Surname copy

700

Murphy
Ely
Heckon
Kiilsgaard
Selfridge
Robinson

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

DEC 15 1955

Mr. W. A. Murray
P. O. Box 152
Wickenburg, Arizona

Re: Docket No. DMEA-3963 (Uranium)
Congress Mine
Yavapai County, Arizona

Dear Mr. Murray:

Reference is made to your application for Government aid in an exploration project covering the Congress mine.

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

Although some uranium mineralization was noted to occur in the amorphous silica films which cover portions of the vein material and other rocks in the mine and on surface dumps, a careful study of all our information indicates to us that the probability of disclosing minable uranium ore reserves by driving additional exploratory openings than presently exist on your property is not sufficiently promising to justify Government participation. We regret to advise you that, under these circumstances, your application for exploration assistance is denied.

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

Sincerely yours,

E. O. Mittendorf
(by CST)
Administrator

FMMurphy/gla
12-13-55
cc to: Admr.'s Reading File
Operating Committee
Docket
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA
Code 700
Mr. Murphy
DMEA Field Team, Region III (2)

R.G.S.

DOCKET COPY

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

December 13, 1955

Summary of Proposed Project

Object: Denial of application for exploration aid.

Docket No.: DMEA-3963

Commodity: Uranium

Applicant: W. A. Murray
Box 152
Wickenburg, Arizona

Date of Application: August 24, 1955

Referred to Field Team: September 21, 1955

Field Team Report Recd.: December 2, 1955

Amount of Application: $27,033.61

Work Proposed:

1. Rehabilitate some old drifts and shafts.
2. Drive a total of 200 feet of drift in three different parts of the mine.
3. Drive 4 raises, each approximately 50 feet at specific points.

Estimated Costs:

Hoistman, 148 days @ $16.00/day	$2,368.00	
At No. 3 shaft, 2 miners, for 320 days @ $16.00/day	4,832.00	
At Queen of the Hills, 2 miners for 262 days @ $16.00/day	4,192.00	
Supervisor, 6 mos., @ $300/mo.	1,800.00	
Consultant, 1 day/wk. @ $100/day	2,400.00	
Operating materials & supplies	1,362.05	
Operating equipment	8,422.00	
Miscellaneous	1,157.56	
Contingencies	500.00	
Total		$27,033.61
Government participation @ 75%		$20,275.20

Excerpts from Field Team report:

An application, DMEA-2364, dated January 17, 1952, by E. A. Colburn, for aid in a tungsten exploration project at the Congress Mine was denied by J. H. East, DMEA Region IV Executive Officer, in a letter, dated March 26, 1952, to the Applicant. The Congress mine property contains several gold-quartz veins of which the Congress, Niagara, and Queen of the Hills have been of particular economic importance, and have been developed by many miles of underground workings. About 700,000 tons of ore valued at $8,000,000 have been produced from these veins. The veins occur within fault fissures which strike generally westward and dip northward.

The vein filling consists of massive, grayish-white quartz together with irregular masses, bands, and disseminations of fine grained pyrite. Iron and manganese stains are apparent on rock in the dumps. Scattered erratically on the walls of the mine and on the dump rock are thin films of white amorphous silica, probably halite, that fluoresce bright yellowish green under the ultraviolet light.

Associated with this silica, and more-or-less concealed by it, are trace amounts of a radioactive mineral, which occurs in tiny specks, seams, or films which fluoresce bright green. The two minerals are quite similar under the ultraviolet light, but on close inspection can be distinguished by the brighter appearance of the radioactive mineral. Little or no radioactivity was found except where the bright green fluorescent mineral occurred, and this was nearly always associated with the more abundant amorphous silica. In most places these two minerals occurred as thin films on the walls of the drifts, usually on the up-dip side of the drift, but in a few places they were found filling small fractures. Obviously, the minerals are evaporites, which were taken into solution, transported, and re-deposited by minute quantities of percolating ground waters. According to the Applicant, the radioactive mineral was identified as liebigite, by the Battelle Memorial Institute.

The largest radioactive zone found by the DMEA examiners was on the 1100 level, from 45 to 75 feet east of the No. 3 shaft. In this area films and coatings of radioactive material were found on the up-dip side of the drift. Two selected samples of this material, chemically analyzed, showed 0.92 and 1.60 percent U_3O_8. Other selected samples from No. 2 shaft, and dumps from No. 2

and No. 5 shafts showed U_3O_8 values ranging from 0.10 to 0.14 percent.

Although the applicant claimed that radioactivity was present in important amounts in several places, Mr. Colburn, who accompanied the examiners throughout the mine workings, was unable to show the presence of anything better than indicated by USBM sample. At no place did the radioactivity in the walls exceed by more than three times the radioactivity of the background, and it was usually of a lesser order of magnitude. Apparently the applicant and the owner of the property ignored the significance of the background count and assumed that all evidence of radioactivity was important to the problem. However, none of the radioactive material found by the examiners was in sufficient quantity to be significant, and there is no evidence that greater amounts might be present elsewhere. In fact, the amount of uranium apparently is too small to justify recovery as a by-product of gold mining, which is apparently the intent of Mr. Murray, the present applicant.

The field examiners recommended that the subject application be denied because only trace amounts of uranium were found and they were unable to locate areas in which greater concentrations might exist. Also, the field examiners suggest it would be difficult to recommend approval for DMEA exploration assistance even if uranium were present, because the mine is fully developed. The Field Team concurred in the field examiners' recommendation to deny the subject application.

Commodity Members' comments:

U. S. Geological Survey - N. E. Nelson - December 6, 1955.

Mr. Nelson is in agreement with the conclusions of the field examiners and, therefore, concurs in denying the subject application.

U. S. Bureau of Mines - J. E. Crawford - December 8, 1955.

Mr. Crawford concurs in the recommendation of the Field Team.

Rare and Miscellaneous Metals Division - F. M. Murphy - December 8, 1955

After reviewing the report of examination, submitted by the Field Team, on the subject property, it is easy to understand why Mr. Murray was under the impression that he had a uranium bonanza.

The thin coating of amorphous silica with which the uranium mineral was found seems to be fairly prevalent in the old mine openings and although the thin films have no commercially exploitable value, they do have a high U_3O_8 content. As a result of these films, the background scintillator readings in the mine are abnormally high. Radioactivity readings higher than the background were noted by the field examiners only in zones where fairly thick coatings of the amorphous silica occurred.

The field examiners also noted that the counter responded slowly to the radioactive background, but after leaving the shaft the counter continued to give abnormally high background readings for about 1-1/2 hours.

According to the field examiners, the Applicant and the owner of the property ignored the significance of the background count and assumed that all evidence of radioactivity was important to the problem.

This Division concurs in the field examiners' and Field Team's recommendation to deny the subject application, as it has been demonstrated that the quantity of uranium-bearing material in the mine is negligible.

Ernest Wm. Ellis

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

12/9/55 rgh

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

RECEIVED
DEC - 9 1955

December 8, 1955

Memorandum

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

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

Subject: Report of Examination, DMEA Docket 3963, W. A. Murray, Congress Mine, Yavapai County, Arizona

I have reviewed the report of Congress Mine, DMEA Docket 3963, dated November 30 and received in this office December 5. I have also discussed it with Jack Kratchman, Washington representative of the Atomic Energy Commission.

The Congress Mine was examined on March 4 and 5, 1952, by a DMEA Field Team in response to an application for Federal aid to explore for tungsten. Being unable to find tungsten, the examiners recommended denial of the application.

On November 8, 1955, the mine was again examined by a DMEA team for the purpose of determining the possibility of Federal participation in a uranium exploration program. Equipped with the report of the first examination, the Field Team was able to make a thorough investigation of the accessible portions of the mine.

As the examiners found only trace amounts of uranium in the Congress Mine, it was recommended that the application for Government aid be denied.

We concur in the recommendation of the Field Team.

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

John E Crawford
John E. Crawford

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

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BUREAU OF MINES
WASHINGTON 25, D. C.

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We concur in the recommendation of the Field Team.

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

John E. Crawford

gla 12/7/55

IN REPLY REFER TO:

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

RECEIVED
DEC - 7 1955

December 6, 1955

Re: DMEA 3963
W. A. Murray
Congress Mine
Yavapai Co., Arizona
$27,033.61 - Uranium

Memorandum

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

From: N. E. Nelson, U. S. Geological Survey

Subject: Review of Field Team report.

The applicant requested assistance in the partial rehabilitation of the Congress mine No. 3 shaft, cleaning out of caved workings, drifting and raising in the old Congress, Queen of Hills and Bellick gold mines. Much of the proposed work would give access to old workings in which surveys had shown the presence of radioactive mineral or minerals and probably radon gas.

Previously, 1952, the mines were the subject of an application for aid in exploring for tungsten, DMEA 2364. At that time the examiners found not even trace amounts of tungsten, the fluorescent mineral being amorphous silica instead of scheelite. The application was denied.

Counter readings showed that isolated spots exhibiting fluorescence also showed radioactivity and the present application was filed.

The examiners found concentrations of the radioactive mineral on the 1000-foot level off the No. 3 shaft and from them obtained samples which assayed:--

Number		eU_3O_8%	cU_3O_8%
A-3625	Select from S wall	0.43	0.92
A-3624	Chip from S wall	0.81	1.60

$1\frac{1}{2}$' vertical, lens $1\frac{1}{2}$ x 6' long

Selected samples from the dump of No. 3 shaft and from the 250 level off No. 2 shaft showed 0.14% cU_3O_8 and other selected samples showed lower values. Radioactivity was found in other parts of the mines, but as no concentrations of radioactive minerals were found the activity shown by the counter is believed due, in large part, to accumulations of radon gas.

The examiners concluded that the places showing significant radioactivity are fully explored and the quantity of radioactive mineral is not large enough to warrant search by new workings for like occurrences.

I consider the conclusions well taken and concur with the recommendation that the application be denied.

N. E. Nelson

N. E. Nelson

IN REPLY REFER TO:

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

RECEIVED
DEC - 7 1955

December 6, 1955

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The examiners found concentrations of the radioactive mineral on the 1000-foot level off the No. 3 shaft and from them obtained samples which assayed:--

Number		eU_3O_8%	eU_3O_8%
A-3685	Select from S wall	0.43	0.92
A-3684	Chip from S wall	0.81	1.60

1½' vertical, lens 1½ x 5' long

Selected samples from the dump of No. 3 shaft and from the 850 level off No. 2 shaft showed 0.14% eU_3O_8 and other selected samples showed lower values. Radioactivity was found in other parts of the mines, but no concentrations of radioactive minerals were found the activity shown by the counter is believed due, in large part, to accumulations of radon gas.

The examiners concluded that the places showing significant radioactivity are fully explored and the quantity of radioactive mineral is not large enough to warrant search by new workings for like occurrences.

I consider the conclusions well taken and concur with the recommendation that the application be denied.

W. E. Nelson

W. E. Nelson

WENelson:iml
G-12/6/55

cc: Director's reading, 4212
Branch reading, 4212
DMEA (3) ✓
Docket file
J. M. Crawford, 3641
J. O. Kested, 3210

IN REPLY REFER TO:

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

RECEIVED
DEC - 7 1955

December 6, 1955

Re: DMEA 3963
W. A. Murray
Congress Mine
Yavapai Co., Arizona
$27,033.61 - Uranium

Memorandum

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

From: H. E. Nelson, U. S. Geological Survey

Subject: Review of Field Team report.

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Number		eU_3O_8%	cU_3O_8%
A-3625	Select from S wall	0.43	0.92
A-3624	Chip from S wall	0.61	1.60

1½' vertical, lens 1½ x 6' long

Selected samples from the dump of No. 3 shaft and from the 250 level off No. 2 shaft showed 0.14% U_3O_8 and other selected samples showed lower values. Radioactivity was found in other parts of the mines, but no concentrations of radioactive minerals were found the activity shown by the counter is believed due, in large part, to accumulations of radon gas.

The examiners concluded that the places showing significant radioactivity are fully explored and the quantity of radioactive mineral is not large enough to warrant search by new workings for like occurrences.

I consider the conclusions well taken and concur with the recommendation that the application be denied.

N. E. Nelson

NENelson:iml
G-12/6/55

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

IN REPLY REFER TO:

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

RECEIVED
DEC - 7 1955

December 6, 1955

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W. A. Murray
Congress Mine
Yavapai Co., Arizona
$27,033.61 - Uranium

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A-3685	Select from S wall	0.43	0.92
A-3684	Chip from S wall	0.81	1.60

$1\frac{1}{2}$' vertical, lens $1\frac{1}{2}$ x 6' long

Selected samples from the dump of No. 3 shaft and from the 290 level off No. 2 shaft showed 0.1% U_3O_8 and other selected samples showed lower values. Radioactivity was found in other parts of the mines, but at concentrations of radioactive minerals were found the activity shown by the counter is believed due, in large part, to accumulations of radon gas.

The examiners concluded that the places showing significant radioactivity are fully explored and the quantity of radioactive mineral is not large enough to warrant search by new workings for like occurrences.

I consider the conclusions well taken and concur with the recommendation that the application be denied.

N. E. Nelson

NENelson:iml
G-12/6/55

N. E. Nelson

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

12-2-55 gm

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

RECEIVED
C - 2 1955

November 30, 1955

[redacted] New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Joint Report of Examination, Docket DMEA 3963 (Uranium), W. A. Murray, Congress Mine, Yavapai County, Arizona

Enclosed are the original and three copies of the Joint Report of Examination on the subject docket. The field examiners found only trace amounts of uranium in the Congress Mine and were unable to locate areas in which greater concentrations might exist.

They recommend that the application be denied, and we concur in this recommendation.

E. N. Harkman

E. N. Harkman
Acting Executive Officer, DMEA
Field Team, Region III

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
12-5-55
(date)

MINERAL DEPOSITS
DMEA
RECEIVED
NOV 28 1955
U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

RECEIVED
DEC - 2 1955
DMEA
Colorado

Box 4097
Tucson 5, Ariz.

November 21, 1955

TRANSMITTED
NOV 30 1955

Memorandum

To : Executive Officer, DMEA Field Team, Region XIX
Denver, Colorado

From : J. H. Faick, Geologist, U. S. Geological Survey and
T. M. Rasmussen, Mining Engineer, U. S. Bureau of Mines

Through : W. H. Trauger, Tucson, Arizona and
E. H. Harshman, Denver, Colo.

Subject : Memorandum Report of Examination for Uranium in the Gangrene Mine, Yavapai County, Arizona, DMEA-3063.

INTRODUCTION

On August 29, 1955 the Defense Minerals Exploration Administration received an application for exploration for uranium ores in the Gangrene mine, Yavapai County, Ariz. This is a large, well known gold mine which operated continuously from 1904 to 1918, and a small part of the mine, old dumps and tailing subsequently were worked. The mine has a recorded production of 612,000 tons of ore which yielded 300,477 ounces of gold and 144,928 ounces of silver, valued at $7,[illegible]. These precious metals were obtained from a large quartz vein and subsidiary veins in granite that probably do not contain appreciable amounts of any other metals. Extensive mine workings extend to a depth of 1,[illegible] feet on a slope of about 35 degrees north. The mine was worked through several inclined shafts. Shaft No. 1 is inaccessible, shaft No. 2 is in poor condition because it was burned out by fire, and shaft No. 3 is accessible to water level, which is slightly below the 1,000-foot level. Many of the tunnels and drifts are open, but nearly all of the stopes are inaccessible.

CC W. H. Trauger (Orig. & 10)
J. H. Faick
DMEA-3063
RF

Faick-Rasmussen:frj

TRANSMITTED
DMEA OPERATIONS
12-5-55

The mine first was examined for the Defense Minerals Exploration Administration under docket DMEA-2364 on March 4, and 5, 1952 by L. L. Farnham, mining engineer, U. S. Bureau of Mines and J. H. Faick, geologist, U. S. Geological Survey. The examination was made in response to an application from the owner of the property, H. A. Colburn, now of Wickenburg, Arizona, who requested Government aid in exploration for tungsten on the property. The examiners were unable to find tungsten, even in trace amounts, therefore the application was denied.

The present applicant is W. A. Murray, who leases the property from Colburn, and who requested Government aid in exploration for uranium. The examination for uranium was made Nov. 8, 1955 by T. M. Romslo, mining engineer, U. S. Bureau of Mines, and J. H. Faick. These examiners were unable to find uranium except in minute amounts, therefore are recommending that the application be denied.

As the property previously had been examined and a regular report submitted, and as the property is not known to contain minerals acceptable to exploration by D.M.E.A., this memorandum report is submitted in lieu of the usual complete report. If additional details, such as history, production, property, etc. are required it is suggested that the report on DMEA-2364, submitted March 1952 by J. H. Faick and L. L. Farnham, be consulted. The report which follows is believed to be adequate for the purpose for which it is intended, i.e., to provide adequate data to show that the application for exploration for uranium should be denied.

GEOLOGY

At the Congress mine there are several fissure veins, containing gold and silver in massive white quartz. The veins are closely associated in space with prominent basic dikes. As shown on a composite plan of the workings, figure 2, extensive steping has been done on the Congress vein, and a small stope is shown on a vein which crops out on the Bellick claim. The Congress vein strikes west-northwesterly and dips about 25 degrees north and the other vein strikes northeasterly and dips about 25 degrees north. It was from 30 to 36 inches thick and was very persistent along both strike and dip. A prominent greenstone dike in the hanging wall of the vein is nearly everywhere present. The dike ranges from 5 to 15 feet in thickness. It is composed of a very fine-grained, dense, greenish black rock that may be a lamprophyre or altered basalt. A low angle fault is usually present in the hanging wall of the dike but in many places the fault, or benches of it, cut into or across the dike and vein. In detail the structure along this composite vein-dike zone is complex. Several

periods of deformation, are indicated. Vein quartz has filled fractures and partially replaced the dike and granite and in some areas this process has resulted in the formation of gold ore in the dike and in the granite of the hanging wall.

