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DMA Form 1

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

JUL 1 4 1952

Mr. J. Mark Holmes, President
Holmes Uranium Corp.
1010 Boston Building
Salt Lake City 1, Utah

Re: Docket DMA-1968 (Uranium)
Maryvale, Utah

Dear Mr. Holmes:

Your application for aid in an exploration project docketed as per the above captioned number has been thoroughly reviewed by this Agency.

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

A careful study of your proposal with an examination of the property by our engineers and diamond drilling by the Atomic Energy Commission reveals that the probability of disclosing mineable reserves is not considered sufficiently promising to justify Government participation.

We regret that under these circumstances your application for exploration aid to the extent of 90% of $143,695.50 must be denied.

If future work at your property reveals evidence which could materially alter this opinion, please be assured we will be glad to consider a new application.

Sincerely yours,

cc
7-14-52

(signed) FRANK E. JOHNSON (for)

Acting Administrator

APPROVED:

Member, Bureau of Mines

Member, Geological Survey

FSSchmidt/jem
7/2/52
cc to: Adm. Reading File
Docket
Messrs. A.J.Kauffman-1347
A.P.Butler-3206 GSA
Ellis Schmidt
Opr. Committee Field Team, Reg. IV (2)

7/9/52 gla

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

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

DATE: July 7, 1952

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

SUBJECT: DMEA Docket 1968 (Uranium), Final Field Team Report, Holmes Uranium Corp., applicant, Benny K, and Scorpion No. 8 claims, Piute County, Utah

I concur with the recommendation of the Field Team examining staff as set forth in the report identified in the subject above that exploration assistance be denied for the proposals as set forth in the report.

Arthur P. Butler, Jr.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 8 - 1952

IN REPLY REFER TO:

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

July 7, 1952

Ernest Wm. Ellis, DMEA Member, Uranium
Commodity Committee
A. P. Butler, Jr., USGS Member, Uranium
Commodity Committee
DMEA Docket 1968 (Uranium), Final Field Team Report,
Holmes Uranium Corp., applicant, Benny K, and
Scorpion No. 8 claims, Piute County, Utah

I concur with the recommendation of the Field Team examining staff as set forth in the report identified in the subject above that exploration assistance be denied for the proposals as set forth in the report.

Arthur P. Butler, Jr.

Copy to: E. Wm. Ellis

6/30/52 gla

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

224 New Customhouse
Denver 2, Colorado

June 16, 1952

Memorandum

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

From: Field Team, Region IV

Subject: Final Report, DMA Docket 1968 (Uranium) Holmes Uranium Corporation, Piute County, Utah

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

The field examiners recommended the denial of the applicants projects 2 and 3 because they were not believed to be geologically sound. The field examiners agreed to hold in abeyance their recommendation on the applicants project 1, pending completion of the A. E. C. drilling on what they considered to be the most promising structure.

Data on the A. E. C. drilling which is now available and shows negative results make the applicants project 1 unwarranted.

We concur with the examining engineers in recommending the denial of the complete application.

W. H. King
W. H. King

A. H. Koschmann
A. H. Koschmann

JUN 23 1952

Mining Division
Region IV

June 16, 1952

Memorandum

To: Field Team, Region IV

From: Acting Chief, Mining Division, Region IV

Subject: Final Report, DMA Docket 1968, (Uranium) Holmes Uranium Corp., Piute County, Utah

Enclosed are eleven copies of the final engineering report on DMA-1968 by R. L. Middleton.

The Geological Survey forwarded their report on this property on January 2, with the recommendation that one part of the project be approved if the drilling then in progress by the A. E. C. encountered ore of commercial grade.

The Bureau of Mines final report, which includes the Summary, Conclusions and Recommendations of all the field examiners, was prepared after the additional data was made available upon completion of the A. E. C. drilling project.

The field examiners recommend denial of the application due to the negative results of the A. E. C. drilling on the applicants most promising structure.

We concur in this recommendation.

W. H. King

W. H. King

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 23 1952

Reviewed by
DMEA OPERATING COMMITTEE
6-27-52
(date)

Mining Division
Date Rec'd.

JUN 13 1952

BUREAU OF MINES
Denver, Colorado

June 11, 1952

Memorandum

To: W. H. King, Acting Chief, Mining Division, Region IV

From: Chief, Utah-Wyoming Branch, Mining Division

Subject: DMA-1968, Holmes Uranium Corp., Piute County, Utah.

Enclosed are the original and 10 copies of the subject engineering report prepared by R. L. Middleton. A section on Summary, Conclusions and Recommendations is also enclosed. The geologic report was transmitted by the Survey December 27, 1951.

The AEC drilled two diamond drill holes on the Benny K No. 1 claim, the claim involved in the applicant's proposals 1 and 2. Logs of the holes were made available to the DMEA examining team, after completion of the work in April 1952. The holes were drilled to explore the most promising structure, but no significant uranium mineralization was found. The negative results obtained from the drilling make the applicant's proposed project 1 unwarranted. Projects 2 and 3 lack significant geologic structures.

The original brochure and related information are attached.

Stephen R. Wilson

Stephen R. Wilson

Enclosure

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

200 New Customhouse
Denver 2, Colorado

January 2, 1952

Memorandum

To: DMA Field Team, Region IV

From: A. H. Koschmann

Subject: DMA Docket 1968, Holmes Uranium Corporation, Kanab, Utah

Enclosed are 10 copies of the geologic report by R. W. Osterstock and J. William Hasler of the U. S. Geological Survey covering the above docket.

It has been recommended that two of the projects be denied, and that the other be approved if the diamond drilling encounters ore of commercial grade.

The brochure will accompany the U. S. Bureau of Mines' report.

A. H. Koschmann
A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (10)

Room 307, 320 South Main
Salt Lake City 1, Utah
December 27, 1951

Memorandum

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

From: Ralph J. Roberts

Subject: Docket DMA 1968, Holmes Uranium Corporation, Kanab, Utah.

Enclosed are ten copies of subject report and illustrations prepared by Robert Osterstock at the conclusion of the field examination made at the request of the Field Team, Region IV.

The Holmes Uranium Corporation has applied for a loan of $143,695.50 to be used for three exploration projects in the Marysvale Uranium district, Utah. Two of these projects are not geologically sound and it is recommended that they be denied. The Atomic Energy Commission plans to drill the structures that the applicant proposes to explore in the other project. It is recommended this project be approved if the diamond drilling encounters ore of commercial grade. The brochure will accompany the U. S. Bureau of Mines engineers report. Please hold the geologic report until the U. S. Bureau of Mines report arrives in Denver.

I concur with the recommendation of the examining geologist.

UNITED STATES
DEPARTMENT OF THE INTERIOR
OSCAR L. CHAPMAN, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

Docket DMA 1968, Holmes Uranium Corporation

Kanab, Utah

R. W. Osterstock and J. William Hasler, Geologists
U. S. Geological Survey

December 26, 1951

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

By J. W. Hasler,
R. W. Osterstock, and
R. L. Middleton

The Holmes Uranium Corp., with property in the Durkee mining district, Piute County, Utah, has made application for an exploratory loan under DMA docket 1968. An examination of the property was made by the Geological Survey and Bureau of Mines during November 1951. The AEC drilled two diamond drill holes on the property subsequent to the examination. Completion of reports has awaited results of the drilling.

The Holmes property lies in an area largely underlain by volcanic rocks which have been intruded by quartz monzonite and granite. Principal uranium production in the general area has been derived from mineralization in northeast-striking faults. On the Holmes property three faults, two trending east and one to the north, do not appear to be related to the productive faults in the area.

The applicant has asked approval of a loan of $138,732.50 to conduct exploration on three projects. Project 1 consists of continuation of an inclined shaft on the Benny K No. 1 claim. The AEC diamond drilling on this claim has disclosed little promise of significant uranium mineralization.

Project 2 proposes sinking a 600-foot shaft and driving 1,200 feet of drifts on the 200-and 600-foot shafts. No north-south fissuring is present in the vicinity of the proposed work.

Work proposed under project 3 consists of sinking a shaft on a radiometric high. No uranium mineralization is present at the surface and no evidence of fissuring discernible.

It is recommended that loan denial be made on all three proposed projects.

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Proposed Exploration	3
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ILLUSTRATIONS

Figure 1. Index map of Utah.

DMA Docket 1968, Holmes Uranium Corporation

Kanab, Utah

INTRODUCTION

The Holmes Uranium Corporation, Kanab, Utah, DMA Docket 1896, has applied to the Defense Minerals Administration for a loan of $143,695.50 to be used for three exploration projects in the Marysvale, uranium district. (Figure 1).

GEOLOGY

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

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. An incline being driven to the west to intersect the southern extension of the north striking fault follows another vertical east-striking fault of small displacement.

ORE DEPOSITS

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.

On the Holmes property only one claim involved in this application, the Benny K No. 1, is known to have undergone uranium mineralization. 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 mineable ore at the surface on the Benny K No. 1 claim.

A zone of high radioactivity is reported on the Scarpion 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.

PROPOSED EXPLORATION

Project No. 1 on the Benny K No. 1 claim, as proposed by the Holmes Uranium Corporation, is to continue the inclined shaft 75 feet to intersect the north-striking fault on the south side of the small east-striking cross fault, and drift 75 feet to their intersection. This appears to be a sound program inasmuch as the north-striking fault can be explored at a reasonable depth, and its intersection with the small east-striking fault may be a locus for mineralization that is not visible at the surface. The Atomic Energy Commission plans to drill two holes on the Benny K No. 1 claim. One hole will be directed to intercept the northern extension of the north-striking fault, the other hole is planned to cut the intersection of the north-striking fault and the east-striking fault at depth. If either of the two holes shows ore of commercial grade, it is recommended that Project No. 1 be approved. On a 90:10 matching-fund basis, the government's share would be $3,816.00.

Project No. 2, also on the Benny K No. 1 claim, consists of a 600-foot 3 compartment shaft about 1200 feet south of the inclined shaft of Project No. 1. This 600-foot shaft is to be sunk on the southern extension of the north-striking fault which at present is not known to contain mineable bodies of ore. This project is not geologically sound, and it is recommended that it be denied.

Project No. 3, on the Scarpion No. 8 claim, consists of a 200-foot shaft which is to be sunk in ground reported to have relatively high radiometric anomalies. As there is no surface indication of a fault or fissure which might afford a locus of deposition, nor have any secondary ore minerals been seen at the surface, it is recommended that this project be denied.

SUMMARY AND CONCLUSIONS

Nearly all of the uranium deposits studied thus far in the Marysvale district have been in northeast-striking faults or fissures in Tertiary igneous rocks of which the quartz monzonite intrusions have been found to be the most favorable hosts.

A well developed north-striking fault in quartz monzonite on the Benny K No. 1 claim has been slightly offset by an east-striking cross fault; neither of these faults appear to be related to the productive northeast-striking faults noted elsewhere in the district. A picked sample taken by the Atomic Energy Commission at the surface from the northern extension of the north-striking fault assayed only 0.06 percent U_3O_8 indicating that no material commercial grade has been found at the surface.

The Scarpion No. 8 claim is reported to have relatively high radiometric anomalies, but no surface indication of a controlling structure such as a fault or a fissure was noted, nor are any uranium minerals visible on this claim.

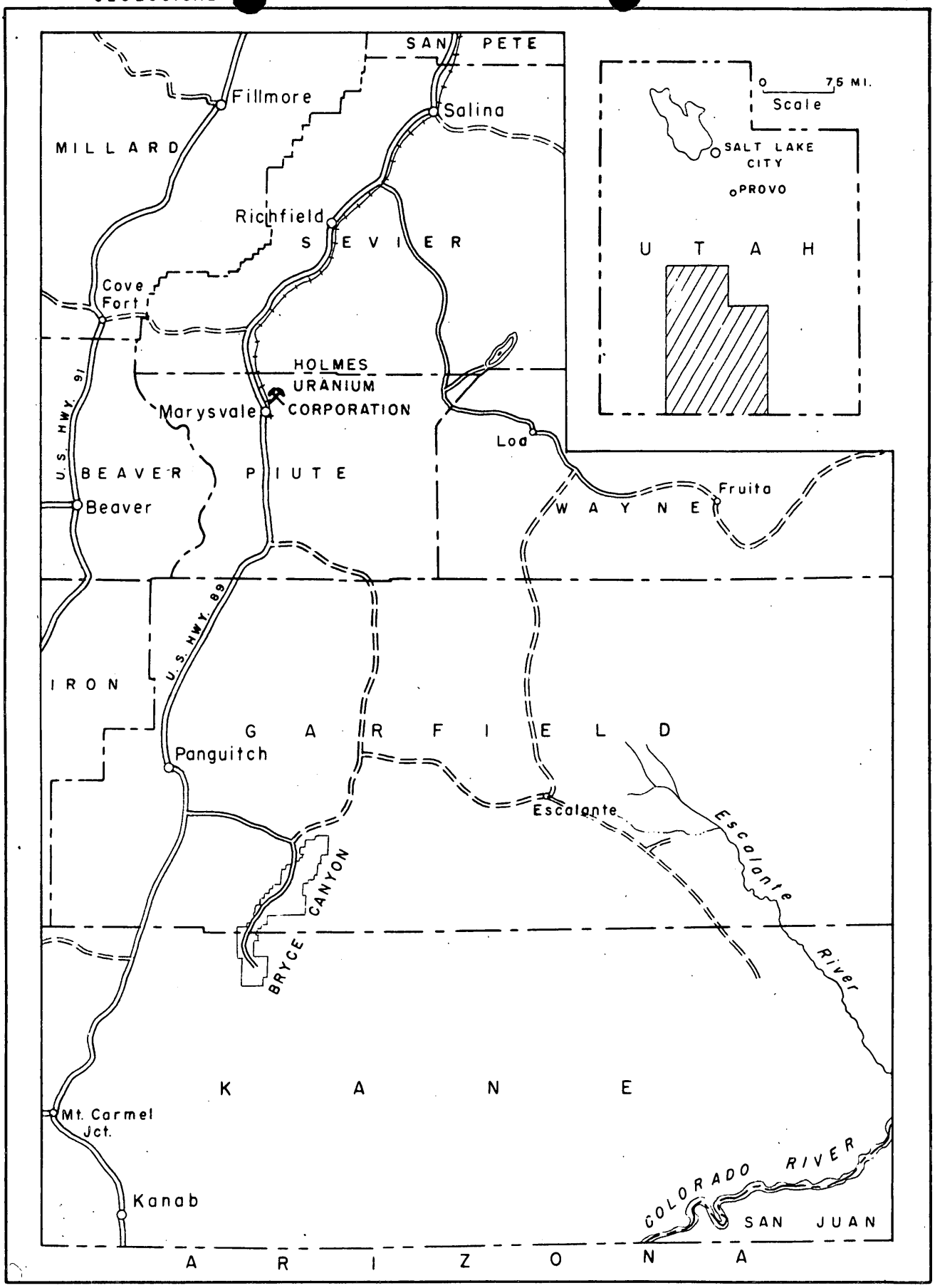

FIG. 1 INDEX MAP OF UTAH

0 5 10 15 20 MILES
Scale

HOLMES URANIUM CORPORATION
PIUTE COUNTY, UTAH
DMA-1968
Uranium

Engineering Report

By R. L. Middleton
Mining engineer
Bureau of Mines

HOLMES URANIUM CORPORATION
PIUTE COUNTY, UTAH

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ILLUSTRATIONS

Fig. 1 Location map, Holmes Uranium Corp., Piute County, Utah

INTRODUCTION

A preliminary examination of the Holmes uranium property was made on November 20, 1951, by R. L. Middleton, Bureau of Mines, and J. W. Hasler and Robert Osterstock of the Geological Survey. The examination was made regarding DMA Docket 1968, which asks approval of a loan of $143,695.50 for uranium exploration. The examining team was accompanied to the property by J. Mark Holmes, president and mine manager of the Holmes Uranium Corp.

