Holmes Uranium Corporation, Piute County, Kanab, Utah prepared by C. G. Tillman and J. William Hasler at the conclusion of the field examination made at the request of the Field Team, Region IV. The brochure accompanies this report.

The Holmes Uranium Corporation has applied for a loan on work costing $274,805.00 to be used for two exploration projects in the Marysvale uranium district, Utah. The A.E.C. has drilled four diamond drill holes on this property and the applicant has driven about 570 feet of exploratory incline and cross-cut. Neither of these exploratory programs has discovered an indication that significant uranium ore-bodies might underlie this property.

The A.E.C. geologic study of the area is continuing and another diamond drill hole is tentatively scheduled to be drilled on the Holmes property in the summer of 1953. If this study and additional drilling fail to provide evidence of the possible existence of uranium-bearing material of commercial grade on the applicant's property, it is recommended that his application for an exploration loan be denied.

I concur with the recommendation of the examining geologists.

Ralph J. Roberts

Reviewed by
DMEA OPERATING COMMITTEE

2-5-54
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 2842, Holmes Uranium, Benny K and Scorpion No. 8

Piute County, Utah

By

J. W. Hasler and C. G. Tillman
U. S. Geological Survey

March 11, 1953

2-5-54

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ILLUSTRATIONS

Fig. 1 - Index Map of Utah

GEOLOGIC REPORT

DMEA 2842, Holmes Uranium, Benny K and Scorpion No. 8

Piute County, Utah

Introduction

The Holmes Uranium Corporation, Kanab, Utah has applied to the Defense Minerals Exploration Administration for a loan, DMEA Docket 2842, on work costing $274,805.00 to explore for uranium on the Benny K No. 1 and Scorpion No. 8 claims, Durkee mining district, Piute County, Utah.

An examination of the property was requested by the Field Team, Region IV, January 23, 1953. The examination was made February 12, 1953 by C. G. Tillman and J. William Hasler, geologists, U. S. Geological Survey, Mr. J. Mark Holmes, president of the corporation was present during the examination. This property was previously examined November 20, 1951 by R. W. Osterstock and J. William Hasler, geologists, U. S. Geological Survey and R. L. Middleton, mining engineer, U. S. Bureau of Mines in connection with DMA Docket 1968, an application by the Holmes Uranium Corporation for a loan of $143,695.50 to aid in the exploration for uranium on the Benny K No. 1 and Scorpion No. 8 claims.

Location and Accessibility

The Holmes property is in Sec. 3, T. 27 S., R. 3 E., SLB&M, Durkee mining district, Piute County, Utah. The claims are approximately 5 miles northeast of Marysvale, Utah and can be reached by driving east from the center of Marysvale on a dirt access road; thence cross the Sevier River and drive north 4 miles to the claims.

History and Production

The property is held by the Holmes Uranium Corporation under lease agreements with three groups of lessors. It has had no production. The Benny K No. 1 claim is being explored by the applicant by means of a 220

feet inclined shaft and 350 feet of crosscut.

In 1952 the A. E. C. drilled two diamond drill holes to explore the most promising structure on the Benny K No. 1 claim. No significant quantities of uranium-bearing minerals were found. Subsequently, two diamond drill holes were drilled by the A. E. C. to test the Scorpion fault on the Scorpion No. 1 claim. This claim is adjacent to, and on the east side of, the Scorpion No. 8 claim on which the applicant proposed to do exploratory work. Only one of these holes showed an "interval of radioactivity", and the significance of this radioactivity has not yet been determined by A. E. C. geologists. According to geologists at the Richfield, Utah office of the A. E. C., study of the area described herein is continuing and another diamond drill hole is tentatively scheduled to be drilled several hundred feet west of the Scorpion No. 8 claim in the summer of 1953.

Geology

The following material is quoted from the report of Osterstock and Hassler, DMA Docket 1968, December, 1951.

> The Marysvale district is largely underlain by volcanic rocks which have been intruded by quartz monzonite and granite. These rocks are unconformably overlain by younger basalt flows.
>
> Two periods of major extrusions are noted in the area, the early Bullion Canyon series and the later Mt. Belknap series. The Bullion Canyon series of latitic and andesitic flows and breccias was extruded on formations ranging from Permian to Jurassic in age. Contemporaneous with or slightly later than the extrusion of the Bullion Canyon series, large quartz monzonite intrusions were emplaced in the volcanics. Mountainous terrain was developed during an erosion interval following this period of igneous activity. The second major period of volcanic activity deposited the Mt. Belknap rhyolitic flows, and related pyroclastics on the rugged erosion surface cut on latite, andesite, and quartz monzonite. Granitic intrusions, the compositional equivalents of the rhyolites, were emplaced either contemporaneous with or slightly later than the Mt. Belknap extrusions. An erosion surface, developed on both extrusives and intrusives, provided a base for the last period of volcanism during which thin olivine basalt flows were extruded locally.
>
> The major uranium production from the Marysvale district has come from a set of northeast-striking faults which do not

appear to be related to the three faults, two striking east and one striking north, noted on the Holmes property.

On the Benny K No. 1 claim the trace of a well developed vertical north-striking fault is cut off on the south by a vertical east-striking fault. As quartz monzonite, somewhat more intensely altered on the north wall, forms both walls of the east-striking fault, it appears that the horizontal displacement along this fault is small.....

Ore Deposits

The following material is quoted from the report of Osterstock and Hasler, DMA Bethel 1968, December, 1951:

Uranium mineralization in the Marysvale district is confined to fault zones, joints, fissures, and rarely to contacts between the quartz monzonite intrusions and the rhyolite flows. It is known that the ore mineralization is post-granite, and possibly related to hydrothermal argillic alteration which, although widespread throughout the Marysvale district, is most intensive in and near fault zones. Chloritic alteration of the ferromagnesian minerals in the volcanic rocks does not appear to be confined to fault zones and is, therefore, considered to be a feuterie effect....

Although no ore minerals are visible to the unaided eye, it is probable that the uranium present is contained in such secondary minerals as autunite, uranophane, and possibly torbernite all coated or stained by iron oxide.

Portions of zones of higher than average radioactivity along the fault were collected and assayed by the Atomic Energy Commission. The uranium content of the only sample taken on the Benny K No. 1 claim is 0.06 percent U_3O_8.

There is not, therefore, any minable ore at the surface on the Benny K No. 1 or the Scorpion No. 8 claims.

A zone of high radioactivity is reported on the Scorpion No. 8 claim, but no uranium minerals could be identified nor were any uranium-bearing structures noted.

At the present time no ore is exposed in the workings and no ore reserves can be inferred.

At the time of writing of the present report no ore is exposed in the workings and no ore reserves can be inferred.

Proposed Exploration

The applicant proposes to sink a one and one-half compartment vertical shaft 300 feet deep on the Scorpion No. 8 claim. Exploratory cross-cuts from the bottom of this shaft will total 600 feet in length. The object of this work is to explore the fault contact between the quartz monzonite and Bullion Canyon volcanics, otherwise known as the Scorpion fault, which is present on this claim.

A second project is proposed which involves sinking a 700 foot vertical two-compartment shaft on the Benny K No. 1 claim. A maximum of 1,400 feet of exploratory crosscut is provided to allow for exploratory work along the north-striking and east--striking faults on this claim.

Neither the applicant's 570 feet of exploratory work on the Benny K No. 1 claim nor the A. E. C. diamond drilling on the Benny K No. 1 claim and Scorpion No. 1 claim has revealed uranium-bearing material of commercial grade. The examining geologists, and geologists of the A. E. C., do not consider that there is much chance that the work proposed by the applicant will lead to a significant discovery. A. E. C. geologists, however, are continuing their geologic study of this and neighboring properties and may, as mentioned above, drill one more diamond drill hole west of the Scorpion No. 8 claim.

If the geologic study and additional drill hole data fail to provide evidence of the possible existence of uranium-bearing material of commercial grade on the applicant's property, it is recommended that his application for an exploration loan be denied.

Summary, Conclusions and Recommendations

The Holmes Uranium Corporation, Kanab, Utah has applied to the Defense Minerals Exploration Administration for a loan of $274,805.00 to explore for uranium on the Benny K No. 1 and Scorpion No. 8 claims, Marysvale district, Piute County, Utah.

The Marysvale district is largely underlain by the earlier, Bullion Canyon volcanic series, and the later, Mt. Belknap volcanic series. Each period of vulcanism was accompanied by or followed by a period of igneous intrusion. These rocks are overlain by later basalt flows. Major uranium production from the Marysvale district comes from northeast-striking faults which do not appear to be related to the three faults noted on the Holmes property. No ore minerals visible to the unaided eye are present.

The Holmes property has had no production. At the present time no ore is exposed and no reserves can be inferred.

The Benny K No. 1 claim, which is underlain by intrusive quartz monzonite, has been explored by about 220 feet of inclined shaft and 350 feet of cross-cut. The A.E.C. drilled two diamond drill holes across the strong north-striking fault that crosses the claim but no significant quantities of uranium-bearing minerals were found. Subsequently, two diamond drill holes were drilled by the A.E.C. to test the Scorpion fault. One of these holes showed an "interval of radioactivity". The significance of this radioactivity is being studied, and a program of further exploration is being considered by the A. E. C.

The applicant proposed to explore the Scorpion fault on the Scorpion No. 8 claim by means of a 300-foot shaft and 600 feet of cross-cuts. He also proposes to explore north-striking and east-striking faults on the Benny K No. 1 claim by means of a 700 feet shaft and 1,400 feet of cross-cut.

Neither the applicant's 570 feet of exploratory inclined shaft and cross-cut nor the four diamond drill holes drilled by the A. E. C. on these claims offer

encouraging evidence of the presence of uranium ore. The geologic study of this area by the A. E. C. is continuing and another drill hole is tentatively scheduled to be drilled on the Scorpion No. 8 claim in the summer of 1953. If this study and additional drilling fail to provide evidence of the possible existence of uranium-bearing material of commercial grade on the applicant's property, it is recommended that his application for an exploration loan be denied.

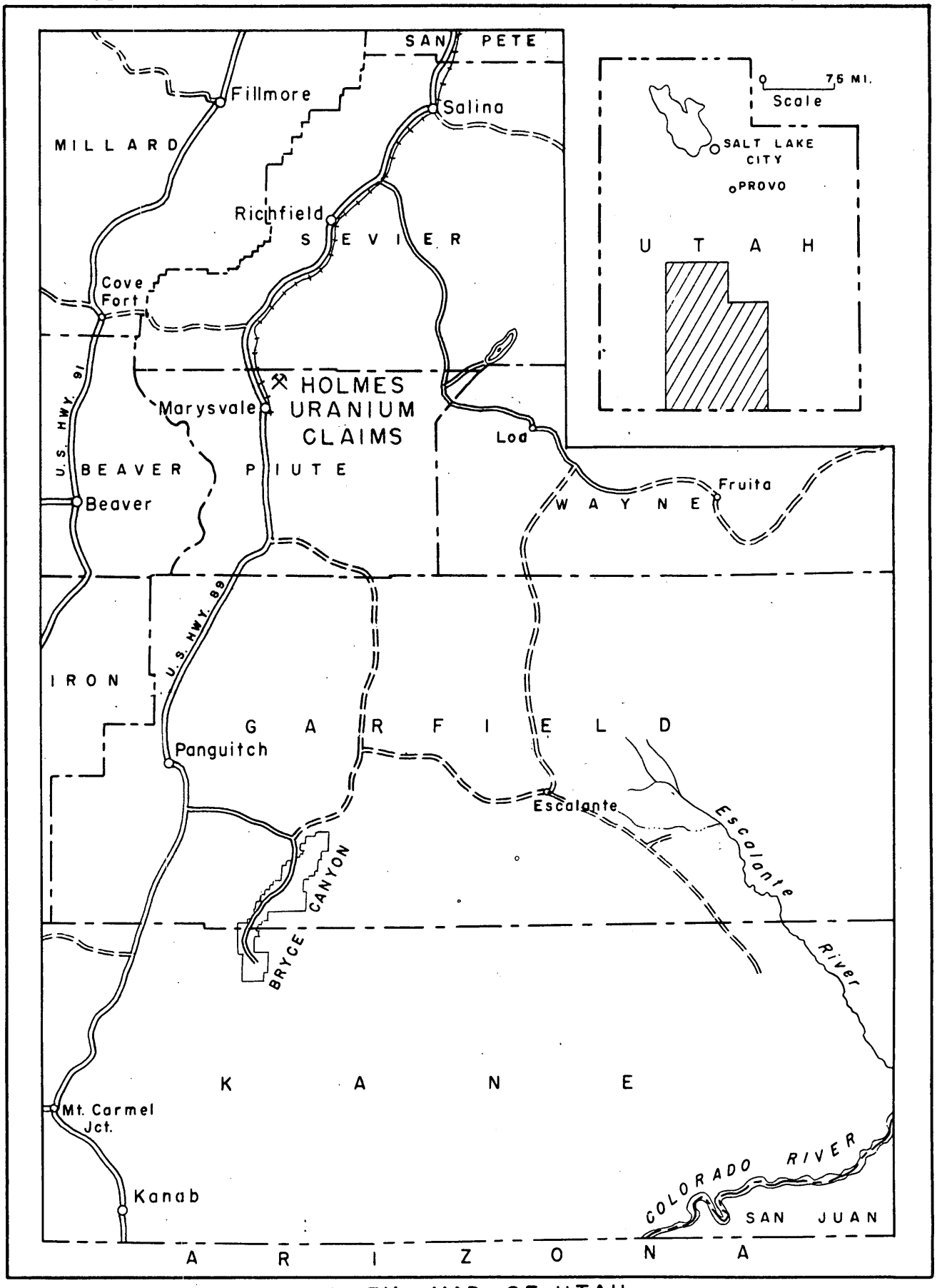

FIG. 1 INDEX MAP OF UTAH

0 5 10 15 20 MILES
Scale

Surname 700

F L Knouse
Ellis
Porter

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

INTERIOR DEPT.
AUG 5 - 1954
SOLICITOR

AUG 5 1954

Mr. John A. Pace
Scurry, Scurry & Pace, Attorneys
1735 Republic Bank Building
Dallas 1, Texas

Re: Docket No. DMEA-2842 (Uranium)
Holmes Uranium Corporation
Benny "K" No. 1, and Scorpion No. 8 claims
Durkee Mining District
Piute County, Utah

Dear Mr. Pace:

This is in response to your letter of August 2, 1954, concerning the subject case.

The Holmes Uranium Corporation applied to this Agency for exploration assistance to explore the subject property for uranium. By letter dated February 23, 1954, this application was denied on the basis that the probability of disclosing minable ore reserves by the Applicant's proposed exploration program was not sufficiently promising to justify Government participation.

I trust this is the information you desire.

Sincerely yours,

C. O. Mittendorf

Administrator

FROM SOLICITOR
AUG 5 - 1954
FOR SIGNATURE

FLKnouse/am
8-4-54
cc to: Admr. Reading File
Docket File
Operating Committee
Messrs. A. P. Butler, Jr., Rm. 3212, GSA
J. O. Hosted, Rm. 3210, GSA
H. D. Keiser, Rm. 3641
Code 700
Mr. Knouse
DMEA Field Team, Region VI(2)

R.C.S.

8/3/54 gla

SCURRY, SCURRY & PACE
Attorneys and Counselors
MERCANTILE BANK BUILDING
DALLAS 1, TEXAS

R. G. SCURRY
W. C. SCURRY
JOHN A. PACE

ETHAN B. STROUD
RALPH WOOD, JR.
JUDSON WOOD

Defense Minerals
AUG 3 - 1954

August 2, 1954

2842

Mr. C. O. Mittendorf
Administrator of Defense Minerals Exploration
Department of Interior
Interior Building
Washington 25, D. C.

Dear Sir:

Will you please refer to your letter of February 23, 1954, addressed to the Holmes Uranium Company?

Our law firm has been employed by the executrix to represent the estate of Mr. R. H. Hopkins, deceased. Among the papers found in Mr. Hopkins' files was a letter from J. Mark Holmes with reference to an option to purchase some of the capital stock of the Holmes Uranium Company.

I do not know any manner in which I can secure adequate information to determine whether the executrix should exercise this option. I have been informed by a friend of mine that on the above date you addressed a letter to the above corporation. I do not know its contents, but presume it was with reference to government assistance in further work in exploring and developing the claims owned by this corporation.

If it would be possible, I would greatly appreciate your advising me at your earliest convenience. The option expires on August 15, 1954, and it is, therefore, necessary that we have an answer by the 11th or 12th if it is possible.

Very truly yours,

John A. Pace

John A. Pace

JAP:mk

700

DOCKET
SURNAME
F. L. Knouse
Hedges
Guild
Selfridge
G. E. Johnson

FEB 23 1954

Mr. J. Mark Holmes, President
Holmes Uranium Corporation
Kanab, Utah

Re: Docket No. DMEA-[illegible] (Uranium)
Bunny "X" No. 1, and Scorpion No. 8 claims
Dunkee Mining District
Pinal County, Ariz.

Dear Mr. Holmes:

Your application for aid for an exploration project and other reports available to us in Washington relating to your application have been reviewed.

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

Careful study of all our information, although noting a small amount of uranium mineralization on your property, indicates to us that the probability of disclosing minable ore reserves by your proposed program is not sufficiently promising to justify Government participation. We regret to advise you, under the circumstances, that your application for exploration assistance is denied.

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

Sincerely yours,

C. O. Mittendorf

Administrator

FIKNOUSE:foc 2-17-54
cc to: Docket
Code 700
Adm. Reading File
Operating Comm.
FT. Reg. IV
H. D. Keiser, Rm. 3641
A. P. Butler, Rm. 3212 - GSA
Mr. Knouse

R.C.B. 2-23-54

DOCKET COPY

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

February 17, 1954

Summary of Proposed Project

Docket No. DMEA-2842
Applicant: Holmes Uranium Corporation
J.Mark Holmes, President
Kanab, Utah

Subject: Denial of application

Commodity: Uranium
Location of property: Durkee Mining District, Piute County, Utah — Region IV

Amount of application: $274,805.00
Date of application: November 19, 1952

Outline of project: The applicant proposed to explore for uranium on two claims, the Benny "K" No. 1 and Scorpion No. 8 claims, which are located approximately 5 miles northeast of Marysvale, Utah. The property is held by the Holmes Uranium Corporation under lease agreements with three groups of lessors.

Field Team Report: Dated - Transmittal letter by DMEA Field Team, Region IV of January 22, 1954, with report of J. W.Hasler and C. G. Tillman, U. S. Geological Survey, March 11, 1953; memorandum by Ralph J. Roberts, March 11, 1953; and memorandum dated January 15, 1954, by C. G. Tillman, Geological Survey.