OCCURRENCE AND SIGNIFICANCE OF URANIUM

During the earlier examination for tungsten very thin films of white amorphous silica, probably opalite, were found scattered erratically on the walls of many of the accessible mine workings and very small amounts of it was found on the dumps. This efflorescent material fluoresces yellowish green under the ultra-violet light, and is very conspicuous in areas of greatest concentration. Associates with this silica, and more-or-less concealed by it are trace amounts of a radioactive mineral, which occurs in tiny specks, seams or films which fluoresce bright green. The two minerals are quite similar in appearance under the ultra violet light, but a close inspection can be distinguished by the brighter appearance of the radioactive mineral. Little or no radio-activity was found except where the bright green fluorescent mineral was found, and this was nearly always associated with the more abundant amorphous silica. In most places these two minerals occurred as thin films on the walls of the drifts, usually on the up dip side of the drift, but in a few places they were found filling tiny fractures. Obviously the minerals are evaporites, which were taken into solution, transported and re-deposited by minute quantities of percolating ground waters. According to data furnished by the applicant the radioactive mineral was identified as liebigite, by the Battelle Memorial Institute.

The greatest radioactivity was obtained from small isolated spots, most of which were localized along the low angle faults and some of which were localized at the contact between the basic dike and the quartz vein. The largest radioactive zone found by the examiners was on the 1,000 level, from 45 to 75 feet east of the No. 3 shaft. In this area films and coatings of radioactive material were found on the up-dip side of the drift. They are exposed along a zone about 20 feet long and about 1 to 11 inches in width. In this same locality at a distance of from 63 to 70 feet east of the No. 3 shaft, the face of the 20-foot inclined raise was coated with similar but somewhat thicker efflorescence. This had the highest radioactivity found by the examiners and was therefore sampled, the results being shown in table I and also on figure 1.

The applicant claimed that many radioactive spots were present in the No. 3 incline but the examiners were unable to detect radioactivity that was significantly greater than background count.

The applicant also claimed that unusual radioactivity existed in the Queen of the Hills tunnel on the Ballick claim, therefore, the accessible part of these workings was examined. The Queen of the Hills lower tunnel was examined from the east portal to the caved and inaccessible stope on the Ballick claim without detecting appreciable evidence of radioactivity. To examine the western part of the lower tunnel the examiners entered the Middle tunnel descended through an inclined raise to the Lower tunnel and examined it carefully as far east as the caved stope. About 75 feet of the shaft under the stope on the Ballick claim was open for inspection. Slight traces of radioactivity were detected in many places along the lower tunnel, but at no place did Geiger counter readings exceed about twice background count, and the radioactive spots were too small to have any significance.

Abnormal radioactivity was detected in the upper part of the shaft on the Ballick claim. Here background readings, taken on the intermediate scale, increased to about 10 m/hr, which is about equal to the maximum found in the most radioactive spots elsewhere in the mine. However, it was noted that the walls of drift, where both vein material and wall rocks were tested did not produce Geiger counter readings that were noticeably higher than the background readings in the shaft. Only trace amounts of the fluorescent radioactive material was found in the shaft and this produced only relatively feeble response on the counter. It was noted that the counter responded slowly to the radioactive background, but after leaving the shaft the counter continued to give abnormally high background readings for about 1½ hours. The cause of this phenomenon is not known to the examiners. However, it appears most likely to be due to accumulation of radon and its daughter products, as only minute amounts of radioactive materials could be detected in the walls of the shaft.

In connection with this examination we conferred with Messrs. M. L. Rayner and W. R. Ashcroft of the Phoenix Sub-Office, Atomic Energy Commission, who kindly supplied us with the analyses of 7 samples collected by Ashcroft. We learned from the AEC that their experience was similar to ours, i.e., the uranium mineral is present in "spotty", erratically distributed efflorescent coatings along the walls of the mine workings.

Analyses available are given in Table 1. The first 7 of these analyses were obtained from the AEC. The last sample, taken by Rosale for the BMMA, represents the strongest showing of ore found during the examination. Note that the chemical analyses are somewhat higher than the radiometrics.

TABLE I

Number		alpha	chem alpha
A-2973	Shaft #2 Pump-sump	0.10	0.14
A-2974	Shaft #2 Sphlent from 200' level at Shaft	0.10	0.14
A-2976	" " " " 300' "	0.04	0.10
A-2975	Sphlent from #5 shaft dump	0.05	
A-2977	Sphlent from #2 shaft 200' level V drift	0.08	
A-2985	Shaft #5 - 1000' E drift shaft # 4978 sphlent from S wall	0.43	0.98
A-2984	Shaft #5 - 1000' E drift shaft # 50' E - S wall 1½' vert. chip from lens 1½' x 6' long	0.81	1.60 (containing thorium)
WEMI No.			
12978	Milkcrystunt coming on floor of 24-foot inclined raise, 68 - 73 ft. east of Hay 3 shaft, 1200-foot level. Zone 54 inches long (strike length) by average of 15 inches thick.	0.04	0.08

Although the applicant claimed that radioactivity was present in important amounts in several places in Colburn, the investigation the members through the mine working was unable to show the presence of anything better than indicated by U.S.B.M. graphs. At no place did the radioactivity in the walls exceed by more than 2 times the radioactivity of the background, and it was usually of a lower order of magnitude. Apparently the applicant and the owner of the property ignored the significance of the background count and assumed that all evidence of radioactivity was important to the problem. However, some of the radioactive material found by the members was in sufficient quantity to be significant, and there is no evidence that greater amounts might be present elsewhere. In fact the amount of uranium apparently is too small to justify recovery as a by-product of gold mining, which is apparently the interest of Mr. Hurley, the present applicant.

CONCLUSIONS AND RECOMMENDATIONS

As the examiners were unable to find only trace amounts of uranium in the Congress mine, and were unable to locate areas in which greater concentrations might exist, it is recommended that the application be denied. Even if uranium were present in significant amounts it would be difficult to recommend approval for DMA because the mine is fully developed.

J. R. Faich

J. R. Faich, Geologist
U. S. Geological Survey

T. M. Rancik

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

12/6/55 gla

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

November 30, 1955

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Joint Report of Examination, Docket DMEA 3963 (Uranium), W. A. Murray, Congress Mine, Yavapai County, Arizona

Enclosed are the original and three copies of the Joint Report of Examination on the subject docket. The field examiners found only trace amounts of uranium in the Congress Mine and were unable to locate areas in which greater concentrations might exist.

They recommend that the application be denied, and we concur in this recommendation.

E. N. Harshman

E. N. Harshman
Acting Executive Officer, DMEA
Field Team, Region III

Enclosures

RECEIVED
DEC - 2 1955

Reviewed by
DMEA OPERATING COMMITTEE
12-5-55
(date)

MINERAL DEPOSITS
DMEA
RECEIVED
NOV 28 1955
U. S. DEC - 2 1955
GEOLOGICAL SURVEY
DENVER, COLORADO

Box 4097
Tucson 5, Ariz.

November 21, 1955

TRANSMITTED
NOV 30 1955

Memorandum

To : Executive Officer, DMEA Field Team, Region III
Denver, Colorado

From : J. N. Faick, Geologist, U. S. Geological Survey and
T. M. Romslo, Mining Engineer, U. S. Bureau of Mines

Through : W. R. Storms, Tucson, Arizona and
E. N. Harshman, Denver, Colo.

Subject : Memorandum Report of Examination for Uranium in the Congress Mine, Yavapai County, Arizona, DMEA-3963.

INTRODUCTION

On August 29, 1955 the Defense Minerals Exploration Administration received an application for exploration for uranium ores in the Congress mine, Yavapai County, Ariz. This is a large, well known gold mine which operated continuously from 1894 to 1910, and a small part of the mine, old dumps and tailing subsequently were worked. The mine has a recorded production of 692,000 tons of ore which yielded 388,477 ounces of gold and 345,598 ounces of silver, valued at $7,650,000. These precious metals were obtained from a large quartz vein and subsidiary veins in granite that probably do not contain appreciable amounts of any other metals. Extensive mine workings extend to a depth of 3,900 feet on a slope of about 25 degrees north. The mine was worked through several inclined shafts. Shaft No. 1 is inaccessible, shaft No. 2 is in poor condition because it was burned out by fire, and shaft No.3 is accessible to water level, which is slightly below the 1,000-foot level. Many of the tunnels and drifts are open but nearly all of the stopes are inaccessible.

CC W. M. Traver (Orig. & 10)
J. N. Faick
DMEA-3963
DF

Faick-Romslo:frj

Reviewed by
DMEA OPERATING COMMITTEE
12-5-55
(date)

The mine first was examined for the Defense Minerals Exploration Administration under docket DMEA-2364 on March 4, and 5, 1952 by L. L. Farnham, mining engineer, U. S. Bureau of Mines and J. N. Faick, geologist, U. S. Geological Survey. The examination was made in response to an application from the owner of the property, E. A. Colburn, now of Wickenburg, Arizona, who requested Government aid in exploration for tungsten on the property. The examiners were unable to find tungsten, even in trace amounts, therefore the application was denied.

The present applicant is W. A. Murray, who leases the property from Colburn, and who requested Government aid in exploration for uranium. The examination for uranium was made Nov. 8, 1955 by T. M. Romslo, mining engineer, U. S. Bureau of Mines, and J. N. Faick. These examiners were unable to find uranium except in minute amounts, therefore are recommending that the application be denied.

As the property previously had been examined and a regular report submitted, and as the property is not known to contain minerals acceptable to exploration by D.M.E.A., this memorandum report is submitted in lieu of the usual complete report. If additional details, such as history, production, property, etc. are required it is suggested that the report on DMEA-2364, submitted March 1952 by J. N. Faick and L. L. Farnham, be consulted. The report which follows is believed to be adequate for the purpose for which it is intended, i.e., to provide adequate data to show that the application for exploration for uranium should be denied.

GEOLOGY

At the Congress mine there are several fissure veins, containing gold and silver in massive white quartz. The veins are closely associated in space with prominent basic dikes. As shown on a composite plan of the workings, figure 2, extensive stoping has been done on the Congress vein, and a small stope is shown on a vein which crops out on the Bellick claim. The Congress vein strikes west-northwesterly and dips about 25 degrees north and the other vein strikes northeasterly and dips about 25 degrees north. It was from 30 to 36 inches thick and was very persistent along both strike and dip. A prominent greenstone dike in the hanging wall of the vein is nearly everywhere present. The dike ranges from 5 to 15 feet in thickness. It is composed of a very fine-grained, dense, greenish black rock that may be a lamprophyre or altered basalt. A low angle fault is usually present in the hanging wall of the dike but in many places the fault, or benches of it, cut into or across the dike and vein. In detail the structure along this composite vein-dike zone is complex. Several

periods of deformation, are indicated. Vein quartz has filled fractures and partially replaced the dike and granite and in some areas this process has resulted in the formation of gold ore in the dike and in the granite of the hanging wall.

OCCURRENCE AND SIGNIFICANCE OF URANIUM

During the earlier examination for tungsten very thin films of white amorphous silica, probably hyalite, were found scattered erratically on the walls of many of the accessible mine workings and very small amounts of it was found on the dumps. This efflorescent material fluoresces yellowish green under the ultra-violet light, and is very conspicuous in areas of greatest concentration. Associates with this silica, and more-or-less concealed by it are trace amounts of a radioactive mineral, which occurs in tiny specks, seams or films which fluoresce bright green. The two minerals are quite similar in appearance under the ultra violet light, but a close inspection can be distinguished by the brighter appearance of the radioactive mineral. Little or no radio-activity was found except where the bright green fluorescent mineral was found, and this was nearly always associated with the more abundant amorphous silica. In most places these two minerals occurred as thin films on the walls of the drifts, usually on the up dip side of the drift, but in a few places they were found filling tiny fractures. Obviously the minerals are evaporites, which were taken into solution, transported and re-deposited by minute quantities of percolating ground waters. According to data furnished by the applicant the radioactive mineral was identified as liebigite, by the Battelle Memorial Institute.

The greatest radioactivity was obtained from small isolated spots, most of which were localized along the low angle faults and some of which were localized at the contact between the basic dike and the quartz vein. The largest radioactive zone found by the examiners was on the 1,000 level, from 45 to 75 feet east of the No. 3 shaft. In this area films and coatings of radioactive material were found on the up-dip side of the drift. They are exposed along a zone about 20 feet long and about 1 to 11 inches in width. In this same locality at a distance of from 63 to 70 feet east of the No. 3 shaft, the face of the 20-foot inclined raise was coated with similar but somewhat thicker efflorescence. This had the highest radioactivity found by the examiners and was therefore sampled, the results being shown in table I and also on figure 1.

The applicant claimed that many radioactive spots were present in the No. 3 incline but the examiners were unable to detect radioactivity that was significantly greater than background count.

The applicant also claimed that unusual radioactivity existed in the Queen of the Hills tunnel on the Bellick claim, therefore, the accessible part of these workings was examined. The Queen of the Hills lower tunnel was examined from the east portal to the caved and inaccessible stope on the Bellick claim without detecting appreciable evidence of radioactivity. To examine the western part of the lower tunnel the examiners entered the Middle tunnel descended through an inclined raise to the Lower tunnel and examined it carefully as far east as the caved stope. About 75 feet of the shaft under the stope on the Bellick claim was open for inspection. Slight traces of radioactivity were detected in many places along the lower tunnel, but at no place did Geiger counter readings exceed about twice background count, and the radioactive spots were too small to have any significance.

Abnormal radioactivity was detected in the upper part of the shaft on the Bellick claim. Here background readings, taken on the intermediate scale, increased to about 10 m/hr, which is about equal to the maximum found in the most radioactive spots elsewhere in the mine. However, it was noted that the walls of drift, where both vein material and wall rocks were tested did not produce Geiger counter readings that were noticeably higher than the background readings in the shaft. Only trace amounts of the fluorescent radioactive material was found in the shaft and this produced only relatively feeble response on the counter. It was noted that the counter responded slowly to the radioactive background, but after leaving the shaft the counter continued to give abnormally high background readings for about $1\frac{1}{2}$ hours. The cause of this phenomenon is not known to the examiners. However, it appears most likely to be due to accumulation of radon and its daughter products, as only minute amounts of radioactive materials could be detected in the walls of the shaft.

In connection with this examination we conferred with Messrs. M. L. Reynor and W. R. Ashwill of the Phoenix Sub-Office, Atomic Energy Commission, who kindly supplied us with the analyses of 7 samples collected by Ashwill. We learned from the AEC that their experience was similar to ours, i.e., the uranium mineral is present in "spotty", erratically distributed efflorescent coatings along the walls of the mine workings.

Analyses available are given in Table 1. The first 7 of these analyses were obtained from the AEC. The last sample, taken by Romslo for the DMEA, represents the strongest showing of ore found during the examination. Note that the chemical analyses are somewhat higher than the radiometrics.

TABLE I

Number		eU3O8	CU3O8	
A-2973	Shaft #2 Dump-select	0.10	0.14	
A-2974	Shaft #2 Select from 250' level at fault	0.10	0.14	
A-2976	" " " " 300' "	0.04	0.10	
A-2975	Select from #5 shaft dump	0.06		
A-2977	Select from #2 shaft 250' level W drift	0.03		
A-3625	Shaft #3 - 1000' E drift shaft # 40'E, select from S wall	0.43	0.92	
A-3624	Shaft #3 - 1000' E drift shaft # 55' E - S wall 1½' vert. chip from lens 1½' x 6' long	0.81	1.60	(contains thorium)
USBM No. 12278	Efflorescent coating on face of 20-foot inclined raise, 60 - 73 ft. east of No. 3 shaft, 1000-foot level. Zone 54 inches long (strike length) by average of 15 inches thick.	0.05	0.08	

Although the applicant claimed that radioactivity was present in important amounts in several places Mr. Colburn, who accompanied the examiners through the mine workings was unable to show the presence of anything better than indicated by U.S.B.M. sample. At no place did the radioactivity in the walls exceed by more than 3 times the radioactivity of the background, and it was usually of a lesser order of magnitude. Apparently the applicant and the owner of the property ignored the significance of the background count and assumed that all evidence of radioactivity was important to the problem. However, none of the radioactive material found by the examiners was in sufficient quantity to be significant, and there is no evidence that greater amounts might be present elsewhere. In fact the amount of uranium apparently is too small to justify recovery as a by-product of gold mining, which is apparently the intent of Mr. Murray, the present applicant.

CONCLUSIONS AND RECOMMENDATIONS

As the examiners were unable to find only trace amounts of uranium in the Congress mine, and were unable to locate areas in which greater concentrations might exist, it is recommended that the application be denied. Even if uranium were present in significant amounts it would be difficult to recommend approval for DMEA because the mine is fully developed.

J. N. Faick

J. N. Faick, Geologist
U. S. Geological Survey

T M Romslo

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

George C. Selfridge 10/31/55 gla

RECEIVED
OCT 31 1955

DN 235 BUR MINES AQPAWIATT 10-28-55 4-35

GEORGE C SELFRIDGE, CHAIRMAN, OPERATING COMMITTEE

REURTEL DEXX DMEA 3963, URANIUM, W M MURRAY, CONGRESS MINE. FIELD EXAMINATION TENTATIVELY SCHEDULED FOR NOVEMBER 7 TO 11. APPLICANT WILL BE ADVISED OF EXACT DATE.