LOCATION AND PHYSICAL FEATURES

The Holmes property is located in Sec. 3, T. 27 S., R. 3 W., S.L.B.M., Durkee mining district, Piute County, Utah. The mine area is approximately 5 miles north of Marysvale, Utah, where railroad facilities and an Atomic Energy Commission ore-buying station are located. A good-conditioned, dirt road leaves U. S. Highway 89 at Marysvale and extends within one mile of the property. The remaining distance is steep and crooked, but serviceable for truck haulage.

The relief in the general area is moderately steep. Although the altitude is 6,500 feet, climatic conditions allow year-around operations. Neither water nor timber is available on the property. The nearest source of water is a spring 3 miles distant.

HISTORY AND PRODUCTION

During 1949 and 1950 the Holmes Uranium Corp. acquired the property by lease agreements with three groups of lessors. The property, though located in a fairly active uranium mining district, has had no production. During 1950, mines in the area adjacent to the Holmes property produced 27,000 tons of ores averaging approximately 0.30 percent U_3O_8.

OWNERSHIP AND EXTENT

The Holmes Uranium Corp., 1010 Boston Building, Salt Lake City, Utah, controls by lease and option to purchase agreements 72 unpatented lode mining claims. Many of the 72 claims are fractions and are less than standard dimensions. J. Mark Holmes, mine manager, stated the three lease agreements are in good standing and subordination agreements can be obtained from the property owners.

DESCRIPTION OF THE DEPOSIT

The principal uranium mineralization in the Marysvale region appears to be related to hydrothermal alteration of quartz monzonite. The alteration is more intense in and near fault zones. No uranium minerals were seen on the Holmes property, but Geiger counter prospecting along a north-south fissure in quartz monzonite disclosed various intensities of radioactivity. The quartz monzonite exposed by a shallow bulldozer trench in the area of the north-south fissure

is highly altered. At one point the north-south fissure is offset by a younger east-west fault.

The Atomic Energy Commission drilled two diamond drill holes after the field examination was made. The holes were drilled from surface locations on the Benny K No. 1 claim. No significant uranium mineralization was noted in either hole.

MINABLE ORE RESERVES

There are no minable ore reserves on the Holmes property.

PRESENT STATUS

The workings on the property consist of several hundred feet of bulldozer stripping and a 30-degree inclined shaft. The shaft extends a slope distance of approximately 80 feet along the strike of an east-west fault fissure. A continuation in the present direction of the inclined shaft should intersect the north-south fissure.

The applicant is able to furnish, on a depreciation basis, various items of equipment serviceable to the proposed project. There are no facilities or milling equipment on the property.

PROJECT PROPOSALS

The exploratory program, as proposed by the Holmes Uranium Corp., is composed of three projects: 1, 2 and 3.

Project 1 consists of a continuation of the inclined shaft approximately 75 feet to an expected intersection with a north-south fissure,

and 80 feet of drifting along the fissure in a northerly direction to an east-west fault. This proposed work is located on the Benny K No. 1 claim. Project 1 could be completed within 10 weeks at an estimated cost of $3,840.50.

Project 2 consists of a 600-foot, 2½-compartment, vertical shaft and 1,200 feet of drifts from the 200-and 600-foot shaft levels. The proposed shaft site is also located on the Benny K No. 1 claim approximately 1,200 feet south of the inclined shaft of project 1. The applicant's estimated project cost of $138,732.50 and completion time of one year seems feasible. However, the number of clerical and supervisory workers appears too great.

Project 3 consists of a 200-foot vertical shaft located on Scorpion No. 8 claim. The applicant has not submitted a definite cost or time completion schedule.

CONCLUSIONS AND RECOMMENDATIONS

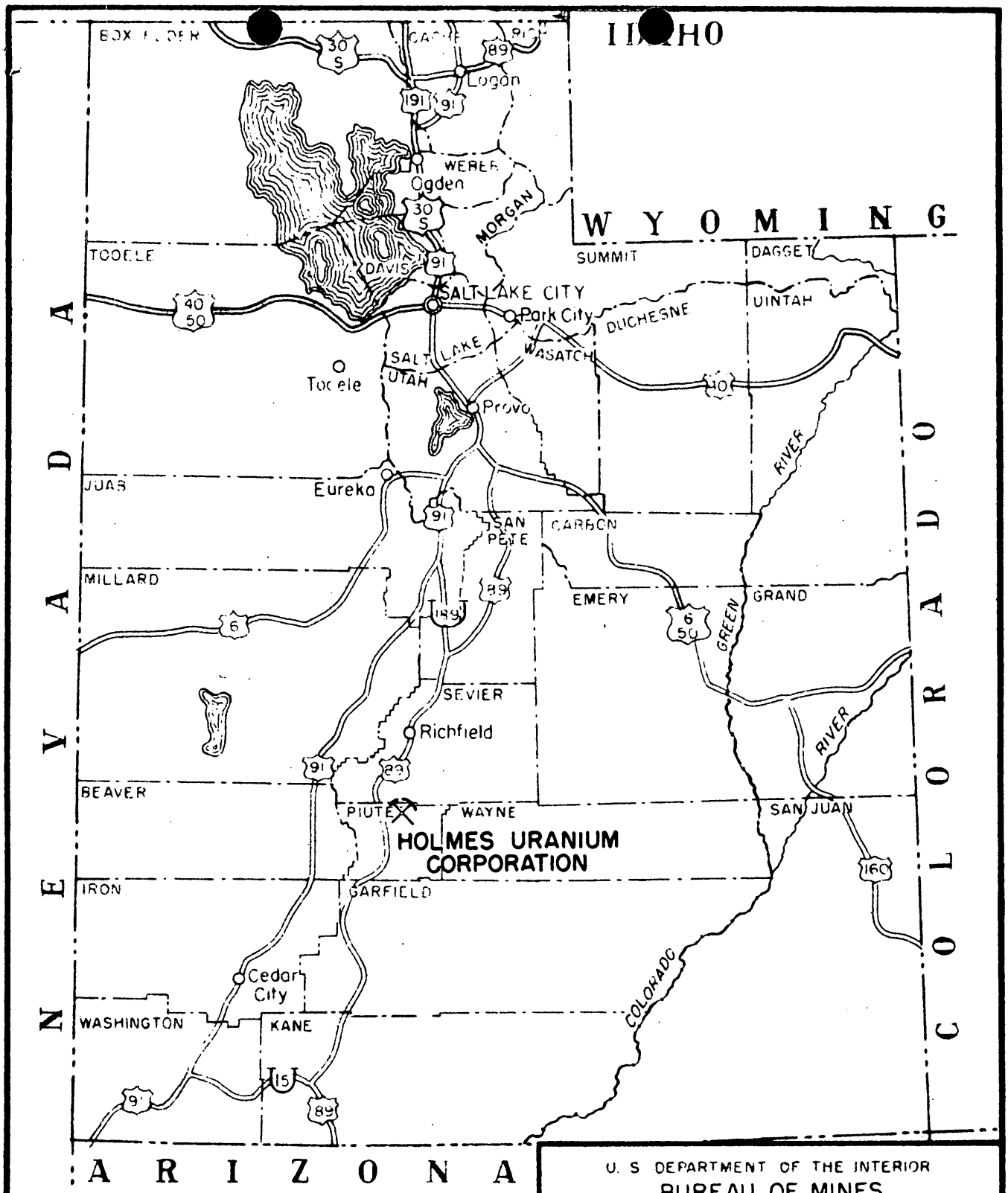
The Atomic Energy Commission has completed two diamond drill holes from surface locations on the Benny K No. 1 claim. Hole MYDH 56-92, coordinate N. 668,965 and E. 1, 801,452, was drilled at an inclination of 60 degrees and bearing of N. 59 degrees W. for the purpose of crossing the north-south fault structure, which the applicant proposes to explore. The character of the quartz monzonite at the bottom of the hole 350 feet beneath the surface indicates alteration persists at that depth. Geiger counter probe of the hole disclosed no significant radioactivity.

Hole MYDH 61-95, coordinate N. 668,965 and E. 1,801,452, was drilled at an inclination of 80 degrees and bearing N. 59 degrees W., for the purpose of exploring the north-south structure at greater depth than hole MYDH 56-92. It seemed probable that the north-south structure might contain primary uranium and redistributed secondary uranium minerals below the alteration zone. The fresh condition of the rocks at depth indicates the unaltered zone was penetrated. No significant radioactivity was disclosed by a Geiger counter probe of this hole.

The two holes were drilled to explore the most likely areas on the Benny K No. 1 claim. Results indicate little promise for discovery of commercial ore. It is therefore recommended that project 1 be denied.

Project 2, on the Benny K No. 1 claim, is not geologically promising and is recommended for denial. No surface work has been done in the area of the proposal. No evidence is present indicating north-south fissuring through the area.

Geologic and engineering aspects of project 3, on Scorpion No. 8 claim, are apparently unrelated to projects 1 and 2. The applicant has based his reason for requesting a 200-foot shaft upon a radiometric high in the immediate area. No surface indication of fissuring is present and no uranium minerals are present at the surface. It is therefore recommended that this project be denied.



U. S DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Fig. 1

Location Map

HOLMES URANIUM CORPORATION

PIUTE COUNTY, UTAH

ENGINEER *R.L. MIDDLETON*	DATE: DEC. 21, 1951
TRACED: DEC., 1951, A.P.T.S.	1900-163-E
CHECKED:	

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

[illegible] New Customhouse
Denver 2, Colorado

June 16, 1952

Memorandum

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

From: Field Team, Region IV

Subject: Final Report, DMA Docket 1968 (Uranium) Holmes Uranium Corporation, Piute County, Utah

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

The field examiners recommended the denial of the applicants projects 2 and 3 because they were not believed to be geologically sound. The field examiners agreed to hold in abeyance their recommendation on the applicants project 1, pending completion of the A. E. C. drilling on what they considered to be the most promising structure.

Data on the A. E. C. drilling which is now available and shows negative results make the applicants project 1 unwarranted.

We concur with the examining engineers in recommending the denial of the complete application.

W. H. King
W. H. King

A. H. Koschmann
A. H. Koschmann

JUN 28 1952

Mining Division
Region IV

June 16, 1952

Memorandum

To: Field Team, Region IV

From: Acting Chief, Mining Division, Region IV

Subject: Final Report, DMA Docket 1968, (Uranium) Holmes Uranium Corp., Piute County, Utah.

Enclosed are eleven copies of the final engineering report on DMA-1968 by R. L. Middleton.

The Geological Survey forwarded their report on this property on January 2, with the recommendation that one part of the project be approved if the drilling then in progress by the A. E. C. encountered ore of commercial grade.

The Bureau of Mines final report, which includes the Summary, Conclusions and Recommendations of all the field examiners, was prepared after the additional data was made available upon completion of the A. E. C. drilling project.

The field examiners recommend denial of the application due to the negative results of the A. E. C. drilling on the applicants most promising structure.

We concur in this recommendation.

W. H. King
W. H. King

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 23 1952

Mining Division
Date Rec'd.

JUN 13 1952

BUREAU OF MINES
Denver, Colorado

June 11, 1952

Memorandum

To: W. H. King, Acting Chief, Mining Division, Region IV

From: Chief, Utah-Wyoming Branch, Mining Division

Subject: DMA-1968, Holmes Uranium Corp., Piute County, Utah.

Enclosed are the original and 10 copies of the subject engineering report prepared by R. L. Middleton. A section on Summary, Conclusions and Recommendations is also enclosed. The geologic report was transmitted by the Survey December 27, 1951.

The AEC drilled two diamond drill holes on the Benny K No. 1 claim, the claim involved in the applicant's proposals 1 and 2. Logs of the holes were made available to the DMEA examining team, after completion of the work in April 1952. The holes were drilled to explore the most promising structure, but no significant uranium mineralization was found. The negative results obtained from the drilling make the applicant's proposed project 1 unwarranted. Projects 2 and 3 lack significant geologic structures.

The original brochure and related information are attached.

Stephen R. Wilson
Stephen R. Wilson

Enclosure

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

200 New Customhouse
Denver 2, Colorado

January 2, 1962

Memorandum

To: DMA Field Team, Region IV

From: A. H. Koschmann

Subject: DMA Docket 1968, Holmes Uranium Corporation, Kanab, Utah

Enclosed are 10 copies of the geologic report by R. W. Osterstock and J. William Hasler of the U. S. Geological Survey covering the above docket.

It has been recommended that two of the projects be denied, and that the other be approved if the diamond drilling encounters ore of commercial grade.

The brochure will accompany the U. S. Bureau of Mines' report.

A. H. Koschmann
A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (10)

Room 307, 320 South Main
Salt Lake City 1, Utah
December 27, 1951

Memorandum

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

From: Ralph J. Roberts

Subject: Docket DMA 1968, Helmco Uranium Corporation, Kanab, Utah.

Enclosed are ten copies of subject report and illustrations prepared by Robert Osterstock at the conclusion of the field examination made at the request of the Field Team, Region IV.

The Helmco Uranium Corporation has applied for a loan of $143,695.50 to be used for three exploration projects in the Marysvale Uranium District, Utah. Two of these projects are not geologically sound and it is recommended that they be denied. The Atomic Energy Commission plans to drill the structures that the applicant proposes to explore in the other project. It is recommended this project be approved if the diamond drilling encounters ore of commercial grade. The brochure will accompany the U. S. Bureau of Mines engineers report. Please hold the geologic report until the U. S. Bureau of Mines report arrives in Denver.

I concur with the recommendation of the consulting geologist.

UNITED STATES
DEPARTMENT OF THE INTERIOR
OSCAR L. CHAPMAN, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF INVESTIGATION BY FIELD TEAM
REGION IV

DMEAset DMA 1966, Nagasa Uranium Corporation

Kanab, Utah

E. H. Pinnstock and J. William Fowler, Geologists
U. S. Geological Survey

December 26, 1951

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

By J. W. Hasler,
R. W. Osterstock, and
R. L. Middleton

The Holmes Uranium Corp., with property in the Durkee mining district, Piute County, Utah, has made application for an exploratory loan under DMA docket 1968. An examination of the property was made by the Geological Survey and Bureau of Mines during November 1951. The AEC drilled two diamond drill holes on the property subsequent to the examination. Completion of reports has awaited results of the drilling.