Recommendations: In view of the absence of encouraging showings of uranium mineralization on the claims in question and the indefinite abandonment of additional exploratory work by the A.E.C. on these claims at the present time, it was recommended that the application be denied.

Commodity Members' comments:

Bureau of Mines: H. D.Keiser, dated February 5, 1954.

Concurs in recommendations of the Field Team that the application be denied.

Geological Survey: Arthur P. Butler, Jr., February 10, 1954.

Concurs with Field Team recommendations that the application for exploration be denied.

Rare & Misc. Metals Division Engineer: F. L.Knouse

Comments: Denial letter written; concur with Field Team and Commodity Members.

F. L. Knouse

F. L.Knouse

Copies to:

Docket (original)
Operating Committee
Adm. Reading File
Code 700
Mr.Knouse

STANDARD FORM NO. 64

2/18/54 fa

Office Memorandum • UNITED STATES GOVERNMENT

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

DATE: February 10, 1954

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

SUBJECT: Field Team Report, DMEA Docket 2842 (Uranium) Holmes Uranium Corp., applicant, Kanab, Utah, Benny K and Scorpion claims, Piute County, Utah

The report of the examining members of the Field Team and the accompanying memorandum by the Field Team concerning the request for Government assistance to explore for uranium on the property identified in the subject above has been reviewed.

The geologist examiner points out that neither 750 feet of exploratory inclined shaft and cross-cutting by the applicant nor 4 diamond drill holes by the AEC on these claims offer encouraging evidence of uranium ore. They also stated, "geologists of the AEC do not consider that there is much chance that the work proposed by the applicant will lead to a significant discovery".

At the time the report was prepared, the geologic staff of AEC was considering drilling additional holes on the claims of the applicant that would have furnished additional information on the presence or absence of uranium on the claims and were planning additional geological study of the claims. Subsequently the AEC planned an incline adit in place of a drill hole, but has shelved that plan indefinitely. Therefore, no new information is available that would alter the chances of finding uranium ore on these claims. Because of the lack of encouraging showings of uranium on the claims, the unfavorable appraisal by the AEC geologists - as mentioned above, and the indefinite postponement of exploratory work by the AEC, the Field Team recommended that the application be denied. I concur.

Copies to: E. Wm. Ellis (2)

Arthur P. Butler, Jr.

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

February 10, 1954

Arthur F. Butler, Jr., USGS Member, Uranium Commodity Committee

Field Team Report, DMEA Docket 2842 (Uranium) Holmes Uranium Corp., applicant, Kanab, Utah, Benny K and Scorpion claims, Piute County, Utah

The report of the examining members of the Field Team and the accompanying memorandum by the Field Team concerning the request for Government assistance to explore for uranium on the property identified in the subject above has been reviewed.

The geologist examiner points out that neither 750 feet of exploratory inclined shaft and cross-cutting by the applicant nor 4 diamond drill holes by the AEC on these claims offer encouraging evidence of uranium ore. They also stated, "geologists of the AEC do not consider that there is much chance that the work proposed by the applicant will lead to a significant discovery".

At the time the report was prepared, the geologic staff of AEC was considering drilling additional holes on the claims of the applicant that would have furnished additional information on the presence or absence of uranium on the claims and were planning additional geological study of the claims. Subsequently the AEC planned an incline adit in place of a drill hole, but has shelved that plan indefinitely. Therefore, no new information is available that would alter the chances of finding uranium ore on these claims. Because of the lack of encouraging showings of uranium on the claims, the unfavorable appraisal by the AEC geologists - as mentioned above, and the indefinite postponement of exploratory work by the AEC, the Field Team recommended that the application be denied. I concur.

Copies to: E. Wm. Ellis (2)

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

February 10, 1954

Arthur F. Butler, Jr., USGS Member, Uranium Commodity Committee

Field Team Report, DMEA Docket 2642 (Uranium) Halmas Uranium Corp., applicant, Emmb, Utah, Bunny K and Scorpion claims, Piute County, Utah

The report of the examining members of the Field Team and the accompanying memorandum by the Field Team concerning the request for Government assistance to explore for uranium on the property identified in the subject above has been reviewed.

The geologist examiner points out that neither 750 feet of exploratory inclined shaft and cross-cutting by the applicant nor 4 diamond drill holes by the AEC on these claims offer encouraging evidence of uranium ore. They also stated, "geologists of the AEC do not consider that there is much chance that the work proposed by the applicant will lead to a significant discovery".

At the time the report was prepared, the geologic staff of AEC was considering drilling additional holes on the claims of the applicant that would have furnished additional information on the presence or absence of uranium on the claims and were planning additional geological study of the claims. Subsequently the AEC planned an inclined adit in place of a drill hole, but has shelved that plan indefinitely. Therefore, no new information is available that would alter the chances of finding uranium ore on these claims. Because of the lack of encouraging showings of uranium on the claims, the unfavorable appraisal by the AEC geologists - as mentioned above, and the indefinite postponement of exploratory work by the AEC, the Field Team recommended that the application be denied. I concur.

Copies to: E. Wm. Ellis (2)

2/8/54 gla

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

Defense Minerals Administration
RECEIVED
FEB 5 1954

February 5, 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: Report of Examination, DMEA Docket 2842, Holmes Uranium Corp., Marysvale, Piute County, Utah.

I have reviewed the subject report and 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

H. D. Keiser

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

Secretary of the Interior
Defense Minerals Administration
RECEIVED
FEB 5 1954

February 5, 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: Report of Examination, DMEA Docket 2842, Holmes Uranium Corp., Marysvale, Piute County, Utah.

I have reviewed the subject report and 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

2/3/54 gla

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

224 New Customhouse
Denver 2, Colorado

January 22, 1954.

Memorandum

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

From: Field Team, Region IV

Subject: Report of Examination - DMEA Docket 2842 (Uranium), Holmes Uranium Corporation, Marysvale, Piute County, Utah.

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

In view of the absence of encouraging showings of uranium mineralization on the subject property and the indefinite abandonment of additional exploratory work by the A.E.C., it is recommended that the application be denied.

W. H. King

W. H. King

A. H. Koschmann

A. H. Koschmann

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
2-5-54
(date)

DEPARTMENT OF THE INTERIOR
IN REPLY REFER TO:
RECEIVED
FEB 21 1954

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Defense Minerals Exploration Administration
Denver Federal Center
Denver 2, Colorado

January 19, 1954

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 2842, Holmes Uranium Corporation, Piute County, Kanab, Utah

Enclosed are 11 copies of the geological report by J. W. Hasler and C. G. Tillman of the U. S. Geological Survey covering the above docket, also 11 copies of a memorandum report from C. G. Tillman.

In view of the absence of encouraging showings of uranium mineralization on subject property and the indefinite abandonment of additional exploratory work by the A.E.C., it has been recommended that the loan be denied.

The brochure is enclosed.

A. H. Koschmann

A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (12)

Reviewed by
DMEA OPERATING COMMITTEE
1-5-54
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Room 208 - 222 So. West Temple
Salt Lake City 1, Utah
January 15, 1954

Memorandum

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

From: C. G. Tillman for R. J. Roberts,
Utah-Nevada District Office

Subject: DMEA Docket 2842, Holmes Uranium Corporation, Marysvale, Piute County, Utah.

The Holmes Uranium Corporation claims in the Marysvale area, Utah were examined in February 1953 by J. W. Hasler and C. G. Tillman relative to an application by this company for an exploration loan.

The report of the examination stated that "another diamond drill hole is tentatively scheduled to be drilled by the A.E.C. several hundred feet west of the Scorpion No. 8 claim in the summer of 1953." Advice from the staff of the A.E.C., Richfield, Utah, indicates that an inclined adit was to have been substituted for this drill hole but that this alternate plan has been shelved indefinitely. Thus, no new A.E.C. information is available which would alter the chances of finding uranium ore on these claims.

In view of the absence of encouraging showings of uranium mineralization on the claims in question and the indefinite abandonment of additional exploratory work by the A.E.C. on these claims at the present time it is recommended that the application be denied.

Ralph J. Roberts

By: /s/ C. G. Tillman
C. G. Tillman

CGT/rs

Reviewed by
DMEA OPERATING COMMITTEE
2-5-54
(date)

Room 208 - 222 So. West Temple
Salt Lake City 1, Utah
March 11, 1953

Memorandum

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

From: Ralph J. Roberts
Utah--Nevada District Office

Subject: DMEA Docket 2842, Holmes Uranium Corporation, Piute County, Kanab, Utah

Enclosed are 11 copies of the geologic report on the Holmes Uranium Corporation, Piute County, Kanab, Utah prepared by C. O. Tillman and J. William Hasler at the conclusion of the field examination made at the request of the Field Team, Region IV. The brochure accompanies this report.

The Holmes Uranium Corporation has applied for a loan on work costing $274,805.00 to be used for two exploration projects in the Marysvale uranium district, Utah. The A.E.C. has drilled four diamond drill holes on this property and the applicant has driven about 570 feet of exploratory incline and cross-cut. Neither of these exploratory programs has discovered an indication that significant uranium ore-bodies might underlie this property.

The A.E.C. geologic study of the area is continuing and another diamond drill hole is tentatively scheduled to be drilled on the Holmes property in the summer of 1953. If this study and additional drilling fail to provide evidence of the possible existence of uranium-bearing material of commercial grade on the applicant's property, it is recommended that his application for an exploration loan be denied.

I concur with the recommendation of the examining geologists.

Reviewed by
DMEA OPERATING COMMITTEE
2-5-54
(date)

Ralph J. Roberts

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 2842, Holmes Uranium, Benny K and Scorpion No. 8

Piute County, Utah

By

J. W. Hasler and C. G. Tillman
U. S. Geological Survey

March 11, 1953

Reviewed by
DMEA OPERATING COMMITTEE
2-5-54
(date)

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ILLUSTRATIONS

Fig. 1 - Index Map of Utah

GEOLOGIC REPORT

DMEA 2842, Holmes Uranium, Benny K and Scorpion No. 8

Piute County, Utah

Introduction

The Holmes Uranium Corporation, Kanab, Utah has applied to the Defense Minerals Exploration Administration for a loan, DMEA Docket 2842, on work costing $274,805.00 to explore for uranium on the Benny K No. 1 and Scorpion No. 8 claims, Durkee mining district, Piute County, Utah.

An examination of the property was requested by the Field Team, Region IV, January 23, 1953. The examination was made February 12, 1953 by C. G. Tillman and J. William Hasler, geologists, U. S. Geological Survey, Mr. J. Mark Holmes, president of the corporation was present during the examination. This property was previously examined November 20, 1951 by R. W. Osterstock and J. William Hasler, geologists, U. S. Geological Survey and R. L. Middleton, mining engineer, U. S. Bureau of Mines in connection with DMA Docket 1968, an application by the Holmes Uranium Corporation for a loan of $143,695.50 to aid in the exploration for uranium on the Benny K No. 1 and Scorpion No. 8 claims.

Location and Accessibility

The Holmes property is in Sec. 3, T. 27 S., R. 3 E., SLB&M, Durkee mining district, Piute County, Utah. The claims are approximately 5 miles northeast of Marysvale, Utah and can be reached by driving east from the center of Marysvale on a dirt access road; thence cross the Sevier River and drive north 4 miles to the claims.

History and Production

The property is held by the Holmes Uranium Corporation under lease agreements with three groups of lessors. It has had no production. The Benny K No. 1 claim is being explored by the applicant by means of a 220

foot inclined shaft and 350 feet of crosscut.

In 1952 the A. E. C. drilled two diamond drill holes to explore the most promising structure on the Benny K No. 1 claim. No significant quantities of uranium-bearing minerals were found. Subsequently, two diamond drill holes were drilled by the A. E. C. to test the Scorpion fault on the Scorpion No. 1 claim. This claim is adjacent to, and on the east side of, the Scorpion No. 8 claim on which the applicant proposed to do exploratory work. Only one of these holes showed an "interval of radioactivity", and the significance of this radioactivity has not yet been determined by A. E. C. geologists. According to geologists at the Richfield, Utah office of the A. E. C., study of the area described herein is continuing and another diamond drill hole is tentatively scheduled to be drilled several hundred feet west of the Scorpion No. 8 claim in the summer of 1953.

Geology

The following material is quoted from the report of Osterstock and Hasler, DMA Docket 1968, December, 1951.

> The Marysvale district is largely underlain by volcanic rocks which have been intruded by quartz monzonite and granite. These rocks are unconformably overlain by younger basalt flows.
>
> Two periods of major extrusions are noted in the area, the early Bullion Canyon series and the later Mt. Belknap series. The Bullion Canyon series of latitic and andesitic flows and breccias was extruded on formations ranging from Permian to Jurassic in age. Contemporaneous with or slightly later than the extrusion of the Bullion Canyon series, large quartz monzonite intrusions were emplaced in the volcanics. Mountainous terrain was developed during an erosion interval following this period of igneous activity. The second major period of volcanic activity deposited the Mt. Belknap rhyolitic flows, and related pyroclastics on the rugged erosion surface cut on latite, andesite, and quartz monzonite. Granitic intrusions, the compositional equivalents of the rhyolites, were emplaced either contemporaneous with or slightly later than the Mt. Belknap extrusions. An erosion surface, developed on both extrusives and intrusives, provided a base for the last period of volcanism during which thin olivine basalt flows were extruded locally.
>
> The major uranium production from the Marysvale district has come from a set of northeast-striking faults which do not

appear to be related to the three faults, two striking east and one striking north, noted on the Holmes property.

On the Benny K No. 1 claim the trace of a well developed vertical north-striking fault is cut off on the south by a vertical east-striking fault. As quartz monzonite, somewhat more intensely altered on the north wall, forms both walls of the east-striking fault, it appears that the horizontal displacement along this fault is small.....

Ore Deposits

The following material is quoted from the report of Osterstock and Hasler, DMA Docket 1968, December, 1951:

Uranium mineralization in the Marysvale district is confined to fault zones, joints, fissures, and rarely to contacts between the quartz monzonite intrusions and the rhyolite flows. It is known that the ore mineralization is post-granite, and possibly related to hydrothermal argillic alteration which, although widespread throughout the Marysvale district, is most intensive in and near fault zones. Chloritic alteration of the ferromagnesian minerals in the volcanic rocks does not appear to be confined to fault zones and is, therefore, considered to be a deuteric effect....

Although no ore minerals are visible to the unaided eye, it is probable that the uranium present is contained in such secondary minerals as autunite, uranophane, and possibly torbernite all coated or stained by iron oxide.

Portions of zones of higher than average radioactivity along the fault were collected and assayed by the Atomic Energy Commission. The uranium content of the only sample taken on the Benny K No. 1 claim is 0.06 percent U_3O_8.

There is not, therefore, any minable ore at the surface on the Benny K No. 1 or the Scorpion No. 8 claims.

A zone of high radioactivity is reported on the Scorpion No. 8 claim, but no uranium minerals could be identified nor were any uranium-bearing structures noted.

At the present time no ore is exposed in the workings and no ore reserves can be inferred.

At the time of writing of the present report no ore is exposed in the workings and no ore reserves can be inferred.

Proposed Exploration

The applicant proposes to sink a one and one-half compartment vertical shaft 300 feet deep on the Scorpion No. 8 claim. Exploratory cross-cuts from the bottom of this shaft will total 600 feet in length. The object of this work is to explore the fault contact between the quartz monzonite and Bullion Canyon volcanics, otherwise known as the Scorpion fault, which is present on this claim.

A second project is proposed which involves sinking a 700 foot vertical two-compartment shaft on the Benny K No. 1 claim. A maximum of 1,400 feet of exploratory crosscut is provided to allow for exploratory work along the north-striking and east—striking faults on this claim.

Neither the applicant's 570 feet of exploratory work on the Benny K No. 1 claim nor the A. E. C. diamond drilling on the Benny K No. 1 claim and Scorpion No. 1 claim has revealed uranium-bearing material of commercial grade. The examining geologists, and geologists of the A. E. C., do not consider that there is much chance that the work proposed by the applicant will lead to a significant discovery. A. E. C. geologists, however, are continuing their geologic study of this and neighboring properties and may, as mentioned above, drill one more diamond drill hole west of the Scorpion No. 8 claim.

If the geologic study and additional drill hole data fail to provide evidence of the possible existence of uranium-bearing material of commercial grade on the applicant's property, it is recommended that his application for an exploration loan be denied.

Summary, Conclusions and Recommendations

The Holmes Uranium Corporation, Kanab, Utah has applied to the Defense Minerals Exploration Administration for a loan of $274,805.00 to explore for uranium on the Benny K No. L and Scorpion No. 8 claims, Marysvale district, Piute County, Utah.

The Marysvale district is largely underlain by the earlier, Bullion Canyon volcanic series, and the later, Mt. Belknap volcanic series. Each period of vulcanism was accompanied by or followed by a period of igneous intrusion. These rocks are overlain by later basalt flows. Major uranium production from the Marysvale district comes from northeast-striking faults which do not appear to be related to the three faults noted on the Holmes property. No ore minerals visible to the unaided eye are present.

The Holmes property has had no production. At the present time no ore is exposed and no reserves can be inferred.

The Benny K No. 1 claim, which is underlain by intrusive quartz monzonite, has been explored by about 220 feet of inclined shaft and 350 feet of cross-cut. The A.E.C. drilled two diamond drill holes across the strong north-striking fault that crosses the claim but no significant quantities of uranium-bearing minerals were found. Subsequently, two diamond drill holes were drilled by the A.E.C. to test the Scorpion fault. One of these holes showed an "interval of radioactivity". The significance of this radioactivity is being studied, and a program of further exploration is being considered by the A. E. C.

The applicant proposed to explore the Scorpion fault on the Scorpion No. 8 claim by means of a 300-foot shaft and 600 feet of cross-cuts. He also proposes to explore north-striking and east-striking faults on the Benny K No. 1 claim by means of a 700 foot shaft and 1,400 feet of cross-cut.

Neither the applicant's 570 feet of exploratory inclined shaft and cross-cut nor the four diamond drill holes drilled by the A. E. C. on these claims offer

encouraging evidence of the presence of uranium ore. The geologic study of this area by the A. E. C. is continuing and another drill hole is tentatively scheduled to be drilled on the Scorpion No. 8 claim in the summer of 1953. If this study and additional drilling fail to provide evidence of the possible existence of uranium-bearing material of commercial grade on the applicant's property, it is recommended that his application for an exploration loan be denied.