W M TRAVER

Denver, Colo.

OCT 31 7 52 AM '55

BUREAU OF MINES
MAIL ROOM
WASHINGTON D.C.

Surname copy

Murphy
Ellis
Gehon
Kiilsgaard
Selfridge
Johnson

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

Department of the Interior

DMEA

OCT 28 1955

14X44C1(01) Revolving Fund, Defense Production Act, Interior (Allocated Working Fund to the Office of the Secy.)

TELTYPE

W. N. TRAVER, EXECUTIVE OFFICER
DMEA FIELD TEAM, REGION III
224 NEW CUSTOMHOUSE BUILDING
DENVER 2, COLORADO

RE DOCKET DMEA-3963, URANIUM, W. A. MURRAY, CONGRESS MINE, YAVAPAI COUNTY, ARIZONA. PLEASE ADVISE STATUS OF APPLICATION.

George C. Selfridge

GEORGE C. SELFRIDGE
CHAIRMAN, OPERATING COMMITTEE

FMMurphy/gla
10-27-55
cc to: Admr.'s Reading File
Operating Committee
Docket
Messrs. JECrawford, Rm. 3641
T.H.Kiilsgaard, Rm. 5224
J.O.Hosted, Rm. 3210, GSA
Code 700
Mr. Murphy
Confirmation to Region III

R.G.L.

700
Murphy
Ellis
Gehon
Kiilsgaard
Selfridge

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

OCT 28 1955

Mr. W. A. Murray
P. O. Box 152
Wickenburg, Arizona

Re: Docket No. DMEA-3963 (Uranium)
Congress Mine
Yavapai County, Arizona

Dear Mr. Murray:

This is in response to your letter of October 24, 1955, in which you state that additional samples have been obtained from the Congress Mine, and ask that the mine be examined as soon as possible.

We have been informed that your application has been referred to Mr. W. R. Storms for a field examination and report. If Mr. Storms has not yet arranged with you for a date for the examination, I suggest that you contact him at the following address:

Mr. W. R. Storms
Acting Superintendent
Southwest Experiment Station
U. S. Bureau of Mines
117 Engineering Building
University of Arizona
Tucson, Arizona

The number of applications for Government aid in exploration for uranium deposits has increased considerably in the past few months. The Field Teams are making every effort to expedite the processing of each one. With winter approaching, the field examiners are endeavoring to investigate applications on properties that might be inaccessible due to snow conditions. Because your property is accessible throughout the year, it is possible that it did not receive immediate attention.

Please be assured, however, that an examination of your property will be made at the earliest opportunity.

Sincerely yours,

Frank E. Johnson

Acting Administrator

FMMurphy/FEJohnson/gla
10-28-55
cc to: Admr.'s Reading File
Docket
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA
Code 700, Mr. Murphy
DMEA Field Team, Region III (2)

R.C.G.

OFFICE OF
W. A. MURRAY
STOCKS & BONDS

P. O. Box 152
Wickenburg, Arizona

October 24, 1955

Nmeq-3963

RECEIVED
OCT 26 1955

Mr. Frank E. Johnson
Acting Administrator
Defense Minerals
Exploration Administration
Department of the Interior
Washington 25, D. C.

Dear Mr. Johnson:

Since I wrote you last, we have done a lot more prospecting and all samples go to Battelle and I think they will have all their work finished in the next week. They will also design the type of mill we will need.

The samples we took from the tailing dumps ran high enough in gold and uranium to run through the mill with the ore we will mine. The tailings are fifty or more years old.

Now that Colburn and I have finished our work, we have nothing to do until the engineer gets here to inspect the mine.

I received a letter from Mr. Traver of the Denver office, written September 30, that an engineer would be here, but he did not say when. I wonder if you would intercede for me to get an engineer here to inspect the mine. I wrote to Mr. Traver and told him my time is limited in Arizona and that I had work to do in Washington after Congress reconvenes.

You have a copy of the newspaper articles released by Senator Holland of Florida about my building a sponge plant in conjunction with the sewage plant in the District. I should have built this plant this year, but the District ran out of money and could not complete the sewage plant. No one knows how to build my part of the plant to produce fertilizer from sewage solids and sponges but myself, so I will have to be there some time in the spring.

Then, I did some work with Dr. K.K.K.N. Roa of India on sponges and he is anxious for me to come to Europe.

The Ford Foundation, as well as Dr. Williams, President of Battelle, are also anxious for me to do some work on baby food from sponges, much needed in the Near East.

I want to get the Congress Mine in production and then Colburn can take of the Mine, for he is a good miner and mill man. He

OFFICE OF
W. A. MURRAY
STOCKS & BONDS

sold some patents on flotation to the Mine and Mill Supply Co. of Denver. We now know there is gold and uranium all through the mine, for the tailings came from all parts of the Congress.

Anything you can do for me I will appreciate very much.

I expect to see you some time in the spring.

Sincerely,

W. A. Murray

W. A. Murray

WAM:ab

September 28, 1955

Memorandum

To: W. R. Storms

From: Superintendent, Denver Experiment Station, Reg. III

Subject: Docket DMEA-3963 (Uranium), W. A. Murray, Congress Mine, Yavapai County, Arizona

The subject application in the amount of $27,033.61 is enclosed herewith. The brochure consists of:

1. Form MF-103 and supplementary information sheets
2. Photocopy of claim map showing Congress mine workings
3. Photocopy of an Assay Report by U.S. Geological Survey
4. Photocopy and carbon copy of memo from Crawford to Ellis
5. Photocopy and carbon copy of memo from Nelson to Ellis
6. Photocopy and carbon copy of letter of transmittal from Chairman Operating Committee to Executive Officer
7. Copy of Executive Officer's memo of transmittal to this office

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

W. H. KING

W. H. King

Enclosures

Copy to: E. N. Marshman
J. M. Faick
W. M. Traver (3)
Sec. Op. Comm. (2)

September 28, 1955

Memorandum

To: W. R. Storms

From: Superintendent, Denver Experiment Station, Reg. III

Subject: Docket DMEA-3963 (Uranium), W. A. Murray, Congress Mine, Yavapai County, Arizona

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W. H. KING

W. H. King

Enclosures

Copy to: E. N. Karshman
J. N. Faick
W. M. Traver (3)
Sec. Op. Comm. (2)

Murray and Murphy
MARINE MINERALS
MIAMI, FLORIDA

14C—St. Petersburg Times Sunday, Mar. 22, 1953

FLORIDA-D. C.

Discoverer Of Formula To Process Bad Sponges Sees Industry Enriched

By TAIT TRUSSELL
(Times Washington Reporter)

WASHINGTON — Attempts now being made to fan life back into Florida's dying sponge industry could mean a demand for 5,000 tons of sponges a year.

W. A. Murray, a research engineer now living in Washington and former resident of Tarpon Springs and Miami, has devised a process for using the so-called worthless sponge varieties to produce a high grade poultry feed and in the manufacturing of fertilizer.

SEN. SPESSARD L. HOLLAND of Florida has asked District of Columbia Commissioners to study a plan of Murray's to utilize gases from Washington sewage disposal in combination with Florida sponges to produce the chicken feed and fertilizer.

Murray is planning to meet with the Commissioners soon to explain his plan. He told The Times he hopes to build a plant near Washington's sewage disposal unit and erect another plant for processing the sponges in Florida. He said he could use 5,000 tons of sponges a year.

Holland wrote the D. C. Commissioners, "My particular interest is the sponge industry which used to furnish livelihood for approximately 500 boats and 2,000 Florida citizens, but is now dormant. This is a serious blow to Tarpon Springs and Key West, headquarters of the sponge fleets. I am deeply interested in any legitimate and reasonable proposal which will revive the Florida sponge industry."

Murray owned two sponge and marine life reduction plants a few years back, one in Tarpon Springs and the other near Miami. However, the red tide and hurricanes in 1948 and 1949 had a disastrous effect on the plants and Murray had to close shop. But now the 60 - year - old scientist wants to start again.

THERE ARE ABOUT 3,000 species of sponges. All but 13 types are considered commercially worthless. It is the "worthless" sponges Murray will use. One of these is the Loggerhead sponge (Spheciospongia vesparia) which comes in sizes ranging from 50 - 700 pounds.

In Murray's reduction plant he would separate the blood and tissue from the skeleton (the water-absorbing part of the sponge now used commercially). It is the blood and tissue, especially treated, that Murray uses for the two valuable products: Chicken feed and fertilizer.

* * *

MIAMI-HERALD
MAR. 24-53

Possible Aid For Sponge Fleets Seen

From Our Washington Bureau

WASHINGTON — Sen. Spessard Holland has asked the District of Columbia government to study a sewage disposal plan which might help Florida's hard-hit sponge industry.

The senator informs the District government that W. A. Murray, research engineer, formerly of Miami, has a process for producing high grade fertilizer and chicken feed by combining sewage waste with Florida sponges.

Holland asked serious consideration of "any proposal which will revive the industry at Tarpon Springs and Key West."

Murray did marine life research in South Florida for several years in the late 1940s. He developed a process of de-salting sponges with an end product like coarse ground coffee that would mix with other materials.

EXHIBIT #2

L. EARL CURRY
ATTORNEY AT LAW
U. S. REFEREE IN BANKRUPTCY

1226 INGRAHAM BUILDING

MIAMI, FLORIDA

August 2, 1949

Mr. W. A. Murray
4132 Castleman Avenue
St. Louis, Missouri

Dear Bill:

Your letter came just as I was leaving town, hence the delay in answering it.

I hope that you can make a deal on the sponge product, for I believe that it is really good.

As you remember, a friend of mine had it analyzed in one of the Guggenheim Laboratories, and in the Princeton Laboratory, and their report was that it was five times better than any fertilizer made today.

The fish plant is really doing well, and getting stronger every day.

With kind regards, I am

Sincerely yours,

Earl

L C/al

Analysis of Sponge and Fish Meal
for Human Consumption
(90% Sponge & 10% Fish)

	Per cent by weight
Total Solids	50.0
Fat	2.6
Crude Protein (Nx6.25)	33.5
Nitrogen Free Extract	3.64
Crude Fiber	0
Total Nitrogen	5.36
Ammoniacal N.	.10
Total Sulphur	1.15
Chloride	2.97
Sulfate	1.90
Potassium	1.93
Sodium	1.87
Iron	.0249
Copper	.007
Manganese	.0004
Calcium	.0869
Phosphorus	.85
Magnesium	.016
Aluminum	.005
Iodine	.007
Thiamin	4 ppm
Riboflavin	20 "
Nicotinic Acid	325 "
Calcium pantothenate	40 "
Biotin	14 "
Pyridoxin	12.5 "
Choline	4000 "
Vitamin A	4.0 I.U. per gram
Vitamin D	2 A.O.A.C.U. per gram

Analysis Made by Mr. Selrauek of
Thornton Laboratories, Tampa, Florida

For Information Write

W. A. Murray or Lyle L. Schmitter
International Marine Minerals
Mills Building
17th & Pennsylvania Ave., N.W.
Washington, D.C.

BOATING-FISHING And Outdoors

BY SALTY

Loggerhead Sponge Submits To Astounding Experiments With Success

The loggerhead sponge, a marine growth that attains enormous size and which has been shunned by sponge fishermen, bids fair to become one of the most useful of the lower forms of life. It is only waiting on the end of the war to start distributing its many benefits to mankind, according to W. A. Murray, of 1536 SW Ninth st., who has a laboratory at the mouth of Goulds Canal, where he has put the sponge through its paces.

Letters in Murray's possession prove that research departments of large corporations in the country have tested the chemicals he produces from the sponge and that they are satisfied the products will do everything they are expected to do.

Among the many uses the sponge—after some treatment—might be put to are an ingredient for chicken and dog food; its high phosphoric acid and potash content make it ideal for a fertilizer; it is considered an excellent substitute for cork in making fire brick; its silica content is found ideal for use as a filler for hard rubber; its high iodine content may make it a valuable addition to the diet of persons residing in the midwestern regions which are notoriously poor in iodine, and it will produce diatoms that can be used in the making of silver, soft metal and tooth polishes.

To make the sponge give off all its ingredients Murray first kills the bacteria by cooking it at 400 degrees. It comes out of the retort looking like molasses, and after cooling has the resiliency of rubber. It is then pulverized and put through a cracking process that separates the blood and tissue from the skeleton.

The blood and tissue, after more treatment, have been pressed into cubes not unlike bouillon cubes. Adding boiling water makes a broth that tastes something like clam-broth with a high iodine content.

As the sponge is rich in minerals, which it absorbs from the seawater it constantly pumps through its body, it can be made into a fertilizer that has proven to be ideal for local soils. During experiments carried on by farmers in the Goulds district it was found that the fertilizer would grow two crops with only one application.

When prepared in a dog food it is found that the animals like the favor of the sponge and that it keeps their intestines clean by eliminating constipation. Experiments with 1,000 chickens showed that after several weeks of a sponge diet the meat was white and firm including the legs and thighs.

The silica in the sponge has been found to be ideal in the making of firebrick because it melts at the high temperature at which the bricks are baked and thus creates a vacuum in the large pores. When the silica is produced from the skeleton it can be used as a filler for hard rubber, which in turn can be used for battery cases, knife handles and many other articles in daily use.

No longer in the experimental stage, according to Murray, no one has as yet attempted to test the vitamin possibilities of the sponge. It is possible that a fair content of these ingredients may be found.

Loggerhead sponges grow to weigh as much as 1,000 pounds. They are found in the sponge-field, which includes Florida, the Bahama Islands and Cuba. Scientists have said that if 20,000,000 pounds a year were taken it would not deplete the supply. If there were danger of depletion the sponges could be raised like vegetables in waters close to the shore. This would be much cheaper than hunting for them and transporting them to the cracking plant.

As soon as the war is over and materials for the construction of a plant are available, Murray said he was going to go in production on a large scale.

His plant will be located in South Florida, he said, close to the spongefield.

TIDES MIAMI BEACH OCEAN
(EWT Tuesday, May 30)
High 3:05 a. m. and 3:50 p. m.
Low 9:24 a. m. and 9:30 p. m.

PERSONAL BIOGRAPHY

William Arthur Murray

William A. Murray was born at De Soto, Missouri, December 31, 1893. His parents were Andrew Jackson Murray, father, and Katherine Westmeyer Murray, mother.

Prior to the commencement of his formal education, Mr. Murray's parents moved to St. Louis, Missouri. He attended the public schools in St. Louis. When he was 14 years old (1907) he attended St. Louis University, a military prep school. After his graduation from that school, in 1910, he attended Drake University, Des Moines, Iowa until 1913 where he majored in subjects leading to an Engineering Degree. However, he was dissatisfied with the limited facilities of Drake University, and in 1913 he commenced studying under Dr. Rush of Harvard University on a private tutorship basis. Dr. Rush afforded him the opportunity to acquire knowledge in those subjects that would best prepare him as a research engineer. As a consequence of this private tutorship, Mr. Murray never received a formal diploma from any university. However, since he was not seeking employment as an employee, he felt that this lack of a diploma would not deter him from accomplishing his desires.

Date	
1913 - 1914 (During Vacation)	Assisted his father, Andrew Jackson Murray, a railroad builder for the Missouri Pacific and Iron Mountain Railroad, in the installation of block signals between St. Louis, Missouri and Hoxie, Arkansas, and installed a new extension to the west for the Missouri Pacific.
1915 - 1916 (During Vacation)	Assisted brother-in-law in the erection and installation of a new type flotation plant at the Ajax Gold Mine in Cripple Creek district, Colorado. Installed telephone system from lower level stopes and addits to central control plant. Incorporated a new steam coiless engine to give more positive control over the ore elevators, increasing efficiency of production and reducing hazard factor.
1916 - 1918	Served in U. S. Army in Supply and Finance Division.
1918 - 1921	Employed as research and development engineer in the establishment of a new beneficiation plant for the reduction of lead for the Flat River Mining Company, Flat River, Missouri.
	Research and planning engineer for the Union Electric Power Company, St. Louis, Missouri, in the rebuilding of its Tenth Street Plant, hydro-electric. Utilizing oil switch breakers and latest electrical power carrying and safety devices.
	Employed by Union Electric Power Company, Finance Division, and aided in the indreasing of its capitalization by the placement of more than Three Million ($3,000,000) Dollars in securities and bonds, under the immediate direction of Mr. John Gans, Secretary, Union Electric Power Company.

1921 - 1923	Research Engineer and Installation Foreman for Ajax Mine incorporating most recent flotation beneficiation and ore handling mining technique. Colorado Fuel and Iron, Pictou, Colorado. Research Engineer and advisor in a consultant capacity in the extinguishing of underground burning of coal. Reactivating mine by de-watering and increasing safety factor by pillaring, driving new drifts, and devising adequate forced-draft ventilation. Surveyed and assisted in building mine electric railroad for ore handling. Designed and installed, with his father, a beneficiation process utilizing cyanide which would remove gold from ore which had previously been subjected to flotation. This cyanide process enabled the Ajax Mining Company to extract, profitably, gold from ore which had been through a flotation process. The re-working of the dump by the cyanide process received considerable attention in the mining engineering circles at that time, as it benefited more than One Million ($1,000,000) Dollars from this dump material.
1923 - 1933	Sold stocks and bonds for the capitalization of new businesses on a commission basis. This business caused Mr. Murray to travel extensively throughout the west coast, but his main office was located in the First National Bank Building, Los Angeles, California.
1933 - 1942	Standard Oil Company. Remodeled Fuller Earth plant at Olmstead, Illinois, decreasing the cost of production from approximately $5.00 a ton to $2.50 a ton. After this plant was in production on this economical basis, the Standard Oil Company engaged the services of Mr. Murray by contract to sell fullers earth to food companies, packing companies, soap companies, etc. Experimental and developmental research in the use of diatomite as a filter for certain processes for which Fullers Earth was either too expensive or not best suited. This diatomite research was conducted in the main, at deposits located in Florida. Developmental research in the use of Loggerhead Sponges for the production of chicken feed and fertilizer having a high content, and rich in, Vitamin B_{12}. Experimental laboratory plant set up in Goulds Canal, Florida.
1942 - 1945	Volunteer in the Civil Air Patrol as a pilot in the anti-submarine operations off the coast of Florida.