The Holmes property lies in an area largely underlain by volcanic rocks which have been intruded by quartz monzonite and granite. Principal uranium production in the general area has been derived from mineralization in northeast-striking faults. On the Holmes property three faults, two trending east and one to the north, do not appear to be related to the productive faults in the area.

The applicant has asked approval of a loan of $138,732.50 to conduct exploration on three projects. Project 1 consists of continuation of an inclined shaft on the Benny K No. 1 claim. The AEC diamond drilling on this claim has disclosed little promise of significant uranium mineralization.

Project 2 proposes sinking a 600-foot shaft and driving 1,200 feet of drifts on the 200-and 600-foot shafts. No north-south fissuring is present in the vicinity of the proposed work.

Work proposed under project 3 consists of sinking a shaft on a radiometric high. No uranium mineralization is present at the surface and no evidence of fissuring discernible.

It is recommended that loan denial be made on all three proposed projects.

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ILLUSTRATIONS

Figure 1. Index map of Utah.

DMA Docket 1965, Holmes Uranium Corporation

Kanab, Utah

INTRODUCTION

The Holmes Uranium Corporation, Kanab, Utah, DMA Docket 1896, has applied to the Defense Minerals Administration for a loan of $143,695.50 to be used for three exploration projects in the Maryvale, uranium district. (Figure 1).

GEOLOGY

The Maryvale 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 Maryvale district has come from a set of northeast striking-faults which do not appear to be related to

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. An incline being driven to the west to intersect the southern extension of the north striking fault follows another vertical east-striking fault of small displacement.

ORE DEPOSITS

Uranium mineralization in the Maryvale 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 Maryvale 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 doubtful effect.

On the Holmes property only one claim involved in this application, the Benny K No. 1, is known to have undergone uranium mineralization. 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 Bunny K No. 1 claim.

A zone of high radioactivity is reported on the Scorpion No. 5 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.

PROPOSED EXPLORATION

Project No. 1 on the Bunny K No. 1 claim, as proposed by the Kalness Uranium Corporation, is to continue the inclined shaft 75 feet to intersect the north-striking fault on the south side of the small east-striking cross fault, and drift 75 feet to their intersection. This appears to be a sound program inasmuch as the north-striking fault can be explored at a reasonable depth, and its intersection with the small east-striking fault may be a locus for mineralization that is not visible at the surface. The Atomic Energy Commission plans to drill two holes on the Bunny K No. 1 claim. One hole will be directed to intercept the northern extension of the north-striking fault, the other hole is planned to cut the intersection of the north-striking fault and the east-striking fault at depth. If either of the two holes shows ore of commercial grade, it is recommended that Project No. 1 be approved. On a 90:10 matching-fund basis, the government's share would be $3,816.00.

Project No. 2, also on the Bunny K No. 1 claim, consists of a 600-foot 3 compartment shaft about 1200 feet south of the inclined shaft of Project No. 1. This 600-foot shaft is to be sunk on the southern extension of the north-striking fault which at present is not known to contain minable bodies of ore. This project is not geologically sound, and it is recommended that it be denied.

Project No. 3, on the Scorpion No. 5 claim, consists of a 200-foot shaft which is to be sunk in ground reported to have relatively high radiometric anomalies. As there is no surface indication of a fault or fissure which might afford a locus of deposition, nor have any secondary ore minerals been seen at the surface, it is recommended that this project be denied.

SUMMARY AND CONCLUSIONS

Nearly all of the uranium deposits studied thus far in the Marysvale district have been in northeast-striking faults or fissures in Tertiary igneous rocks of which the quartz monzonite intrusions have been found to be the most favorable hosts.

A well developed north-striking fault in quartz monzonite on the Henry K No. 1 claim has been slightly offset by an east-striking cross fault; neither of these faults appear to be related to the productive northeast-striking faults noted elsewhere in the district. A picked sample taken by the Atomic Energy Commission at the surface from the northern extension of the north-striking fault assayed only 0.06 percent U_3O_8 indicating that no material commercial grade has been found at the surface.

The Scorpion No. 5 claim is reported to have relatively high radiometric anomalies, but no surface indication of a controlling structure such as a fault or a fissure was noted, nor are any uranium minerals visible on this claim.

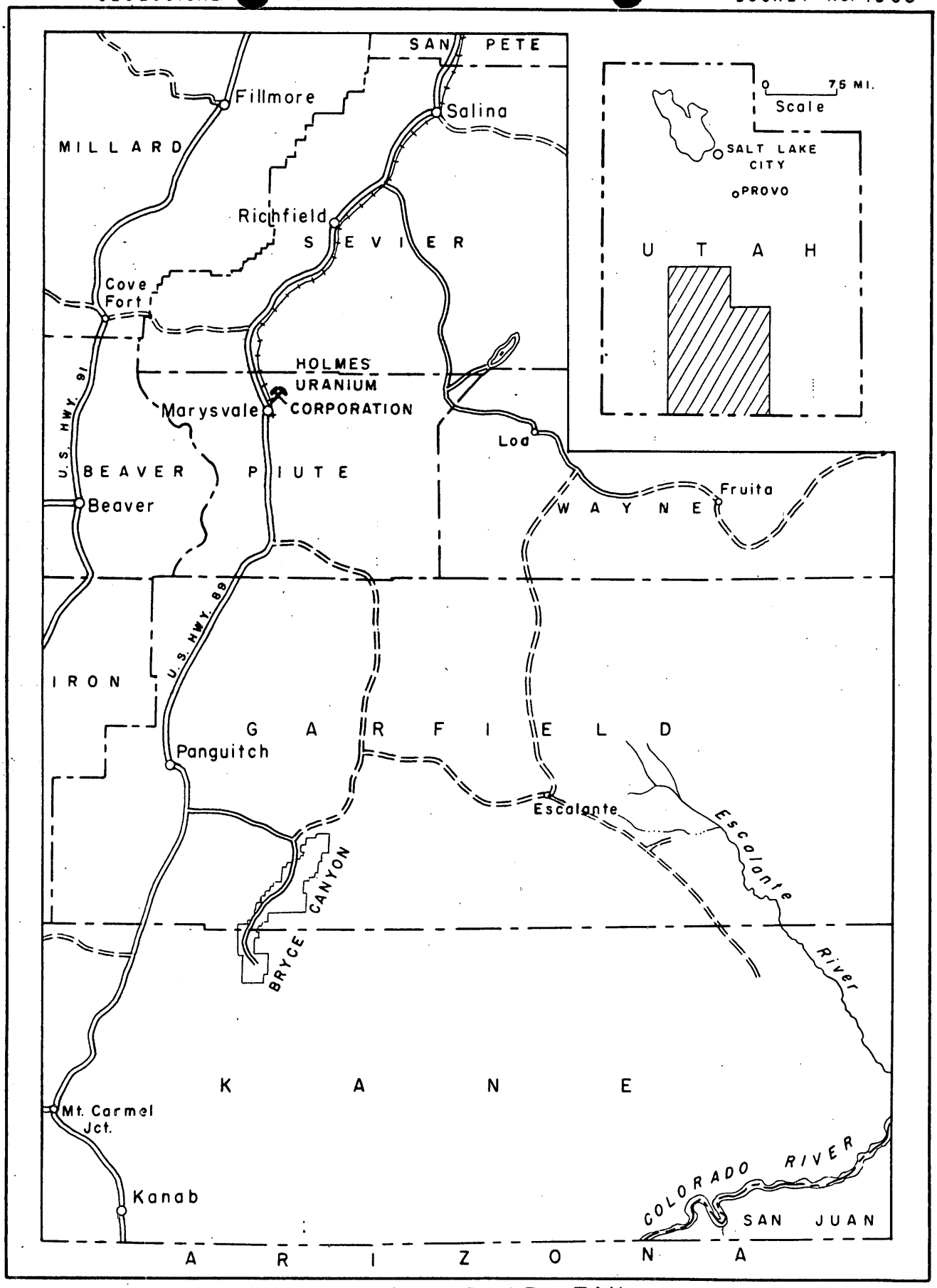

FIG. 1 INDEX MAP OF UTAH

0 5 10 15 20 MILES
Scale

HOLMES URANIUM CORPORATION
PIUTE COUNTY, UTAH
DMA-1968
Uranium

Engineering Report

By R. L. Middleton
Mining engineer
Bureau of Mines

HOLMES URANIUM CORPORATION
PIUTE COUNTY, UTAH

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ILLUSTRATIONS

Fig. 1 Location map, Holmes Uranium Corp., Piute County, Utah

INTRODUCTION

A preliminary examination of the Holmes uranium property was made on November 20, 1951, by R. L. Middleton, Bureau of Mines, and J. W. Hasler and Robert Osterstock of the Geological Survey. The examination was made regarding DMA Docket 1968, which asks approval of a loan of $143,695.50 for uranium exploration. The examining team was accompanied to the property by J. Mark Holmes, president and mine manager of the Holmes Uranium Corp.

LOCATION AND PHYSICAL FEATURES

The Holmes property is located in Sec. 3, T. 27 S., R. 3 W., S.L.B.M., Durkee mining district, Piute County, Utah. The mine area is approximately 5 miles north of Marysvale, Utah, where railroad facilities and an Atomic Energy Commission ore-buying station are located. A good-conditioned, dirt road leaves U. S. Highway 89 at Marysvale and extends within one mile of the property. The remaining distance is steep and crooked, but serviceable for truck haulage.

The relief in the general area is moderately steep. Although the altitude is 6,500 feet, climatic conditions allow year-around operations. Neither water nor timber is available on the property. The nearest source of water is a spring 3 miles distant.

HISTORY AND PRODUCTION

During 1949 and 1950 the Holmes Uranium Corp. acquired the property by lease agreements with three groups of lessors. The property, though located in a fairly active uranium mining district, has had no production. During 1950, mines in the area adjacent to the Holmes property produced 27,000 tons of ores averaging approximately 0.30 percent U_3O_8.

OWNERSHIP AND EXTENT

The Holmes Uranium Corp., 1010 Boston Building, Salt Lake City, Utah, controls by lease and option to purchase agreements 72 unpatented lode mining claims. Many of the 72 claims are fractions and are less than standard dimensions. J. Mark Holmes, mine manager, stated the three lease agreements are in good standing and subordination agreements can be obtained from the property owners.

DESCRIPTION OF THE DEPOSIT

The principal uranium mineralization in the Marysvale region appears to be related to hydrothermal alteration of quartz monzonite. The alteration is more intense in and near fault zones. No uranium minerals were seen on the Holmes property, but Geiger counter prospecting along a north-south fissure in quartz monzonite disclosed various intensities of radioactivity. The quartz monzonite exposed by a shallow bulldozer trench in the area of the north-south fissure

is highly altered. At one point the north-south fissure is offset by a younger east-west fault.

The Atomic Energy Commission drilled two diamond drill holes after the field examination was made. The holes were drilled from surface locations on the Benny K No. 1 claim. No significant uranium mineralization was noted in either hole.

MINABLE ORE RESERVES

There are no minable ore reserves on the Holmes property.

PRESENT STATUS

The workings on the property consist of several hundred feet of bulldozer stripping and a 30-degree inclined shaft. The shaft extends a slope distance of approximately 80 feet along the strike of an east-west fault fissure. A continuation in the present direction of the inclined shaft should intersect the north-south fissure.

The applicant is able to furnish, on a depreciation basis, various items of equipment serviceable to the proposed project. There are no facilities or milling equipment on the property.

PROJECT PROPOSALS

The exploratory program, as proposed by the Holmes Uranium Corp., is composed of three projects: 1, 2 and 3.

Project 1 consists of a continuation of the inclined shaft approximately 75 feet to an expected intersection with a north-south fissure,

and 80 feet of drifting along the fissure in a northerly direction to an east-west fault. This proposed work is located on the Benny K No. 1 claim. Project 1 could be completed within 10 weeks at an estimated cost of $3,840.50.

Project 2 consists of a 600-foot, 2½-compartment, vertical shaft and 1,200 feet of drifts from the 200-and 600-foot shaft levels. The proposed shaft site is also located on the Benny K No. 1 claim approximately 1,200 feet south of the inclined shaft of project 1. The applicant's estimated project cost of $138,732.50 and completion time of one year seems feasible. However, the number of clerical and supervisory workers appears too great.

Project 3 consists of a 200-foot vertical shaft located on Scorpion No. 8 claim. The applicant has not submitted a definite cost or time completion schedule.

CONCLUSIONS AND RECOMMENDATIONS

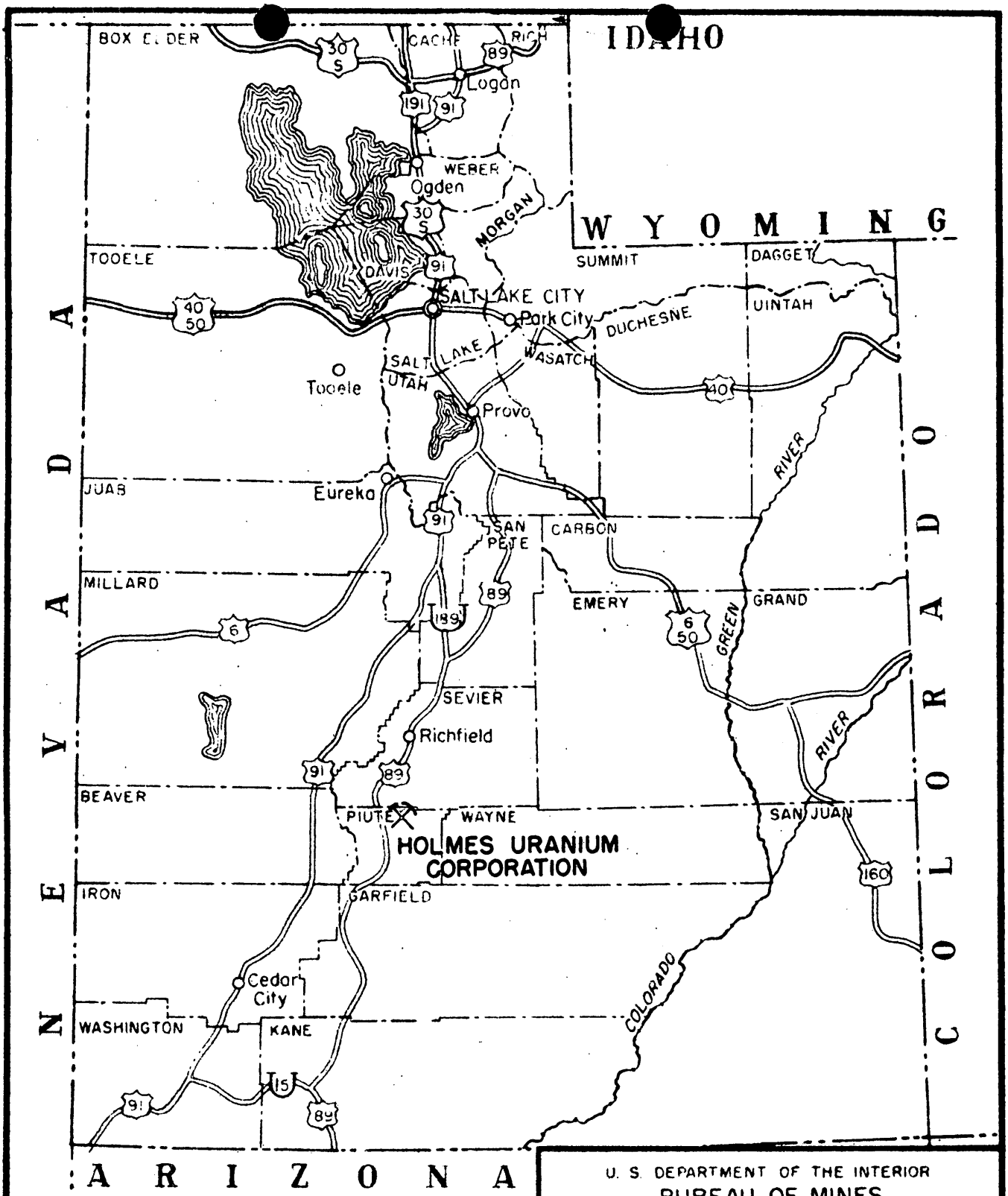
The Atomic Energy Commission has completed two diamond drill holes from surface locations on the Benny K No. 1 claim. Hole NDM 56-92, coordinate N. 668,965 and E. 1, 601,432, was drilled at an inclination of 60 degrees and bearing of N. 59 degrees W. for the purpose of crossing the north-south fault structure, which the applicant proposes to explore. The character of the quartz monzonite at the bottom of the hole 350 feet beneath the surface indicates alteration persists at that depth. Geiger counter probe of the hole disclosed no significant radioactivity.