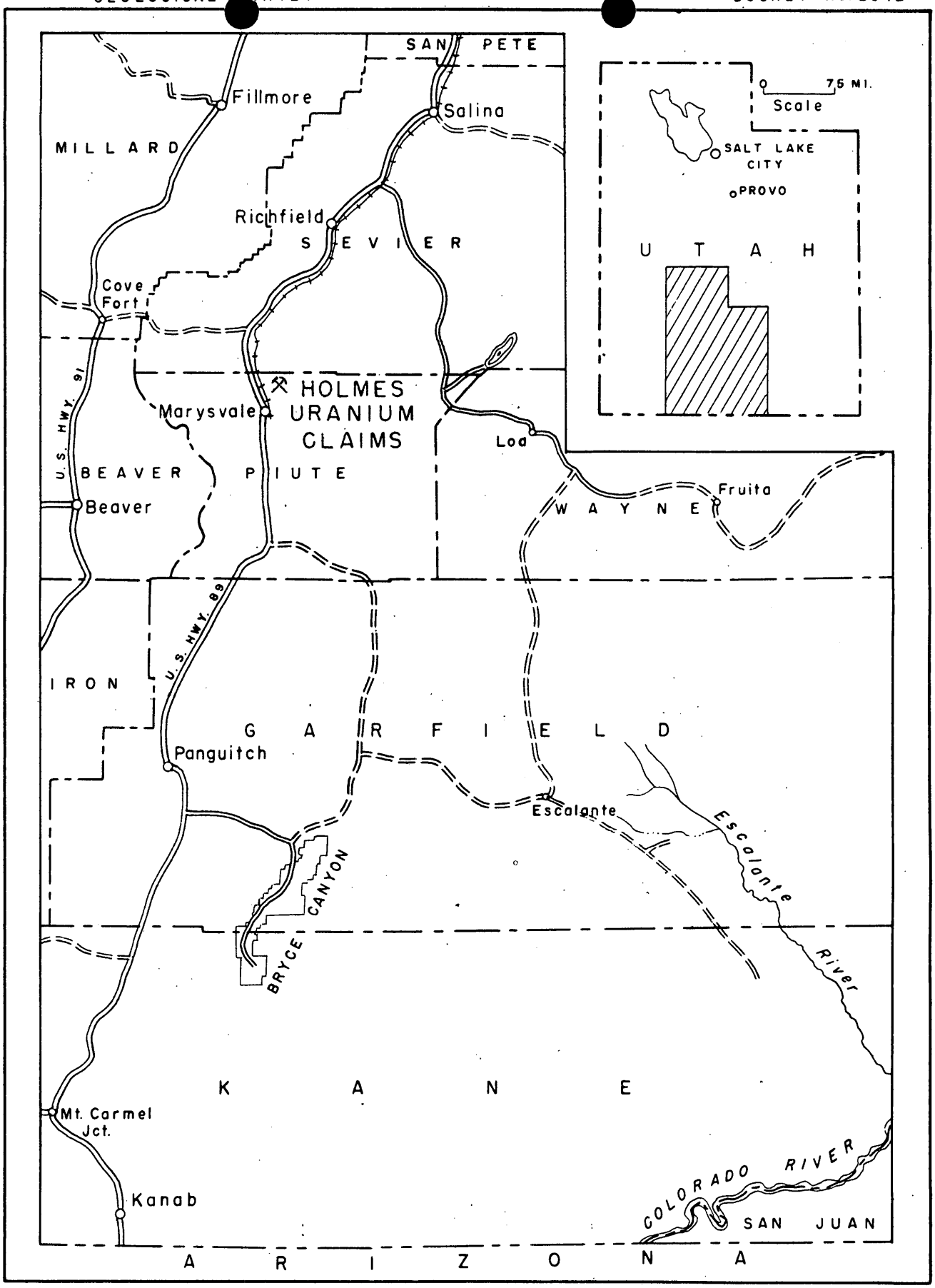

FIG. 1 INDEX MAP OF UTAH

0 5 10 15 20 MILES
Scale

12/29/53 gla

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 28 1953

224 New Customhouse
Denver 2, Colorado

December 21, 1953.

Memorandum

To: Chairman of the Operating Committee

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA-2842 (Uranium), Holmes Uranium Corporation, Benny "K" and Scorpion Mines, Piute County, Utah.

This responds to your letter of December 14, 1953 requesting the present status of the subject docket.

Attached is a copy of our memorandum to the field examiner requesting him to submit results of the work to date.

W. H. King

W. H. King

Enclosure

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

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DEC 29 1953

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DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

Defense Minerals Administration
RECEIVED
DEC 28 1953

224 New Customhouse
Denver 2, Colorado

December 21, 1953.

Memorandum

To: Ralph Roberts

From: Field Team, Region IV

Subject: DMEA Docket No. 2842 (Uranium), Holmes Uranium Corporation, Piute County, Utah.

Your memorandum dated March 11, 1953 stated that the A.E.C geologic study of the area was continuing and another diamond drill hole was tentatively scheduled to be drilled on the Holmes property in the summer of 1953.

Will you please advise the results of this work to date together with your recommendation.

W. H. King

W. H. King

E. M. Hauchman
for A. H. Koschmann

HMC:cwm

cc: Docket
Chairman, Operating Committee
SRWilson w/Encl.
Chron.
AHKoschmann (2) w/Encl.

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

F.L. Knouse
Ellis
K. Gilman
Mittendorf

Mr. W. H. King
Executive Officer
DMEA Field Team, Region IV
224 New Customhouse Building
Denver 2, Colorado

DEC 14 1953

Re: Docket No. DMEA-2842 (Uranium)
Holmes Uranium Corporation
Henry "K" and Scorpion Mines
Marion Mining District
Piute County, Utah

Dear Mr. King:

Reference is made to the Field Team's memorandum under date of March 24, 1953, to Mr. Mittendorf, in connection with the captioned application which was recommended to be held in abeyance pending the completion of work being done by the Atomic Energy Commission. We would appreciate being advised the present status of this work and when the Field Team's final recommendations may be expected.

Sincerely yours,

Ernest Wm. Ellis
by EST
ACTING Chairman, Operating Committee

APPROVED:

J. H. Hedges by EST
Member, Bureau of Mines

T. P. Thayer by EST
Member, Geological Survey

FLKnouse/gla/db
12-10-53
cc to: Adm. Reading File
Oper. Committee
Docket
Messrs. H. D. Keiser, Rm. 3641
A. P. Butler, Jr., Rm. 3212, GSA
Ellis
Knouse

R.C.G. 12-14-53

3/31/53 gla

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

224 New Customhouse
Denver 2, Colorado

March 24, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
MAR 30 1953

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: DMEA Field Team, Region IV

Subject: Docket DMEA 2842, Holmes Uranium Corporation, Piute County, Utah

Reference is made to a letter dated March 18, 1953, from the Chief, Rare and Miscellaneous Metals Division, to J. Mark Holmes. A letter from J. Mark Holmes to the DMEA Washington, dated March 6, 1953, was attached to this letter.

Your attention is called to the memorandum dated March 17, 1953, from the Field Team to the Administrator, DMEA, in which we recommended that this application be held in abeyance pending completion of the work by the Atomic Energy Commission. We attached three copies of a memorandum from the Supervising Geologist, U.S. Geological Survey, to the Field Team, in which he stated that the A.E.C. had drilled four diamond drill holes on the property and the applicant had done about 570 feet of exploratory work.

Neither of these programs has indicated possibilities of a significant discovery. If the additional diamond drill hole planned by the A.E.C. does not encounter ore, we will recommend that this application be denied.

W. H. King
W. H. King

for A. H. Koschmann

4/6/53 This memorandum read to Mr. Hosted, AEC representative, and he was advised that we will hold this matter in abeyance
Mrs. Ault

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

224 New Customhouse
Denver 2, Colorado

March 24, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: DMEA Field Team, Region IV

Subject: Docket DMEA 2842, Holmes Uranium Corporation, Piute County, Utah

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W. H. King
W. H. King

for Ogden Tweto
A. H. Koschmann

3/23/53 gla

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

224 New Customhouse
Denver 2, Colorado

March 17, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 20 1953

Memorandum

To: C. O. Mittendorf, Administrator
Defense Minerals Exploration Administration

From: DMEA Field Team, Region IV

Subject: Docket DMEA 2842, Holmes Uranium Corporation, Piute County, Kanab, Utah

Enclosed are three copies of a memorandum dated March 11, 1953, from Ralph Roberts, Supervising Geologist, to A. H. Koschmann, member of Region IV Field Team.

Our recommendations on this application will be held in abeyance pending completion of the work by the Atomic Energy Commission.

W. H. King
W. H. King

A. H. Koschmann
A. H. Koschmann

Enclosures

MF-500

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

REFERENCE SLIP

DATE 3-20

REFERRED TO:

1. Code 700
2. Mr. Knouse
3. Pending docket file
4.

DMEA-2842

FOR:

- ---------- Action
- ---------- Approval
- ---------- Comment
- ---------- Conference
- ---------- Consideration
- ---------- Filing
- ---------- Instructions
- ---------- Investigation
- ---------- Initials
- ---------- Mailing
- ---------- Previous correspondence
- ---------- Recommendation
- ---------- Record of ----------
- ---------- Referring to ----------
- ---------- Reply for signature of ----------
- ---------- Rewriting
- ---------- Signature
- ---------- Suggestions
- ---------- Your information

REMARKS: We are not regarding this as the actual FT report.

gla

case was documented with Joe Hodges and he will check with AEC in order

Check (X) before the items needing attention. RHL 3-23-59

ROBERT E. ADAMS

Initials of sender.

GPO 16—63815-1

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

224 New Customhouse
Denver 2, Colorado

March 17, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
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MAR 20 1953

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From: DMEA Field Team, Region IV

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W. H. King
W. H. King

A. H. Koschmann
A. H. Koschmann

Enclosures

JFS:ld

cc: Koschmann
Wilson
Subject
Chron.

COPY

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Room 208 - 222 So. West Temple
Salt Lake City 1, Utah
March 11, 1953

Memorandum

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

From: Ralph J. Roberts
Utah--Nevada District Office

Subject: DMEA Docket 2842, Holmes Uranium Corporation, Piute County, Kanab, Utah

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The Holmes Uranium Corporation has applied for a loan on work costing $274,805.00 to be used for two exploration projects in the Marysvale uranium district, Utah. The A.E.C. has drilled four diamond drill holes on this property and the applicant has driven about 570 feet of exploratory incline and cross-cut. Neither of these exploratory programs has discovered an indication that significant uranium ore-bodies might underlie this property.

The A.E.C. geologic study of the area is continuing and another diamond drill hole is tentatively scheduled to be drilled on the Holmes property in the summer of 1953. If this study and additional drilling fail to provide evidence of the possible existence of uranium-bearing material of commercial grade on the applicant's property, it is recommended that his application for an exploration loan be denied.

I concur with the recommendation of the examining geologists.

/s/ Ralph J. Roberts

Ralph J. Roberts

COPY

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Room 208 - 222 So. West Temple
Salt Lake City 1, Utah
March 11, 1953

Memorandum

To: A. M. Koschmann
Field Team, Region IV

From: Ralph J. Roberts
Utah--Nevada District Office

Subject: DMEA Docket 2842, Holmes Uranium Corporation, Piute County, Kanab, Utah

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I concur with the recommendation of the examining geologists.

/s/ Ralph J. Roberts

Ralph J. Roberts

COPY

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Room 208 - 222 So. West Temple
Salt Lake City 1, Utah
March 11, 1953

Memorandum

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

From: Ralph J. Roberts
Utah--Nevada District Office

Subject: DMEA Docket 2042, Holmes Uranium Corporation, Piute County, Kanab, Utah

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I concur with the recommendation of the examining geologists.

/s/ Ralph J. Roberts

Ralph J. Roberts

FILE COPY
SURNAME:
700

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

Mr. J. Mark Holmes
Holmes Uranium Corp.
Kanab, Utah

MAR 18 1953

Re: Docket No. DMEA-2842 (Uranium)
Denny "K" and Scorpion Mines
Durkee Mining District
Piute County, Utah

Dear Mr. Holmes:

J. C. 3/18/53

This acknowledges receipt of your letter dated March 6, 1953, in which you request certain changes be made in your application that are recommended by the Field Office of the Atomic Energy Commission at Richfield, Utah.

A copy of your letter is being submitted to Mr. W. H. King, Executive Officer, DMEA Field Team, Region IV, 224 New Customhouse Building, Denver 2, Colorado, for consideration and also to the Atomic Energy Commission here in Washington.

Yours truly,

Ernest W. Ellis, Chief
Rare and Misc. Metals Division

KLKNOuse/jem/eef
3/13/53
cc to: Adm. Reading File
Docket
Messrs. *H. D. Keiser -3647
*A.P. Butler -3206 G-BA
*Mr. Hosted -3210
Mr. Ellis
Mr. Knouse
FT. RegionIV (2)*
* w/c incoming letter

3/11/53 gla

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 9 1953

Kanab, Utah
March 6, 1953

Defense Mineral Exploration Administration
Department of Interior
Washington D.C.

Gentlemen:

After field examination and also based upon the findings of the Atomic Energy Commission Diamond Drilling Program, the following changes are requested to be made on the Holmes Uranium Corporation, Application No. 2842. Said change is recommended and approved by the Field Office of the Atomic Energy Commission at Richfield, Utah.

(1) That an incline 600 feet in length on a 30° slope be used in place of the 1½ compartment vertical shaft called for on Project A. The incline tunnel is to be placed in the east edge of the drain near the center of Scorpion No. 8 and to run in a north east direction along the Scorpion fault. The Atomic Energy Commission Engineers wish to locate portal and give direction of incline which is granted by Holmes Uranium Corporation.

(2) That Project B should not be acted upon at this time, but will be acted upon after further development work which will be conducted by the Holmes Uranium Corporation during the summer of 1953 and further studies on the structures by the Atomic Energy Commission following said work.

Very truly yours,

J. Mark Holmes

FILE COPY
SURNAME:
700

F. L. Knouse
Ellis
Thayer
Hedges
Eldridge

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

JAN 19 1953

Mr. J. Mark Holmes
Holmes Uranium Corp.
Kanab, Utah

Re: Docket No. DMEA-2842 (Uranium)
Holmes Uranium Corporation
Benny "K" and Scorpion Mines
Durkee Mining District
Piute County, Utah

Dear Mr. Holmes:

The application for assistance in exploring your property in Piute County, Utah, under the above captioned docket number, has been reviewed by the Rare and Miscellaneous Metals Division of the Defense Mineral Exploration Administration. Your application has been referred for a field examination to the Executive Officer of Region IV at the following address:

Mr. W. H. King
Executive Officer, Region IV
DMEA Field Team
224 New Customhouse Building
Denver 2, Colorado

J.C. 1/19/53

The Regional Office will contact you at the earliest opportunity in regard to your project.

Sincerely yours,

C. O. Mittendorf (fw)

Administrator

FLKnouse/jem
1/16/53
cc to: Adm. Reading File
Docket
Messrs. Ellis
Knouse
Field Team, Region IV (2)

FILE COPY
SURNAME:

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

F. L. Kuger
Selfridge

JAN 19 1953

Mr. W. H. King
Executive Officer, Region IV
DMEA Field Team
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMEA-2042 (Uranium)
Holmes Uranium Corporation
Penny "A", and Scorpion Mines
Tonaco Mining District
Piute County, Utah

Dear Mr. King:

The captioned application is referred to your office for a field examination.

Copies of memoranda from Mr. H. W. Meier, dated January 12, 1953, and from Mr. J. W. Butler, Jr., dated January 12, 1953, outlining questions to be covered in the reports of the examining engineers are enclosed.

If your office recommends the program submitted by the applicant, or a different program approved by the applicant detailed cost, and maps or sketches showing the proposed work in relation to the geology, sample data, and mining claim lines as justification for the work as outlined in Form DMEA-1 3, should accompany the report.

J.C. 1-1953

The description and cost of equipment being required to do this work (classified as units to be purchased or rented, and fair market value and description of units to be furnished by the operator) should also accompany the report. If all or any part of a recommended program is to be done by a contractor it should be so indicated and a detailed breakdown of the cost for the part to be contracted supplied. Also, if any part of the work is to be done on a unit cost basis a detailed breakdown of the cost should be furnished. If an overall option program is recommended we will require from the applicant a list of the mining claims or property on which the work is to be done and any adjoining claims or property controlled by the applicant, that will derive benefit from the recommended exploration program, where the claims or property are recorded, book number, page and entry date. Also, an original and six copies signed by the property owners of Form DMEA-203 "Owner's Consent to Lien" are to be obtained covering the property concerned in this project which is not owned by the applicant.

Upon the date of January 9, 1953, a copy of the application and related data were transmitted to your office.

Incerely yours,

George C. Selfridge (JHB)

Chief, Engineering Division

Concurred on
2/26/53
cc for Adm. Section File
Market
Messrs. Meiser - 3647
Butler - 3206 GSA Bldg.
J Porter
File Chrono
Appr. Corr.
Field Team, Region IV

Reference

Approved:

J. H. Hedges (JHB)
Chief, Branch of Land

T. P. Thayer (JHB)
Chief, Division of Survey

1/14/53 gla

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

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

DATE: January 12, 1952

FROM : A. F. Butler, Jr., USGS Member, Uranium Commodity Committee

SUBJECT: Application DMEA Docket 2342 (uranium) Holmes Uranium Corp., applicant Kanab Utah, Benny Kand Scorpion claims, Secs. 25 and 26 T.26 S., R.4 W., and Secs. 3 and 4., T.27 S. R.4 W., Piute Co., Utah.

Comment

The applicant proposes to explore possibly uranium-bearing structures on its properties in the Marysvale Area, Piute Co., Utah by a 300-ft and a 700-ft shaft and 1600 feet of drifts and crosscuts. Despite its impressive arrangement, the application contains very little information of use in judging its merits. Also information available in the Survey's Washington files pertaining to the applicants properties is meagre. The Atomic Energy Commission has drilled from 3 to 5 holes that intersect structures which the applicant proposes to explore. Scattered qualitative statements in various AEC periodic reports indicate that uranium minerals were not found in any of the holes, and that an interval of appreciable radioactivity was found in only one.

The general scope of the application has been discussed with J. C. Hosted AEC, and he tells me orally that he concurs in my belief that the application can be satisfactorily evaluated only by the field team examiners in consultation with the AEC geologists and engineers who have been carrying out comprehensive study and exploration of the area.