1945 - 1949	Continued developmental research in the use of marine animal life reduction plants for the extraction of high protein and ocean marine mineral contents from otherwise worthless ocean animal life. Erected and operated two chicken feed and fertilizer plants. One at Goulds Canal, Florida, and one at Tarpon Springs, Florida. Red Tide situation, fungus disease, and hurricane destroyed potentials so abandoned operations.
1949 - 1952	Continuation of developmental research of worthless animal marine life for food concentrates for humans and livestock; worked with Dr. K. K. P. N. Roa, of India, Food and Agricultural Organization, under the UN. Further developed processing technique so as to incorporate continuous flow operation minimizing costs.

Mr. Murray is now utilizing all of his time in obtaining information on the availability of marine animal life in the various locations of the world with the expectation of establishing marine animal reduction plants in the most desirable supply areas of the world.

* * * * * * * * * * * * * * * * * * * *

R E F E R E N C E S

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BEN. M. GOLDMAN
AARON B. ROSENTHAL
ARCHIBALD E. COPPLEMAN
ROBERT A. LEVI

July 14, 1933.

TO WHOM IT MAY CONCERN:

W. A. Murray, bearer of this letter, has been known to me for the past eight years. I have acted as his advisor and attorney for a number of years. The first matter that he conferred with me about was with respect to a leather and findings merger for the Pacific Coast. Then again, I advised with him in connection with his services for the Ever Ready Drug Company, a consolidation of a number of then well known drug and sundry stores operating in Los Angeles. Later he worked with Edward Duryee, who during his lifetime was one of the outstanding cement engineers of the West. Mr. Murray acted with Mr. Duryee on some of Duryee's cement plant deals. Subsequently, I acted in the probate of Mr. Duryee's estate. Thereafter, I closely worked with Mr. Murray in connection with his dry ice projects, and am continuing to act for him in those enterprises.

I have always found him to be very industrious, resourceful and trustworthy.

Yours truly,

Ben M. Goldman

BMG:AMB

FILE COPY
SURNAME:

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

September 30, 1955

Mr. W. A. Murray
P. O. Box 152
Wickenburg, Arizona

Re: Docket No. DMEA-3963 (Uranium)
Congress Mine
Yavapai County, Arizona

Dear Mr. Murray:

This will acknowledge receipt of your letter of September 27, 1955 concerning the Congress Mine and enclosing a copy of a report on the property by Mr. E. A. Colburn, Jr., and a copy of the mining and milling experience record of Mr. Colburn.

Thank you for sending me the information enclosed in your letter.

I hope you will realize the optimistic results expressed in your letter.

Sincerely yours,

FRANK E. JOHNSON
Deputy Administrator (BD.14)

FEJohnson/bih
cc to: Docket
Admr. Reading File
Mr. Ellis
Mr. Johnson

OFFICE OF
W. A. MURRAY
STOCKS & BONDS

PO Box 152
Wickenburg, Arizona
Sept. 27, 1955

Mr. Frank E. Johnson
Acting Administrator
Defense Minerals
Exploration Administration
Washington D.C.

RECEIVED
SEP 30 1955

Dear Mr. Johnson:

Your letter of Sept. 21st reached me and many thanks for the favor.

When I make my first million I will come back to Washington and you can help me spend it. From what I know now I do think I will have over a million in a year's time, for I know there are several millions in gold and we have thousands of feet in the uranium.

The Battele Memorial Inst. of Columbus, Ohio, has been and will continue to do work on our uranium and they are all excited about it since it is liebigite ore. The ore could run as high as 33.6 % uranium.

I know Senator Goldwater in Washington and when I got here I had meeting with him in reference to uranium in Arizona. Then a few days ago I had a meeting

with a State Representative and I am to have a meeting the last of this week with Senator Hayden. They told me that Utah and Colorado could get all the money they wanted for uranium, but it was tough to get money for Arizona.

The manager of one of the largest banks father-in-law came to me and said that his son-in-law, the banker, wanted him to talk to me. He has a deposit of uranium 2.50%, but he can't get any money.

I think if I play my cards right, I can control a lot of the uranium in Arizona.

When I described you to Colburn, he is sure he knew you when you were at the Portland.

I will keep you informed as to my progress.

I thought you might want the enclosed report on Colburn and he is a good engineer and a big help to me.

Many thanks again for your assistance.

Sincerely,

W. A. Murray

Type of uranium ore in
Congress Mine

Liebigite
$Ca_2 U(CO_3)_4 10 H_2O$

Chrystal system:
Orthorhombic.

Habit:
Crystals equal or short prismatic (001) usually indistinct with rounded edges. Commonly as granular or scaley aggrigates and thin crusts; also botryoidal.

Physical properties:

Color: Light, vivid, yellowish green.
Fluoresence: Light green, strong.
Luster: Vitreous, slightly pearly on cleavage.
Hardness: $2\frac{1}{2}$ -3
Specific gravity: 2.41

Optical properties:

Orientation	n	Pleochroism	
X-a	1.497	Nearly colorless	Biaxial negative
Y	1.502	Pale yellowish green	2V 40 Deg.
Z	1.539	" " "	r > v moderate

Analysis:

Qualitative spectrographic analysis of material from Pumpkin Buttes:

Major	U	Ca			
Minor	-	-			
Trace	Al	Fe	Mg	Mn	Si

Occurrence and associated minerals:

Secondary coating at Pumpkin Butte. Noted by D'Arcy George (1949) at Lusk, Wyoming, perhaps as alteration product of uranophane.

Identification:

Effervesses in HCL and soluble in water. Optical properties. (Be careful to distinguish from bayleite)

E. A. Colburn, Jr.
P. O. Box 152
WICKENBURG, ARIZONA

September 1, 1955

Mr. W. A. Murray,
Washington,
D. C.

Dear Mr. Murray:

In order that you may have the basic facts about the Congress Mine, Congress, Yavapai County, Arizona, without too much detailed data ordinarily included in a mine report I am, below, more or less abbreviating the salient points regarding the property.

There are 14 patented claims and 9 unpatented claims in the property, all located in a block about two and one half (2½) miles by good level road from Congress Junction which is a station on the Santa Fe Railroad. It is also on paved Highway 89 and paved State Highway 70. The claims are on the flat desert, and on the Date Creek Mountains in the Martinez Mining District. This is one of the most advantageous situations for a mining property in the west.

Past authenticated production has been close to $8,000,000.00 mostly in gold with some silver and the production was had prior to 1910 when the price of gold was at $20.00 per ounce. From old letters and papers it is apparent that the production in tons ran around 700,000 at least that was what was run through the mills. Recovery ran 94.33% from 1894 to 1910. Gross value of the ore was $13.01 with gold at $20.67 and silver at $0.60. Present value would be over $20.00 per ton.

Development consists of several shafts and many levels run at the interval of around 75 ft. as measured on the vein.

Those levels consist of many miles, perhaps 20 or over.

<u>DEPTHS VEIN WORKINGS</u>

Shaft No. 1	1,000	ft. deep
" " 2	1,700	" "
" " 3	4,000	" "
Hingham Shaft No. 4	1,900	" "
" " 5	2,050	" "
" " 6	1,800	" "
Queen of the Hills Winze	600	" "

The cross vein worked from both No. 1 Shaft above the 650 ft. level and No. 2 Shaft below that level with a winze extending from the 650 ft. level to the 1,000 ft. level. Queen of the Hills vein (probably a displaced segment of the Cross Vein) had three tunnels; top, middle, and lower, the latter one going clear through the hill.

There is ample dump room for both mine waste and mill tailings, possibly about 100 acres of flat land, some of which is now occupied by tailing, but not filled by any means. There are several mill sites on the property.

Some water is available from Martinez Creek about 6,600 ft. from the main workings and now connected by pump and pipe line. Electric line already in at the pump which could be extended to the mine, or power could be brought in from the south where the distance is somewhat greater but the terrain better. There is plenty of water in the old mine workings to keep a good sized mill in operation if the water is taken care of by filtering etc.

Proposed mill capacity to start with would be about 100 tons per 24 hours, to be located at or near No.1 Shaft, which would be the main production opening for the Congress vein. The flow sheet would depend upon future work in the development of the uranium ore body but would probably include gravity and flotation concentration for uranium and the cyanidation of tailings for gold and silver. Sorting and washing arrangements in the crushing plant would provide sources of waste for the mine dumps and shipping grade ore to be sent to outside mills or smelters for final recovery.

The cost of such a plant would be in the neighborhood of $150,000.00. This would include cost of power line (if any) and other extras incident to the mill. The power company has told us that they would bring in a high tension line without cost if we had a commercial load. The ideal power hookup, in my judgment, would be to buy power for the steady loads as milling etc., and make with Diesel engines the fluctuation loads as developed by hoists, compressors, etc. which run only a portion of the 24 hours, but this would necessitate the purchase of engines and generators and the employment of extra labor. However, I believe that it would pay in the long run as it would keep the peak power demand quite low and thus avoid excessive power costs. Synchronous motors on any large horse power drives would also be an aid here as well as keeping up the power factor.

On a basis of producing about 100 tons per day, the No.3 Shaft would have to be equipped with a double drum hoist and a four or five drill compressor. This would run about $10,000.00. For No. 5 Shaft and Queen of the Hills tunnel, separate equipment would have to be furnished as the openings are at considerable distance apart. These two together would run about the same as the figure quoted above.

Underground supplies and equipment would include chips, cars, track and pipe and some timber, although there is several thousand dollars worth of good mine timber available in No.3 Shaft. Also would need rock drill, hose, slusher mints etc. Total of around $25,000.00 depending on the scale of operations.

The tonnage of the uranium ore is not especially well known just at the present time, but from indications, samplings and experience with conditions in the mine, I would judge that there should be available about 30,000 tons in and adjacent to No.3 Shaft. I would indicate an area 150 ft. long, 200 ft. high and 3 ft. wide extending from the 200 ft. level to the 1,000 ft. level and pitching at an approximate angle of 30 deg. west. This area has been developed by the shaft and the 650 and 1,000 ft levels, and is not directly in contact with the old gold stopes. Then there is the shearing all the way down No.2 Shaft from the tunnel level to the650 ft. level which is in the hanging wall of the old gold stope which is now filled with ore. It is my judgment that the combined mineral content over the entire width of the dyke in the area where the footwall seam was mined for gold will make pay ore if properly mined and milled. However, such an operation would have to be on a good tonnage basis. This would run the tonnage figure to around 3,000,000 tons. There are certain areas in the dyke where the gold stringers, which are more nearly vertical than the dyke, are closer together and which form pay ore for the whole dyke and the uranium ore as shown in No.3 Shaft seems to follow very closely the shearing and shattering of the dyke, sometimes being nearly from dyke wall to wall. This condition may well obtain in No.2 Shaft in the hanging wall of the old stopes. In the queen of the Hills lower tunnel we have a gold ore body which is developed between that level and the middle tunnel above which should contain 30,000 tons of ore of mill grade. This gold quartz is associated with some pretty good spots of uranium ore which occurs both in the foot wall and the hanging in some gouge slips and fault fissures. Everywhere the uranium ore seems to be associated with post gold faulting and is largely localized in acid fault gouge and in fault shattered rock regardless of whether it is dyke rock or vein material associated with granite. In straight gold ore contained in the old filled stopes, disregarding any uranium content, I would estimate at least 400,000tons of an average grade of over $11.00 per ton as shown by my samplings. This would be net tonnage to be milled after screening and sorting.

The surface showing of uranium is quite small due to the solubility of that mineral and the almost endless combinations it makes in nature with other metals and bases. But it does extend from the recalled break just west of the No.1 Shaft on the Congress vein westerly to and beyond the No.2 Shaft. In the tunnel level or 200 ft. level, where the tunnel passes behind the above shaft, the background count is quite high. This is not due to radon gas for there is a very heavy movement of air at this point and any concentration of gas would be swept out to surface as the

air is moving rapidly in that direction. Here the low grade zone extends from foot to hanging wall of the dyke, a distance of about 20 ft. No work has been done here or elsewhere to limit the ore body. The ore was followed down No.2 Shaft to the 650 ft. level by the ASO engineer and several samples taken. No.2 Shaft being sunk in the dyke or on the foot wall of it and in direct contact with the old gold stopes which have been filled with low grade ore shows a general average of about 0.15 % U_3O_8 all the way down. The uranium is confined to hanging wall of the dyke and occupies the fault plane which extends downward from the granite for about a couple of feet. Where ever the dyke is crushed the uranium ore follows into those fine seams contained in the dyke and mineralizes them. In the tunnel level west of No.2 Shaft the bottom of the drift shows up well on the Geiger counter and this would seem possibly to be the upward extension of the uranium ore in Shaft No.3 farther west, as explained above.

The Queen of the Hills vein, also as explained above, is entirely in the granite country rock and has no dyke with it. However, we find good grade uranium ore in direct contact with the quartz gold ore, but not at the quartz is radio active, but the gouge on either side of the quartz is. There has been considerable movement horizontally along this vein to account for this gouge.

Farther north where this vein crossed the Pelliot dyke, which is more or less parallel to the Congress dyke, and very much like it otherwise, the situation is again quite active in the line of uranium. The background count is so high at this point, which is the situation of the Queen of the Hills 600 ft. mines, that one is practically unable to get a reading on the counter without getting out of the tunnel and waiting for a couple of hours before the counter comes back to normal. Then only can a reading be had on material collected in the tunnel. No chemical assay tests for uranium have been made here.

It seems to me that the above showings in uranium is well worth the time, effort and money to be expended thereon. The uranium mineral contained in the Congress ores has been classified as LEUNITE, a high grade mineral of unique occurrence. This classification came from the Naval Gun Factory Laboratory in Washington and should be authentic.

Now as to the tonnage of gold ores exposed in the workings. Reports show that the mine has produced over 700,000 tons of ore and that tonnage has been run through the mill. There is at least an equal tonnage left in the old stopes which have been sampled several times at about $11.60 per ton in the mines one inch size which would mean sorting some of the waste out and thus reducing the tonnage to about 400,000 tons. This is an enormous backlog for a small milling plant and constitutes only a portion of the ore available for milling. The cross vein near to the No. 1 Shaft

should produce ore without sorting of around $14.00 per ton. Samples were taken in a tunnel close to the surface at $12.00 and on the same vein at the 550 ft. level at $15.00 per ton. Many samples have been taken in various places showing $14.00 to $15.00 per ton even in large mill runs and, of course, some have been taken of a lower grade of from $4.00 up to $10.00 all in broken ore. There is quite a tonnage available in the old stopes of the Niagara vein and one quite large body of unbroken ore therein that shows assays of $22.00 and $31.00 at 350 ft. depth. This was discovered when caving from the hanging wall disclosed it to view, about 10 ft. in width and at least 100 ft. long.

Perhaps the most interesting thing from a high grade standpoint is the ore body at the bottom of No.5 Shaft on the Niagara vein. This vein lies to the south of the Congress and is in the granite formation on all upper levels and dips more steeply than the other veins or about 30 to 40 degrees. The ore was wider but not quite so good as that contained in the Congress vein and it contains some free gold and some heavy pyritic ore as well. As it reaches the lower level it comes in contact with a basic dyke quite similar to that accompanying the Congress vein and flattened off on it making a fine long, high grade ore body on the contact. The dyke comes in from the foot wall and carries the vein along with it making a virgin mine from that point downward of good high grade ore of an equal to that contained in the Congress vein in early days. It could even be shipped to the smelter at a fine profit, but would be much more profitable if milled locally along with the lower grade ores.

There are no maps covering the territory stoped above this area except one drawn many years later from reports of development work and shipping and milling data of the ore. This map shows with in dashed lines an area with the following caption " Large stope, position and boundary indefinate, records show 140,000 tons taken from No.5 Shaft since 1903, probably from this general area. " This shaft was closed in 1910.

The ore in this shoot should be from 500 ft. to 700 ft. in length and should extend down ward indefinately, as the Congress mine has never been bottomed and is at a very much greater depth. Also some of the ore in the easterly section of the Niagara vein has been cut off by what is known as the "East Fault". This, to date, has not been solved, but from recent disclosures it would seem that it should be readily figured out, as I have been able to determine the horizontal thrust and have figured the vertical component at about 150 ft. This would throw the lost segment that much nearer the surface.

Another vein of great promise is the New Strike Vein north of, and up the hill from, the Congress vein. It is exposed at

several points on surface and has produced one shipment that I know about of $51.00 per ton. The vein is rather narrow, about 18", but is high grade and contains considerable crystalline rock showing free gold.