Hole MHB 61-95, coordinate N. 668,965 and E. 1,801,452, was drilled at an inclination of 80 degrees and bearing N. 59 degrees W., for the purpose of exploring the north-south structure at greater depth than hole MHB 56-92. It seemed probable that the north-south structure might contain primary uranium and redistributed secondary uranium minerals below the alteration zone. The fresh condition of the rocks at depth indicates the unaltered zone was penetrated. No significant radioactivity was disclosed by a Geiger counter probe of this hole.

The two holes were drilled to explore the most likely areas on the Benny K No. 1 claim. Results indicate little promise for discovery of commercial ore. It is therefore recommended that project 1 be denied.

Project 2, on the Benny K No. 1 claim, is not geologically promising and is recommended for denial. No surface work has been done in the area of the proposal. No evidence is present indicating north-south fissuring through the area.

Geologic and engineering aspects of project 3, on Scorpion No. 8 claim, are apparently unrelated to projects 1 and 2. The applicant has based his reason for requesting a 200-foot shaft upon a radiometric high in the immediate area. No surface indication of fissuring is present and no uranium minerals are present at the surface. It is therefore recommended that this project be denied.



U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Fig. 1

Location Map

HOLMES URANIUM CORPORATION

PIUTE COUNTY, UTAH

ENGINEER: *R. L. MIDDLETON*	DATE: DEC. 21, 1951
TRACED: DEC., 1951, A.P.T.S.	1900-163-E
CHECKED:	

700
FILE COPY
SURNAME:

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

JAN 30 1952

Mr. J. Mark Holmes, President
Holmes Uranium Corp.
1010 Boston Building
Salt Lake City 1, Utah

Re: Docket No. [illegible]-1943
(Uranium)
Holmes Uranium Corp.

Dear Mr. Holmes:

This will acknowledge receipt of your inquiry of January 25, 1952, appertaining to the above captioned docket. We have been informed that a report on your property is presently being prepared by the Field Team. As soon as this report is received, please be assured that your application will be given prompt further consideration.

Sincerely yours,

Ernest M. Ellis, Acting Chief
Rare and Misc. Metals Division
Defense Minerals Exploration
Administration

EMEllis/gla/jem
1-29-52
cc to: Adm. Reading File
Docket
1-30 Messrs. Kauffman, A.J. Rm. 1347
J.D. Butler, A.P. Rm. 3212 G.S.
Ellis
Field Team, Region IV (2)

1/28/52 gla

DMA-1968

Kanab, Utah
January 25, 1952

Defense Mineral Exploration Adm.
Washington D.C. 25

Gentlemen:

I am making inquiry as to the status of application No. 1968 "Holmes Uranium Corp." application on Uranium ore exploration development at Marysvale, Utah.

Please advise me as to the present status and time of action on said application.

Very truly yours,

J. Mark Holmes

J. Mark Holmes
President, Holmes Uranium Corp.

CC: Hon Wallace F. Bennett
Senate Office Bldg.
Washington, D.C.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 28 1952

FILE COPY
SURNAME:

Bourret
Taylor
Merrill

UNITED STATES
TMENT OF THE INTERIOR
NSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.

a.E.e.

AUG 23 1951

Mr. J. Mark Holmes, President
Holmes Uranium Corp.
1010 Boston Building
Salt Lake City 1, Utah

Re: Uranium
DMA-1968

Dear Mr. Holmes:

Your application, docket 1968, for an exploration project in the amount of $143,695.00, has been received by the Minor and Rare Metals Branch of the Supply Division.

Before a decision can be reached on your request we find it is necessary to obtain additional information on your property. Your application therefore is being referred to the office of the Executive Officer of DMA field team IV, Mr. J. H. East, 224 New Customhouse Building, Denver 2, Colorado, with the request that the needed information be supplied to us.

In the event you have additional information that will assist the field engineers in evaluating this proposition we request that you submit such data in writing to Mr. East. During the period your application is in the hands of the field team, we would suggest you direct all inquiries to that office.

Yours very truly,
SIGNED

Tom Lyon, Director
Supply Division

J.F. 8/23

WBourret/mh 8-20-51
cc: Adm. Read. File
Reports and Records
Lyon
Field team IV
Bourret
Kesier, Hosted, USGS
DMA docket files

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

Mr. J. Mark Holmes, President
Holmes Uranium Corp.
1010 Boston Building
Salt Lake City 1, Utah

AUG 23 1951

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DMA-1968

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Tom Lyon, Director
Supply Division

WBourret/mh 8-20-51
cc: Adm. Head. File
Reports and Records
Lyon
Field team IV
Bourret
Kesler, Hosted, USGS
DMA docket files

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

Q. E. C.

Mr. J. H. East, Jr.
224 New Customhouse Bldg.
Denver 2, Colorado

AUG 23 1951

Dear Sir:

We attach "Review of Application for Exploration Assistance" on:

Docket No. DMA-1968

Commodity uranium

Applicant Holmes Uranium Corp.

Please expedite the consideration of this application with particular reference to the points raised in the attached "Review."

Very truly yours,

Tom Lyon, Chairman
Coordinating Committee

For Bureau of Mines

For Geological Survey

6/5/51

Defense Minerals Administration

Review of Application for Exploration Assistance

Docket No. DMA - 1968

Commodity Uranium

Total Amount $143,695.50

Govt. Participation $129,325.95

1. Name and Address of Applicant Holmes Uranium Corporation

1010 Boston Building, Salt Lake City 1, Utah

2. Location of Property Five miles north of Marysvale, Piute County, Utah.

3. Mineral or metal Uranium Is it listed in Section 9 of MO-5? Yes

If not, application will be rejected.

4. Geologic probability of discovery—based on data in application (question #16, 17, 18, 20 and 22)*

Mines or Survey reports, etc., do you rate chances:

a) Good

b) Poor

c) None

d) Don't know—needs field examination Report by Field Team is required. See Item 17.

e) Is there an alternative and favorable project? (If so, attach an explanation)

5. Is the applicant's right to the property clearly stated? (question 5, 6, 7)*

6. If applicant is a lessee, is a copy of the lease attached?

Does the lease have sufficient time to run to cover a future productive period?

*question numbers are those of MF-103

7. Are subordination agreements necessary?_____

a) MF-201?_____

b) MF-202_____

8. From the data presented, does the proposed project appear feasible from the point of view of:

a) Available manpower_____

b) Equipment and supplies_____
(Question 14 plus general knowledge of availability)*

c) Accessibility (question 12)*_____

d) Water (question 13)*_____

e) Power (question 13)*_____

Is a field check needed on any of these points?_____

9. Does the experience of the applicant appear to be adequate to assure that he can properly conduct the proposed project? (question 4)*_____

_____

Is a field check needed on this point?_____

10. Exhibit A. (questions 21 and 22)*

a) Is the project adequately described?_____

If not, are there sufficient data given so that you can describe the project?_____ If so, attach a draft.

b) Is there an adequate map or sketch of the proposed work?_____

_____

c) Is the proposed work "exploration" under the definition of Section 8, MO-5?_____

If not, what part of it is?_____

_____

_____

_____

Is this part a worthwhile exploration project?_____

d) Are the cost estimates detailed?_____

Can they be summarized, as on page 2 of Procedural Instruction 5-A, from the available data?_____ If so, attach a draft.

e) Are the cost estimates reasonable?_____

f) Should more information be requested from applicant?_____

g) Is a field examination necessary to complete Exhibit A?_____

11. Exhibit B (question 23-d)*

a) Is it applicable?_____

b) If so, are sufficient data furnished?_____ If so, attach a draft.

c) Is a field check needed?_____

12. Exhibit C (question 23-e, f and g)*

a) Is it applicable?_____

b) Sufficient data?_____ If so, attach a draft.

c) Are rents and charges reasonable?_____

d) Is a field check needed?_____ _____

13. Exhibit D (question 23-a, b)*

a) Are there sufficient data?_____

b) Is the schedule adequate for the work proposed?_____

c) Is the schedule excessive for the work proposed?_____

d) Are the proposed wages and salaries reasonable?_____

e) Is a field check needed?_____

14. Exhibit E (question 23-c)*

a) Is it applicable? _____

b) Sufficient data? _____

c) Reasonable? _____

d) Field check needed? _____

15. In your judgment, can the proposed work be done in the proposed time? _____

(All exploration must be completed within two years)

16. If field examination is not needed, attach your recommendation.

17. If field examination is needed, do you have any special instructions for the field team not indicated by your answers to the foregoing question? It is recommended that this application be reviewed with Mr. L. R. Page, Project Chief, Reconnaissance Group, U.S. Geological Survey, Denver Federal Center and Mr. C. C. Towle, Chief, Denver Exploration Branch, U.S. Atomic Energy Commission, and review the diamond drilling program planned to start in September by the U.S. Atomic Energy Commission.

Reviewed by: J. D. Hosted AEC
F. N. Houser USGS

Date August 17, 1951

INT.-DUP. SEC., WASH., D.C. 99009

Subject:
Re: Benny K. & Scorpion Mining Cl.
Exploration Loan

Mr. J. Mark Holmes, President
Holmes Uranium Corporation
1010 Boston Building
Salt Lake City 1, Utah

My dear Mr. Holmes:

This will acknowledge receipt of your application dated August 16, 1951 for a loan under the Defense Production Act of 1950. Your application was assigned Docket Number DMA-1968 and referred to the Minor and Rare Metals Branch.

Kindly refer to DMA-1967 in any future correspondence relating to your application.

Sincerely yours,

Robert E. Adams

Robert E. Adams, Chief
Reports and Records Unit

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. DMA 1968

Date received 8-16-51

Participation

HOLMES URANIUM CORPORATION, a
corporation of the State of Utah
1010 Boston Building
Salt Lake City 1, Utah

Name and address of applicant

Date August 10, 1951

FILL IN THIS BLOCK

Date of application August 10, 1951

Estimated cost $143,695.50

Mineral or metal Uranium

Percentage of Government participation 90%

Location of mine Marysvale, Utah uranium Mining District

Date of filing MF-100

DMA Docket Number, if available 1968

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 16 1951

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation?
*2. If a partnership, state names and addresses of partners.
*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.
*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.
*5. Are you the owner or the lessee of the property?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is in good standing.

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

*If you have already answered these questions on MF-100, you are not required to answer the questions for this application.

16—64067-1

E PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.
*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.
*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.
*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.
15. State in detail how the ore could be shipped and how and where milled.
*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinatio recommended exploration and development, and metallurgical investigations.
*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves? (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.
19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?
21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.

22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.
24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this form and accompanying papers is correct and complete to the best of their knowledge and belief.

Holmes Uranium Corporation
(Name of company)

By Mark Holmes
(Signature of authorized official)

August 10, 1951
(Date)

President
(Title)

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.

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

1. Applicant is Holmes Uranium Corporation, a corporation of the State of Utah.

2. - - -

3. 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.

4. J. Mark Holmes to be manager of operations. He is a Civil Engineer, six months Superintendent of Gold mining operation, twelve years engineer for United States Geological Survey, four years consulting engineer, three years military service World War II - scientific assignment, on the gound Marysvale area two years, has surveyed area, drawn maps of the mining claim surveys, has personally observed all uranium development and operations, has been in close touch with engineers, operators and representatives of the government in diamond drilling operations and has made one of the most advanced studies of urnaium recovery in the area.

Neal I. Clove has accepted employment as mining superintendent. He has had ten years experience as a miner and as a superintendent of mines for major mining companies.

5. Lessee and purchase optionee.

6. - - -

7. Exhibits 1, 2, 3 and 4 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 72 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, 3 and 4, 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 year 1950 and 1951.

8. Exhibits 1 to 4 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.

We have on hand equipment of the reasonable value of $3,000.00 consisting of compressor with jack hammer, stoker and liner with column, together with all hose, pipes, steel and bits for mining operation. Cash on hand $2500.00.

Money expended on project for development work: Sinking 70 foot incline shaft, construction of approximately 15 miles of road, surveying and mapping, cross cutting of veins with bulldizer and cash minimum payments made under requirements of Exhibits 1 to 4 inclusive totals $32,000.00.

Incorporators and Directors are men of sound financial standing and property who stand ready to guarantee the laon to the corporation of at least $10,000.00 additional, or are able to provide all necessary funds to match the requirements of the proposed loan.

9. Please refer to question number 8.

10. (a) Property described in Exhibits.

(b) Exploration proposed for claims: Benny K Mining Claim No. 1; Benny K Mining Claim No. 2; Scorpion Mining Claim No. 8. Refer to Exhibit 7.

11. Refer to Exhibits.

12. The property is located five miles north of Marysvale, Piute County, State of Utah. Within five miles of the Rio Grande Railroad railhead at Marysvale, Utah on accessible roads to railhead and surface Highway U. S. 89. Marysvale is shipping point and purchasing depot.

13. Water source shown in Exhibit 6. Water presently unappropriated and available in the amount of 25 gallons per minute all seasons. Power to be used diesel generated power on property. Exact cost presently unknown.

14. No existing structures or building on property. All exploration work conducted from Marysvale.

15. Ore to be trucked from mine by dirt road to purchasing depot at Marysvale. Distance approximately five miles.

16. (a) No production. Development and exploration previously described.