Recommendations

1. I recommend that the application be forwarded to the field team for review, investigation, and evaluation.

2. I suggest strongly that members of the field team consult closely with and review this application carefully with the staff of E. E. Thurlow, Chief, Salt Lake City Exploration Branch AEC. The AEC has comprehensive information on this area that will be invaluable in arriving at sound conclusions with respect to this application

Arthur F. Butler, Jr.

Arthur F. Butler, Jr.

Copy to E. Wm. Ellis

1/13/53 gen

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

January 12, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 13 1953

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 No. 2842, Holmes Uranium Corporation, Kanab, Utah.

I have reviewed the application included in the subject docket and discussed it with Mr. J. O. Hosted, representative of the Atomic Energy Commission.

It is recommended that the application be referred to the field team for investigation and report, and that the field team be requested to discuss the application with Mr. E. E. Thurlow, Chief, Salt Lake Exploration Branch, AEC, at Salt Lake City, Utah.

H. D. Keiser

H. D. Keiser

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

January 9, 1953

Mr. J. Mark Holmes
Holmes Uranium Corp
Kanab, Utah

Subject: DMEA-2842
Re: Exploration Assistance
Benny "K", also Scorpion

My dear Mr. Holmes:

The receipt of your application dated November 19, 1952 for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-2842 and referred to the Rare and Miscellaneous Metals Division.

Kindly refer to DMEA-2842 in any future correspondence relating to your application.

Sincerely yours,

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.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 8 1953

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

Not to be filled in by applicant

Docket No. DM EA-2842
Metal or Mineral
Date Received 1/8/53
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: Holmes Uranium Corporation, a corporation of the State of Utah
Kanab, Utah
c/o J. Mark Holmes

(*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 Lessee and Purchase Optionee

(*b*) State any mine name by which the property is known. Benny "K", also Scorpion

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

(*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. See Exhibits

(*e*) If you own the land, describe any liens or encumbrances on it Does not apply

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. See Exhibits 1 to 3 inclusive

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

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

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

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

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

5. *The exploration project.*—(*a*) S[redacted] the mineral or minerals for which you wish [redacted]plore Uranium Ore

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

(*c*) The work will start within 60 days and be completed within 24 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 19, 1952.

Holmes Uranium Corporation
(Applicant)

By Mark Holmes
President

Kanab, Utah

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

1. (a) The applicant is the Holmes Uranium Corporation, a corporation of the State of Utah, Kanab, Utah, c/o J. Mark Holmes.

(b) A corporation of the State of Utah.

(c) Names and addresses of officers, directors and five largest stockholders are:

Name	Position	Address
*J. Mark Holmes	President and Member of Board of Directors	Kanab, Utah
*Jesse S. Wilson	Vice-President and Member of Board of Directors	Hatch, Utah
*Eldon L. Porter	Secretary & Treasurer and Member of Board of Directors	Hatch, Utah
Scott M. Matheson	Member of Board of Directors	Salt Lake City, Utah
*Lindau Foremaster	Member of Board of Directors	St. George, Utah
C. Whitney Parry	Member of Board of Directors	Kanab, Utah
*Louis C. Burgener	Member of Board of Directors	LaJolla, California

* Five largest stockholders.

(d) Does not apply.

2. General requirements of the application shown on the copies of the exhibits.

3. (a) Lessee and purchase optionee, as shown in Exhibits 1 to 3, inclusive.

(b) Benny "K" Mine now in operation, and Scorpion proposed Mine on Scorpion No. 8 Mining Claim south of the Scorpion Fault approximately 200 feet.

(c) and (d) Exhibits 1, 2, and 3 are copies of leases and options. Please note that provision is made for the location of fractions within and adjacent to the areas described in the claims. All fractions have been surveyed, located and recorded so that now the total number of claims covered by the agreements is 47 as shown by the Exhibits attached hereto. All agreements are in good standing. Exhibit No. 1 requires no cash payment. Cash payments required under Exhibits 2 and 3 are now delinquent for the year 1951 but deferred by oral agreement. No demand for payment served. Anticipate no difficulty from technical non-payment. All assessment work accomplished and certificate thereof recorded for the years 1950, 1951, and 1952.

Exhibits 1 to 3 inclusive show nature of corporate obligations which, with the exception of cash payments, is impossible to calculate before production. Present value to the corporation of interest shown by said Exhibits also presently impossible of calculation. Therefore, a dollar financial statement is impossible.

(e) Does not apply.

(f) See contracts under Exhibits 1 to 8 inclusive.

4. (a) The Benny "K" has an incline shaft 220 feet in length on a 30° incline and has a 350 feet tunnel from the bottom of said incline in a northwesterly direction. The Holmes Uranium Corporation has done all the work and is prepared to do additional work besides their part in the D.M.E.A. loan projects.

(b) No past production or reserves.

(c) See maps and reports included in Exhibits 1 to 7 inclusive.

(d) Roads are in good condition to the property and the property is located a distance of 6 miles from the Marysvale purchasing depot of the Atomic Energy Commission located at Marysvale, Utah.

(e) All items called for are available.

5. (a) Uranium ore.

(b) Project No. A - On the Scorpion No. 8 Mining Claim. It is proposed to sink a 1 1/2 compartment shaft vertically for 300 feet and then cross cut tunnels from the bottom of said shaft. The tunnels & shaft to be constructed under contract by letting the work out on bids. The number of feet of cross cut tunnels will be partly determined by the results of a diamond drill hole located on the Scorpion No. 1 Mining Claim, and also from the results of the proposed diamond drill hole by Dr. Kerr in his report on the Scorpion No. 8 Mining Claim. The drilling on the Scorpion No. 1 has been completed by the Atomic Energy Commission, Raw Materials Division, and the drilling on Scorpion No. 8 is proposed work to be completed early in the spring of 1953 and recommended by Dr. Kerr in his study of the mineralization on the Scorpion Fault, which runs in a northeasterly direction across these claims.

An estimate of the total cross cut tunnel footage of 600 feet, which is proposed, is applied for in this application under Project No. A.

Project No. B - On the Benny "K" No. 1 Mining Claim. It is proposed to sink a 2 compartment shaft 700 feet vertically at the landing on the road just south of the present dump on the Benny "K" No. 1 Mining Claim.

At the completion of the 700 foot vertical shaft, it is proposed to stop the work and give the Atomic Energy Commission permission to do whatever diamond drilling horizontally from the bottom of the 700 foot shaft they desire. Said drilling is to determine the ore-bearing fractures on the east - west fracture zone which is located mainly north of the proposed shaft. Also drilling holes west to intersect fractures of the north - south fracture zone to determine ore-bearing veins.

In the event that the Atomic Energy Commission does not have available money, or for other reasons are not ready to explore the vein structure at the base of the vertical shaft, it is proposed to run a northwest tunnel from the bottom of said 700 feet shaft, said tunnel to be a maximum of 1200 feet. Said tunnel will intersect the vein structures on the west side of the shaft which are running north and south and will also intersect a system of east - west fractures which are north of the shaft and should give valuable geologic information on the intrusion of radioactive material in this area which has caused it to register one of the highest in the Marysvale area.

It is also proposed to run a tunnel from the base of the shaft to the east a distance of 200 feet for the purpose of cross cutting a surface vein from which samples were taken during exploration period of .31% U_3O_8. Said assay was determined by the U. S. Bureau of Mines in Salt Lake City in 1950.

(c) The work will start within 60 days and Projects A and B will be completed within 24 months of time loan is granted.

(d) See original application.

6. (a) Contracting of all the work under competitive bids on both shaft and tunnel work.

Project No. A

(1) Contracting on the 1 1/2 compartment vertical shaft for 300 feet, the estimate for a completed shaft with the contractor furnishing all timber necessary for timbering it in accordance with the law is a price of $60.00 per foot for the 300 feet, making an estimated cost of $18,000.00

(2) Contracting to drift 600 feet of tunnel from the bottom of the 300 foot shaft, an estimate of $24.50 per foot is used with the contractor furnishing any timbering required to accomplish this project, making an estimate of 14,700.00

TOTAL Estimate of Cost for Project A $32,700.00

Project No. B

(1) Contracting on the 2 compartment vertical shaft for 700 feet, contractor furnishing all materials, it is estimated that $115.50 per foot can be used, or a total of 80,850.00

(2) Contracting to drift 1600 feet of tunnel from the base of the 700 foot shaft at an estimated average cost of $50.00 per foot, contractor furnishing all timber and supplies required, or a total estimated cost of 48,000.00

TOTAL Estimate of Cost for Project B $128,850.00

(b) Does not apply.

(c) Does not apply.

(d) Equipment to be purchased for the purpose of operating the mines at the completion of the construction period which will be done under contract.

Bids from equipment companies to be negotiated under competitive bids from equipment companies by applicant and representative of D.M.E.A. at the appropriate time.

Project A - Engineer's estimate of the total equipment required to efficiently operate said project when completed not to exceed $25,000.00

Project B - Engineer's estimate of equipment required to efficiently operate this project at the completion of construction period 80,370.00

(e) Does not apply.

(f) Does not apply.

(g) It is proposed to pipe water from a spring in the mountain to the east of the operation. Said water is to be conducted by 1 inch flex plastic tube buried in the earth by means of a bulldozer trench and covered with the same.

Estimated pipe	$5,280.00
Estimate on 2 - 1500 gal. storage tanks @ $500 each	1,000.00
Labor installing pipe including bulldozing of trench and pouring of concrete collection box at the spring and doing all work necessary for proper installation	1,500.00
Compensation insurance and social security on water project	105.00
TOTAL Water Project	$7,885.00
Total for Project A Construction	$32,700.00
Total for Project B Construction	128,850.00
Total Equipment for Project A	25,000.00
Total equipment for Project B	80,570.00
Total water supply project complete	7,885.00
TOTAL for all projects	$274,805.00

7. (a) Yes.

(b) Cash from members of the Corporation raised as needed.

Note: Several members of the Board of Directors are men of considerable financial means and have guaranteed the cash to meet the 10% required under D.M.F.A. loans to complete this project.

EXHIBITS

Exhibit No. 1 - Mining Lease and Option dated August 19, 1949, between John Paul Fullmer, Thomas Fullmer, Dean Leavitt, Earl Smith and Ray Shelton as Lessors, and J. Mark Holmes, Lessee, covering original 14 claims.

Exhibit No. 2 - Agreement dated April 11, 1950, between John Paul Fullmer and Dean U. Leavitt as Sellers and J. Mark Holmes as Buyer, covering Benny "X" Nos. 3, 4 and 6, with verbal agreement to waver all minimum payments from Fullmer and Leavitt understood.

Exhibit No. 3 - Agreement dated February 1, 1950, between John Paul Fullmer and Dean U. Leavitt as Sellers, and J. Mark Holmes as Buyer, covering Scorpion and Adabella groups, with verbal agreement to waver all minimum payments from Fullmer and Leavitt understood.

Exhibit No. 4 - A general property location map of the Marysvale uranium strike area upon which is added the location of a proposed water line from the Poverty Flat Springs to the main working shaft on Project No. A and B.

Exhibit No. 5 - Topographic map of the East 1/2 of the Marysvale uranium discovery as copied from Atomic Energy Commission maps showing location of the mining claims shown in Exhibits 1, 2 and 3.

Exhibit No. 6 - Copy of radio metric map prepared by Atomic Energy Commission of the East 1/2 of the Marysvale uranium strike on which is imposed the location of the mining claims referred to in Exhibits 1 to 3, inclusive.

Exhibit No. 7 - A copy of the United States Geological Survey rock classification map of the area as described in Exhibits 1 to 3 inclusive.

Exhibit No. 8 - Geologic and centilometer readings reported by consulting geologists at the University of Utah.

EXHIBIT 1 EXHIBIT 1

MINING LEASE AND OPTION

THIS AGREEMENT made in duplicate as of the 19th day of August, 1949, by and between John Paul Fullmer, Thomas Fullmer, Dean Leavitt, Earl Smith and Ray Shelton, as Lessors, and J. Mark Holmes, as Lessee:

WITNESSETH:

In consideration of the rentals and royalties hereinafter reserved and of the covenants and agreements hereinafter expressed by the parties to be faithfully kept and performed, the parties hereto mutually and severally covenant and agree as follows:

I.

RIGHTS GRANTED TO LESSEE

Lessors do hereby demise, let and grant to Lessee all of Lessors' right, title, claim and interest in and to the following described mining locations and mining property situated in Durkee Mining District, Piute County, State of Utah, to-wit:

Name of Location	Notice of Location Recorded in Records of Piute County, Utah. Book of Locations	Page
Benny K. Extension No. 1	(E	213)
	("	214)
Benny K. Extension No. 2	"	214
" " No. 3	"	215
" " No. 4	"	215
" " No. 5	"	216
Lorraine No. 6	"	227
" No. 7	"	228
Delight	"	230
Sunday Joy	"	235
Benny K. No. 1	"	176
" " No. 2	"	176
Skippy	"	235
Gladiator aka Gladiatior	"	250
Sc (o or a) pion No. 8	("	298)
	("	447)

Together with all and singular the tenements, hereditaments and appurtenances thereunto belonging, or in any wise appertaining.

Together with all dips, spurs and minerals therein contained and appertaining, and together with all and any other property and all rights, real, personal or mixed, in, upon or appertaining to any of the claims or premises above mentioned.

Together with water rights, if any, of the Lessors, whether arising by use or otherwise, used or intended to be used upon or in connection with the development or operation of the property above described.

TO HAVE AND TO HOLD unto the said Lessee for a term of fifty (50) years from the date hereof, subject to the strict, punctual and exact performance by the Lessee of all the conditions, covenants and agreements by it to be kept and performed.

II.

PROPER OPERATION REQUIRED

Lessee shall enter upon said mine and premises and work the same in the manner necessary to good minerlike and economical mining so as to develop and take out ore with due regard to the development and preservation of the same as a workable mine, and to the special covenants herein reserved, and in keeping with the mining laws of Utah and the United States, and rules and regulations thereunder which are applicable.

III.

ROYALTIES

Lessee shall pay to Lessors on all ores extracted and shipped or sold from said premises royalties as follows:

(a) On uranium ores containing 1/2 of 1%, or less, of uranium oxide, 15% of the "base price" (as hereinafter defined).

(b) On uranium ores containing more than 1/2 of 1% uranium oxide, a 15% royalty as provided in the foregoing subparagraph (a), plus 1% of the said "base Price" for each additional 1/10 of 1% of uranium content of the ore, provided that the royalty payable shall in no event exceed 30% of said "base price".

(c) On all ores other than uranium ores and on the mineral value of uranium ores for other minerals, 10% of the "net mint, smelter, or custom-mill return" (as hereinafter defined).

"Base price" as used herein shall mean "base price" of uranium ore of like grade and quality as determined under the government rules and regulations; shall not include any special premium, development allowances, or subsidies which may be provided to the mine or operations; shall be the "base price" of the ore at Marysvale, Utah, without deduction for cost of transportation from the mine to Marysvale; but any treatment charges or deductions and also any transportation and freight charges from Marysvale, Utah, which are deducted in settlement and payment for the uranium ore shall be deducted in determining the "base price" for the purpose of computing royalties.

"Net mint, smelter or custom-mill return" as used herein shall mean the gross value at Marysvale, Utah, as figured by the mint, smelter or custom-mill less mint, smelter or custom-mill treatment charges or deductions and transportation and freight charges from Marysvale, Utah.

Any amount due and payable to Lessors as royalties on ore extracted and shipped and sold during any lease month hereunder shall be paid by the Lessee to the Lessors on or before the 5th day of the month next succeeding

the lease month during which the Lessee shall have received payment or settlement therefor by the deposit thereof to the credit of the Lessors or assigns in the Bank of Richfield of Richfield, Utah, or such other bank as the Lessors may from time to time designate by written notice to Lessee.

IV.

STATEMENTS TO BE FURNISHED

Lessee shall, on or before the 15th day of each month hereof, furnish Lessors with a written report showing as to the preceding lease month the tonnage of ore extracted, shipped, or sold, the actual royalty payable thereon, the total tonnage of ore extracted, and the tonnage shipped or sold.

Lessee shall also furnish Lessors with duplicate copies of smelter, mint or other purchasing agencies' receipts and settlement charts for ore and products extracted and shipped or sold from leased premises.

V.

BOOKS AND RECORDS

Lessors and their authorized agents shall at any and all reasonable times be permitted to inspect all books and records including assay reports of the Lessee relating to the leased property in order to ascertain the correct amount of royalty due Lessor or to determine whether or not the provisions of the lease are being complied with.

VI.

LESSORS' RIGHT OF INSPECTION

Lessee shall allow said Lessors and their agents, from time to time, to enter upon and into all parts of said leased premises for purposes of inspection at such reasonable times as shall not interfere with the

regular operation of the leased premises. It is understood and agreed that the Lessee shall assume no responsibility for the safety of Lessors or their agents when and while upon the leased premises for such purpose; and further, the Lessors hereby agree to indemnify and hold harmless the Lessee for any damages which the Lessee may suffer as a result of any injury occurring to the Lessors or their agents when and while upon the premises for the above purposes.

VII.

ORES NOT TO BE CO-MINGLED

Lessee shall not mix any ores from the demised premised with the ores, minerals or products therefrom derived from any other property.

VIII.

STATE AND FEDERAL ENACTMENTS
INDEMNIFICATION OF LESSORS

Lessee, in the operation and development of the property hereby leased, shall be subject to all applicable Federal enactments and regulations, laws of the State of Utah, and to all Federal or State rules and regulations regarding Employees Liability, Workman's Compensation and Workmen's Old Age and Unemployment Insurance, and said Lessee covenants and agrees to indemnify and hold harmless the Lessors from and against the payment of any and all damages, claims, costs and expenses due to the existence of such enactments, and of any and all claims, costs and expenses in connection therewith under any claim of subrogation provided for by said enactments or otherwise; and the Lessee shall further indemnify and hold harmless the Lessor from and against any and all damages, claims, costs and expenses arising out of damage to property or any injury to or death of employees of the Lessee, or to any other person whomsoever other than the Lessors

and those acting under them, where such injury, death or damage occurs because of or in connection with the use, operation or development in any manner, of the property hereby leased, whether such claims are based upon a right conferred by the common law or by statute.

IX.

PROPERTY TO BE KEPT FREE OF LIENS

Lessee shall pay and satisfy all claims for materials, supplies and labor in connection with the working of said mine and mining property and shall keep said mine and mining property free of liens or encumbrances of any and every kind except such as might result from State and County tax assessments not required to be paid by Lessee, or such as may result from the acts of others than Lessee, its employees or those in privity with it.

X.