There are several parallel veins in the Congress workings which show high grade ore that has not been stoped, notably on the 450 ft. level, now inaccessible where a vein in the hanging rock wall having a width of about a foot shows $75 rock over a stope length of around 100 ft. It wouldn't take too much work to get at this ore whenever the mine is opened. I personally saw this ore more than 20 years ago, in fact I have seen most of the ore I have written about except that in the bottom of the No.5 Shaft and that data is from a letter from the former manager who believed this deposit to be the best in the mine.

Cost of mining should be held down to $4.00 per ton and if only recovering ore from the fills, quite a little less than that figure. On a basis of breaking the whole width of the dyke I believe that it can be done for $3.00 per ton. Milling will run about $4.50 per ton, not taking into account the marketing expense of the uranium concentrate, which is not known to me at this writing.

Cost of mining and cleanup together with the initial machinery expense fund would run about $150,000.00. Cost of milling building as was given above $150,000.00. And there should be a working capital of about $50,000.00, at least, to side over until the mill would come into production. It is apparent that these figures could be modified down ward if it were necessary to limit working places and equipment for lack of capital, but with the scheme as outlined above the results would come quicker and more surely.

Very truly,

E. A. Colburn, Jr.

Mining and Milling Experience of

E. A. Colburn, Jr.

While yet in HighSchool in Colorado Springs, Colorado, the city of my birth, I visited the Cripple Creek Mining District and went underground in one of the properties owned by my father. He had been one of the first to appreciate the great opportunities available in that camp and had secured an interest in the original discovery there, the Gold King in Poverty Gulch, quite near the town of Cripple Creek. During the time this property was being developed he secured interests in or the entire ownership of several other mining claims and groups within the District, among which was the Ajax, Theresa, Dolly Varden, Strong and others. During that first visit I made up my mind that I wanted to follow mining for a life work, and proceeded so to do in vacations and between other schooling.

Starting in at the bottom with tramming, mucking, machine mining, I steadily progressed through all of the skills in and about the mines, finally reaching a foremanship on the Ajax over a detatched portion of the operation. Next I was assigned to the superintendancy of the Theresa Mine in Goldfield, Colorado, in which position I had control of more than 60 men. When this mine was sold we were engaged in building new ore bins and washing plant, sorting belts, new and larger gallows frame, hoisting engine and compressor along with the necessary boiler capacity for the enlarged plant.

Later I went back to college at Colorado Springs, Colo., for a time and again back to the Ajax for additional work in the assay department and underground as assistant superintendent. At that time were about 300 employees on the mine. Next I took over the operations on the Golden Wedge Mine near Anaconda, Colo., where I sank a 600 ft. vertical shaft, installed a surface plant, gallows frame and other equipment and mined out the vein to that depth where the ore shoot dipped off our property. Then followed some exploration work on the Dolly Varden in Squaw Gulch about a mile from the last named mine.

The superintendancy of the Ajax was next. By this time the mine was worked only by leasers, the surface plant being operated by the company. Profits were low or non existant and most of the leasers dissatisfied with conditions as handled by the former superintendent. In order to better the mine service and decrease costs I made changes that allowed a very nice profit yearly. Such changes were paid for within a years time by extra profits with quite a little left over. These improvements included the raising of the gallows frame, installation of skips in the place of cages, putting in an electric ore car for transportation of ore to the bins and waste to the dumps, etc.

E. A. Colburn, Jr.
Box 152
Wickenburg, Ariz.

Some time later a 300 ton cyanide plant was designed and built under my direct supervision and placed in operation. This plant was unique in the Cripple Creek District in that we treated the sulphotelluride ores without roasting or other oxidizers and were able to get high recoveries on ore of all grades. Other mills were able to treat the lower grade ores without roasting, but at that time none of them were able to handle the higher grade material. We made many runs of segregated ore of a value of about $30 per ton and finally reduced the tailing to around a dollar per ton.

The process consisted of cyanidation with the aid of electrolysis which enabled us to get the gold held in the tellurides into solution quickly and completely. Also a further extension of the process was worked upon which included the precipitation of gold from the mill pulp without seperation of the solution form the ore pulp. We were very successful in this and in getting a barren solution for returning to the head of the plant for further use. However we did not put this into actual mill practice.

The Ajax mine produced over $5,000,000, and while I was in charge the annual production was around a quarter million for each of the seven years.

My brother and I produced and patented a flotation machine at about this time, that is early in the development of flotation, and later on had flotation laboratories in both Denver and San Francisco, where we made tests on many varieties of ores. I also patented a new type machine in 1927 which was sold later on to the Denver Equipment Company, and parts of which are now in production.

I came to Arizona in 1934 as Superintendent of the Illinois Mining Company, which had a lease on the Congress Mine at that time. A raise was run on the 300 ft. level from the Congress vein which did not extend far enough to cut the vein we were looking for, and this work was about the only serious attempt to work underground since the mine was closed in 1910. A few leasers worked at and near the surface only.

Did considerable work in testing on the mill while it was in operation on the Congress dumps and determined the best flow sheet for the ores.

Later on was manager for the Du Boise interests and ran the Mammoth mine and the Belle Mine in the Eureka Mining District, Yavapai County, Arizona.

Secured the Congress Mine in 1947 and have been engaged with that property to date.

ASSAYS AND SHIPMENTS FROM CONGRESS
MINE SINCE 1947.

with returns from carload shipments from the Queen of the Hills claim during 1936 as below:-

Date	Shipper	Lot No.	Gold Ozs.	Silver ozs	Cu%
6/13/36	Queen & Sons	954	0.61	1.7	0.20
9/3/36	" "	1006	0.69	1.7	0.13
8/10/36	Lee & Sons	464-947	0.74	1.4	0.10
8/26/36	" "	422-979	0.75	1.6	0.10
12/14/36	Queen & Whitwell	M719-1517	0.61	3.0	0.27

Hand Samples Gold at $35.00

3/15/48	McKinley tunnel E of No 2 shaft	$ 9.50
	" " above tunnel, grab	11.80
	" " 20 ft. below tunnel	15.20
	" " " " " h.w.	12.00
	" " west in stope	14.10
	250 Level No.2 shaft grab east	10.50
	" " " " " "	11.30
	300 " " " grab on floor	18.10
	" " " " screening thru 1"	18.20
	" " " " sulphide	11.20
	650 " " " grab east of shaft	12.00
3/19/48	" " " " " west of shaft	11.10
	750 " " " " east of station	9.40
	" " " " " east of shaft	15.20
	250 " " " quartz	11.80
	350 " " " "	13.00
	750 " " " "	21.20
	1000 " No.3 shaft " instope	12.50
3/21/48	250 " No.2 " heavy sulphise	68.80
	650 " " " banded sulphide east	51.62
	650 " " " sulphides in hanging wall	35.45
	250 " No.5 " " in top above cave	31.15
	" " " " " " bottom " "	28.38
	1000 " No.3 " " east in stope	63.56
	300 " No.2 " banded sulphides east	54.71
4/6/48	Surface above Congress workings new vein	20.60
	" dump No.3 shaft loose quartz on dump	31.50
	Tunnel level old No 5 shaft at fault	26.75
	" " " " " " "	9.50
	" " " " "	8.25
	" " " " "	11.00
4/20/48	750 Level No.2 shaft grab in drift east	26.50
	800 " " " " west	13.20
	500 " " " quartz hanging wall	15.50
	1000 " No.3 " grab	11.20
	" " " " hanging	12.00
5/1/48	Queen of the hills upper tunnel lower	8.00
	" " " " float	12.35
	" " " " middle	9.20
	" " " " upper	8.95

5/6/48	1000 Level No.3 shaft	$26.18
	" " " " sulphide in gob	19.72
5/21/48	No description except grab of fills	21.00
	" " " " " "	11.90
	" " " " " "	6.30
	" " " " " "	5.60
	" " " " " "	4.55
	" " " " " "	20.30
6/8/48	" " " " " "	7.70
	" " " " " "	11.90
	" " " " " "	4.90
General average of above samples		18.17
Average of all fills		11.60
Average of fills through ¼" mesh		15.38

****

Au at $32.20.

9/28/49	Queen, Lower tunnel	16.74
	" " "	14.61
	" " "	10.75
	" " "	26.81
	General average of above	17.23
10/6/49	Queen	3.83
	"	3.74
	"	7.48
	"	6.44
	"	6.48
	"	8.98
	"	3.99
	"	21.66
	"	10.42
	Composit of above 8 samples	8.05
8/20/49	Queen Pile top of hill	19.60
	" " side hill	14.70
	" " dug from vein	7.70
	" Quartz from vein	9.45
	" " top tunnel, left	4.55
	" Veins above road	.70
11/10/49	Queen 10 ft wide	5.13
	Queen gob	5.79
	" Lower level 10 ft. wide	5.79
	" " " 4½ "	4.18
	" " " tunnel	6.11
	" Middle tunnel 9 ft. wide	5.95
1/11/50	" wide vein lower tunnel 8'	2.80
	" sulphide footwall vein 2' wide	16.84
	" at turn of winz above lower tunnel 4'	15.35
	" beyond cave footwall middle tun. 2'	14.90
	" hanging wall vein Middle Tun. 2'	17.88
1/14/50	650 Level No 2 shaft disc sulph. east of cave	16.80
	" " " " same pl. sulph. 1½' wide	252.73
	" " " " grab fill cross vein	15.40
	" " " " rock as above	8.40
	Queen smelter check	7.00
	" " "	25.11
1/28/50	" Middle tunnel samples	5.85
		13.46
		19.32

5/11/50	Queen Middle tunnel underhand at winze 30"	$ 9.12
	" " " " " " "	8.08
	" " " " " " 3'	8.20

Shipments from Cross Vein at surface

Lot No2	Gold at $32.3185	23.89
Lot 1	" "	35.76
Lot 3		16.85

Feb 17, 1950 Lot 270		16.54
Feb 17, " " 271		31.12
March 25 1950	1 Queen	8.95
May 15, "	2 "	10.36
" " "	3 "	99.82
June 2, "	4 "	11.18
July 22, "	5 "	8.93
October 13, "	Niagara	3.88

****

2/23/50	Queen 3 ft. wide	17.90
	" 4 " "	4.20
	" 3 " "	13.29
	New Strike on hill in shaft 50" deep, 8"	100.64
	" " " " surface trench	10.15
2/7/50	No record	19.70
2/16/51	Bellick Dyke tun. near end 2 ft.	10.36
3/2/51	Vein 2' wide surface toe of Wyman waste dump	19.96
	Queen Lower tun. H.W. Bellick dyke 2'	10.79
3/30/51	No 1 shaft 120' deep stringers in dyke	102.05
	" " " " dyke	1.60
	Queen upper tunnel	3.16
	Waste from No 1 dump	1.06
5/22/51	Nolshaft, 157' level 65' west gob	14.40
	No 2 shaft, 650 level 200' E. 3' 75' up stope	4.06
	Queen upper tunnel 40" wide below level	22.80
	No 2 shaft 650 level 200' E. gob	2.12
	No 1 shaft, 157' level 70' W. gob	10.43
5/31/51	No record	4.56
6/1/51	" "	4.65
7/17/51	No 1 shaft 157' level 20-120' W. Dyke & quartz 200# sample	14.04
	Same after crushing -3/8"	27.32
	" " " plus 3/8"	20.84
9/17/51	Mill tailing sample from old dump	2.90

****

	Per unit	Tungsten at $63.00
Queen middle Tun quartz	0.025	1.57
Congress dyke on surface	0.08	5.20
Mill tailing	0.045	2.92
Dyke on tunnel dump	0.38	24.70
" " " "	0.33	21.45
Dyke No 2 dump	0.43	27.95
Mill tailing	0.13	8.45
Congress dyle surface	0.20	12.60
Dyke from No 3 dump	0.29	18.27
Yellow rock No 3 dump	0.75	4.72
Congress dyke surface	0.145	9.13
Congress dyle surface	0.075	4.72
" " "	0.125	7.87

Black sand from road above mill
Au. 7.11 oz. Ag. 21.5 Value at $35 $246.84

9/30/55 gla

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

224 New Customhouse
Denver 2, Colorado

September 26, 1955

Memorandum

To: W. N. King (w/brochure)
J. N. Faick

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA-3963 (Uranium), W. A. Murray, Congress Mine, Yavapai County, Arizona

Enclosed is the subject application in the amount of $27,033.61. Also enclosed is a copy of a letter from the Chairman of the Operating Committee, dated September 21, 1955 and reviews of the application by H. E. Nelson and John E. Crawford.

The brochure consists of:

1. Form MF-103 and accompanying answer sheets.

2. A claim map showing the workings of the Congress vein.

3. A personal biography of William Arthur Murray.

4. A laboratory report, dated June 24, 1955, from the USGS.

A field investigation and suitable report are requested.

W. M. Traver

W. M. Traver

Enclosures

HMC:pw

cc: Sec.Op.Comm. (2)
Harshman
Subject DMEA-3963
Chron

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

224 New Customhouse
Denver 2, Colorado

September 26, 1955

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W. M. Traver

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cc: Sec.Op.Comm. (2)
Harshman
Subject DMEA-3963
Chron

Surname 700

Murphy
Ellis
Geehan
Nelson
Selfridge

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

SEP 21 1955

Mr. W. A. Murray
Box 152
Wickenburg, Arizona

Re: Docket No. DMEA-3963 (Uranium)
Congress Mine
Yavapai County, Arizona

Dear Mr. Murray:

The application for assistance in exploring the subject property in Yavapai County, Arizona, under the captioned docket number, has been reviewed by the Rare and Miscellaneous Metals Division of the Defense Minerals Exploration Administration. It has been referred for a field examination to the Executive Officer of Region III at the following address:

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

The Regional Office will contact you in regard to your project if additional information is required.

Sincerely yours,

Frank E. Johnson (for)

ACTING Administrator

FMMurphy:am
9-20-55
cc to: Admr. Reading File
Docket
Code 700
DMEA Field Team, Region III(2)

R.G.H.

Surname 700
Murphy
Ellis
Selfridge
F. Johnson

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

SEP 21 1955

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

Re: Docket No. DMEA-3963 (Uranium)
W. A. Murray
Congress Mine
Yavapai County, Arizona

Dear Mr. Traver:

The captioned application is referred to Region III Field Team for investigation, a field examination, and recommendation. A copy of the application was retained by your office.

Enclosed are copies of memoranda from N. E. Nelson, dated September 13, and J. E. Crawford, dated September 16, 1955, members of the Uranium Commodity Committee.

In the event the Field Team recommends a project on the subject property, it should advise the Applicant that we will require six executed copies of the Owners' Consent to Lien signed by E. A. Colburn, Jr., and Etta M. Colburn, his wife, the owners' and lessors' of the property.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee (246)

Enclosures

APPROVED:

/s/ Robert W. Geehan (246)
Member, Bureau of Mines

N. E. Nelson (246)
Member, Geological Survey

FMMurphy:am
9-20-55
cc to: Admr. Reading File
Operating Committee
Docket
Messrs. J. E. Crawford, Rm. 3641
T. H. Kiilsgaard, Rm. 5222
J. O. Hosted, Rm. 3210, GSA
Code 700
Mr. Murphy

RCS

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

RECEIVED SEP 19 1955

September 16, 1955

Memorandum

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

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

Subject: Application for assistance, DMEA Docket 3963, W. A. Murray, Congress Mine, Yavapai County, Arizona

I have reviewed the attached application, W. A. Murray, DMEA Docket 3963; and I have discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

The applicant, Mr. W. A. Murray, proposes to explore a portion of some property in Yavapai County, Arizona, in an old gold mine known as the Congress Mine, by some 350 feet of drifting, running raises, and improvement of existing shaft with a total estimated cost of $27,033.61.

Past production of the mine amounted to over $8,000,000.00 in gold and silver, and, although there is no present production, the gold quartz ore gangue in one of the tunnels has a present value of $12.00 per ton according to the application.

The applicant shows results of assays of samples taken by the AEC in No. 2 shaft. The samples taken in No. 2 shaft indicate commercial grade ore, but No. 2 shaft is not included in the exploration program. Assays of two samples of relatively high grade ore are submitted which were taken from No. 3 shaft. No samples have been taken from the Queen of the Hills tunnel, and encouraging Geiger counter readings are the applicant's only justification for exploration in that area.

We recommend that the application be referred to the Field Team, and that the Field Team confer with E. E. Thurlow, Chief of Salt Lake City Exploration Branch, Atomic Energy Commission.

Based on information submitted in the application, only No. 3 shaft was indicative of meriting an examination, and it would be advisable for the Field Team to concert its efforts with that thought predominating.

James Paone
for John E. Crawford

Attachment

9/14/55 gla

IN REPLY REFER TO:

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

RECEIVED
SEP 14 1955

September 13, 1955

Re: DMEA 3963
W. A. Murray
Congress Mine
Yavapai Co., Arizona
$27,033.61 - Uranium

Memorandum

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

From: N. E. Nelson, U. S. Geological Survey

Subject: Review of application.

This application is for aid in the partial rehabilitation of the No. 3 shaft of the old Congress gold mine, 150 feet of drifting, 200 feet of raising and clean out work of caved workings in the Congress, Queen of the Hills and Bellick mines.

The work would open for testing and explore places in the mines which have shown radioactivity. The application says some places show marked activity, and assays in support are cited. The highest assays apply to selected samples. Of ten assays listed six are of ore grade. If representative of significant tonnages attractive material is indicated.

Apparently thousands of feet of underground workings are open. An inspection should be made, especially of the points of marked radioactivity and the possible importance of the activity evaluated.

A Field Team inspection and report is recommended.