(b) An ajoining property has been in production for a period of one and one-half years. Substantial quantities of ore sold from said

property at purchasing depot, Marysvale, Utah. All information concerning this production now in the hands of the Atomic Energy Commission.

(c) Refer to Exhibit 10.

17. - - -

18. - - -

19. The property is adjacent to the holding of Vanadium Corporation of America where extensive deposits of uranium ore have been blocked out by the development program of the Vanadium Corporation of America and diamond drilled by the Atomic Energy Commission during the past one year, said diamond drilling program consisting of from three to five surface rigs and one to two under ground rigs working continuously. The result of these exploration tests have been so satisfactory that an additional program has been initiated of nearly double the amount for this year, of which a portion will be conducted on the Holmes Uranium holdings. Large but unknown quantities of uranium ore have been shipped from the Vanadium Corporation of America property. As shown by the Exhibits, a large area has been staked as uranium claims and a good deal of activity is going on.

20. Uranium ore.

21. It is proposed that three projects be conducted on the property:

Project No. 1. will be a continuation of present development on Benny K Mining Claim No. 1, which will consist of sinking the incline shaft an additional 150 feet with cross cuts. Time required - two months. (If shipping ore is discovered the project will be terminated and will be placed on the repayment basis.)

Project No. 2 Also on Benny K No. 1. 1200 foot distance from Project No. 1. Will consist of a three compartment shaft 600 feet deep with mining equipment to operate the same and with additional mining equipment necessary for the drifting of cross cuts and piping water from Poverty Flat Springs. Estimated period time to complete - one year.

Project No. 3. On Scorpion No. 8. Consisting of a shaft 200 feet deep. Time to complete - 18 months from time of authorization.

22. Refer to question 16 (c) and Exhibit 10.

23.

Project No. 1

(a) Miners 400 man hrs. @167½¢ per hour equals $670.00
Muckers 600 " " @ 150¢ per hour equals $900.00

(b) General Manager, 1 month @ $500.00 per month equals $500.00

(c) $500.00

(d) - - -

(e) 1-gas hoist with drum complete. $1,750.00
800 lenial feet of 20 lb rails with
fish plate and spikes (used)... . . . . 100.00
400 board feet of mine ties @ $50.00 per 1000 . 20.00

(f) - - -

(g) $3,000.00 evaluation on present mining equipment to be rented to operation @ $200.00 per month. $200.00

(h) Office supplies and misc. equipment 100.00

(i) - - -

24. Project No. 1. Commence operation within 15 days of approval and complete within 60 days. Continue present incline shaft 150 feet and cross cut for vein with total estimated cost of $4,240.00.

Project No. 2.

(a) Miners 4800 hours, @ 167½¢ per hour. $8,040.00
Muckers, 4800 " @ 150 ¢ " " 7.200.00
Timber men 1200 hrs. @ 150¢ per hr.. . . . . 2,010.00
" " Helper 1200 hrs. @150¢ per hr.. . . . . 1,800.00
Shift Foreman 1200 hrs. @ 200¢ per hr. 2,400.00
Compensation insurance & Social Security 1,501.50

(b) General Manager, 6 months @ $500.00 per mo.. . . . . 3,000.00
Superintendent, 6 Mo. @ $400.00 per mo.. . . . . 2,400.00
Book & Time Keeper, 6 Mo. @ $300.00 per mo.. . . . . 1,800.00
Stenographer & File Cler, 6 Mo. @ $250.00 per mo.. . . 1,500.00
Compensation Insurance & Soc. Security.. . . . . 609.00

(c) - - -

(d) Hoist house @ $4,500.00. . . . . 4,500.00
Ore Bins, @ 8,000.00 ... . 8,000.00

(e) Equipment as per attached list 80,370.00
Mine Timber for shaft, 40 thousand b.f. @ $50.00 . . . 2,000.00

(f) One Compressor @ $250.00 per Mo. 500.00

(g) - - -

(h) Office and Misc. Equipment in items costing less than $50.00 each. 50.00

(i)	1" flex pipe for 3 miles distance	$ 3,960.00
	1 Storage Tank.	1,000.00
	Labor installing water supply	1,500.00
	Compensation Insurance & Social Security.	105.00
(j)	Deisel fuel for 6 month period.	2,500.00
	Gas & oil " " " "	2,000.00
	Powder fuze and caps for 6 month period	4,500.00
	Total.	138,732.50

It is desired that any funds left over from the construction of Projects 1 and 2 may be transferred to Project 3 for its completion without an individual estimate.

Project No. 1. Start project within 3 months of authorization.

Project No. 2. Sink 3 compartment shafts to the 600 foot level by 6 months from authorization date. Cross cut drifts of 1,800 feet from shaft 12 months.

Project No. 3. All money expended within one year from authorization.

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 K, No. 3,4 and 6.

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.

Exhibit No. 4. Agreement dated January 7, 1950 between John Paul Fullmer, Phil Rosequist, Dean U. Leavitt and Thomas Howard Fullmer as Sellers, and J. Mark Holmes as Buyer, covering Gimic, Uncle Duck, P. L. and Dreamer claims.

Exhibit No. 5. Mining claim map showing the locations of the mining claims described in Exhibits 1, 2 and 3, Sections, Township and ranges as located by the general land office surveys.

Exhibit No. 6. 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. 2.

Exhibit No. 7. 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, 3 and the South 1/2 of claims described in Exhibit 4.

Exhibit No. 8. 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 4 inclusive.

Exhibit No. 9. A copy of the United States Geological Survey rock classification map of the area as described in Exibit 1 to 4 inclusive.

Exhibit No. 10. 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)
	("	241)
Benny K. Extension No. 2	"	214
" " No. 3	"	215
" " No. 4	"	215
" " No. 5	"	216
Lorraine No. 6	"	227
" No. 7	"	228
Delight	"	280
Sunday Joy	"	235
Benny K. No. 1	"	176
" " No. 2	"	176
Skippy	"	235
Gladiator aka Gladiatior	"	350
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 purpose.

VII.

ORES NOT TO BE CO-MINGLED

Lessee shall not mix any ores from the demised premises 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 and other 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 these 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, sur-

render 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, Marysvale, 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 cash, the receipt of which is hereby acknowledged, and the balance as follows: $3,000.00 or more on or before the 1st day of July, 1950, and $3,000.00 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 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 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 entioned 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 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 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' 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, 1950, 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 1953

(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
Adabella	" "	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 or more on or before the 1st day of November, 1950; $1,000.00 or more on or before the 1st day of July, 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 suc-

ceeding 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 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 obliga-

tion 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 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 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 4 EXHIBIT 4

AGREEMENT

THIS AGREEMENT made in duplicate as of the 7th day of January, 1950, by and between John Paul Fullmer, Phil Rosequist, Dean U. Leavitt, and Thomas Howard Fullmer, all 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 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 the Henry Mining District, Sevier County, State of Utah, to-wit:

Name of Location	Notice of Location Recorded in Records of Sevier County, Utah. Book of Locations	Page
Gimec No. 1	Book 8	151
" No. 2	" "	151
" No. 5	" "	154
" No. 6	" "	160
" No. 7		
" No. 8		
" No. 9		
Uncle Duck No. 1	" "	
Uncle Duck No. 2	" "	150
" " No. 3	" "	150
" " No. 4	" "	8
" " No. 5	" "	151
" " No. 6		
P.L. No. 17		
Dreamer No. 2	" "	176
" No. 3	" "	176
" No. 4	" "	177
" No. 13	" "	198
" No. 14	" "	199
Dreamer Extension No. 1		
" " No. 2		

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-Two Thousand Five Hundred and no/100 ($52,500.00) Dollars, payable at the office of John Paul Bulloor, one of the above Sellers in Marysvale, Utah, strictly within the following terms, to-wit: $900.00 cash, the receipt of which is hereby acknowledged and the balance as follows: $1,350.00 or more on or before the 1st day of July, 1950;

$1,350.00 or more on or before the 1st day of November, 1950; $1,350.00 or more on or before the 1st day of March, 1951, and $1,350.00 or more on or before the 1st day of July, 1951; and $1,350.00 or more on or before the 1st day of every three months 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 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 .5%	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 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 charge 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 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 $52,500.00 above expressed the Sellers 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 $52,500.00, 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 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 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 reason-

able 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 12th day of July, 1950.

(signed) John Paul Fullmer

(signed) Dean U. Leavitt

(signed) Thomas H. Fullmer

(signed) Phil Rosequist
SELLERS

(signed) J. Mark Holmes
BUYER

STATE OF UTAH)
: SS
COUNTY OF PIUTE)

On the 13 day of July, 1950, personally appeared before me John Paul Fullmer, Phil Rosequist, Dean U. Leavitt and Thomas Howard Fullmer, Sellers, and J. Mark Holmes, Buyer, who duly acknowledged to me that they executed the foregoing instrument.

(signed) Violet Sargent
Notary Public
Residing at: Marysvale, Ut.

My Co mission expires:
Feb. 2nd 1953 (Seal)

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, Eardley, 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 probably that much of the igneous activity around Marysvale and southern Utah in general is post-wasatch formation of Eocene age since large volumes of thyolitic 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-SanPitch graben be present. They are suggested by the N 60-65° 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 northsouth with dips that are near vertical. The other system strikes N 50-70° 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 of 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 pitchblende. 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 of energy 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 50-70° 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 11

PRELIMINARY GEOLOGICAL AND RADIATION SURVEY OF BENNY "K" CLAIMS

NUMBERS 1 & 3

INTRODUCTION

Benny "K" claims Nos. 1 & 3 are located in the SW1/4 Sec. 25, R 4 W, T 26 S, SLB&M, Piute Co., Utah. One days 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

PART 11

PRELIMINARY GEOLOGICAL AND RADIATION SURVEY OF BENNY "K" CLAIMS

NUMBERS 1 & 3

FAULTING (CONTINUED)

younger than the 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-S 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 montmorillonite-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 oxidized 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 principle 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 background count/ second for

PART 11

PRELIMINARY GEOLOGICAL AND RADIATION SURVEY OF BENNY "K" CLAIMS

NUMBERS 1 & 3

MINERALIZATION AND RADIATION ANOMALIES (CONTINUED)

Tqm is approximately 60. 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 120, 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

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. DMA 1968

Date received 8-16-51

Participation

HOLMES URANIUM CORPORATION, a
corporation of the State of Utah
1010 Boston Building
Salt Lake City 1, Utah

Name and address of applicant

Date August 10, 1951

FILL IN THIS BLOCK

Date of application August 10, 1951

Estimated cost $143,695.50

Mineral or metal Uranium

Percentage of Government participation 90%

Location of mine Marysvale, Utah uranium Mining District

Date of filing MF-100

DMA Docket Number, if available 1968

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 16 1951

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation?
*2. If a partnership, state names and addresses of partners.
*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.
*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.
*5. Are you the owner or the lessee of the property?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is in good standing.

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

*If you have already answered these questions on MF-100, you are not required to answer the questions for this application.

16—64067-1

PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.
*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.
*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.
*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.
15. State in detail how the ore could be shipped and how and where milled.
*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinati[illegible] recommended exploration and development, and metallurgical investigations.
*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.
19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?
21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.
22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $5[illegible] more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.
24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this form and accompanying papers is correct and complete to the best ~~of their~~ knowledge and belief.

Holmes Uranium Corporation
(Name of company)

By Mark Holmes
(Signature of authorized official)

August 10, 1951
(Date)

President
(Title)

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.

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

1. Applicant is Holmes Uranium Corporation, a corporation of the State of Utah.

2. - - -

3. 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.

4. J. Mark Holmes to be manager of operations. He is a Civil Engineer, six months Superintendent of Gold mining operation, twelve years engineer for United States Geological Survey, four years consulting engineer, three years military service World War II - scientific assignment, on the gound Marysvale area two years, has surveyed area, drawn maps of the mining claim surveys, has personally observed all uranium development and operations, has been in close touch with engineers, operators and representatives of the government in diamond drilling operations and has made one of the most advanced studies of urnaium recovery in the area.

Neal I. Clove has accepted employment as mining superintendent. He has had ten years experience as a miner and as a superintendent of mines for major mining companies.

5. Lessee and purchase optionee.

6. - - -

7. Exhibits 1, 2, 3 and 4 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 72 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, 3 and 4, 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 year 1950 and 1951.

8. Exhibits 1 to 4 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.

We have on hand equipment of the reasonable value of $3,000.00 consisting of compressor with jack hammer, stoker and liner with column, together with all hose, pipes, steel and bits for mining operation. Cash on hand $2500.00.

Money expended on project for development work: Sinking 70 foot incline shaft, construction of approximately 15 miles of road, surveying and mapping, cross cutting of veins with bulldizer and cash minimum payments made under requirements of Exhibits 1 to 4 inclusive totals $32,000.00.

Incorporators and Directors are men of sound financial standing and property who stand ready to guarantee the laon to the corporation of at least $10,000.00 additional, or are able to provide all necessary funds to match the requirements of the proposed loan.

9. Please refer to question number 8.

10. (a) Property described in Exhibits.

(b) Exploration proposed for claims: Benny K Mining Claim No. 1; Benny K Mining Claim No. 2; Scorpion Mining Claim No. 8. Refer to Exhibit 7.

11. Refer to Exhibits.

12. The property is located five miles north of Marysvale, Piute County, State of Utah. Within five miles of the Rio Grande Railroad railhead at Marysvale, Utah on accessible roads to railhead and surface Highway U. S. 89. Marysvale is shipping point and purchasing depot.

13. Water source shown in Exhibit 6. Water presently unappropriated and available in the amount of 25 gallons per minute all seasons. Power to be used diesel generated power on property. Exact cost presently unknown.

14. No existing structures or building on property. All exploration work conducted from Marysvale.

15. Ore to be trucked from mine by dirt road to purchasing depot at Marysvale. Distance approximately five miles.

16. (a) No production. Development and exploration previously described.

(b) An ajoining property has been in production for a period of one and one-half years. Substantial quantities of ore sold from said

property at purchasing depot, Marysvale, Utah. All information concerning this production now in the hands of the Atomic Energy Commission.

(c) Refer to Exhibit 10.

17. - - -

18. - - -

19. The property is adjacent to the holding of Vanadium Corporation of America where extensive deposits of uranium ore have been blocked out by the development program of the Vanadium Corporation of America and diamond drilled by the Atomic Energy Commission during the past one year, said diamond drilling program consisting of from three to five surface rigs and one to two under ground rigs working continuously. The result of these exploration tests have been so satisfactory that an additional program has been initiated of nearly double the amount for this year, of which a portion will be conducted on the Holmes Uranium holdings. Large but unknown quantities of uranium ore have been shipped from the Vanadium Corporation of America property. As shown by the Exhibits, a large area has been staked as uranium claims and a good deal of activity is going on.

20. Uranium ore.

21. It is proposed that three projects be conducted on the property:

Project No. 1. will be a continuation of present development on Benny K Mining Claim No. 1, which will consist of sinking the incline shaft an additional 150 feet with cross cuts. Time required - two months. (If shipping ore is discovered the project will be terminated and will be placed on the repayment basis.)