TAXES

Lessors shall pay all State and County tax assessments upon said leased premises, except as hereinafter otherwise provided.

Lessee shall pay all State and County tax assessments upon any and all structures andother improvements, machinery, equipment, tools, supplies and personal property whatsoever placed upon the leased premises by the Lessee.

Lessors shall pay all the State and County "net proceeds" taxes assessed against Lessor on account of their receipt of royalties hereinabove provided to be paid to them by the Lessee.

Lessee shall pay all State and County "net proceeds" taxes assessed against Lessee, and other taxes assessed against Lessee on account of its operations hereunder.

XI.

WORK REQUIREMENTS

Lessee agrees to expend in labor and material upon or for the benefit of said leased premises in prospecting, developing, mining, construction, or other relating work, the sum of Five Hundred ($500.00) Dollars, each lease month during which weather conditions do not prevent or unreasonably interfere with the performance of such work; provided that if the amount expended in any month shall exceed the sum of $500.00 the excess so expended shall be carried over as a credit and may be applied by the Lessee towards meeting the required expenditure or expenditures for any subsequent month or months of the same lease year.

Lessee agrees to furnish to the Lessor each assessment year during the term of this lease a proper work certificate showing the amount of work or improvements made upon or for the benefit of the leased premises during that assessment year which can be utilized by Lessors for or in the preparation of the proof of annual assessment labor on the leased premises.

XII.

LESSORS' RIGHT TO INFORMATION

Lessee agrees that Lessors or their authorized agents shall have access to, and the right to copy any information from, geological, metallurgical, drilling, sampling and other data relating to said leased premises secured by and in the possession of Lessee in connection with its prospecting and development of said premises.

In the event that termination of this agreement for any reason whatsoever, the Lessee agrees to furnish Lessors with copies of all drilling

and sampling data, reports of metallurgical tests, a map accurately showing the development work performed by the Lessee upon the leased premises and copies of any and all geological maps relating to said leased premises prepared by Lessee.

It is expressly understood and agreed, however, that the Lessors shall not be entitled or have access to any confidential reports made by members of Lessee's engineering staff, nor shall Lessee be under any obligation to furnish Lessors with any such report or reports, except on termination of this contract.

XIII.

LESSEE'S RIGHT OF SURRENDER

It is mutually understood and agreed that the Lessee may, at any time, surrender and terminate this lease upon giving thirty (30) days notice in writing, paying to Lessors all royalties and other sums due and payable to the Lessors to the effective date of such surrender, and complying with the terms of this lease with respect to the preservation and protection of workings upon the leased premises.

XIV.

FORFEITURE OR TERMINATION

This lease is made upon the condition that the Lessee shall perform all of the covenants and agreements herein set forth to be performed by it, and if at any time Lessee shall fail for a period of thirty (30) days to make any monthly royalty payment due hereunder within 30 days from the day when payable, or if there shall be any other default on the part of the Lessee due to other than acts of God, strikes, lockouts, storms, floods,

a public enemy, or unusual casualty, or any other cause entirely beyond Lessee's control, and if, as to any other default, Lessee, within thirty (30) days after written notice by Lessors specifying the character of the asserted default shall fail to commence to remedy such default, or shall fail thereafter to diligently proceed to correct such default, then and in such event this lease and option shall terminate and the leased premises shall revert to the Lessors and the Lessee shall deliver to the Lessors those said premises.

XV.

REMOVAL OF EQUIPMENT

It is mutually understood and agreed that in case of forfeiture, surrender or other termination of this lease, all underground timbering supports, shaft linings and other fixtures necessary for the preservation of any mines, and all rails and head frames upon or in the said leased premises shall be and remain a part of the realty and shall revert to the Lessors without further consideration or compensation. In case of such forfeiture, surrender or other termination of this lease, Lessors shall have the exclusive right and option for a period of thirty (30) days after the effective date of such forfeiture, surrender or other termination of this lease, to purchase from Lessee for cash all, but not less than all, pumps, hoists, compressors, and transformers and power equipment for the operation of the same, upon or in the leased premises, at the fair appraised resale value thereof as of the effective date of such termination.

It is further understood and agreed that all personal property of the Lessee located within the leased premises, and all buildings,

machinery, equipment and tools (other than the fixtures to become the property of the Lessors as above provided) shall, in case of forfeiture, surrender or other termination of this lease, remain upon the leased premises and be held as a guarantee in lieu of bond until all terms of this lease with respect to payment of royalties and the preservation of the property shall have been complied with. Upon such compliance with and performance of such conditions and obligations the Lessee shall be entitled to, and may, within ninety (90) days after such termination of this lease or within such extension of time as may be granted by the Lessors, remove from the leased premises such personal property and improvements, other than those items which are to remain the property of the Lessors as above provided.

XVI.

MANNER OF GIVING NOTICE

Any notice contemplated herein to be served upon the Lessee shall be in writing and shall be sufficiently given if mailed in the United States Post Office, postage prepaid and registered, addressed to Lessee at Kanab, Utah, or to such other address as Lessee may from time to time designate in writing.

Any notice contemplated herein to be served upon the Lessors shall be in writing, and shall be sufficiently given if mailed in the United States Post Office, postage prepaid and registered, addressed to Lessors, care of John Paul Fullmer, Maryavale, Utah, or at such other address as Lessors may from time to time designate in writing.

Service of notice by mail shall be deemed effective and complete upon date of posting and mailing in accordance herewith.

It is understood and agreed that personal service of notice upon either party shall be deemed sufficient service of notice, and no mailing of notice in the case of personal service shall be necessary.

XVII.

OPTION TO PURCHASE

In consideration of the foregoing Lease and the expenditures to be made thereunder by Lessee, Lessors hereby grant and extend to Lessee for the life of said Lease, the exclusive option to purchase all the right, title and interest of the Lessors (subject to the royalty to be reserved as hereinafter provided) in and to the leased premises for the sum of One Hundred Twenty-five Thousand and no/100 dollars ($125,000.00) less any amounts theretofore paid to Lessors as royalties under the foregoing Lease; such option may be exercised by Lessee upon written notice to Lessors and upon payment to Lessors of the required purchase price, and upon payment of the purchase price, Lessors shall deliver to Lessee a good and sufficient mining deed conveying title to the above mentioned mining locations free and clear of any liens, encumbrances, burdens, or restrictions created by any act or instrument of Lessors or any of them, provided expressly that said mining deed shall reserve to Lessors:

(a) On uranium ores a royalty of 4% of the "base price" as hereinbefore defined;

(b) On all ores other than uranium ores and on the mineral value of uranium ores for other minerals, a royalty of 4% of the "net mint, smelter, or custom-mill return" as hereinabove defined.

Such deed shall provide for the payment of the said reserved royalties at the times and in the manner hereinabove provided as to the payment of royalties under the foregoing lease.

XVIII.

LOCATION OF FRACTIONS OR ADJOINING CLAIMS

Lessee agrees that in the event any fractions or property shall be found to be subject to location within the exterior boundaries of the group of claims covered by this lease at or adjoining said group of claims, that Lessee will either locate the same in the names of the Lessors or will advise Lessors to locate the same. Lessors agree that they will locate any such fractions or adjoining property whether found by them to be open, or called to their attention by Lessee; and Lessors further agree that any fractions or claims located as in this paragraph provided, shall be included within and shall be subject to the terms and conditions of this lease and option as fully and in all respects as if specifically described and set out in this option at the time of the execution hereof.

XIX.

PATENTING OF PROPERTY

Lessors agree that at any time after Five Hundred ($500.00) Dollars worth of work or improvements have been performed on or for the benefit of any claim or claims covered by this lease and option, Lessors will, upon written request of Lessee, apply for a United States Mineral Patent covering such claim or claims, it being understood that Lessee shall advance the cost of any such Mineral Application including such purchase

price payable to the Government; but that Lessee shall have the right to use and apply royalties otherwise payable to Lessors until Lessee shall have been reimbursed for one-half of any such costs of patenting such claim or claims.

IN WITNESS WHEREOF the parties hereto have set their hands and seals this 10th day of April, 1950.

(signed) JOHN PAUL FULLMER

(signed) THOMAS FULLMER

(signed) DEAN U. LEAVITT

(signed) EARL SMITH

(signed) RAY SHELTON

Lessors

(signed) J. MARK HOLMES

Lessee

STATE OF UTAH)
) SS
COUNTY OF PIUTE)

Before me on the 14 day of June, 1950, personally appeared John Paul Fullmer, Thomas Fullmer, Dean U. Leavitt, Earl Smith and Ray Shelton and J. Mark Holmes, who duly acknowledged to me that they executed the foregoing instrument, consisting of twelve (12) pages, including this page.

(signed) VIOLET SARGENT

Notary Public

Residing at:

My Commission expires: Feb 2nd 1953

(Seal)

EXHIBIT 2 EXHIBIT 2

AGREEMENT

This agreement made in duplicate as of the 11th day of April, 1950, by and between John Paul Fullmer and Dean U. Leavitt of Marysvale, Utah, hereinafter referred to as the Sellers and J. Mark Holmes of Kanab, Utah, hereinafter referred to as the Buyer:

W I T N E S S E T H

I.

RIGHTS GRANTED AND SOLD

That the Sellers, for the consideration herein mentioned agree to sell and to convey to the Buyer, and the Buyer for the consideration herein named and upon the terms hereinafter set out, agrees to purchase the following mining locations and mining property situated in Durkee Mining District, Piute County, State of Utah, to-wit:

Name of Location	Notice of Location Recorded in Records of Piute County, Utah. Book of Locations	Page
Benny K. No. 3	Book E	177
Benny K. No. 4	Book E	178
Benny K. No. 6		

Together with all and singular tenements, hereditaments and appurtenances thereunto belonging, or in any wise appertaining.

Together with all dips, spurs and minerals therein contained and appertaining, and together with any and all other property and rights, real, personal or mixed, in, or upon or appertaining to any other claims or premises above mentioned.

Together with all water rights, if any, of the Sellers, whether arising by use or otherwise, used or intended to be used upon or in connection with the development or operation of the property above described.

II.

LOCATION OF FRACTIONS OF ADJOINING CLAIMS

The Buyer agrees that in the event any fractions of property shall be found to be subject to location within the exterior boundaries or group of claims covered by this agreement, at or adjoining said group of claims, that the buyer will either locate the same in the names of the Sellers or will advise the Sellers to locate the same.

The Sellers agree that they will locate any such fractions or adjoining property whether found by them to be open, or called to their attention by the Buyer; and the Sellers further agree that any fractions or claims located as in this paragraph provided, shall be included within and shall be subject to the terms and conditions of this agreement as fully and in all respects as if specifically described and set out in this agreement at the time of the execution hereof.

III.

PATENTING OF PROPERTY

The Sellers agree that at any time after Five Hundred ($500.00) Dollars worth of work or improvements have been performed on or for the benefit of any claim or claims covered by this agreement, the Sellers will, upon written request of the Buyer, apply for a United States Mineral Patent covering such claim or claims, it being understood that the Buyer shall advance the cost of any such Mineral Application including the purchase

price payable to the Government; but that the Buyer shall have the right to withhold and apply royalties otherwise payable to the Seller until the Buyer shall have been reimbursed for one-half of any such cost of patenting such claim or claims.

IV.

PRICE

The said Buyer agrees to enter into possession immediately and to pay for said described premises the sum of Fifty Thousand ($50,000.00) Dollars, payable at the offices of John Paul Fullmer, one of the above Sellers, in Marysvale, Utah, strictly within the following terms, to-wit: $1.00 easy, the receipt of which is hereby acknowledge, and the balance as follows: $3,000.00 or more on or before the 1st day of July, 1950, and $5,000.00 to be paid each six months thereafter until the full purchase price of $50,000.00 is paid.

V.

ROYALTIES

It is understood that the foregoing payments are to be the minimum payments which the Buyer guarantees to be made. If and when the Buyer starts producing and shipping ore to market said Buyer agrees to pay to the Sellers on uranium ore assaying from 1/2 of 1% up to 2% an amount equivalent to royalties set out in the following table and computed on the "base price" of uranium ore, or in the absence of a "base price" the prevailing market price, such payments may herein be referred to as "royalty payments" for convenience purposes:

Per Cent Assay of Uranium Ore	Per Cent Royalty
.0% to .15%	15%
.5 of 1%	15%
.6 of 1%	16%
.7 of 1%	17%
.8 of 1%	18%
.9 of 1%	19%
1%	20%
1.1%	21%
1.2%	22%
1.3%	23%
1.4%	24%
1.5%	25%
1.6%	26%
1.7%	27%
1.8%	28%
1.9%	29%
2% or more	30%

On all ores other than uranium ores and on the mineral value of uranium ores for other minerals, 4% of the "net mint, smelter or custom-mill return" (as hereinafter defined).

"Base price" as used herein shall mean the "base price" of uranium ore of like grade and quality as determined under the Government rules and regulations; shall not include any special premiums, development allowance or subsidies which may be provided to the mine or operations; shall be the "base price" of the ore at Maryevale, Utah, without deducting for cost of transportation from the mine to Maryevale, but any treatment charges or deductions and also any transportation and freight charges from Maryevale, Utah, which are deducted in the settlement and payment for the uranium ore shall be deducted in determining the "base price" for the purpose of computing said royalties.

"Net mint, smelter or custom-mill returns" as used herein shall mean the gross values at Maryevale, Utah, as figured by the mint, smelter

or custom-mill, less mint, smelter or custom-mill treatment charges or deductions and transportation and freight charges from Marysvale, Utah.

Any amount due and payable to Sellers as royalties on ore extracted and shipped and sold during any month hereunder or any installment due, shall be paid by the Buyer to the Sellers on or before the 5th day of the month next succeeding the month during which the Buyer shall have received payment therefor by the deposit thereof to the credit of the Sellers or assigns in the Bank of Richfield, of Richfield, Utah, or such other bank as the Sellers may, from time to time, designate by written notice to the Buyer.

It is understood that in the event the royalty payments paid to the Sellers in accordance with the foregoing table do not equal the aforesaid guaranteed installment payment, then the Buyer shall pay to the Sellers the difference between said royalty payments and the guaranteed installment payments in accordance with the terms above set out. It is the intention of the parties that the Buyer shall have credit on the purchase price for all royalty payments paid as above provided. In the event the amount paid to the Sellers as royalty payments for any period as above stated shall exceed the specified minimum installments for that period the amount of such excess may be carried forward by the Buyer as a credit to be applied in the reduction of the minimum installment requirement for any succeeding period or periods.

Upon payment of the consideration of $50,000.00 above expressed the Seller shall not thereafter be entitled to a royalty computed in accordance with the foregoing table, but shall thereafter receive only a royalty of 4% of the base price of the ore as the term "base price" is above defined.

As previously stated, the purchase price of the aforesaid property is to be $50,000.00, less any amounts paid to Sellers as royalty payments under the foregoing agreement, and upon payment by the Buyer to the Sellers of the required purchase price the Sellers shall deliver to the Buyer a good and sufficient Mining Deed conveying title to the above mentioned mining locations, free and clear of any liens, encumbrances, burdens, or restrictions created by any act or instrument of the Sellers or any of them, provided expressly that said mining deed shall reserve to the Sellers:

(a) On uranium ores a royalty of 4% of the "base price" as hereinbefore defined;

(b) On all ores other than uranium ores and on the mineral value of uranium ores for other minerals, a royalty of 4% of the "net mint, smelter, or custom-mill return" as hereinabove defined.

Such deed shall provide for the payment of the reserved royalties at the time and in the manner hereinabove provided as to the payment of royalty payments under the foregoing agreement.

VI.

TAXES

The Buyer shall pay all state and county tax assessments upon said mining property and also all taxes assessed because of any operations thereon.

The Buyer shall pay all state and county tax assessments upon any and all structures and other improvements, machinery, equipment, tools, supplies and personal property whatsoever placed upon said premises by the Buyer.

VII.

BUYERS' RIGHT OF SURRENDER

It is mutually understood and agreed that the Buyer may at any time surrender and terminate this agreement upon giving thirty (30) days notice in writing. Upon giving such notice the Buyer shall no longer be liable to the Sellers for the payment of any unpaid portion of the aforesaid purchase price nor for the payment of any royalties not then due and owing by the Buyer to the Sellers.

VIII.

FORFEITURE OR TERMINATION

This agreement is made upon the condition that the Buyer shall perform all of the covenants and agreements herein set forth to be performed by him, and if, at any time, Buyer shall fail for a period of thirty (30) days to make any minimum installment or monthly royalty payment due hereunder within thirty (30) days from the date when payable, or if there shall be any other default on the part of the Buyer due to other than acts of God, strikes, lockouts, storms, floods, a public enemy, or unusual casualty, or any other cause entirely beyond Buyer's control, and if, as to any other default, Buyer within 30 days after receipt of written notice given by Sellers specifying the character of the asserted default shall fail to commence to remedy such default or shall fail thereafter to diligently proceed to correct such default, then and in such event this agreement shall terminate and the premises shall revert to the Sellers and the Buyer shall deliver to the Sellers the said premises.

IX.

REMOVAL OF EQUIPMENT

It is mutually understood and agreed that in case of forfeiture, surrender or other termination of this agreement, all underground timbering supports, shaft linings and other fixtures necessary for the preservation of any mines, and all rails and headframes upon or in the said premises shall be and remain a part of the realty and shall revert to the Sellers without further consideration or compensation. In case of such forfeiture, surrender or other termination of this agreement, the Sellers shall have the exclusive right and option for a period of 30 days after the effective date of such forfeiture, surrender or other termination of this agreement to purchase from Buyer for cash all, but not less than all, pumps, hoists, compressors, transformers and power equipment for the operation of the same upon or in the said premises at the fair appraised resale value thereof as of the effective date of such termination.

It is understood and agreed that all personal property of the Buyer located within said premises, and all buildings, machinery, equipment and tools (other than fixtures to become the property of the Sellers as above provided) shall, in case of forfeiture, surrender or other termination of this agreement, remain upon the premises and be held as a guarantee in lieu of bond until all terms of this agreement with respect to any payment of royalties and the preservation of the property shall have been complied with. Upon such compliance with and performance of such conditions and obligations the Buyer shall be entitled to, and may, within ninety (90) days after such termination of this agreement, or within such extension of

time as may be granted by the Sellers, remove from the premises such personal property and improvements, other than these items which are to remain the property of the Sellers as above provided.

X.

MANNER OF GIVING NOTICE

Any notice contemplated herein to be served upon the Buyer shall be in writing and shall be sufficiently given if mailed in the United States Post Office, postage prepaid, and registered, addressed to Buyer at Kanab, Utah, or to such other address as the Buyer may from time to time designate in writing.