N. E. Nelson

N. E. Nelson

IN REPLY REFER TO:

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

RECEIVED
SEP 14 1955

September 13, 1955

Re: DMEA 3903
W. A. Murray
Congress Mine
Yavapai Co., Arizona
$27,033.61 - Uranium

Memorandum

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

From: W. E. Nelson, U. S. Geological Survey

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A Field Team inspection and report is recommended.

W. E. Nelson

W. E. Nelson

WENelson:iml
G-9/13/55

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

Subject: Exploration
Re: Congress Minc

W.A. Murray
Box 152
Wickenburg, Arizona

September 6, 1955

Dear Sir:

The receipt of your application dated August 24, 1955 for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-3963 and referred to the Rare & Miscellaneous Division.

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

Sincerely yours,

Robert E. Adams, Chief
Operations Control and
Statistics Division

September 6, 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: Chief, Operation's Control and Statistics Division

Subject: Assignment of Docket Number

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

DMEA-3963 W.A. Murray

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

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

RECEIVED
SEP - 2 1955

August 30, 1955

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA aid, (Uranium), W. A. Murray, Congress Mine, Yavapai County, Arizona.

Enclosed are three copies of the subject application in the amount of $27,033.61.

Only one copy of the Lease with Option to Purchase was furnished by the applicant and we are enclosing it for your use.

W. M. Traver

W. M. Traver

Enclosure

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

RECEIVED
SEP - 2 1955

August 30, 1955

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA aid, (Uranium), W. A. Murray, Congress Mine, Yavapai County, Arizona.

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W. M. Traver

W. M. Traver

Enclosure

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

DMEA
Date Rec'd
AUG 29 1955

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

RECEIVED
SEP - 2 1955
BUREAU OF MINES
Denver, Colorado

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

Not to be filled in by applicant

Docket No. 3963
Metal or Mineral Uranium
Date Received 9-2-55
Estimated Cost 27,033.61
Participation (Government %) 75

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: J. A. Murray
Box 152
Wickenburg
Arizona

(*b*) If other than an individual, add to your name above whether a corporation, partnership, etc., and the name of the State in which incorporated or otherwise organized. None.

(*c*) If a corporation, add to above statement, titles, names and addresses of officers. None.

(*d*) If a partnership, add to the above statement the names and addresses of all partners. None.

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

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

(*b*) State any mine name by which the property is known. Congress Mine, Yavapai County, Ariz.

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Lessee. With right to purchase.

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property. See accompanying papers.

(*e*) If you own the land, describe any liens or encumbrances on it No encumbrances.

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

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

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

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

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

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

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

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

(*c*) The work will start within 30 days and be completed within 12 months from the date of an exploration project contract.

(*d*) State the operating experience and background of the applicant with relation to the ability to carry out such exploration project, and also that of the person or persons who will supervise the operations. See accompanying papers.

6. *Estimate of costs.*—Furnish a detailed estimate of the costs of the proposed work (you will have to use a separate sheet), under the following headings. Add the totals under all headings to give the estimated total cost of the project:

(*a*) *Independent contracts.*—(Note.—If the applicant does not intend to let any of the work to contractors, write "none" after this item. To the extent that the work is to be contracted, do not repeat the cost of the contract-work in subsequent items.) State the cost of any proposed independent contracts for the performance of all or any part of the work, expressed in terms of units of work (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved, etc.). None.

(*b*) *Labor, supervision, consultants.*—Include an itemized schedule of numbers, classes and rates of wages, salaries or fees for necessary labor, supervision and engineering and geological consultants.

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel. See accompanying papers.

(*d*) *Operating equipment.*—Furnish an itemized list of any operating equipment to be rented, purchased, or which is owned and will be furnished by the Operator, with the estimated rental, purchase price, or suggested use-allowance based on present value, as the case may be. See accompanying papers.

(*e*) *Rehabilitation and repairs.*—Furnish a detailed list showing the cost of any necessary initial rehabilitation or repairs of existing buildings, installations, fixtures, and movable operating equipment, now owned by the Operator and which will be devoted to the exploration project. None.

(*f*) *New buildings, improvements, installations.*—Furnish a detailed list showing the cost of any necessary buildings, fixed improvements, or installations to be purchased, installed or constructed for the benefit of the exploration project. None.

(*g*) *Miscellaneous.*—Furnish a detailed list showing the cost of repairs to and maintenance of operating equipment (not including initial rehabilitation or repairs of the Operator's equipment), analytical work, accounting, workmen's compensation and employers' liability insurance, and payroll taxes.

(*h*) *Contingencies.*—Give an estimate of any necessary allowances for contingencies not included in the costs stated above.

NOTE.—No items of general overhead, corporate management, interest, taxes (other than payroll and sales taxes), or any other indirect costs, or work performed or costs incurred before the date of the contract, should be included in the estimate of costs.

7. (*a*) Are you prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation (Sec. 7, DMEA No. 1)? Yes.

(*b*) How do you propose to furnish your share of the costs?

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

Explain in detail on acompanying paper.

CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief.

Dated Aug 24, 1955

(Applicant)

By W. A. Murray

P O Box 152

Wickenburg, Arizona

Title 18, U. S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

U. S. GOVERNMENT PRINTING OFFICE 16—66551-1

W. A. Murray

- 1 -

RECEIVED
SEP - 2 1955

1. (a) W. A. Murray, Box 152, Wickenburg, Arizona.

   (b) None.

   (c) None.

   (d) None.

2. (a) All mineral in and adjacent to Congress dyke and veim crops on WHYNOT claim. U.S. Patent 18633. Dated Oct. 6, 1891 west of the gold stopes on said vein and served by No. 3 shaft. QUEEN OF THE HILLS claim. U.S. Patent 18633 dated Oct. 6, 1891, BELLICK LODE MINING CLAIM, certificate of location recorded in office of County Recorder of Yavapai County, Prescott, Arizona, Book 24 of Mines at page 291.

   (b) Above is a portion of the property known as the CONGRESS MINE, Congress, Yavapai County, Arizona.

   (c) Lessee. With royalties to apply on bonds.

   (d) Copy of lease and bond.

4. (a) THE CONGRESS MINE is an old one with a heavy gold production record. There are three main veins and many spur and smaller veins of the property, several of which have had no development. The workings consist of six deep shafts and probably 20 miles of drifts and cross cuts.

   The shafts are as follows: -

   No. 1 shaft , 1100 feet deep on Congress Vein.
   No. 2 Shaft, 1700 " " " " "
   No. 3 shaft, 3900 " " " " "
   No. 4 shaft, 1900 feet deep on Niagara Vein

No. 5 shaft, 2050 feet deep on Niagara Vein.
No. 6 shaft, 1800 " " " " "

Many of the drifts in and under the old stopes are not accesable but many are open for inspection. No. 3 shaft has a cave at the collar and is clear from there down to the 1150 foot level which is the present water level. No. 2 shaft is open to the 1000 ft. level but is in poor condition having been burned out. No. 1 is caved below the 157 foot level. No. 5 is caved at the collar and again at 350 feet. No. 6 is caved at the collar. The QUEEN OF THE HILLS lower tunnel is caved some for the first 300 ft, then caved shut for about 50 ft. The lower tunnel can be reached from a winze from the middle tunnel for examination purposes.

(b) Past production over $8,000,000.00 in gold and silver. No present production. Workings were driven 50 years ago to facilitate gold production, not to block out uranium ore.

(c) The country is granite containing numerous pegmatite dykes. The gold veins are of at least two ages, the earliest ones being the Niagara Vein, Cross Vein and the New Strike Veins. The latter age veins consist of the Congress Vein and certain other deposits in the Bellick claim.
The Congress Vein is associated with a diabase dyke having a width of 12 to 15 feet which runs in an easterly and westerly direction with a dip to the north of 25 deg. to 28 deg. The vein usually was found on the footwall of the dyke, but frequently there is mineralization throughout the dyke and on the hanging wall side.
For the purpose of this application it is sufficient to say that uranium was found only a few months ago in the Shaft No.3 workings and is largely confined to the area west of the old stopes and extends from the 450 foot level downward through the 1000 ft. level to the cave in No. 3 shaft at the 1150 ft. level which is also the point at which the mine water now stands. There is a thrust fault along the hanging wall side of the dyke and it is this fault which apparently is mineralized by the uranium. Wherever there is any local crushing in the dyke the uranium appears to have followed the cracks and fissures thus formed. As a result there are many dyke rock faces on the dumps which fluoresce the characteristic yellowish green of autonite.
The gold mineralization is usually confined to the quartz gaugue and is contained in iron sulphide, very little or no free gold being present except in the Cross Vein and the New Strike Vein where speciman stuff is often found.
In the QUEEN OF THE HILLS claim the gold quartz is accomp-

anied by faultings which again shows uranium although there is no dyke present. Further north on the Bellick Claim and in workings connected to the lower QUEEN OF THE HILLS tunnel another basit dyke similar to the Congress dyke cuts across the vein and forms what may be a large uranium ore body if one can judge by the background count which is up into the X10 scale of the Geiger counter. No work on uranium has been done at this point nor has any been done elsewhere on the property.

Uranium assays have been taken from several points in the workings with the result that the best grade ore seems to be confined to an area west of the old gold stopes and adjacent to shaft No.3. This area should recieve some exploration to determine the grade and extent of the deposit. The seondarea showing promise is the QUEEN OF THE HILLS vein as exposed in the lower Queen tunnel. No assey, to my knowledge, has been taken from this area but the Guiger counter tests were very encourageing.

Below are some A E C samples taken at the locations shown. Others will be attached to this paper.

			RADIO	CHEM.
A-2971	14 in. channel about 400 level No.2 shaft		0.083	-
A-2973	Select No.3 shaft dump		0.121	0.14
A-2974	" E. drift 250 ft. level	No.2 shaft	0.099	0.14
A-2975	" No.5 shaft dump		0.063	-
A-2976	" 300 ft. level	No.2 shaft	0.044	0.10
A-2977	" 250 ft. level	No.2 shaft	0.039	-

Please note that all these were from No.2 shaft or from dumps and are admittedly low in grade. The No.2 shaft territory has not been included in this application for the above reason. Kindly note the increase of the chemical assay over the radiometric.

		RADIO	CHEM.
A-3625	1000 East drift, shaft No3 & 40ft select	0.43	0.92
A-3624	" " " " " 55ft east	0.88	1.60

See also photostat enclosed.

Attached to this is a map showing the workings of the CONGRESS MINE on the Congress vein and also the workings on the QUEEN OF THE HILLS vein. The applicant desires to explore both of these areas by drift and raises as indicated thereon and in order to do so he must clean out and timber the collar of No.3 shaft, install pipe and track to the 1000 ft. level, install temporary hoisting and air compressing equipment etc.

At the QUEEN OF THE HILLS lower tunnel a compressor must be installed and a mucking machine rented in order to clean up the caves in the tunnel. Here too, track and pipe must be placed in the tunnel before any work can be accomplished in the way of exploration.

(d) The Congress Mine is 2 1/2 miles northwest of Congress Junction in Yavapai County, Arizona. The road between the two points is a good dirt road, mostly level. Access roads are all in, and in good condition. The Santa Fe railroad, Highway No.89 and State Highway No.71 all pass through Congress Junction. It is one of the best situated mines in the west. Mine supplies are available from Wickenburg, 20 miles away, Phoenix 70 miles - Prescott, 55 miles away. There are a few houses for workmen at the mine, but most labor would drive in from Congress Junction, Yarnell, Wickenburg or surrounding country.

For uranium ores the probable market would be the Globe Ore Purchasing Depot. Gold ores would go to any of several smelters in El Paso, Texas; Ajo, Arizona; Superior, Arizona; Miami, Arizona; Hayden, Arizona, or Douglas, Arizona.

(e) There is sufficient manpower, materials, supplies etc available in this vicinity. Water is obtained from Martinez Creek through a 6600 ft. pipe line. Power is now at the pump house on Martinez Creek, but for exploratory operations would not be brought in as gasoline power would be used.

5. (a) We wish to explore for uranium minerals. Our backlog of gold ores is already sufficient for a large milling plant.

(b) The proposed work is shown on the accompanying map in red. --

First, in No.3 shaft a western extension of the 1000 ft. level from the shaft station for 100 ft.

Second, a raise driven in the 1000 ft level in the uranium ore 50, or 75 ft. east of the shaft for a distance of 50 ft.

Third, a raise of like distance from about 100 ft. east of the shaft on the 650 ft. level.

Fourth, exploring a high grade occurrence about 50 ft. down No.3 shaft from the 650 ft. level. Probably this latter work would consist of about 50 ft. of drifting. In order to do this work the cave at the mouth or collar of No. 3 shaft will have to be removed and the collar timbered. Pipe and track should be laid to the 1000 ft. level, bell cord installed etc Naturally a hoist and compressor would have to be rented for this work, as well as machine drill, tools, etc. etc.

In the QUEEN OF THE HILLS tunnel a couple of raises of a length of 50 ft. each should be run on the ore shoot exposed, one 150 ft. north eastward from the winze from the middle tunnel, and the other about 100 ft. farther on northeastward. The tunnel is all clear north from the intersection of tunnels

near portal to tunnel on the Bellick claim, where it is caved (more or less) on into the Bellick winze. Balance of the tunnel is open to the east portal. It would be better to open this caved section from the south portal, as there are no roads or other facilities at the east portal, and air circulation is necessary for good working conditions. (About 50 ft. of work should be done at the Bellick winze collar to determine the source of the very high background count found there.)

The red lines indicate the location of the drifts and raises and the circles indicate positions of caved in shaft and tunnels.

There is uranium ore now in sight at all points which are indicated for exploration. The No. 3 shaft exposures show little quartz or gold value. The QUEEN OF THE HILLS tunnel exposures are in a gold quartz ore gangue with a present value of about Twelve (12.00) Dollars gold and silver. It is highly possible that Uranium ore may also be found on the parallel vein northwesterly from the QUEEN vein where the two raises are indicated. This vein runs well in gold, but due to ventilation conditions it has not been possible to get into the drift lately to test for uranium. This condition will be eliminated by opening of the south portal of the tunnel.

Geological conditions are explained under Sec. 4 (c).

(c) Start within 30 days. Completed within 12 months.

(d) (See Personal Biography) W.A.Murray (Write his own for thi

Consultant will be E. A. Colburn Jr. Years of experience in Cripple Creek District, Colorado as miner, forman and Superintendant of Theresa Mine, Goldfield, Colorado; Golden Wedge Mine, Anaconda, Colorado, and Ajax Mine, Victor, Colorado. Built and operated 300 ton cyanide plant at the Ajax Mine on Sulpho-telluride ores, both low and high grade, without roasting. Many years experience in flotation laboratory in Denver, Colorado, and in San Francisco, California. Operated the Mammoth Mine, and the Bell Mine in Eureka Mining District, Arizona, as well as having been General Superentendant of Illinois Mining Co. on the Congress Mine.

6. (a) None proposed.

(b) Labor No. 3 Shaft.

Engineer on Hoist 148 shifts @ $16.00	$2,368.00	
2 Miners underground 320 "	4,832.00	$ 7,200.00
QUEEN OF THE HILLS		
2 Miners underground 262 shifts@ 16.00	4,192.00	4,192.00

Total elapsed time, about 6 months to complete all work of exploration. For both openings work will be going on in more than one place at times. This will increase the number of men at work and shorten the time for completion but will not increase the overall cost.

Supervisors & Consultants.

Supervisor & Consultants.

Supervisor for 6 months @ 300.00	$ 1,800.00	
Consulting & Engineer 1da wk. $100.00	2,400.00	$4,200.00

(c) Operating Materials & Supplies.

1,090 Gallons Gasoline; Compressor.		
390 " " Hoist		
15 " Lube Oils for engine	368.25	
5 " Compressor oil		
Ammunition #4290 @ $22.00/ hundred wt.	943.80	
Fuse and caps	50.00	$1,362.05

(d) Operating Equipment.

Gas Slusher, 1 Mo. rental	$ 125.00	
Hoist $175.00 / Mo. for 6 Mo.	1,050.00	
Mucking machine 60 days @ $250.00	500.00	
Machine Drill, rental 143 shifts six months @ 36.50	219.00	
Slosher bucket - purchase.	200.00	
Track- 2800' 12" with splices etc 5600 ft rail	2,688.00	
Miscellaneous - Drill steel, Jack etc.	500.00	
Timber for Track ties 30" long 4'x 6" 1000 ties ea 5 bd. ft. 5000 ft @$100.00	500.00	
Rental of 2 Compressors @ $210.00 per mo. each for nine months	1,890.00	
Pipe - 2500' 2" used, @ 30	750.00	$8,422.00

(g) Miscellaneous:

Repairs	100.00	
Analytical work and assays	200.00	
State and Federal unemployment 3%	467.76	
Employers Liability Ins.	?	
Social Security Taxes 2%	311.84	
Arizona witholding tax	77.96	$1,157.56

(h) Contingencies - - - - -	$ 500.00	$ 500.00

Grand Total $27,033.61

W. A. Murray
Box 152
Wickenburg,
Arizona

5. (b)

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PERSONAL BIOGRAPHY

William Arthur Murray

William A. Murray was born at De Soto, Missouri, December 31, 1893. His parents were Andrew Jackson Murray, father, and Katherine Westmeyer Murray, mother.

Prior to the commencement of his formal education, Mr. Murray's parents moved to St. Louis, Missouri. He attended the public schools in St. Louis. When he was 14 years old (1907) he attended St. Louis University, a Military prep school. After his graduation from that school in 1910, he attended Drake University, Des Moines, Iowa until 1913 where he majored in subjects leading to an Engineering Degree. However, he was dissatisfied with the limited facilities of Drake University, and in 1913 he commenced studying under Dr. Rush of Harvard University on a private tutorship basis. Dr. Rush afforded him the opportunity to acquire knowledge in those subjects that would best prepare him as a research engineer. As a consequence of this private tutorship Mr. Murray never recieved a formal diploma from any university. However, since he was not seeking employment as an employee, he felt that this lack of a diploma would not deter him from accomplishing his desires.