Project No. 2 Also on Benny K No. 1. 1200 foot distance from Project No. 1. Will consist of a three compartment shaft 600 feet deep with mining equipment to operate the same and with additional mining equipment necessary for the drifting of cross cuts and piping water from Poverty Flat Springs. Estimated period time to complete - one year.

Project No. 3. On Scorpion No. 8. Consisting of a shaft 200 feet deep. Time to complete - 18 months from time of authorization.

22. Refer to question 16 (c) and Exhibit 10.

23.

Project No. 1

(a) Miners 400 man hrs. @167½¢ per hour equals $670.00
Muckers 600 " " @ 150¢ per hour equals $900.00

(b) General Manager, 1 month @ $500.00 per month equals $500.00

(c) $500.00

(d) - - -

(e) 1-gas hoist with drum complete. $1,750.00
800 lenial feet of 20 lb rails with
fish plate and spikes (used)... . . . . 100.00
400 board feet of mine ties @ $50.00 per 1000 . 20.00

(f) - - -

(g) $3,000.00 evaluation on present mining equipment to be rented to operation @ $200.00 per month. $200.00

(h) Office supplies and misc. equipment 100.00

(i) - - -

24. Project No. 1. Commence operation within 15 days of approval and complete within 60 days. Continue present incline shaft 150 feet and cross cut for vein with total estimated cost of $4,240.00.

Project No. 2.

(a) Miners 4800 hours, @ 167½¢ per hour. $8,040.00
Muckers, 4800 " @ 150 ¢ " " 7.200.00
Timber men 1200 hrs. @ 150¢ per hr.. . . . . 2,010.00
" " Helper 1200 hrs. @150¢ per hr.. . . . . 1,800.00
Shift Foreman 1200 hrs. @ 200¢ per hr. 2,400.00
Compensation insurance & Social Security 1,501.50

(b) General Manager, 6 months @ $500.00 per mo.. . . . . 3,000.00
Superintendent, 6 Mo. @ $400.00 per mo.. . . . . 2,400.00
Book & Time Keeper, 6 Mo. @ $300.00 per mo.. . . . . 1,800.00
Stenographer & File Cler, 6 Mo. @ $250.00 per mo.. . . . 1,500.00
Compensation Insurance & Soc. Security.. . . . . 609.00

(c) - - -

(d) Hoist house @ $4,500.00. . . . . 4,500.00
Ore Bins, @ 8,000.00 ... . 8,000.00

(e) Equipment as per attached list 80,370.00
Mine Timber for shaft, 40 thousand b.f. @ $50.00 . . . 2,000.00

(f) One Compressor @ $250.00 per Mo. 500.00

(g) - - -

(h) Office and Misc. Equipment in items costing less than $50.00 each. 50.00

(i)	1" flex pipe for 3 miles distance	$ 3,960.00
	1 Storage Tank.	1,000.00
	Labor installing water supply	1,500.00
	Compensation Insurance & Social Security.	105.00
(j)	Deisel fuel for 6 month period.	2,500.00
	Gas & oil " " " "	2,000.00
	Powder fuze and caps for 6 month period	4,500.00
	Total.	138,732.50

It is desired that any funds left over from the construction of Projects 1 and 2 may be transferred to Project 3 for its completion without an individual estimate.

Project No. 1. Start project within 3 months of authorization.

Project No. 2. Sink 3 compartment shafts to the 600 foot level by 6 months from authorization date. Cross cut drifts of 1,800 feet from shaft 12 months.

Project No. 3. All money expended within one year from authorization.

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 K, No. 3,4 and 6.

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.

Exhibit No. 4. Agreement dated January 7, 1950 between John Paul Fullmer, Phil Rosequist, Dean U. Leavitt and Thomas Howard Fullmer as Sellers, and J. Mark Holmes as Buyer, covering Gimic, Uncle Duck, P. L. and Dreamer claims.

Exhibit No. 5. Mining claim map showing the locations of the mining claims described in Exhibits 1, 2 and 3, Sections, Township and ranges as located by the general land office surveys.

Exhibit No. 6. 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. 2.

Exhibit No. 7. 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, 3 and the South 1/2 of claims described in Exhibit 4.

Exhibit No. 8. 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 4 inclusive.

Exhibit No. 9. A copy of the United States Geological Survey rock classification map of the area as described in Exibit 1 to 4 inclusive.

Exhibit No. 10. 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)
	("	241)
Benny K. Extension No. 2	"	214
" " No. 3	"	215
" " No. 4	"	215
" " No. 5	"	216
Lorraine No. 6	"	227
" No. 7	"	228
Delight	"	280
Sunday Joy	"	235
Benny K. No. 1	"	176
" " No. 2	"	176
Skippy	"	235
Gladiator aka Gladiatior	"	350
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, miner-like and economical mining, so as to develop and take out ore with due regard to the development and preservation of the mine 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 9th 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 purpose.

VII.

ORES NOT TO BE COMMINGLED

Lessee shall not mix any ores from the demised premises 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 Workman'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 from 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 and other 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 these 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, sur-

render 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, Marysvale, 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 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 Burkes 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 S	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 cash, the receipt of which is hereby acknowledged, and the balance as follows: $3,000.00 or more on or before the 1st day of July, 1950, and $3,000.00 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 forogoing 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 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 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 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 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 COMMINGLED

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, 1950, 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 1953

(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
Adabella	" "	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 claim 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 Pullman, 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 or more on or before the 1st day of November, 1950; $1,000.00 or more on or before the 1st day of July, 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 suc-

ceeding 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 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 obliga-

tion 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 reason ble 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 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 Cullmer

(signed) Dean U. Leavitt

SELLERS

(signed) J. Mark Holmes

BUYER

EXHIBIT 4 EXHIBIT 4

AGREEMENT

THIS AGREEMENT made in duplicate as of the 7th day of January, 1950, by and between John Paul Fullmer, Phil Lovewitt, Dean J. Lovewitt, and Thomas Howard Fullmer, all of Marysvale, Utah, hereinafter referred to as the Sellers, and J. Clark Holmes of Kanab, Utah, hereinafter referred to as the Buyer:

W I T N E S S E T H:

1.

RIGHTS GRANTED AND SOLD

That the Sellers for the consideration herein mentioned agree to sell and 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 the Henry Mining District, Sevier County, State of Utah, to-wit:

Name of Location	Notice of Location Recorded in Records of Sevier County, Utah. Book of Locations	Page
Gimoc No. 1	Book 8	151
" No. 2	" "	151
" No. 5	" "	154
" No. 6	" "	160
" No. 7		
" No. 8		
" No. 9		
Uncle Duck No. 1	" "	
Uncle Duck No. 2	" "	150
" " No. 3	" "	150
" " No. 4	" "	8
" " No. 5	" "	151
" " No. 6		
P.L. No. 17		
Dreamer No. 2	" "	176
" No. 3	" "	176
" No. 4	" "	177
" No. 13	" "	198
" No. 14	" "	199
Dreamer Extension No. 1		
" " No. 2		

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 OR 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-Two Thousand Five Hundred and no/100 ($52,500.00) Dollars, payable at the office of John Paul Sellner, one of the above Sellers in Marysvale, Utah, strictly within the following terms, to-wit: $900.00 cash, the receipt of which is hereby acknowledged and the balance as follows: $1,350.00 or more on or before the 1st day of July, 1950;

$1,350.00 or more on or before the 1st day of November, 1950; $1,350.00 or more on or before the 1st day of March, 1951, and $1,350.00 or more on or before the 1st day of July, 1951; and $1,350.00 or more on or before the 1st day of every three months 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 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 .5%	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 operation; 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 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 $52,500.00 above expressed the Sellers 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 $52,500.00, 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 filed 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 timber, support, raft 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 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 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 re 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 pertaining 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 ACCOUNTS

The Sellers and their authorized agents shall, at any and all reason-

able times, be permitted to inspect all books and records, including any 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.

STATEMENT 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 COMMINGLED

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
NON-NAVIGATION OF SLOPES

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 Employers 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 12th day of July, 1950.

(signed) John Paul Fullmer

(signed) Dean U. Leavitt

(signed) Thomas H. Fullmer

(signed) Phil Rosequist
SELLERS

(signed) J. Mark Holmes
BUYER

STATE OF UTAH)
: SS
COUNTY OF PIUTE)

On the 13 day of July, 1950, personally appeared before me John Paul Fullmer, Phil Rosequist, Dean U. Leavitt and Thomas Howard Fullmer, Sellers, and J. Mark Holmes, Buyer, who duly acknowledged to me that they executed the foregoing instrument.

(signed) Violet Sargent
Notary Public
Residing at: Marysvale, Ut.

My Commission expires:
Feb. 2nd 1953 (Seal)

Exhibit 10 Exhibit 10

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, Eardley, 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 probably 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-SanPitch graben be present. They are suggested by the N 60-65° 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 50-70° 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 of 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 pitchblende. 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 360°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. Sirinora 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 of energy 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.

Inasofar 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 50-70° 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 11

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

INTRODUCTION

Benny "K" claims Nos. 1 & 3 are located in the SW1/4 Sec. 25, R 4 W, T 26 S, SLB&M, Piute Co., Utah. One days 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

PART II

PRELIMINARY GEOLOGICAL AND RADIATION SURVEY OF BENNY "K" CLAIMS

NUMBERS 1 & 3

FAULTING (CONTINUED)

younger than the 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-S 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 montmorillonite-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 oxidized 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 principle 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 background count/ second for

PART 11

PRELIMINARY GEOLOGICAL AND RADIATION SURVEY OF BENNY "K" CLAIMS

NUMBERS 1 & 3

MINERALIZATION AND RADIATION ANOMALIES (CONTINUED)

Tqm is approximately 60. 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 120, 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 II

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

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. DMA 1968

Date received 8-16-51

Participation

HOLMES URANIUM CORPORATION, a
corporation of the State of Utah
1010 Boston Building
Salt Lake City 1, Utah

Name and address of applicant

Date August 10, 1951

FILL IN THIS BLOCK

Date of application August 10, 1951

Estimated cost $143,695.50

Mineral or metal Uranium

Percentage of Government participation 90%

Location of mine Marysvale, Utah uranium Mining District

Date of filing MF-100

DMA Docket Number, if available 1968

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 16 1951

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation?
*2. If a partnership, state names and addresses of partners.
*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.
*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.
*5. Are you the owner or the lessee of the property?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is in good standing.

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

*If you have already answered these questions on MF-100, you are not required to answer the questions for this application.

16—64067-1

PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.
*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.
*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.
*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.
15. State in detail how the ore could be shipped and how and where milled.
*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examination, recommended exploration and development, and metallurgical investigations.
*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.
19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?
21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.

22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.
24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this form and accompanying papers is correct and complete to the best of their knowledge and belief.

Holmes Uranium Corporation
(Name of company)

By Mark Holmes
(Signature of authorized official)

August 10, 1951
(Date)

President
(Title)

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.

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

1. Applicant is Holmes Uranium Corporation, a corporation of the State of Utah.

2. - - -

3. 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.

4. J. Mark Holmes to be manager of operations. He is a Civil Engineer, six months Superintendent of Gold mining operation, twelve years engineer for United States Geological Survey, four years consulting engineer, three years military service World War II - scientific assignment, on the gound Marysvale area two years, has surveyed area, drawn maps of the mining claim surveys, has personally observed all uranium development and operations, has been in close touch with engineers, operators and representatives of the government in diamond drilling operations and has made one of the most advanced studies of urnaium recovery in the area.

Neal I. Clove has accepted employment as mining superintendent. He has had ten years experience as a miner and as a superintendent of mines for major mining companies.

5. Lessee and purchase optionee.

6. - - -

7. Exhibits 1, 2, 3 and 4 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 72 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, 3 and 4, 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 year 1950 and 1951.

8. Exhibits 1 to 4 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.

We have on hand equipment of the reasonable value of $3,000.00 consisting of compressor with jack hammer, stoker and liner with column, together with all hose, pipes, steel and bits for mining operation. Cash on hand $2500.00.

Money expended on project for development work: Sinking 70 foot incline shaft, construction of approximately 15 miles of road, surveying and mapping, cross cutting of veins with bulldizer and cash minimum payments made under requirements of Exhibits 1 to 4 inclusive totals $32,000.00.

Incorporators and Directors are men of sound financial standing and property who stand ready to guarantee the laon to the corporation of at least $10,000.00 additional, or are able to provide all necessary funds to match the requirements of the proposed loan.

9. Please refer to question number 8.

10. (a) Property described in Exhibits.

(b) Exploration proposed for claims: Benny K Mining Claim No. 1; Benny K Mining Claim No. 2; Scorpion Mining Claim No. 8. Refer to Exhibit 7.

11. Refer to Exhibits.

12. The property is located five miles north of Marysvale, Piute County, State of Utah. Within five miles of the Rio Grande Railroad railhead at Marysvale, Utah on accessible roads to railhead and surface Highway U. S. 89. Marysvale is shipping point and purchasing depot.

13. Water source shown in Exhibit 6. Water presently unappropriated and available in the amount of 25 gallons per minute all seasons. Power to be used diesel generated power on property. Exact cost presently unknown.

14. No existing structures or building on property. All exploration work conducted from Marysvale.

15. Ore to be trucked from mine by dirt road to purchasing depot at Marysvale. Distance approximately five miles.

16. (a) No production. Development and exploration previously described.

(b) An ajoining property has been in production for a period of one and one-half years. Substantial quantities of ore sold from said

property at purchasing depot, Marysvale, Utah. All information concerning this production now in the hands of the Atomic Energy Commission.

(c) Refer to Exhibit 10.

17. - - -

18. - - -

19. The property is adjacent to the holding of Vanadium Corporation of America where extensive deposits of uranium ore have been blocked out by the development program of the Vanadium Corporation of America and diamond drilled by the Atomic Energy Commission during the past one year, said diamond drilling program consisting of from three to five surface rigs and one to two under ground rigs working continuously. The result of these exploration tests have been so satisfactory that an additional program has been initiated of nearly double the amount for this year, of which a portion will be conducted on the Holmes Uranium holdings. Large but unknown quantities of uranium ore have been shipped from the Vanadium Corporation of America property. As shown by the Exhibits, a large area has been staked as uranium claims and a good deal of activity is going on.

20. Uranium ore.

21. It is proposed that three projects be conducted on the property:

Project No. 1. will be a continuation of present development on Benny K Mining Claim No. 1, which will consist of sinking the incline shaft an additional 150 feet with cross cuts. Time required - two months. (If shipping ore is discovered the project will be terminated and will be placed on the repayment basis.)

Project No. 2 Also on Benny K No. 1. 1200 foot distance from Project No. 1. Will consist of a three compartment shaft 600 feet deep with mining equipment to operate the same and with additional mining equipment necessary for the drifting of cross cuts and piping water from Poverty Flat Springs. Estimated period time to complete - one year.

Project No. 3. On Scorpion No. 8. Consisting of a shaft 200 feet deep. Time to complete - 18 months from time of authorization.