Any notice contemplated herein to be served upon the Sellers shall be in writing and shall be sufficiently given if mailed in the United States Post Office, postage prepaid, and registered, addressed to Sellers, care of John Paul Fullmer, Marysvale, Utah, or at such other address as Sellers may, from time to time, designate in writing.

Service of notice by mail shall be deemed effective and complete upon the date of posting and mailing in accordance herewith, if mailed within the State of Utah. It is understood and agreed that personal service of notice upon either party shall be deemed sufficient service of notice, and no mailing of notice in the case of personal service shall be necessary.

XI.

SELLERS' RIGHT TO INFORMATION

The Buyer agrees that the Sellers or their authorized agents shall have access to, and the right to copy any information from geological, metallurgical, drilling, sampling and other data relating to said premises

secured by and in the possession of Buyer in connection with its prospecting and development of said premises.

In the event of the termination of this agreement for any reason whatsoever the Buyer agrees to furnish the Seller with copies of all drilling and sampling data, reports of metallurgical tests, a map accurately showing the development work performed by the Buyer upon the premises, and copies of any and all geological maps relating to said premises prepared by the Buyer.

It is expressly understood and agreed, however, that the Seller shall not be entitled to inspect or have access to any confidential reports made by members of Buyer's engineering staff, nor shall the Buyer be under any obligation to furnish the Sellers with any such report or reports.

XII.

SELLERS' RIGHT OF INSPECTION

The Buyer shall allow the Sellers and their agents, from time to time, to enter upon and into all parts of said premises for purposes of inspection at such reasonable times as shall not interfere with the regular operation of the said premises. It is understood and agreed that the Buyer shall assume no responsibility for the safety of the Sellers or their agents when and while upon the said premises for such purposes; and further, the Sellers hereby agree to indemnify and hold harmless the Buyer for any damages which the Buyer may suffer as a result of any injury occurring to the Sellers or their agents when and while upon the premises for the above purpose.

XIII.

BOOKS AND RECORDS

The Sellers and their authorized agents shall, at any and all reasonable times, be permitted to inspect all books and records, including assay reports of the Buyer relating to the said premises in order to ascertain the correct amount of the royalties due Sellers or to determine whether or not the provisions of the agreement are being complied with.

XIV.

STATEMENTS TO BE FURNISHED

The Buyer shall, on or before the 15th day of each month hereof, furnish the Sellers with a written report showing as to the preceding month the tonnage of ore extracted, shipped or sold, the actual royalties payable thereon, the total tonnage of ore extracted and the tonnage shipped or sold.

Buyer shall also furnish Sellers with duplicate copies of smelter, mint or other purchasing agencies' receipts and settlement charts for ore and products extracted and shipped or sold from the said premises.

XV.

ORES NOT TO BE CO-MINGLED

The Buyer shall not mix any ores from the said premises with the ores, minerals or products therefrom derived from any other property.

XVI.

STATE AND FEDERAL ENACTMENTS
INDEMNIFICATION OF SELLERS

The Buyer, in the operation and development of the said property shall be subject to all applicable Federal enactments and regulations,

laws of the State of Utah, and all Federal or State rules and regulations regarding Employees Liability, Workman's Compensation and Workman's Old Age and Unemployment Insurance, and said Buyer covenants and agrees to indemnify and hold harmless the Sellers from and against the payment of any and all damages, claims, costs and expenses due to the existence of such enactments, and of any and all claims, costs and expenses in connection therewith under any claim of subrogation provided for by said enactments or otherwise; and the Buyer shall further indemnify and hold harmless the Sellers from and against any and all damages, claims, costs and expenses arising out of damage to property or any injury to or death of the employees of the Buyer, or any other person whomsoever other than the Sellers and those acting under them where such injury, death or damage occurs because of or in connection with the use, operation or development in any manner, of the property hereby sold, whether such claims are based upon a right conferred by the common law or by statute.

IN WITNESS WHEREOF the parties hereto have set their hands and seals this 1st day of April, 1950.

(signed) JOHN PAUL FULLMER

(signed) DEAN U. LEAVITT
SELLERS

(signed) J. MARK HOLMES
BUYER

STATE OF UTAH)
: SS
COUNTY OF PIUTE)

On the 14 day of June, 1980, personally appeared before me, JOHN PAUL FULLMER and DEAN U. LEAVITT, Sellers, and J. MARK HOLMES, Buyer, who duly acknowledged to me that they executed the foregoing instrument.

(signed) VIOLET SARGENT
Notary Public
Residing at:

My Commission expires: Feb. 3rd 1983

(Seal)

EXHIBIT 3 EXHIBIT 3

AGREEMENT

This agreement made in duplicate as of the 1st day of February, 1950, by and between John Paul Fullmer and Dean U. Leavitt of Marysvale, Utah, hereinafter referred to as the Sellers, and J. Mark Holmes of Kanab, Utah, hereinafter referred to as the Buyer:

W I T N E S S E T H:

I.

RIGHTS GRANTED AND SOLD

That the Sellers, for the consideration herein mentioned, agree to sell and to convey to the Buyer, and the Buyer for the consideration herein named and upon the terms hereinafter set out, agrees to purchase the following mining locations and mining property situated in Durkee Mining District, Piute County, State of Utah, to-wit:

Name of Location	Notice of Location Recorded in Records of Piute County, Utah Book of Locations	Page
Scorpion No. 1	Book E	234
" No. 2	" "	234
" No. 3	" "	241
" No. 4	" "	242
" No. 9	" "	434
Adabelle	" "	433
" No. 1	" "	445
" No. 2	" "	445
" No. 3	" "	446
" No. 4	" "	446
" No. 5	" "	491
" No. 6	" "	491
" No. 7	" "	493
" No. 8	" "	493
" No. 9	" "	494

Together with all and singular tenements, hereditaments and appurtenances thereunto belonging, or in any wise appertaining.

Together with all dips, spurs and minerals therein contained and appertaining, and together with any and all other property and rights, real, personal or mixed, in, or upon or appertaining to any other claims or premises above mentioned.

Together with all water rights, if any, of the Sellers, whether arising by use or otherwise, used or intended to be used upon or in connection with the development or operation of the property above described.

II.

LOCATION OF FRACTIONS OF ADJOINING CLAIMS

The Buyer agrees that in the event any fractions of property shall be found to be subject to location within the exterior boundaries or group of claims covered by this agreement, at or adjoining said group of claims, that the buyer will either locate the same in the names of the Sellers or will advise the Sellers to locate the same.

The Sellers agree that they will locate any such fractions or adjoining property whether found by them to be open, or called to their attention by the Buyer; and the Sellers further agree that any fractions or claims located as in this paragraph provided, shall be included within and shall be subject to the terms and conditions of this agreement as fully and in all respects as if specifically described and set out in this agreement at the time of the execution hereof.

III.

PATENTING OF PROPERTY

The Sellers agree that at any time after Five Hundred ($500.00) Dollars worth of work or improvements have been performed on or for the benefit of any claim or claims covered by this agreement, the Sellers will, upon written request of the Buyer, apply for a United States Mineral Patent covering such claim or claims, it being understood that the Buyer shall advance the cost of any such Mineral Application including the purchase price payable to the Government; but that the Buyer shall have the right to withhold and apply royalties otherwise payable to the Seller until the Buyer shall have been reimbursed for one-half of any such cost of patenting such claim or claims.

IV.

The said Buyer agrees to enter into possession immediately and to pay for said described premises the sum of Fifty-two thousand, Five Hundred and no/100 ($52,500.00) Dollars payable at the office of John Paul Fullmer, one of the above Sellers, in Marysvale, Utah, strictly within the following terms, to-wit: $2,000.00 cash, the receipt of which is hereby acknowledged, and the balance as follows: $1,000.00 or more on or before the 1st day of July, 1950; $1,000 or more on or before the 1st day of November, 1950; $1,000.00 or more on or before the 1st day of March, 1951; $1,000.00 or more on or before the 1st day of June, 1951; and $1,000.00 or more on or before the 1st day of every third month thereafter until the entire balance is paid.

V.

ROYALTIES

It is understood that the foregoing payments are to be the minimum payments which the Buyer guarantees to be made. If and when the Buyer starts producing and shipping ore to market said Buyer agrees to pay to the Seller on uranium ore assaying from 1/2 of 1% up to 2% of royalties set out in the following table and computed on the "Base Price" of uranium ore, or in the absence of a "Base Price," the prevailing market price:

Per Cent Assay of Uranium ore	Per Cent Royalty
.5 of 1%	15%
.6 of 1%	16%
.7 of 1%	17%
.8 of 1%	18%
.9 of 1%	19%
1%	20%
1.1%	21%
1.2%	22%
1.3%	23%
1.4%	24%
1.5%	25%
1.6%	26%
1.7%	27%
1.8%	28%
1.9%	29%
2%	30%

On all ores other than uranium ores and on the mineral value of uranium ores for other minerals, 4% of the "net mint, smelter or custom-mill return" (as hereinafter defined).

"Base price" as used herein shall mean the "base price" of uranium ore of like grade and quality as determined under the Government rules and regulations; shall not include any special premiums, development allowance or subsidies which may be provided to the mine or operations;

shall be the "base price" of the ore at Marysvale, Utah, without deducting for cost of transportation from the mine to Marysvale, but any treatment charges or deductions and also any transportation and freight charges from Marysvale, Utah, which are deducted in the settlement and payment for the uranium ore shall be deducted in determining the "base price" for the purpose of computing said royalties.

"Net mint, smelter or custom-mill returns" as used herein shall mean the gross values at Marysvale, Utah, as figured by the mint, smelter or custom-mill, less mint, smelter or custom-mill treatment charges or deductions and transportation and freight charges from Marysvale, Utah.

Any amount due and payable to Sellers as royalties on ore extracted and shipped and sold during any month hereunder or any installment due, shall be paid by the Buyer to the Sellers on or before the 5th day of the month next succeeding the month during which the Buyer shall have received payment therefor by the deposit thereof to the credit of the Sellers or assigns in the Bank of Richfield of Richfield, Utah, or such other bank as the Sellers may, from time to time, designate by written notice to the Buyer.

It is understood that in the event the royalty payments paid to the Sellers in accordance with the above table do not equal the aforesaid guaranteed installment payment, then the Buyer shall pay to the Sellers the difference between said royalty payments and the guaranteed installment payments in accordance with the terms above set out. It is the intention of the parties that the Buyer shall have credit on the installment payments

for all royalties paid pursuant to the foregoing table even though said amounts exceed the guaranteed minimum installment payments.

Upon payment of the consideration of $52,500.00 above expressed the Seller shall not thereafter be entitled to a royalty computed in accordance with the foregoing table, but shall thereafter receive only a royalty of 4% of the base price of the ore as the term "base price" is above defined.

VI.

TAXES

The Buyer shall pay all State and County tax assessments upon said mining property, except as hereinafter otherwise provided.

The Buyer shall pay all State and County tax assessments upon any and all structures and other improvements, machinery, equipment, tools, supplies and personal property whatsoever placed upon the said premises by the Buyer.

The Sellers shall pay all State and County "net proceeds" taxes assessed against Sellers on account of their receipt of royalties hereinafter provided to be paid to them by the Buyer.

The Buyer shall pay all State and County "net proceeds" taxes assessed against the Buyer, and other taxes assessed against the Buyer on account of its operation hereunder.

VII.

BUYERS' RIGHT OF SURRENDER

It is mutually understood and agreed that the Buyer may, at any time, surrender and terminate this agreement upon giving thirty (30) days notice in writing, paying to Sellers all royalties and other sums due and

payable to the Sellers to the effective date of such surrender, and complying with the terms of this agreement with respect to the preservation and protection of workings upon the said premises.

VIII.

FORFEITURE OR TERMINATION

This agreement is made upon the condition that the Buyer shall perform all of the covenants and agreements herein set forth to be performed by him, and if, at any time, Buyer shall fail for a period of thirty (30) days to make any monthly royalty payment due hereunder within thirty (30) days from the date when payable, or if there shall be any other default on the part of the Buyer due to other than acts of God, strikes, lockouts, storms, floods, a public enemy, or unusual casualty, or any other cause entirely beyond Buyer's control, and if, as to any other default, Buyer within 30 days after receipt of written notice given by Sellers specifying the character of the asserted default shall fail to commence to remedy such default or shall fail thereafter to diligently proceed to correct such default, then and in such event this agreement shall terminate and the premises shall revert to the Sellers and the Buyer shall deliver to the Sellers the said premises.

IX.

REMOVAL OF EQUIPMENT

It is mutually understood and agreed that in case of forfeiture, surrender or other termination of this agreement, all underground timbering supports, shaft linings and other fixtures necessary for the preservation of any mines, and all rails and head frames upon or in the said premises shall

be and remain a part of the realty and shall revert to the Sellers without further consideration or compensation. In case of such forfeiture, surrender or other termination of this agreement, the Sellers shall have the exclusive right and option for a period of 30 days after the effective date of such forfeiture, surrender or other termination of this agreement to purchase from Buyer for cash all, but not less than all, pumps, hoists, compressors, transformers and power equipment for the operation of the same upon or in the said premises at the fair appraised resale value thereof as of the effective date of such termination.

It is understood and agreed that all personal property of the Buyer located within said premises, and all buildings, machinery, equipment and tools (other than fixtures to become the property of the Sellers as above provided) shall, in case of forfeiture, surrender or other termination of this agreement, remain upon the premises and be held as a guarantee in lieu of bond until all terms of this agreement with respect to any payment of royalties and the preservation of the property shall have been complied with. Upon such compliance with and performance of such conditions and obligations the Buyer shall be entitled to, and may, within ninety (90) days after such termination of this agreement, or within such extension of time as may be granted by the Sellers, remove from the premises such personal property and improvements, other than those items which are to remain the property of the Sellers as above provided.

X.

MANNER OF GIVING NOTICE

Any notice contemplated herein to be served upon the Buyer shall be in writing and shall be sufficiently given if mail in the United States

Post Office, postage prepaid, and registered, addressed to Buyer at Kanab, Utah, or to such other address as the Buyer may from time to time designate in writing.

Any notice contemplated herein to be served upon the Sellers shall be in writing and shall be sufficiently given if mailed in the United States Post Office, postage prepaid, and registered, addressed to Sellers, care of John Paul Fullmer, Marysvale, Utah, or at such other address as Sellers may, from time to time, designate in writing.

Service of notice by mail shall be deemed effective and complete upon the date of posting and mailing in accordance herewith, if mailed within the State of Utah. It is understood and agreed that personal service of notice upon either party shall be deemed sufficient service of notice, and no mailing of notice in the case of personal service shall be necessary.

XI.

SELLERS' RIGHT TO INFORMATION

The Buyer agrees that the Sellers or their authorized agents shall have access to, and the right to copy any information from geological, metallurgical, drilling, sampling and other data relating to said premises secured by and in the possession of Buyer in connection with its prospecting and development of said premises.

In the event of the termination of this agreement for any reason whatsoever the Buyer agrees to furnish the Seller with copies of all drilling and sampling data, reports of metallurgical tests, a map accurately showing the development work performed by the Buyer upon the premises, and copies of any and all geological maps relating to said premises prepared by the Buyer.

It is expressly understood and agreed, however, that the Seller shall not be entitled to inspect or have access to any confidential reports made by members of Buyer's engineering staff, nor shall the Buyer be under any obligation to furnish the Seller with any such report or reports.

XII.

SELLERS' RIGHT OF INSPECTION

The Buyer shall allow the Sellers and their agents, from time to time, to enter upon and into all parts of said premises for purposes of inspection at such reasonable times as shall not interfere with the regular operation of the said premises. It is understood and agreed that the Buyer shall assume no responsibility for the safety of the Sellers or their agents when and while upon the said premises for such purposes; and further, the Sellers hereby agree to indemnify and hold harmless the Buyer for any damages which the Buyer may suffer as a result of any injury occurring to the Sellers or their agents when and while upon the premises for the above purpose.

XIII.

BOOKS AND RECORDS

The Sellers and their authorized agents shall, at any and all reasonable times, be permitted to inspect all books and records, including assay reports of the Buyer relating to the said premises in order to ascertain the correct amount of the royalties due Sellers or to determine whether or not the provisions of the agreement are being complied with.

XIV.

STATEMENTS TO BE FURNISHED

The Buyer shall, on or before the 15th day of each month hereof, furnish the Sellers with a written report showing as to the preceding month

the tonnage of ore extracted, shipped or sold, the actual royalties payable thereon, the total tonnage of ore extracted and the tonnage shipped or sold.

Buyer shall also furnish Sellers with duplicate copies of smelter, mint or other purchasing agencies' receipts and settlement charts for ore and products extracted and shipped or sold from the said premises.

XV.

ORES NOT TO BE CO-MINGLED

The Buyer shall not mix any ores from the said premises with the ores, minerals or products therefrom drived from any other property.

XVI.

STATE AND FEDERAL ENACTMENTS
INDEMNIFICATION OF SELLERS

The Buyer, in the operation and development of the said property shall be subject to all applicable Federal enactments and regulations, laws of the State of Utah, and all Federal or State rules and regulations regarding Employees Liability, Workman's Compensation and Workman's Old Age and Unemployment Insurance, and said Buyer covenants and agrees to indemnify and hold harmless the Sellers from and against the payment of any and all damages, claims, costs and expenses due to the existence of such enactments, and of any and all claims, costs and expenses in connection therewith under any claim of subrogation provided for by said enactments or otherwise; and the Buyer shall further indemnify and hold harmless the Sellers from and against any and all damages, claims, costs and expenses arising out of damage to property or any injury to or death of the employees

of the Buyer, or any other person whomsoever other than the Sellers and those acting under them where such injury, death or damage occurs because of or in connection with the use, operation or development in any manner, of the property hereby leased, whether such claims are based upon a right conferred by the common law or by statute.

IN WITNESS WHEREOF the parties hereto have set their hands and seals this 10th day of April, 1950.

(signed) John Paul Fullmer

(signed) Dean U. Leavitt

SELLERS

(signed) J. Mark Holmes

BUYER

EXHIBIT 8 EXHIBIT 8

PART 1

PRELIMINARY REPORT ON THE GENERAL GEOLOGY OF THE MARYSVALE REGION

INTRODUCTION

Although it was originally not a part of our purpose to report on the general geology of the Marysvale region the writers have decided to include such information as they believe might be of interest. Accordingly, we present herewith, the results of our observations, personal communications, and library research on the geology and uranium mineralization of the Marysvale Region.