Date	
1913 - 1914 (During vacation)	Assisted his father, Andrew Jackson Murray, a railroad builder for the Missouri Pacific and Iron Mountain Railroad, in the installation of block signals between St. Louis, Mo. and Hoxie, Arkansas, and installed a new extension to the west for the Missiouri Pacific.
1915 - 1916 (During Vacation)	Assisted brother-in-law in the erection and installation of a new type flotation plant at the Ajax Gold Mine in Cripple Creek district, Colorado. Installed telephone system from lower level stopes and adits to central control plant. Incorporated a new steam coiless engine to give more positive control over the ore elevators, increasing efficiency of production and reducing hazard factor.
1916 - 1918	Served in U. S. Army in Supply and Finance Division.

5. (b)

1918 - 1921

Employed as research and development engineer in the establishment of a new beneficiation plant for the reduction of lead for the Flat River Mining Company, Flat River, Missouri.

Research and planning engineer for the Union Electric Power Company, St. Louis, Missouri, in the rebuilding of its Tenth Street Plant, hydro-electric. Utilizing oil switch breakers and latest electrical power carrying and safety devices.

Employed by Union Electric Power Company, Finance Division, and aided in the increasing of its capitalization by the placing of more than Three Million ($3,000,000) Dollars in securities and bonds, under the immediate direction of Mr. John Gans, Secretary, Union Electric Power Company.

1921 -1923

Research Engineer and Installation Foreman for Ajax Mine incorporating most recent flotation beneficiation and ore handling mining technique.

Colorado Fuel and Iron, Pictou, Colorado. Research Engineer and advisor in a consultant capacity in the extinguishing of underground burning coal. Reactivating mine by de-watering and increasing safety factor by pillaring, driving new drifts, and devising adequate forced-draft ventilation. Surveyed and assisted in building mine electric railroad for ore handling

Designed and installed, with his father, a beneficiation process utilizing cyanide which would remove gold from ore which had previously been subjected to flotation. This cyanide process enabled the Ajax Mining Company to extract, profitably, gold from ore which had been through a flotation process. The re-working of the dump by the cyanide process received considerable attention in the mining engineering circles at that time, as it benefited more than One Million ($1,000,000) Dollars from this dump material.

5. (b)

1923 - 1933	Sold stocks and bonds for the capitalization of new businesses on a commission basis. This business caused Mr. Murray to travel extensively throughout the west coast, but his main office was located in the First NationalBank Building, Los Angeles, California.
1933 - 1942	Standard Oil Company. Remodeled Fuller Earth plant at Olmstead, Illinois, decreasing the cost of production from approximately $5.00 a ton to $2.50 a ton. After this plant was in production on this economical basis, the Standard Oil Company engaged the services of Mr. Murray by contract to sell fullers earth to food companies, packing companies, soap companies, etc. Experimental and developmental research in the use of diatomite as a filter for certain processes for which Fullers Earth was either too expensive or not best suited. This diatomite research was conducted in the main, at deposits located in Florida. Developmental research in the use of Loggerhead Sponges for the production of chicken feed and fertilizer having a high content, and rich in, Vitamin B_{12}. Experimental laboratory plant set up in Goulds Canal, Florida.
1942 - 1945	Volunteer in the Civil Air Patrol as a pilot in the anti-submarine operations off the coast of Florida.
1945 - 1949	Continued developmental research in the use of marine animal life reduction plants for the extraction of high protein and ocean marine mineral contents from otherwise worthless ocean animal life. Erected and operated two chicken feed and fertilizer plants. One at Goulds Canal Florida, and one at Tarpon Springs, Florida. Red Tide situations, fungus disease, and hurricane destroyed potentials so abandoned operations,

W. A. Murray
Box 152
Wickenburg,
Arizona

5. (b)

1949 - 1952	Continuation of developmental research of worthless animal marine life for food concentrates for humans and livestock; worked with Dr. K.K.P.N. Roa, of India, Food and Agricultral Organization, under the UN. Further developed processing techniques so as to incorporate continuous flow operation minimizing costs.

Mr. Murray is now utilizing all of his time in obtaining information on the availability of marine animal life in the various locations of the world with the expectation of establishing marine animal reduction plants in the most desirable supply areas of the world.

*** * * * * * * * * * * * * *

R E F E R E N C E S

L. Earl Curry, Esq.
Attorney at Law
1226 Ingraham Bldg.
Miami, Florida

Mr. Winford Brown
Brown Fertilizer Company
South Miami, Florida

Mr. John Renneburg
Edw. Renneburg &Sons Company
2639 Boston Street
Baltimore 24, Maryland

Senator George Smathers
Senate Office Building
Washington, D. C.

Mr. Frank "Salty" Mallants
Boating Fishing Editor
Miami Daily News
Miami, Florida

Mr. T. Hamel
Rt. 4, Box 55
South Miami, Florida

Senator Spessard Holland
Senate Office Building
Washington, D. C.

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Date: June 24, 1955

Laboratory Report

Name: Mr. W. A. Murray
3410 17th Street, N. W.
Address: Washington, D. C.

Laboratory Identification No. RW-9644

Total Weight: 9 lbs.

Location of Sample: Arizona

Type of Material: samples numbered 3 and 4 - schist and vein material with liebigite

Results of examination: (Items apply only if block [ ] is marked with ✓; do not apply if marked na (not applicable)).

1. [na] Radioactivity is low; the material is currently of no value as a source of uranium.

2. [na] Minerals indicate they are from pegmatite. The radioactivity is low, moderate, high. Many deposits of this type contain small concentrations of radioactive minerals but very few contain them in quantities sufficient to justify mining for radioactive constituents alone.

3. [na] Equivalent uranium by radioactive determination is xxxxxxxxxxxx %.
(3) - 2.4

4. [✓] Uranium by chemical analysis (true value) is (4) - 0.51 %. The attached circulars explain the specifications as to grade and quantity for mine and concentration products.

5. [na] Excess of equivalent over chemical uranium (true value) indicates the higher radioactivity value is caused by thorium or other radioactive elements. No Government schedule exists now for general purchase of thorium-bearing minerals and ores, although thorium may some day be in demand for the Atomic Energy program. See attached explanation of "equivalent uranium".

6. [✓] The information requested on the attached form would be appreciated, especially location, size, and type of deposit from which the sample was taken. A stamped and addressed envelope is included for your convenience in sending it to Mr. A. P. Butler, Jr., U. S. Geological Survey, Bldg. 25, Denver Federal Center, Denver, Colorado. Any information furnished will be kept in strict confidence.

7. [✓] All material submitted will be held for a period of 30 days from the date of this report after which it will be discarded unless you request that it be returned.

Please refer to the laboratory identification number if you should have occasion to write about this sample or report.

Approved: Hugh H. Waesche
Atomic Energy Commission Program
Geochemistry and Petrology Branch

MF-103
(Revised April 1952)

DMEA
Date Rec'd
AUG 29 1955

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

BUREAU OF MINES
Denver, Colorado

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

RECEIVED
SEP - 2 1955

Not to be filled in by applicant

Docket No. 3963
Metal or Mineral Uranium
Date Received ~~27,033.61~~ 9-2-55
Estimated Cost 27,033.61
Participation (Government %) 75

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: W. A. Murray
Box 152
Wickenburg
Arizona

(*b*) If other than an individual, add to your name above whether a corporation, partnership, etc., and the name of the State in which incorporated or otherwise organized. None.

(*c*) If a corporation, add to above statement, titles, names and addresses of officers. None.

(*d*) If a partnership, add to the above statement the names and addresses of all partners. None.

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

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

(*b*) State any mine name by which the property is known. Congress Mine, Yavapai County, Arizona

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Lessee, With right to purchase.

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property. See accompanying papers.

(*e*) If you own the land, describe any liens or encumbrances on it No encumbrances.

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

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

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

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

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

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

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

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

(*c*) The work will start within 30 days and be completed within 12 months from the date of an exploration project contract.

(*d*) State the operating experience and background of the applicant with relation to the ability to carry out such exploration project, and also that of the person or persons who will supervise the operations. See accompanying papers.

6. *Estimate of costs.*—Furnish a detailed estimate of the costs of the proposed work (you will have to use a separate sheet), under the following headings. Add the totals under all headings to give the estimated total cost of the project:

(*a*) *Independent contracts.*—(Note.—If the applicant does not intend to let any of the work to contractors, write "none" after this item. To the extent that the work is to be contracted, do not repeat the cost of the contract-work in subsequent items.) State the cost of any proposed independent contracts for the performance of all or any part of the work, expressed in terms of units of work (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved, etc.). None.

(*b*) *Labor, supervision, consultants.*—Include an itemized schedule of numbers, classes and rates of wages, salaries or fees for necessary labor, supervision and engineering and geological consultants.

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel. See accompanying papers.

(*d*) *Operating equipment.*—Furnish an itemized list of any operating equipment to be rented, purchased, or which is owned and will be furnished by the Operator, with the estimated rental, purchase price, or suggested use-allowance based on present value, as the case may be. See accompanying papers.

(*e*) *Rehabilitation and repairs.*—Furnish a detailed list showing the cost of any necessary initial rehabilitation or repairs of existing buildings, installations, fixtures, and movable operating equipment, now owned by the Operator and which will be devoted to the exploration project. None.

(*f*) *New buildings, improvements, installations.*—Furnish a detailed list showing the cost of any necessary buildings, fixed improvements, or installations to be purchased, installed or constructed for the benefit of the exploration project. None.

(*g*) *Miscellaneous.*—Furnish a detailed list showing the cost of repairs to and maintenance of operating equipment (not including initial rehabilitation or repairs of the Operator's equipment), analytical work, accounting, workmen's compensation and employers' liability insurance, and payroll taxes.

(*h*) *Contingencies.*—Give an estimate of any necessary allowances for contingencies not included in the costs stated above.

NOTE.—No items of general overhead, corporate management, interest, taxes (other than payroll and sales taxes), or any other indirect costs, or work performed or costs incurred before the date of the contract, should be included in the estimate of costs.

7. (*a*) Are you prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation (Sec. 7, DMEA No. 1)? Yes.

(*b*) How do you propose to furnish your share of the costs?

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

Explain in detail on acompanying paper.

CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief.

Dated Aug 24, 1955

(Applicant)

By W. A. Murray

PO Box 152

Wickenburg, Arizona

Title 18, U. S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

U. S. GOVERNMENT PRINTING OFFICE 16—66551-1

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1. (a) W. A. Murray, Box 152, Wickenburg, Arizona.

   (b) None.

   (c) None.

   (d) None.

2. (a) All mineral in and adjacent to Congress dyke and vein crops on WHYNOT claim. U.S. Patent 18633. Dated Oct. 6, 1891 west of the gold stopes on said vein and served by No. 3 shaft. QUEEN OF THE HILLS claim. U.S. Patent 18633 dated Oct. 6, 1891, BELLICK LODE MINING CLAIM, certificate of location recorded in office of County Recorder of Yavapai County, Prescott, Arizona, Book 24 of Mines at page 291.

   (b) Above is a portion of the property known as the CONGRESS MINE, Congress, Yavapai County, Arizona.

   (c) Lessee. With royalties to apply on bonds.

   (d) Copy of lease and bond.

4. (a) THE CONGRESS MINE is an old one with a heavy gold production record. There are three main veins and many spur and smaller veins of the property, several of which have had no development. The workings consist of six deep shafts and probably 20 miles of drifts and cross cuts.

   The shafts are as follows: -

   No. 1 shaft , 1100 feet deep on Congress Vein.
   No. 2 Shaft, 1700 " " " " "
   No. 3 shaft, 3900 " " " " "
   No. 4 shaft, 1900 feet deep on Niagara Vein

No. 5 shaft, 2050 feet deep on Niagara Vein.
No. 6 shaft, 1800 " " " " "

Many of the drifts in and under the old stopes are not accesable but many are open for inspection. No. 3 shaft has a cave at the collar and is clear from there down to the 1150 foot level which is the present water level. No. 2 shaft is open to the 1000 ft. level but is in poor condition having been burned out. No. 1 is caved below the 157 foot level. No. 5 is caved at the collar and again at 350 feet. No. 6 is caved at the collar. TheQUEEN OF THE HILLS lower tunnel is caved some for the first 300 ft, then caved shut for about 50 ft. The lower tunnel can be reached from a winze from the middle tunnel for examination purposes.

(b) Past production over $8,000,000.00 in gold and silver. No present production. Workings were driven 50 years ago to facilitate gold production, not to block out uranium ore.

(c) The country is granite containing numerous pegmatite dykes. The gold veins are of at least two ages, the earliest ones being the Niagara Vein, Cross Vein and the New Strike Veins. The latter age veins consist of the Congress Vein and certain other deposits in the Bellick claim.
The Congress Vein is associated with a diabase dyke having a width of 12 to 15 feet which runs in an easterly and westerly direction with a dip to the north of 25 deg. to 28 deg. The vein usually was found on the footwall of the dyke, but frequently there is mineralization throughout the dyke and on the hanging wall side.
For the purpose of this application it is sufficient to say that uranium was found only a few months ago in the Shaft No.3 workings and is largely confined to the area west of the old stopes and extends from the 450 foot level downward through the 1000 ft. level to the cave in No. 3 shaft at the 1150 ft. level which is also the point at which the mine water now stands. There is a thrust fault along the hanging wall side of the dyke and it is this fault which apparently is mineralized by the uranium. Wherever there is any local crushing in the dyke the uranium appears to have followed the cracks and fissures thus formed. As a result there are many dyke rock faces on the dumps which fluoresce the characteristic yellowish green of autonite.

The gold mineralization is usually confined to the quartz gaugue and is contained in iron sulphide,very little or no free gold being present except in the Cross Vein and the New Strike Vein where speciman stuff is often found.

In the QUEEN OF THE HILLS claim the gold quartz is accomp-

anied by faultings which again shows uranium although there is no dyke present. Further north on the Bellick Claim and in workings connected to the lower QUEEN OF THE HILLS tunnel another basic dyke similar to the Congress dyke cuts across the vein and forms what may be a large uranium ore body if one can judge by the background count which is up into the X10 scale of the Geiger counter. No work on uranium has been done at this point nor has any been done elswhere on the property.

Uranium assays have been taken from several points in the workings with the result that the best grade ore seems to be confined to an area west of the old gold stopes and adjacent to shaft No.3. This area should recieve some exploration to determine the grade and extent of the deposit. The secndarea showing promise is the QUEEN OF THE HILLS vein as exposed in the lower Queen tunnel. No assey, to my knowledge, has been taken from this area but the Guiger counter tests were very encourageing.

Below are some A E C samples taken at the locations shown. Others will be attached to this paper.

		RADIO	CHEM.
A-2971	14 in. channel about 400 level No.2 shaft	0.083	-
A-2973	Select No.3 shaft dump	0.121	0.14
A-2974	" E. drift 250 ft. level No.2 shaft	0.099	0.14
A-2975	" No.5 shaft dump	0.063	-
A-2976	" 300 ft. level No.2 shaft	0.044	0.10
A-2977	" 250 ft. level No.2 shaft	0.039	-

Please note that all these were from No.2 shaft or from dumps and are admittedly low in grade. The No.2 shaft territory has not been included in this application for the above reason. Kindly note the increase of the chemical assay over the radiometric.

		RADIO	CHEM.
A-3625	1000 East drift, shaft No3 & 40ft select	0.43	0.92
A-3624	" " " " " 55ft east	0.88	1.60

See also photostat enclosed.

Attached to this is a map showing the workings of the CONGRESS MINE on the Congress vein and also the workings on theQUEEN OF THE HILLS vein. The applicantodesires to explore both of these areas by drift and raises as indicated thereon and in order to do so he must clean out and timber the collar of No.3 shaft, install pipe and track to the 1000 ft. level, install temporary hoisting and air compressing equipment etc.

At the QUEEN OF THE HILLS lower tunnel a compressor must be installed and a mucking machine rented in order to clean up the caves in the tunnel. Here too, track and pipe must be placed in the tunnel before any work can be accomplished in the way of exploration.

(d) The Congress Mine is 2 1/2 miles northwest of Congress Junction in Yavapai County, Arizona. The road between the two points is a good dirt road, mostly level. Access roads are all in, and in good condition. The Santa Fe railroad, Highway No.89 and State Highway No.71 all pass through Congress Junction. It is one of the best situated mines in the west. Mine supplies are available from Wickenburg, 20 miles away, Phoenix 70 miles - Prescott, 55 miles away. There are a few houses for workmen at the mine, but most labor would drive in from Congress Junction, Yarnell, Wickenburg or surrounding country.

For uranium ores the probable market would be the Globe Ore Purchasing Depot. Gold ores would go to any of several smelters in El Paso, Texas; Ajo, Arizona; Superior, Arizona; Miami, Arizona; Hadyn, Arizona, or Douglas, Arizona.

(e) There is sufficient manpower, materials, supplies etc available in this vicinity. Water is obtained from Martinez Creek through a 6600 ft. pipe line. Power is now at the pump house on Martinez Creek, but for exploratory operations would not be brought in as gasoline power would be used.

5. (a) We wish to explore for uranium minerals. Our backlog of gold ores is already sufficient for a large milling plant.