22. Refer to question 16 (c) and Exhibit 10.

23.

Project No. 1

(a) Miners 400 man hrs. @167½¢ per hour equals $670.00
Muckers 600 " " @ 150¢ per hour equals $900.00

(b) General Manager, 1 month @ $500.00 per month equals $500.00

(c) $500.00

(d) - - -

(e) 1-gas hoist with drum complete. $1,750.00
800 lenial feet of 20 lb rails with
fish plate and spikes (used)... . . . . 100.00
400 board feet of mine ties @ $50.00 per 1000 . 20.00

(f) - - -

(g) $3,000.00 evaluation on present mining equipment to be rented to operation @ $200.00 per month. $200.00

(h) Office supplies and misc. equipment 100.00

(i) - - -

24. Project No. 1. Commence operation within 15 days of approval and complete within 60 days. Continue present incline shaft 150 feet and cross cut for vein with total estimated cost of $4,240.00.

Project No. 2.

(a) Miners 4800 hours, @ 167½¢ per hour. $8,040.00
Muckers, 4800 " @ 150 ¢ " " 7.200.00
Timber men 1200 hrs. @ 150¢ per hr.. . . . . 2,010.00
" " Helper 1200 hrs. @150¢ per hr.. . . . . 1,800.00
Shift Foreman 1200 hrs. @ 200¢ per hr. 2,400.00
Compensation insurance & Social Security 1,501.50

(b) General Manager, 6 months @ $500.00 per mo.. . . . . 3,000.00
Superintendent, 6 Mo. @ $400.00 per mo.. . . . . 2,400.00
Book & Time Keeper, 6 Mo. @ $300.00 per mo.. . . . . 1,800.00
Stenographer & File Cler, 6 Mo. @ $250.00 per mo.. . . . 1,500.00
Compensation Insurance & Soc. Security.. . . . . 609.00

(c) - - -

(d) Hoist house @ $4,500.00. . . . . 4,500.00
Ore Bins, @ 8,000.00 ... . 8,000.00

(e) Equipment as per attached list 80,370.00
Mine Timber for shaft, 40 thousand b.f. @ $50.00 . . . 2,000.00

(f) One Compressor @ $250.00 per Mo. 500.00

(g) - - -

(h) Office and Misc. Equipment in items costing less than $50.00 each. 50.00

(i)	1" flex pipe for 3 miles distance	$ 3,960.00
	1 Storage Tank.	1,000.00
	Labor installing water supply	1,500.00
	Compensation Insurance & Social Security.	105.00
(j)	Deisel fuel for 6 month period.	2,500.00
	Gas & oil " " " "	2,000.00
	Powder fuze and caps for 6 month period	4,500.00
	Total.	138,732.50

It is desired that any funds left over from the construction of Projects 1 and 2 may be transferred to Project 3 for its completion without an individual estimate.

Project No. 1. Start project within 3 months of authorization.

Project No. 2. Sink 3 compartment shafts to the 600 foot level by 6 months from authorization date. Cross cut drifts of 1,800 feet from shaft 12 months.

Project No. 3. All money expended within one year from authorization.

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 K, No. 3,4 and 6.

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.

Exhibit No. 4. Agreement dated January 7, 1950 between John Paul Fullmer, Phil Rosequist, Dean U. Leavitt and Thomas Howard Fullmer as Sellers, and J. Mark Holmes as Buyer, covering Gimic, Uncle Duck, P. L. and Dreamer claims.

Exhibit No. 5. Mining claim map showing the locations of the mining claims described in Exhibits 1, 2 and 3, Sections, Township and ranges as located by the general land office surveys.

Exhibit No. 6. 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. 2.

Exhibit No. 7. 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, 3 and the South 1/2 of claims described in Exhibit 4.

Exhibit No. 8. 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 4 inclusive.

Exhibit No. 9. A copy of the United States Geological Survey rock classification map of the area as described in Exibit 1 to 4 inclusive.

Exhibit No. 10. 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)
	("	241)
Benny K. Extension No. 2	"	214
" " No. 3	"	215
" " No. 4	"	215
" " No. 5	"	216
Lorraine No. 6	"	227
" No. 7	"	228
Delight	"	280
Sunday Joy	"	235
Benny K. No. 1	"	176
" " No. 2	"	176
Skippy	"	235
Gladiator aka Gladiatior	"	350
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 purpose.

VII.

ORES NOT TO BE CO-MINGLED

Lessee shall not mix any ores from the demised premises 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 and other 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 these 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, sur-

render 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, Marysvale, 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 cash, the receipt of which is hereby acknowledged, and the balance as follows: $3,000.00 or more on or before the 1st day of July, 1950, and $3,000.00 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 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 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 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 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.

STATEMENTSTO 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, 1950, 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 1953

(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
Adabella	" "	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 or more on or before the 1st day of November, 1950; $1,000.00 or more on or before the 1st day of July, 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 suc-

ceeding 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 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 obliga-

tion 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 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 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 4 EXHIBIT 4

AGREEMENT

THIS AGREEMENT made in duplicate as of the 7th day of January, 1950, by and between John Paul Fullmer, Phil Rosequist, Dean U. Leavitt, and Thomas Howard Fullmer, all 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 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 the Henry Mining District, Sevier County, State of Utah, to-wit:

Name of Location	Notice of Location Recorded in Records of Sevier County, Utah. Book of Locations	Page
Gimec No. 1	Book 8	151
" No. 2	" "	151
" No. 5	" "	154
" No. 6	" "	160
" No. 7		
" No. 8		
" No. 9		
Uncle Duck No. 1	" "	
Uncle Duck No. 2	" "	150
" " No. 3	" "	150
" " No. 4	" "	8
" " No. 5	" "	151
" " No. 6		
P.L. No. 17		
Dreamer No. 2	" "	176
" No. 3	" "	176
" No. 4	" "	177
" No. 13	" "	198
" No. 14	" "	199
Dreamer Extension No. 1		
" " No. 2		

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-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: $900.00 cash, the receipt of which is hereby acknowledged and the balance as follows: $1,350.00 or more on or before the 1st day of July, 1950;

$1,350.00 or more on or before the 1st day of November, 1950; $1,350.00 or more on or before the 1st day of March, 1951, and $1,350.00 or more on or before the 1st day of July, 1951; and $1,350.00 or more on or before the 1st day of every three months 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 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 .5%	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 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 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 $52,500.00 above expressed the Sellers 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 $52,500.00, 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 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 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 reason-

able 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 12th day of July, 1950.

(signed) John Paul Fullmer

(signed) Dean U. Leavitt

(signed) Thomas H. Fullmer

(signed) Phil Rosequist
SELLERS

(signed) J. Mark Holmes
BUYER

STATE OF UTAH)
: SS
COUNTY OF PIUTE)

On the 13 day of July, 1950, personally appeared before me John Paul Fullmer, Phil Rosequist, Dean U. Leavitt and Thomas Howard Fullmer, Sellers, and J. Mark Holmes, Buyer, who duly acknowledged to me that they executed the foregoing instrument.

(signed) Violet Sargent
Notary Public
Residing at: Marysvale, Ut.

My Commission expires:

Feb. 2nd 1953 (Seal)

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, Eardley, 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 probably that much of the igneous activity around Marysvale and southern Utah in general is post-wasatch formation of Eocene age since large volumes of thyolitic 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-SanPitch graben be present. They are suggested by the N 60-65° 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 50-70° 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 of 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 pitchblende. 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 of energy 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 50-70° 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 11

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

INTRODUCTION

Benny "K" claims Nos. 1 & 3 are located in the SW1/4 Sec. 25, R 4 W, T 26 S, SLB&M, Piute Co., Utah. One days 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 BEENY "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

PART 11

PRELIMINARY GEOLOGICAL AND RADIATION SURVEY OF BENNY "K" CLAIMS

NUMBERS 1 & 3

FAULTING (CONTINUED)

younger than the 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-S 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 montmorillonite-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 oxidized 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 principle 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 background count/ second for

PART 11

PRELIMINARY GEOLOGICAL AND RADIATION SURVEY OF BENNY "K" CLAIMS

NUMBERS 1 & 3

MINERALIZATION AND RADIATION ANOMALIES (CONTINUED)

Tqm is approximately 60. 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 120, 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.

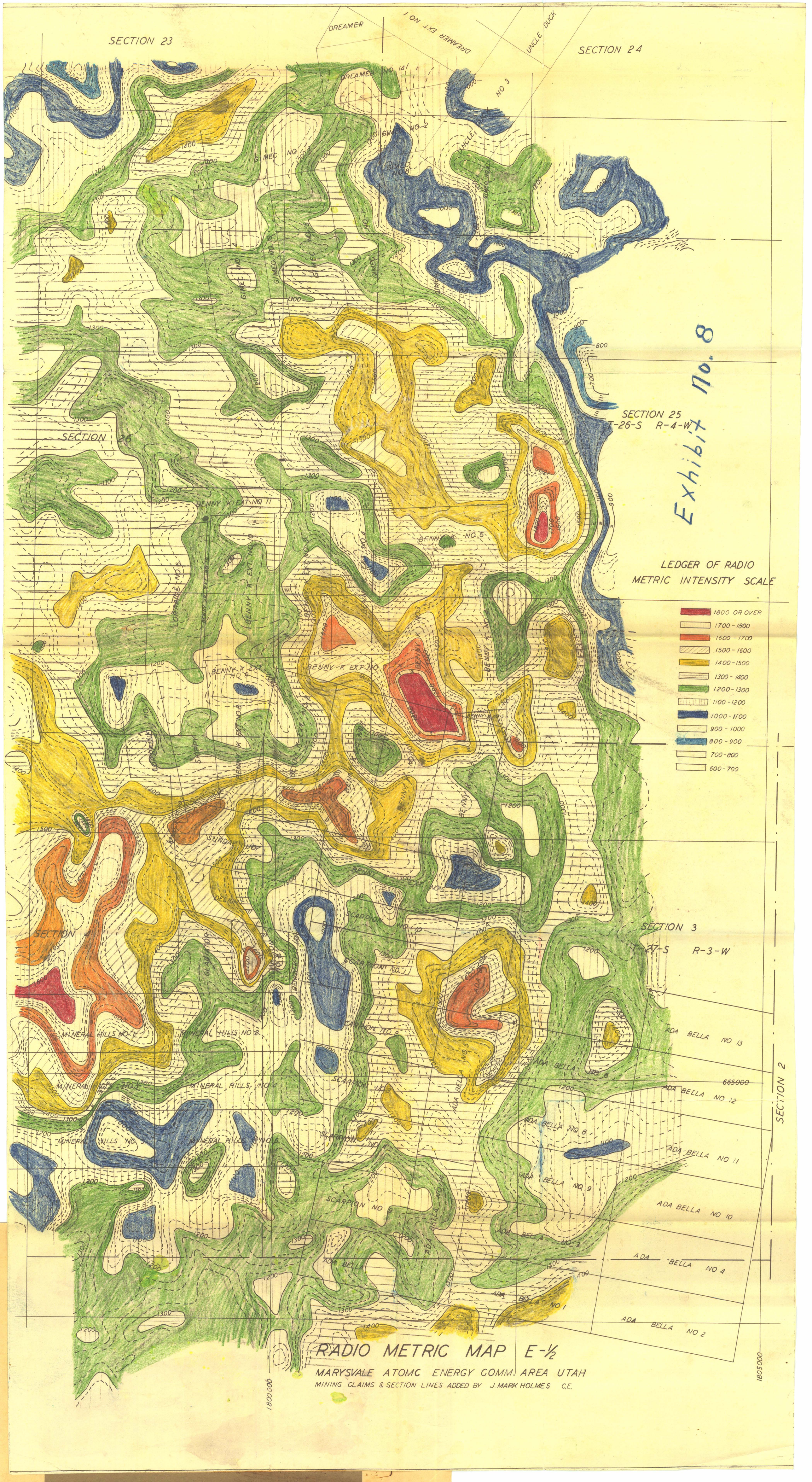
August 24, 1950

THE GEO-MINERALS CO.

By - Allen O. Taylor, Geologist

David C. Arnold, Geologist

DREAMER NO 14
UNCLE DUCK NO 3
GIMEC NO 2
GIMEC NO 3
TBC
GIMEC NO 4
GIMEC NO 10
GIMEC NO 5
GIMEC NO 1
GIMEC NO 6
GIMEC NO 7
SECTION LINE
SECTION 26
SECTION 25
SECTION LINE
BENNY "K" EXT NO. 11
LORRAINE NO 6
BENNY K EXT NO 10
BENNY K EXT NO 3
BENNY K EXT NO 4
BENNY K NO 6
BENNY K NO 3
BENNY K NO 4
TQM
QAL
BENNY K EXT NO 7
BENNY K
TQM
LORRAINE NO 7
SKIPPY
BENNY K EXT NO 8
BENNY "K" EXT NO 2
BENNY "K" EXT NO 1
BENNY K NO 1
BENNY K NO 2
TQM
T-26-S R-4-W SLBM
T-27-S R-3-W
SECTION LINE
QAL.
SUNDAY JOY
BENNY K EXT NO 5
DELIGHT
TBC
TQM
GLADIATOR
SCARPION NO 8
SCARPION NO 10
SCARPION NO 1
SCARPION NO 2
SCARPION NO 3
SCARPION NO 4
SCARPION NO 9
ADA BELLA NO 1
ADA BELLA NO 5
ADA BELLA NO 14
SECTION 4
SECTION 3
TMBP
MINERAL HILLS NO 1
MINERAL HILLS NO 2
MINERAL HILLS NO 3
MINERAL HILLS NO 4
MINERAL HILLS NO 5
MINERAL HILLS NO 6
TBC
ADA BELLA NO 6
ADA BELLA NO 12
QAL
ADA BELLA NO 8
ADA BELLA NO 11
TBC
ADA BELLA NO 9
ADA BELLA NO 10
ADA BELLA NO 3
ADA BELLA NO 4
ADA BELLA NO 1
ADA BELLA NO 2
SECTION LINE
QAL
SECTION LINE
QAL
SEDIMENTARY ROCKS
QAL
ALLUVIUM
QTG
TERRACE GRAVELS
IGNEOUS ROCKS
TMBP
MOUNT BELKNAP RHYOLITE PORPHYRITIC FACES
TMB
MOUNT BELKNAP RHYOLITE RED FACIES
GRANITE & LATER INTRUSIVES
TQM
QUARTZ MONZONITE
TBC
BULLION CANYON VOLCANIES
No 9
Exhibit