GENERAL GEOLOGY

Extending from central Utah towards the southwest is a zone which marks the boundary between the Colorado Plateaus and the Great Basin. The Marysvale Region is located in this zone around 38° 30' north latitude and 112° 15' west longitude. The passage from the Colorado Plateaus to the Great Basin represents a change from relatively simple to very complex geology. Although the Marysvale Region has been placed in the Colorado Plateaus Physiographic Province it is characterized by features belonging to both the Great Basin and the Colorado Plateaus.

Early investigators of the transition zone between the Colorado Plateaus and the Great Basin considered the boundary to be marked by regional uplift and normal faults of large displacement. Later detailed studies by Spieker, Baker, Hardley, and others have shown that normal faulting and regional uplift are merely very recent events superimposed upon a complex scene of folding and thrust faulting which probably began in Jurassic time.

Marysvale and vicinity has been the site of extensive igneous activity. The date of initiation of this activity cannot be definitely stated except that it is post-carmel formation of lower Jurassic age. Formations ranging from Permian to Jurassic age may be seen overlaid by the Bullion Canyon volcanic series in a steep, mountainous face 3 to 4 miles southwest of Marysvale. Cretaceous conglomerates are present to the north and east of Marysvale where sediments are not covered by volcanic materials. We may conclude that the Marysvale Region was probably a positive highland during and since late Jurassic time.

It seems probable that much of the igneous activity around Marysvale and southern Utah in general is post-wasatch formation of Eocene age since large volumes of rhyolitic and basaltic lava and associated pyroclastics are known to overlie the Wasatch formation near Paragonah, Parowan and Panguitch, Utah.

PART 1

PRELIMINARY REPORT ON THE GENERAL GEOLOGY OF THE MARYSVALE REGION

GENERAL GEOLOGY (CONTINUED)

The general structure of the Marysvale area is that of a dome with flows and pyroclastics dipping radially away from the center. Superimposed on the domal structure is a series of normal faults of large displacement trending north to northeast. The two normal faults present that are of greatest importance are the Sevier and the Tushar faults. The Antelope Range, in which the principal uranium deposits are located, and the Sevier San Pitch valleys lie in a graben bounded on the east by the Sevier fault and on the west by the Tushar fault.

It is very probable and indeed almost essential that cross faults through the Sevier-San Pitch graben be present. They are suggested by the N 60°-55' E trend of the quartz monzonite intrusions. Linear fronts and other features on aerial photographs also suggest their presence. Cross faults which postdate the Mount Belknap rhyolite grey and red facies should be detectable by linear discontinuities in the flow structure of the rhyolite. (Note - the uranium mineralization at Marysvale is post-Mt. Belknap rhyolite.) Extreme care must be used in interpreting flow structures because the Mt. Belknap rhyolite was extruded upon an erosion surface of quartz monzonite and Bullion Canyon volcanics of considerable relief and because there is some evidence to the effect that further uplift or doming has occurred since the extrusion of the Mt. Belknap rhyolite. A knowledge of the detailed structure at Marysvale should be most useful insofar as a structural control of uranium mineralization there is concerned.

There are two prominent regional joint systems present in the Marysvale Region plus a third minor system that is related to weathering. The first two joint systems are practically continuous through all the various types of igneous rocks present. One system strikes essentially north-south with dips that are near vertical. The other system strikes N 80°-85' E. and dips 70° NW to 70° SE, but generally near vertical. The third system is sheet jointing related to the present erosion surface and is present only in the quartz monzonite intrusions.

The geologic history of the Marysvale Region may be summed up briefly as follows subject to modification by further study: After the deposition of the lower Jurassic carmel limestone and shale in a continental arm of the Sundance Sea, the Marysvale Region was uplifted and eroded.

PART 1

PRELIMINARY REPORT ON THE GENERAL GEOLOGY OF THE MARYSVALE REGION

GENERAL GEOLOGY (CONTINUED)

It is possible that Cretaceous formations were deposited before uplift, but if so no trace of their presence has been found. Volcanic upheaval and extrusion of the Bullion Canyon Volcanic series occurred most probably during Eocene time. The volcanic extrusive episode was essentially contemporaneous or closely followed by the intrusion of quartz monzonite stocks, dikes, and plugs. A considerable erosion interval followed which produced a surface of mountainous relief and exposed the quartz monzonite intrusions. Upon the erosion surface of quartz, monzonite and Bullion Canyon Volcanics the middle Tertiary Mount Belknap rhyolite primary uranium mineralization accompanied by fluorite, quartz, and pyrolusite occurred. Thin basalt flows and basaltic breccia were extruded locally upon an erosion surface developed on Bullion Canyon volcanics, Mt. Belknap rhyolite, quartz monzonite, and upon the Sevier River formation, a continental deposit developed from whatever rocks it happens to lie upon. Finally regional uplift and faulting followed by erosion and Pleistocene glaciation in the high mountains produced the present topography. Regional uplift and faulting are post-Sevier River formation in age which has been previously determined to be of late Pliocene or early Pleistocene age. The mineralization period mentioned above cannot be dated more closely than post-Mt. Belknap rhyolite to Recent time on the basis of our studies to date.

PETROGRAPHY AND PETROLOGY

The igneous rocks of the Marysvale Region may be divided into three main divisions. These are: 1. A series of latite and andesitic flows, breccias, water laid and crystal tuffs aggregating over 5,000 feet in thickness and their quartz monzonite intrusive equivalents termed the Bullion Canyon Volcanics by Callaghan. 2. Rhyolite tuffs, flows, and breccias over 5,000 feet in thickness known as the Mt. Belknap rhyolite. 3. Thin olivine basalt flows extruded locally and associated with the Sevier River formation.

The microscopic petrography of the main types of rocks at Marysvale has been described by Callaghan. (Transactions of the American Geophysical Union, 1939, P. 439-452.) This paper also affords chemical analyses, norms and modes of the principal rock types around Marysvale.

PART 1

PRELIMINARY REPORT ON THE GENERAL GEOLOGY OF THE MARYSVALE REGION

PETROGRAPHY AND PETROLOGY (CONTINUED)

Recent work by the writers and others has shown that there are granitic and porphyritic monzonite facies or intrusions within the main quartz monzonite intrusive that may bear significant relationship to the deposition of uranium at Marysvale. The significant point at present about the granitic facies is that they show a radioactive radiation intensity about twice that of quartz monzonite. Whether or not this increased radioactivity is due to small amounts or uranium or thorium is, as yet, unknown. Much ill-advised exploration has been the result of the failure of others to recognize that granitic dikes and facies do not represent the outcroppings of uranium lodes or orebodies.

According to Callaghan in the paper cited above the rocks of the Marysvale Region are part of a petrographic subprovince comprising most of Utah and Eastern Nevada. The igneous rocks of this area are characterized by saturation with silica in the norm and nearly always in the mode, and by the high proportion of alkalies (Na_2O plus K_2O) and their essential equivalence whether or not the rock is a rhyolite, quartz monzonite, latite, or basalt. The boundaries and relationship of this subprovince to other petrographic subprovinces in western United States are, as yet, unknown.

URANIUM MINERALIZATION

Up to the present date the minerals bearing uranium that are found at Marysvale are autunite, torbernite, uranophane, and a black uranium oxide containing mineral that is questionably pitch-blende. The first three minerals are present as films, pulverulent masses, coatings, and disseminations on joint surfaces and other openings in altered quartz monzonite and brecciated pyroclastics of the Mt. Belknap rhyolite at the Bullion Monarch Mine. The foregoing minerals also are present within a well defined vein in the incline of the Vanadium Corporation of America on the Prospector claim group, together with a black mineral that is reportedly pitchblende. This black mineral is amorphous to x-rays until it has been heated to 300°C. after which it shows faint x-ray diffraction lines identical with those of pitchblende or uraninite from other localities according to a personal communication from S. Sirindra of the University of Utah.

PART 1

PRELIMINARY REPORT ON THE GENERAL GEOLOGY OF THE MARYSVALE REGION

URANIUM MINERALIZATION (CONTINUED)

Pitchblende at VCA incline shaft does not appear until a depth of 60 feet is reached. Near that depth, autunite, torbernite and uranophane diminish notably in quantity until they are essentially absent at a depth of 100 feet. Leaching of apatite, present in amounts as much as 1% in quartz monzonite, by ground waters appears to provide the necessary phosphate ion for the formation of autunite and torbernite. We may conclude that autunite, torbernite and uranophane are secondary or supergene minerals at Marysvale resulting from the leaching action of surface waters upon hypogene uranates or oxides of uranium and subsequent precipitation by phosphate or silicate ion in alkaline solution.

Uranium is very mobile in acid sulphate waters and pyrite has been noted at a depth of 80 feet in VCA incline shaft. Above that point original pyrite is now thoroughly changed to limonite. It seems very probable that slightly acid sulphate waters are responsible for the solution of primary uranium minerals at Marysvale. So long as the solutions remained acid uranium remained soluble but as soon as the ph was raised to 7 or greater by dilution or reaction with rock minerals uranium must precipitate with whatever ions are available, e.g. calcium, phosphate, silicate, arsenate, etc.

Autunite, torbernite, and uranophane have been observed by the writers at other localities within a 3 mile radius of the Bullion Monarch and VCA properties but in concentrations that are insufficient for mining.

It is noteworthy that a dark purple fluorite is universally present wherever uranium has been found at Marysvale. Colorless or green fluorite may be changed to a purple color by irradiation with x-rays or gamma rays from radium. It is thus very probable or almost mandatory that radioactivity is responsible for the purple color of fluorite present in nature. The exact mechanism causing this change is not yet clear but evidence is accumulating to the effect that electromagnetic radiations order equivalent to x-rays or gamma rays produce rearrangements in the atomic positions of atoms within minerals which result in color, optical, and structural changes. This effect is believed to be responsible for the color observed in purple fluorite, smoky quartz, and salmon or rose-colored orthoclase. One must use caution in interpreting the above color changes because any radioactive material will produce the change given sufficient time and concentration of radioactive substance.

PART 1

PRELIMINARY REPORT ON THE GENERAL GEOLOGY OF THE MARYSVALE REGION

URANIUM MINERALIZATION (CONTINUED)

Uranium, radium, thorium, or potassium K 40, etc., may produce the change either singly or in combination subject of course to the variables of time and concentration.

In the Marysvale area it is obvious that particular attention should be devoted to those places where purple fluorite and smoky quartz are present.

Insofar as a structural control of the uranium mineralization at Marysvale is concerned the writers have observed that vein mineralization is persistently related to a N 60°-35' E system of fractures that may be due to sympathetic cross faulting and jointing associated with the Sevier and Tushar normal faults. However, it must be added that it is not known whether uranium mineralization at Marysvale precedes or antedates the normal faulting of the district. Additionally the ore at the Bullion Monarch Mine lies under and partly within the Mount Belknap rhyolite-quartz monzonite erosional contact. It appears that the rhyolite acted as an impervious horizon or blanket for uranium minerals to precipitate against.

PART II

PRELIMINARY GEOLOGICAL AND RADIATION SURVEY OF BENNY "K" CLAIMS NUMBERS 1 & 3

INTRODUCTION

Benny "K" claims Nos. 1 & 3 are located in the SW 1/4 Sec. 25, R 4 W, T 26 S, SLB&M, Piute Co., Utah. One day's field work on August 11, 1950, was spent in examining the property with the purpose of locating gamma ray radiation anomalies and correlating them with geological features so that exploration and development might be intelligently prosecuted.

A geological and radiation sketch map was prepared from field observations plotted on an aerial photographic base. Due to distortion inherent in aerial photographs the scale of the sketch map is approximate only.

SUMMARY OF THE GEOLOGY OF BENNY "K" CLAIMS NUMBERS 1 & 3

Benny "K" claims Nos. 1 & 3 are located in the area of Tertiary intrusive rocks. The northern and eastern portion of the two claims is composed of Tertiary granite (Tg) that intrudes Tertiary quartz monzonite (Tqm). The contact between the two rocks is shown by a dotted black line on the sketch map.

The Tertiary granite is a fine grained, holocrystalline intrusive rock composed of quartz, orthoclase and plagioclase feldspar, small amounts of biotite and chlorite and accessory amounts of apatite. The rock weathers to shades of yellow, brown and brick red depending on the amount of hydrothermal alteration the rock has undergone. Generally lighter shades indicate the most intense alteration.

Tertiary quartz monzonite is a coarsely holocrystalline intrusive rock of somewhat greater age than Tg. The contacts are sometimes sharp but often gradational so that Tqm may have been in a semi-plastic condition at the time Tg was intruded. Tqm is composed of approximately equal amounts of orthoclase and acid oligoclase feldspar. Quartz is present in amounts around 5% and apatite is present as an accessory mineral. Tqm is frequently altered and weathered along definite zones, veins and/or fault fissures. Alteration produces yellow and white colors and a pseudo-porphyritic texture through selective alteration of feldspar phenocrysts.

FAULTING

Two prominent faults are shown on the sketch map. They strike N-S and E-W and dip essentially vertically. The E-W fault is younger than the

PART 11

PRELIMINARY GEOLOGICAL AND RADIATION SURVEY OF BENNY "K" CLAIMS

NUMBERS 1 & 3

FAULTING (CONTINUED)

N-S fault as shown by the fact that two different alteration types are present on the north and south sides of the E-W fault and by the fact that the trace of the N-W fault is cut off at its juncture with the E-W fault. Unfortunately it was not possible to determine the amount of horizontal displacement present on the E-W fault.

A fault is probably present at the site of the incline shaft now being sunk in Tqm, although it is not shown on the sketch map. A gouge-like clay vein and some fracturing and brecciation suggest an E-W striking fault that dips about 35°-40' north.

ALTERATION

Hydrothermal alteration is widely prevalent on Benny "K" claims Nos. 1 & 3. In all cases alteration is most intensive and extensive in and near fault zones.

The plagioclase feldspars are the first minerals to be attacked and altered to sericite and clay minerals of the montmerillonite-beidellite group. This alteration phase was probably accompanied or followed closely by the deposition of pyrite and quartz.

Frequently biotite and hornblende are altered to chlorite. This alteration is much more widespread than the clay mineral type and may be a deuteric or end stage magmatic process rather than a hydrothermal one.

Weathering has oxidised pyrite to limonite with the production of free sulphuric acid which may have intensified the previous hydrothermal alteration effects. Sulphuric acid solutions would undoubtedly leach out any primary uranium mineralization originally present and carry it downwards to be redeposited as secondary uranium minerals as the acid solutions became neutralized by reaction with rock minerals.

MINERALIZATION AND RADIATION ANOMALIES

Quartz and pyrite, now weathered to limonite, is the principal type of mineralization observed. This mineralization is always intimately associated with hydrothermal zones. Some uranium mineralization was originally present as shown by the radiation anomalies on the sketch map. The

PART 11

PRELIMINARY GEOLOGICAL AND RADIATION SURVEY OF BENNY "K" CLAIMS

NUMBERS 1 & 3

MINERALIZATION AND RADIATION ANOMALIES (CONTINUED)

Background count/ second for Tqm is approximately 80. Radiation anomalies in Tqm from 2 to 3 1/2 times background were observed and noted on the sketch map but no primary or secondary uranium minerals were observed in association with these anomalies or elsewhere.

The background count/second for Tg is approximately 180, nearly twice that for Tqm. No anomalies above background were observed in Tg; further, Tg is not a suitable host rock for uranium ores. It is probable that the increased background count for Tg is due to small amounts of ThO_2 (thorium oxide) originally present in the magma that was intruded and solidified to become Tg. It is unfortunate that much misguided exploration has taken place on outcrops of Tg due to its high background count which was erroneously thought to indicate the outcrop of uranium ore deposits.

CONCLUSIONS AND RECOMMENDATIONS

1. Exploration and development should be confined to veins and fault zones with alteration effects and radiation counts significantly above background for the rock they are located in.

2. It will probably be necessary to attain considerable depth (150 to 300 feet) before one can expect to encounter primary uranium mineralization on the Benny "K" claims Nos. 1 & 3 due to the combined effects of acid leaching and lack of an impervious cover to restrict the movement of leaching solutions. However, secondary uranium minerals should be encountered in veins and zones at a horizon well above primary uranium mineralization. Further, the radiation count should steadily increase as downward development proceeds on a zone or vein that may be expected to bear ore at depth.

3. The 30° incline shaft now being sunk on the property is adequately situated to advantageously explore the possibilities indicated by the radiation anomalies on the sketch map. Your development should be continued with the object of intersecting the N-S fault zone. Just where your incline will intersect this fault cannot be stated since the N-S fault has suffered an unknown amount of horizontal displacement to the east or west by the E-W fault. You should continue sinking your incline on the fault or vein zone present at the incline collar.

PART 11

PRELIMINARY GEOLOGICAL AND RADIATION SURVEY OF BENNY "K" CLAIMS

NUMBERS 1 & 3

CONCLUSIONS AND RECOMMENDATIONS (CONTINUED)

4. No primary or secondary uranium minerals were observed on the property during our examination.

5. Do not conduct exploration in Tg unless a definite vein or zone with a radiation count 2 times background or higher can be located.

August 24, 1950

THE GEO-MINERALS CO.

By - Allen O. Taylor, Geologist

David C. Arnold, Geologist

1 copy each of 4 maps

OFFICIAL BUSINESS

Region V
~~2000 Colfax Avenue South~~
~~Minneapolis 8, Minnesota~~

MINNEAPOLIS
DEC 5
1954
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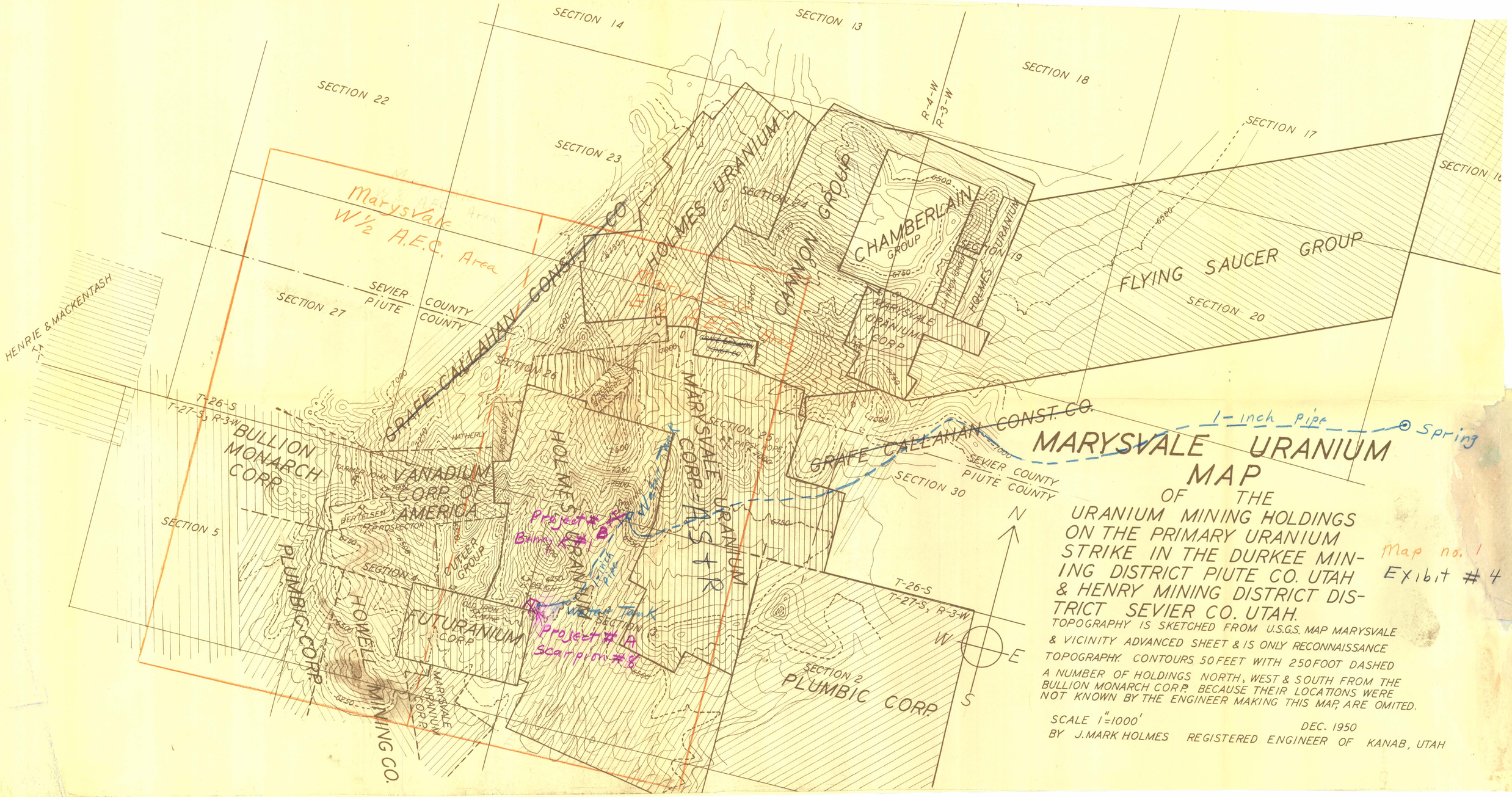
952

Operation Committee
Defense Minerals Exploration Administration
Interior Building
Washington 25, D. C.

~~FIRST CLASS MAIL~~


SECTION 14
SECTION 13
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SECTION 16
SECTION 19
SECTION 20
SECTION 27
SECTION 26
SECTION 25
SECTION 30
SECTION 5
SECTION 4
SECTION 2
R-4-W
R-3-W
T-26-S
T-27-S, R-3-W
Marysvale
W½ A.E.C. Area
SEVIER COUNTY
PIUTE COUNTY
HENRIE & MACKENTASH
GRAFE CALLAHAN CONST. CO.
HOLMES URANIUM
CANYON GROUP
CHAMBERLAIN GROUP
MARYSVALE URANIUM CORP.
FLYING SAUCER GROUP
BULLION MONARCH CORP.
VANADIUM CORP. OF AMERICA
HOLMES URANIUM
MARYSVALE CORP. URANIUM
PLUMBIC CORP.
HOWELL MINING CO.
UTURANIUM CORP.
OUTLER GROUP
HATHERLY
BERTELSEN
PROSPECTOR
Project # 2
Barry # 1
Project # 1
Scarpion # 8
Water Tank
1-inch pipe
Spring
N
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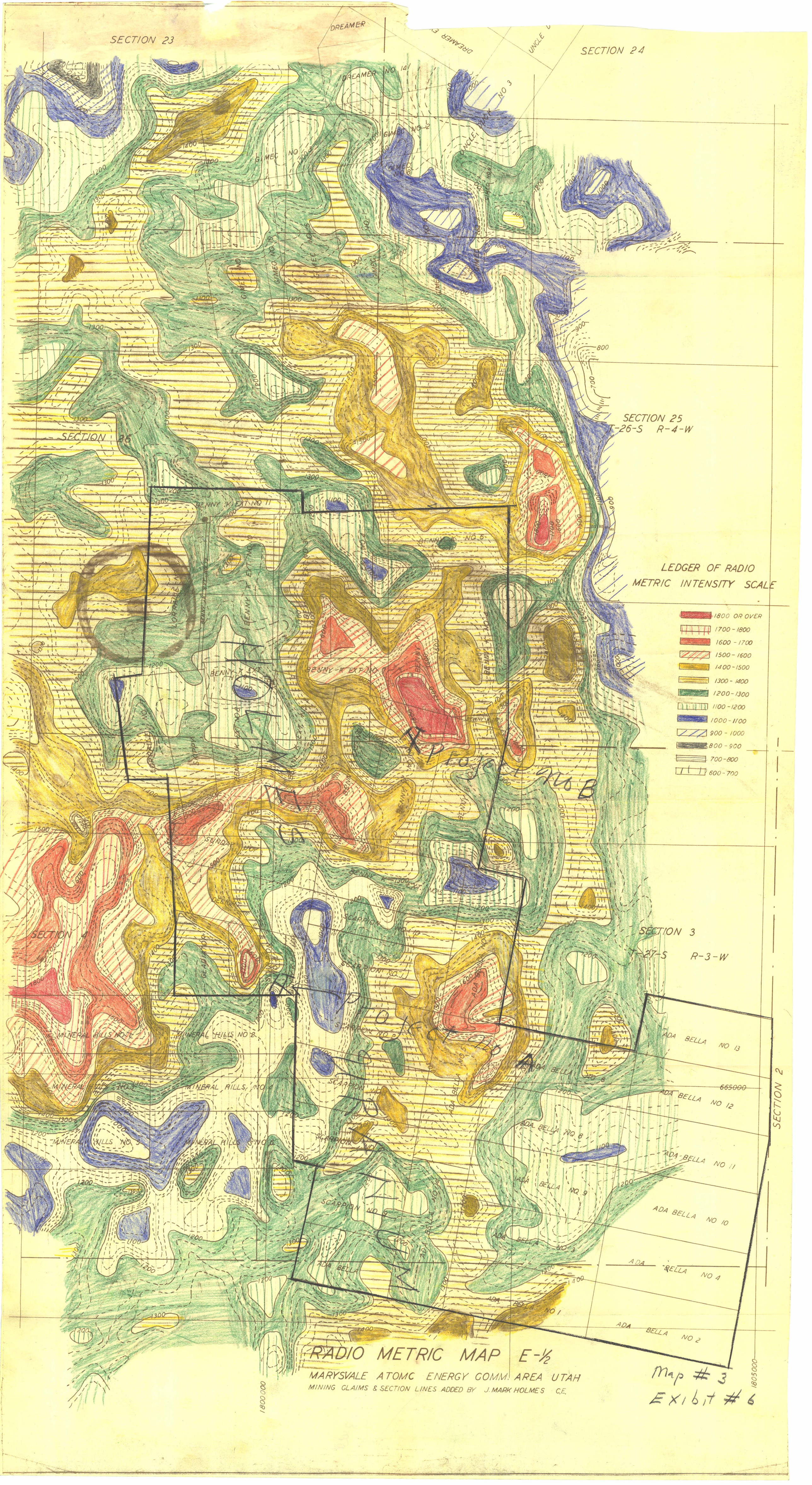
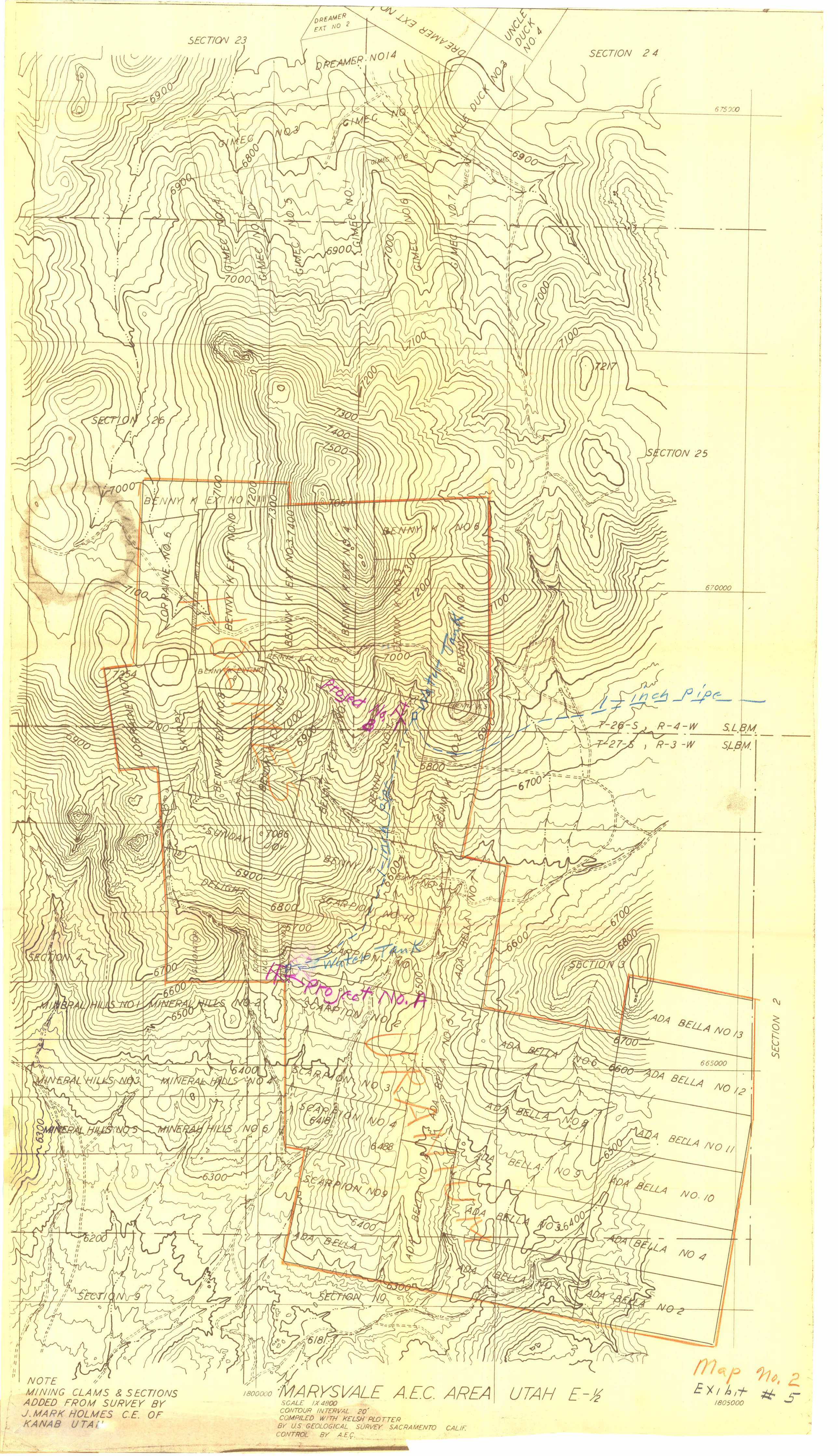
W
MARYSVALE URANIUM MAP
OF THE
URANIUM MINING HOLDINGS ON THE PRIMARY URANIUM STRIKE IN THE DURKEE MINING DISTRICT PIUTE CO. UTAH & HENRY MINING DISTRICT DISTRICT SEVIER CO. UTAH.
TOPOGRAPHY IS SKETCHED FROM U.S.G.S. MAP MARYSVALE & VICINITY ADVANCED SHEET & IS ONLY RECONNAISSANCE TOPOGRAPHY. CONTOURS 50 FEET WITH 250 FOOT DASHED
A NUMBER OF HOLDINGS NORTH, WEST & SOUTH FROM THE BULLION MONARCH CORP. BECAUSE THEIR LOCATIONS WERE NOT KNOWN BY THE ENGINEER MAKING THIS MAP, ARE OMITED.
SCALE 1"=1000'
DEC. 1950
BY J. MARK HOLMES REGISTERED ENGINEER OF KANAB, UTAH
Map no. 1
Exibit # 4


SECTION 23
SECTION 24
SECTION 25
T-26-S R-4-W
SECTION 26
SECTION 4
SECTION 3
T-27-S R-3-W
SECTION 2
DREAMER
DREAMER NO 14
DREAMER NO 3
UNCLE DICK
GIMEC NO 2
GIMEC NO 8
GIMEC NO 5
GIMEC NO 1
BENNY K EXT NO 11
BENNY K NO 6
BENNY K EXT NO 10
BENNY K EXT NO 9
BENNY K EXT NO 15
BENNY K EXT NO 14
SUNDAY
SCARPION NO 10
SCARPION NO 1
SCARPION NO 2
SCARPION NO 9
MINERAL HILLS NO 1
MINERAL HILLS NO 2
MINERAL HILLS NO 3
MINERAL HILLS NO 4
MINERAL HILLS NO 5
MINERAL HILLS NO 6
ADA BELLA NO 13
ADA BELLA NO 6
ADA BELLA NO 12
ADA BELLA NO 8
ADA BELLA NO 11
ADA BELLA NO 9
ADA BELLA NO 10
ADA BELLA NO 3
ADA BELLA NO 4
ADA BELLA NO 1
ADA BELLA NO 2
665000
1800000
1805000
LEDGER OF RADIO
METRIC INTENSITY SCALE
1800 OR OVER
1700 - 1800
1600 - 1700
1500 - 1600
1400 - 1500
1300 - 1400
1200 - 1300
1100 - 1200
1000 - 1100
900 - 1000
800 - 900
700 - 800
600 - 700
RADIO METRIC MAP E-½
MARYSVALE ATOMC ENERGY COMM. AREA UTAH
MINING CLAIMS & SECTION LINES ADDED BY J. MARK HOLMES C.E.
Map # 3
Exibit # 6

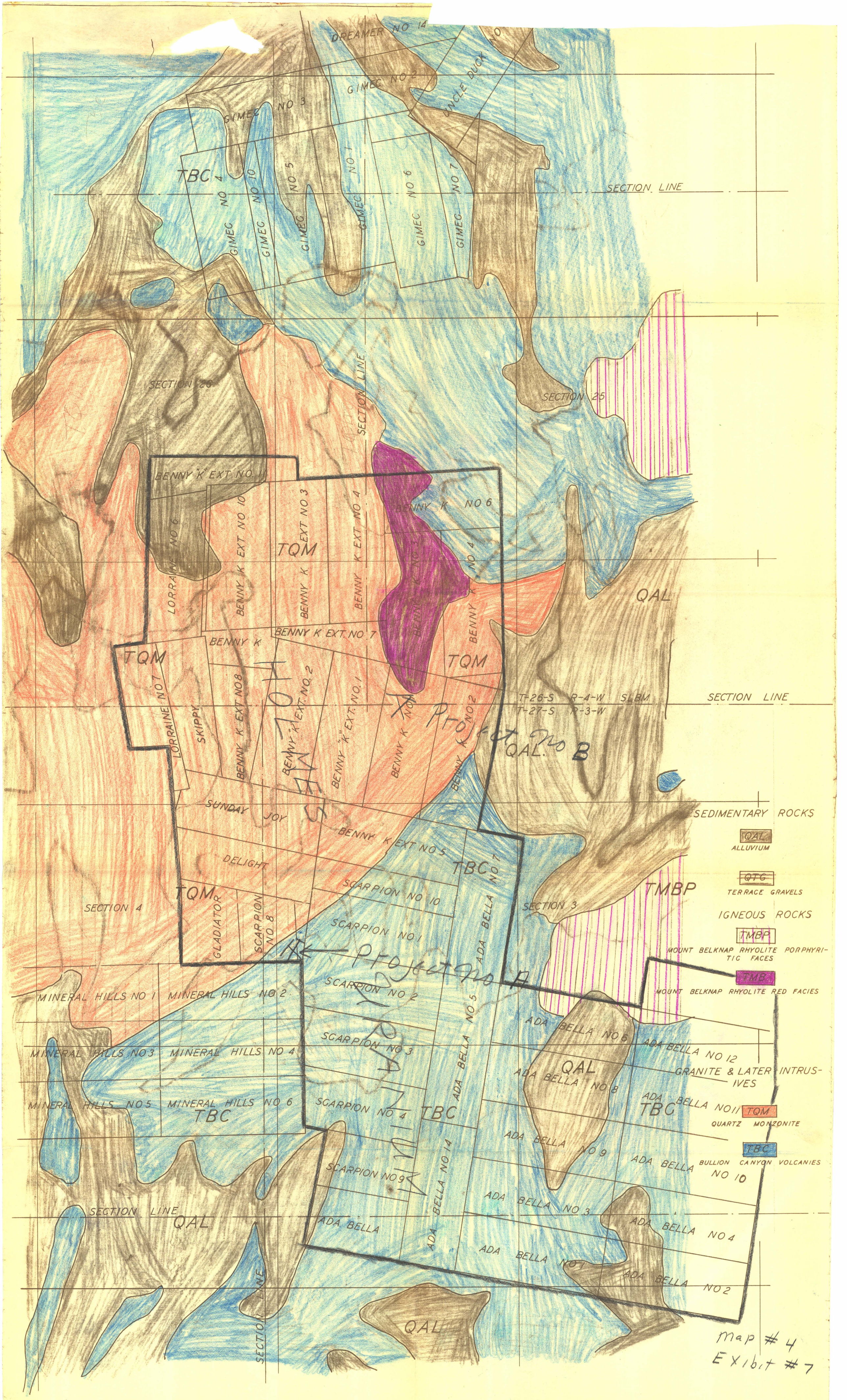


NOTE
MINING CLAMS & SECTIONS
ADDED FROM SURVEY BY
J. MARK HOLMES C.E. OF
KANAB UTAH

MARYSVALE A.E.C. AREA UTAH E-½

SCALE 1X4800
CONTOUR INTERVAL 20'
COMPILED WITH KELSH PLOTTER
BY U.S. GEOLOGICAL SURVEY SACRAMENTO CALIF.
CONTROL BY A.E.C.

Map No. 2
Exhibit # 5



Map # 4
Exibit # 7