SECTION 23
SECTION 24
DREAMER
DREAMER EXT NO 1
UNCLE DUCK
DREAMER NO 14
DREAMER NO 3
DREAMER NO 2
GIMEC NO 1
GIMEC NO 2
GIMEC NO 3
GIMEC NO 4
GIMEC NO 5
GIMEC NO 6
GIMEC NO 7
GIMEC NO 8
GIMEC NO 9
GIMEC NO 10
GIMEC NO 11
GIMEC NO 12
GIMEC NO 13
GIMEC NO 14
SECTION 25
26-S R-4-W
SECTION 26
BENNY K EXT NO 11
BENNY K NO 5
BENNY K EXT NO 6
BENNY K EXT NO 7
BENNY K EXT NO 8
BENNY K EXT NO 9
BENNY K EXT NO 10
BENNY K NO 3
BENNY K NO 4
BENNY K NO 1
BENNY K NO 2
BENNY K NO 6
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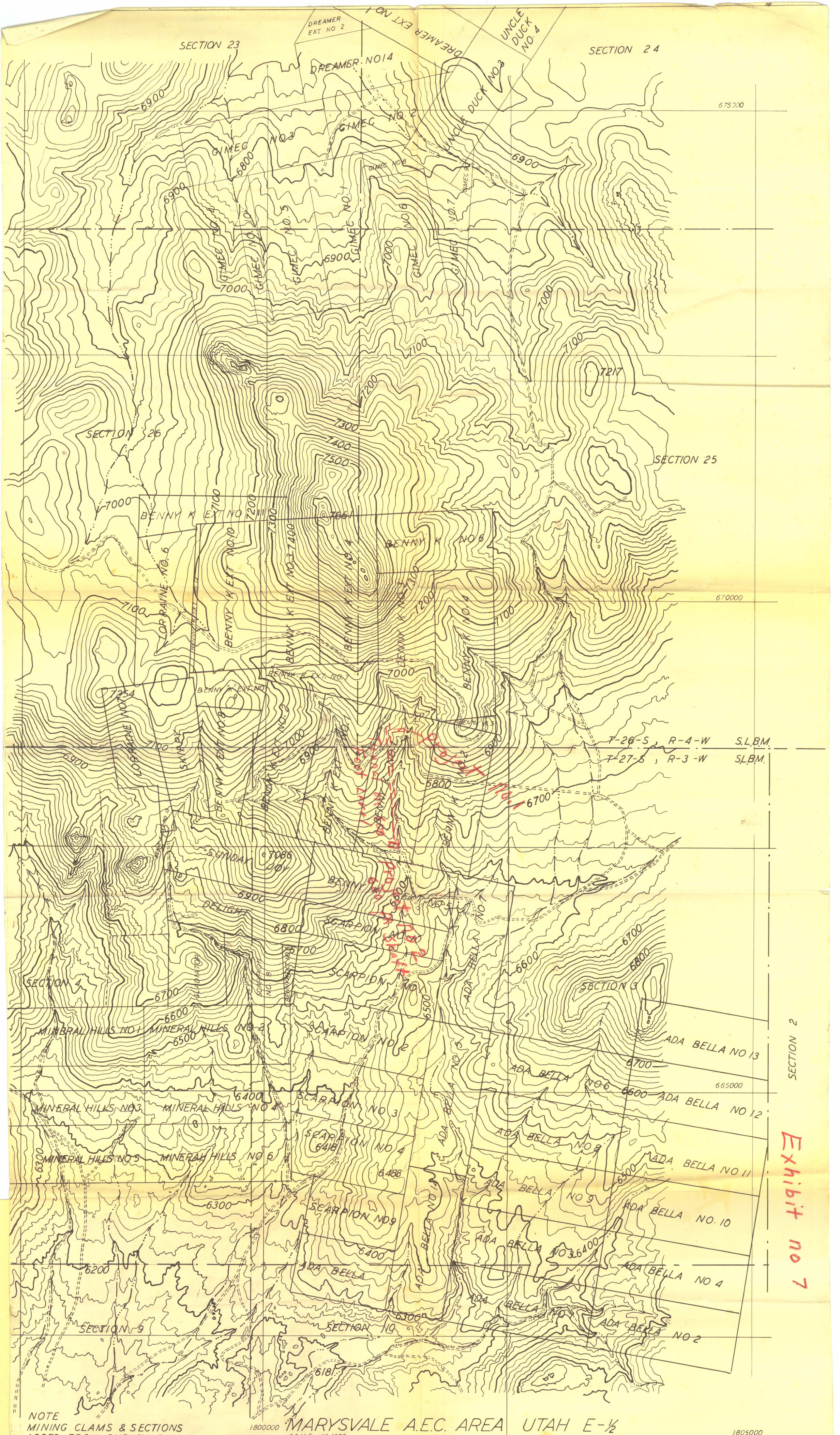
BENNY K NO 15
BENNY K NO



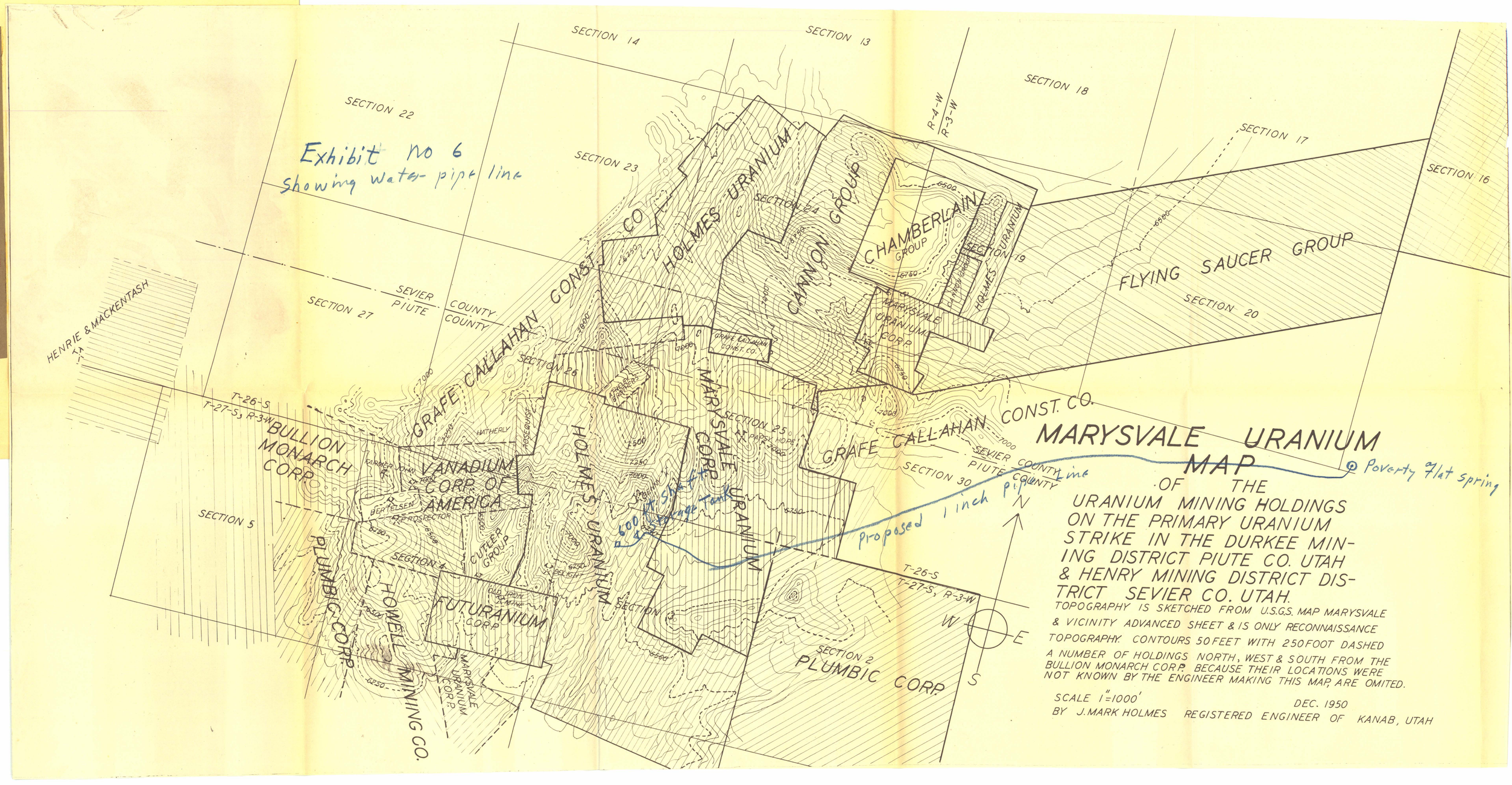
NOTE
MINING CLAMS & SECTIONS
ADDED FROM SURVEY BY
J. MARK HOLMES C.E. OF
KANAB UTAH

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.

Exhibit no 7

T-4 ACCOWAY FILING TAPE



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.

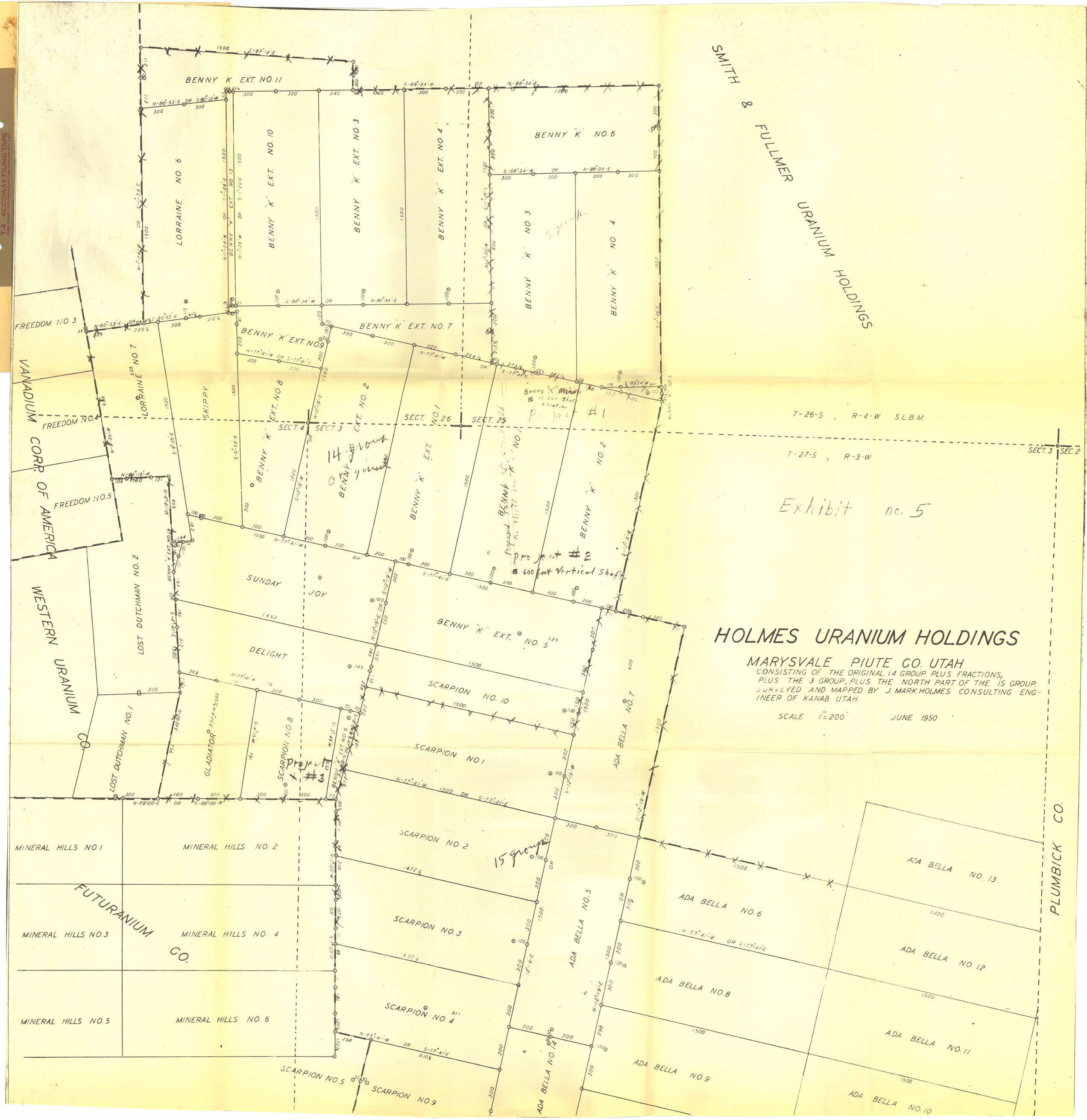
TOPOGRAPHY IS SKETCHED FROM U.S.G.S. MAP MARYSVALE & VICINITY ADVANCED SHEET & IS ONLY RECONNAISSANCE TOPOGRAPHY. CONTOURS 50 FEET WITH 250 FOOT DASHED

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


SMITH & FULLMER URANIUM HOLDINGS
BENNY K EXT. NO. 11
BENNY "K" EXT. NO. 10
BENNY "K" EXT. NO. 3
BENNY "K" EXT. NO. 4
BENNY "K" NO. 6
BENNY "K" NO. 3
BENNY "K" NO. 4
LORRAINE NO. 6
FREEDOM NO. 3
BENNY "K" EXT. NO. 9
BENNY "K" EXT. NO. 7
LORRAINE NO. 7
SKIPPY
VANADIUM CORP. OF AMERICA
FREEDOM NO. 4
FREEDOM NO. 5
BENNY "K" EXT. NO. 8
BENNY "K" EXT. NO. 2
SECT. 4
SECT. 3
SECT. 26
SECT. 25
BENNY "K" EXT. NO. 1
BENNY "K" NO. 2
T-26-S , R-4-W S.L.B.M.
T-27-S , R-3-W
SECT. 3
SEC. 2
Exhibit no. 5
14 group
Project #1
Project #2
600 foot Vertical Shaft
WESTERN URANIUM CO.
LOST DUTCHMAN NO. 2
SUNDAY
JOY
DELIGHT
BENNY "K" EXT. NO. 5
SCARPION NO. 10
SCARPION NO. 1
ADA BELLA NO. 7
LOST DUTCHMAN NO. 1
GLADIATOR
SCARPION NO. 8
Project #3
15 group
MINERAL HILLS NO. 1
MINERAL HILLS NO. 2
MINERAL HILLS NO. 3
MINERAL HILLS NO. 4
MINERAL HILLS NO. 5
MINERAL HILLS NO. 6
FUTURANIUM CO.
SCARPION NO. 2
SCARPION NO. 3
SCARPION NO. 4
SCARPION NO. 5
SCARPION NO. 9
ADA BELLA NO. 5
ADA BELLA NO. 14
ADA BELLA NO. 6
ADA BELLA NO. 8
ADA BELLA NO. 9
ADA BELLA NO. 13
ADA BELLA NO. 12
ADA BELLA NO. 11
ADA BELLA NO. 10
PLUMBICK CO.
HOLMES URANIUM HOLDINGS
MARYSVALE PIUTE CO. UTAH
CONSISTING OF THE ORIGINAL 14 GROUP PLUS FRACTIONS, PLUS THE 3 GROUP, PLUS THE NORTH PART OF THE 15 GROUP. SURVEYED AND MAPPED BY J. MARK HOLMES CONSULTING ENGINEER OF KANAB UTAH.
SCALE 1" = 200'
JUNE 1950