(b) The proposed work is shown on the accompanying map in red. --

First, in No.3 shaft a western extension of the 1000 ft. level from the shaft station for 100 ft.

Second, a raise driven in the 1000 ft level in the uranium ore 50, or 75 ft. east of the shaft for a distance of 50 ft.

Third, a raise of like distance from about 100 ft. east of the shaft on the 650 ft. level.

Fourth, exploring a high grade oscurrence about 50 ft. down No.3 shaft from the 650 ft. level. Probably this latter work would consist of about 50 ft. of drifting. In order to do this work the cave at the mouth or collar of No. 3 shaft will have to be removed and the collar timbered. Pipe and track should be laid to the 1000 ft. level, bell cord installed etc Naturally a hoist and compressor would have to be rented for this work, as well as machine drill, tools, etc. etc.

In the QUEEN OF THE HILLS tunnel a couple of raises of a length of 50 ft. each should be run on the ore shoot exposed, one 150 ft. north eastward from the winze from the middle tunnel, and the other about 100 ft. farther on northeastward. The tunnel is all clear north from the intersection of tunnels

near portal to tunnel on the Bellick claim, where it is caved (more or less) on into the Bellick winze. Balance of the tunnel is open to the east portal. It would be better to open this caved section from the south portal, as there are no roads or other facilities at the east portal, and air circulation is necessary for good working conditions. (About 50 ft. of work should be done at the Bellick winze collar to determine the source of the very high background count found there.)

The red lines indicate the location of the drifts and raises and the circles indicate positions of caved in shaft and tunnels.

There is uranium ore now in sight at all points which are indicated for exploration. The No. 3 shaft exposures show little quartz or gold value. The QUEEN OF THE HILLS tunnel exposures are in a gold quartz ore gangue with a present value of about Twelve (12.00) Dollars gold and silver. It is highly possible that Uranium ore may also be found on the parallel vein northwesterly from the QUEEN vein where the two raises are indicated. This vein runs well in gold, but due to ventilation conditions it has not been possible to get into the drift lately to test for uranium. This condition will be eliminated by opening of the south portal of the tunnel.

Geological conditions are explained under Sec. 4 (c).

(c) Start within 30 days. Completed within 12 months.

(d) (See Personal Biography) W.A.Murray (Write his own for thi

Consultant will be E. A. Colburn Jr. Years of experience in Cripple Creek District, Colorado as miner, forman and Superintendant of Theresa Mine, Goldfield, Colorado; Golden Wedge Mine, Anaconda, Colorado, and Ajax Mine, Victor, Colorado. Built and operated 300 ton cyanide plant at the Ajax Mine on Sulpho-telluride ores, both low and high grade, without roasting. Many years experience in flotation laboratory in Denver, Colorado, and in San Francisco, California. Operated the Mammoth Mine, and the Bell Mine in Eureka Mining District, Arizona, as well as having been General Superentendant of Illinois Mining Co. on the Congress Mine.

6. (a) None proposed.

(b) Labor No. 3 Shaft.

Engineer on Hoist 148 shifts @ $16.00	$2,368.00	
2 Miners underground 320 "	4,832.00	$ 7,200.00
QUEEN OF THE HILLS		
2 Miners underground 262 shifts@ 16.00	4,192.00	4,192.00

Total elapsed time, about 6 months to complete all work of exploration. For both openings work will be going on in more than one place at times. This will increase the number of men at work and shorten the time for completion but will not increase the overall cost.

Supervisor & Consultants.

Supervisor & Consultants.

Supervisor for 6 months @ 300.00	$ 1,800.00	
Consulting & Engineer 1da wk. $100.00	2,400.00	$4,200.00

(c) Operating Materials & Supplies.

1,090 Gallons Gasoline; Compressor.)		
390 " " Hoist)		
15 " Lube Oils for engine)	368.25	
5 " Compressor oil)		
Ammunition #4290 @ $22.00/ hundred wt.	943.80	
Fuse and caps	50.00	$1,362.05

(d) Operating Equipment.

Gas Slusher, 1 Mo. rental	$ 125.00	
Hoist $175.00 / Mo. for 6 Mo.	1,050.00	
Mucking machine 60 days @ $250.00/mth	500.00	
Machine Drill, rental 143 shifts (6 mo.) 36.50	5219.00	
six months @ 36.50		
Slosher bucket - purchase.	200.00	
Track- 2800' 12" with splices etc		
5600 ft rail	2,688.00	
Miscellaneous - Drill steel, Jack etc.	500.00	
Timber for Track ties 30" long 4'X 6")	500.00	
1000 ties ea 5 bd. ft. 5000 ft @$100.00)		
Rental of 2 Compressors @ $210.00 per mo)		
each for nine months)	1,890.00	
Pipe - 2500' 2" used, @ 30	750.00	$8,422.00

(g) Miscellaneous:

Repairs	100.00	
Analytical work and assays	200.00	
State and Federal unemployment 3%	467.76	
Employers Liability Ins.		
Social Security Taxes 2%	311.84	
Arizona witholding tax	77.96	$1,157.56

(h) Contingencies - - - - - -	$ 500.00	$ 500.00

Grand Total $27,033.61

W. A. Murray
Box 152
Wickenburg,
Arizona

5. (b)

PERSONAL BIOGRAPHY

William Arthur Murray

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William A. Murray was born at De Soto, Missouri, December 31, 1893. His parents were Andrew Jackson Murray, father, and Katherine Westmeyer Murray, mother.

Prior to the commencement of his formal education, Mr. Murray's parents moved to St. Louis, Missouri. He attended the public schools in St. Louis. When he was 14 years old (1907) he attended St. Louis University, a Military prep school. After his graduation from that school in 1910, he attended Drake University, Des Moines, Iowa until 1913 where he majored in subjects leading to an Engineering Degree. However, he was dissatisfied with the limited facilities of Drake University, and in 1913 he commenced studying under Dr. Rush of Harvard University on a private tutorship basis. Dr. Rush afforded him the opportunity to acquire knowledge in those subjects that would best prepare him as a research engineer. As a consequence of this private tutorship, Mr. Murray never recieved a formal diploma from any university. However, since he was not seeking employment as an employee, he felt that this lack of a diploma would not deter him from accomplishing his desires.

Date	
1913 - 1914 (During vacation)	Assited his father, Andrew Jackson Murray, a railroad builder for the Missouri Pacific and Iron Mountain Railroad, in the installation of block signals between St. Louis, Mo. and Hoxie, Arkansas, and installed a new extension to the west for the Missiouri Pacific.
1915 - 1916 (During Vacation)	Assisted brother-in-law in the erection and installation of a new type flotation plant at the Ajax Gold Mine in Cripple Creek distrot, Colorado. Installed telephone system from lower level stopes and addits to central control plant. Incorporated a new steam colloss engine to give more positive control over the ore elevators, increasing efficiency of production and reducing hazard factor.
1916 - 1918	Served in U. S. Army in Supply and Finance Division.

Continued?
? corless

5. (b)

1918 - 1921

Employed as research and development engineer in the establishment of a new beneficiation plant for the reduction of lead for the Flat River Mining Company, Flat River, Missouri.

Research and planning engineer for the Union Electric Power Company, St. Louis, Missouri, in the rebuilding of its Tenth Street Plant, hydro-electric. Utilizing oil switch breakers and latest electrical power carrying and safety devices.

Employed by Union Electric Power Company, Finance Division, and aided in the indreasing of its capitalization by the placing of more than Three Million ($3,000,000) Dollars in securities and bonds, under the immediate direction of Mr. John Gans, Secretary, Union Electric Power Company.

1921 -1923

Research Engineer and Installation Foreman for Ajax Mine incorporating most recent flotation beneficiation and ore handling mining technique.

Colorado Fuel and Iron, Pictou, Colorado. Research Engineer and advisor in a consultant capacity in the extinguishing of underground burning coal. Reactivating mine by de-watering and increasing safety factor by pillaring, driving new drifts, and devising adequate forced-draft ventilation. Surveyed and assisted in building mine electric railroad for ore handling

Designed and installed, with his father, a beneficiation process utilizing cyanide which would remove gold from ore which had previously been subjected to flotation. This cyanide process enabled the Ajax Mining Company to extract, profitably, gold from ore which had been through a flotation process. The re-working of the dump by the cyanide process received considerable attention in the mining engineering circles at that time, as it benefited more than One Million ($1,000,000) Dollars from this dump material.

W.A. Murray
Box 152
Wickenburg,
Arizona

5. (b)

1923 - 1933	Sold stocks and bonds for the capitalization of new businesses on a commission basis. This business caused Mr. Murray to travel extensively throughout the west coast, but his main office was located in the First NationalBank Building, Los Angeles, California.
1933 - 1942	Standard Oil Company. Remodeled Fuller Earth plant at Olmstead, Illinois, decreasing the cost of production from approximately $5.00 a ton to $2.50 a ton. After this plant was in production on this economical basis, the Standard Oil Company engaged the services of Mr. Murray by contract to sell fullers earth to food companies, packing companies, soap companies, etc. Experimental and developmental research in the use of diatomite as a filter for certain processes for which Fullers Earth was either too expensive or not best suited. This diatomite research was conducted in the main, at deposits located in Florida. Developmental research in the use of Loggerhead Sponges for the production of chicken feed and fertilizer having a high content, and rich in, Vitamin B_{12}. Experimental laboratory plant set up in Goulds Canal, Florida.
1942 - 1945	Volunteer in the Civil Air Patrol as a pilot in the anti-submarine operations off the coast of Florida.
1945 - 1949	Continued developmental research in the use of marine animal life reduction plants for the extraction of high protein and ocean marine mineral contents from otherwise worthless ocean animal life. Erected and operated two chicken feed and fertilizer plants. One at Goulds Canal Florida, and one at Tarpon Springs, Florida. Red Tide situations, fungus disease, and hurricane destroyed potentials so abandoned operations,

W. A. Murray
Box 152
Wickenbur G,
Arizona

5. (b)

1949 - 1952	Continuation of developmental research of worthless animal marine life for food concentrates for humans and livestock; worked with Dr. K.K.P.N. Roa, of India, Food and Agricultral Organization, under the UN. Further developed processing technique so as to incorporate continuous flow operation minimizing costs.

Mr. Murray is now utilizing all of his time in obtaining information on the availability of marine animal life in the various locations of the world with the expectation of establishing marine animal reduction plants in the most desirable supply areas of the world.

* * * * * * * * * * * * * * * *

R E F E R E N C E S

L. Earl Curry, Esq.
Attorney at Law
1226 Ingraham Bldg.
Miami, Florida

Mr. Winford Brown
Brown Fertilizer Company
South Miami, Florida

Mr. John Renneburg
Edw. Renneburg &Sons Company
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Senator George Smathers
Senate Office Building
Washington, D. C.

Mr. Frank "Salty" Mallants
Boating Fishing Editor
Miami Daily News
Miami, Florida

Mr. T. Hamel
Rt. 4, Box 55
South Miami, Florida

Senator Spessard Holland
Senate Office Building
Washington, D. C.

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Date: June 24, 1955

Laboratory Report

Name: Mr. W. A. Murray
3410 17th Street, N. W.
Address: Washington, D. C.

Laboratory Identification No. RW-9644

Total Weight: 9 lbs.

Location of Sample: Arizona

Type of Material: samples numbered 3 and 4 - schist and vein material with liebigite

Results of examination: (Items apply only if block [ ] is marked with ✓; do not apply if marked na (not applicable)).

1. [na] Radioactivity is low; the material is currently of no value as a source of uranium.

2. [na] Minerals indicate they are from pegmatite. The radioactivity is low, moderate, high. Many deposits of this type contain small concentrations of radioactive minerals but very few contain them in quantities sufficient to justify mining for radioactive constituents alone.

3. [na] Equivalent uranium by radioactive determination is xxxxxxxxxxxx %.

4. [✓] Uranium by chemical analysis (true value) is (3) - 2.4 (4) - 0.51 %. The attached circulars explain the specifications as to grade and quantity for mine and concentration products.

5. [na] Excess of equivalent over chemical uranium (true value) indicates the higher radioactivity value is caused by thorium or other radioactive elements. No Government schedule exists now for general purchase of thorium-bearing minerals and ores, although thorium may some day be in demand for the Atomic Energy program. See attached explanation of "equivalent uranium".

6. [✓] The information requested on the attached form would be appreciated, especially location, size, and type of deposit from which the sample was taken. A stamped and addressed envelope is included for your convenience in sending it to Mr. A. P. Butler, Jr., U. S. Geological Survey, Bldg. 25, Denver Federal Center, Denver, Colorado. Any information furnished will be kept in strict confidence.

7. [✓] All material submitted will be held for a period of 30 days from the date of this report after which it will be discarded unless you request that it be returned.

Please refer to the laboratory identification number if you should have occasion to write about this sample or report.

Approved: Hugh H. Waeske
Atomic Energy Commission Program
Geochemistry and Petrology Branch

LEASE WITH OPTION TO PURCHASE.

RECEIVED
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THIS LEASE, made and entered into this 20th day of August, 1955, by and between E. A. COLBURN, Jr. and ETTA M. COLBURN, his wife, of Wickenburg, Maricopa County, Arizona, hereinafter called lessors, and W.A. MURRAY of Wickenburg, Maricopa County, Arizona, hereinafter called lessee.

WITNESSETH:

Lessors do hereby lease to lessee for a term commencing the 20th day of August, 1955, the following described patented and unpatented lode mining claims:

PARCEL ONE: "Fractional" Lode Mining Claim, located in Martinez Mining District, designated by Surveyor General as Lot No. 43, known as Mineral Certificate No. 194, and described in Patent No. 18637, dated Oct. 6, 1891, recorded December 19, 1891, in the office of the County Recorder of Yavapai County, Arizona, in Book 30 of Deeds at Page 497, records of Yavapai County.

PARCEL TWO: "Why Not" Lode Mining Claim, located in Martinez Mining District, designated by the Surveyor General as Lot No. 42, known as Mineral Certificate No. 193, and described in Patent No. 18636, dated Oct. 6, 1891, recorded Dec. 19, 1891, in the office of the County Recorder of Yavapai County, Arizona, in Book 30 of Deeds at Page 493, records of Yavapai, County.

PARCEL THREE: "Mosouri" Lode Mining Claim, located in Martinez Mining District, designated by the Surveyor General as Lot No. 41, known as Mineral Certificate No. 192, and designated in Patent No. 18635, dated Oct. 6, 1891, recorded Dec. 19, 1891, in the office of the County Recorder of Yavapai County, Arizona, in Book 30 of Deeds at Page 488, records of Yavapai County.

PARCEL FOUR: "Niagara" Lode Mining Claim, located in Martinez Mining District, designated by the Surveyor General as Lot No. 40 A, known as Mineral Certificate No. 191, and described in Patent No. 18634, dated Oct. 6, 1891, recorded Dec. 19, 1891, in the office of the County Recorder of Yavapai County, Arizona, in Book 30 of Deeds at page 484, records of Yavapai County.

PARCEL FIVE: "Congress" Lode Mining Claim, located in Martinez Mining District, designated by the Surveyor General as Lot No. 38, known as Mineral Certificate No. 189, and described in Patent No. 18632, dated Oct. 6, 1891, recorded Dec. 19, 1891, in the office of the County Recorder of Yavapai County, Arizona in Book 30 of Deeds at page 476, records of Yavapai County.

PARCEL SIX: "Queen of the Hills" Lode Mining Claim, located in the Martinez Mining District, designated by the Surveyor General as Lot No. 39, known as Mineral Certificate No. 190, and described in Patent No. 18633, dated Oct. 6, 1891, recorded Dec. 19, 1891, in the office of the County Recorder of Yavapai County, Arizona, in Book 30 of Deeds at page 480, records of Yavapai County.

PARCEL SEVEN: "Excelsior" Lode Mining Claim, located in Martinez Mining District, designated by the Surveyor General as Lot No. 44, known as Mineral Certificate No. 218 and described in Patent No. 21242, dated May 11,1892, recorded Feb. 14, 1894, in the office of the County Recorder of Yavapai County, Arizona, in Book 33 of Deeds at page 620, records of Yavapai County.

PARCEL EIGHT: "Ohio" Lode Mining Claim, located in Martinez Mining District, designated by the Surveyor General as Lot No. 1190, known as Mineral Certificate No. 288, and described in Patent No. 27181, dated June 23, 1896, recorded March 18, 1897, in the office of the County Recorder of Yavapai County,Arizona, in Book 41 of deeds at page 107, records of Yavapai County.

PARCEL NINE: "Rich Quartz" Lode Mining Claim, located in the Martinez Mining District, designated by the Surveyor General as Lot No. 1192, known as Mineral Certificate No. 291, and described in Patent No. 27182, dated June 23, 1896, recorded March 18, 1897, in the office of the County Recorder of Yavapai County, Arizona, in Book 41 of Deeds at page 97, records of Yavapai County.

PARCEL TEN: "Golden Eagle" Lode Mining Claim, located in Martinez Mining District, designated by the Surveyor General as Lot No. 1191, known as Mineral Certificate No. 289, and described in Patent No. 27227, dated July 3,1896, recorded March 18, 1897, in the office of the County Recorder of Yavapai County, Arizona, in Book 41 of Deeds at page 100, records of Yavapai County.

PARCEL ELEVEN: "Incline" Lode Mining Claim, located in Martinez Mining District, designated by the Surveyor General as Lot No. 1193, known as Mineral Certificate No. 290, and described in Patent No. 27228, dated July 3, 1896, recorded March 18, 1897, in the office of the County Recorder of Yavapai County, Arizona; in Book 41 of Deeds at page 94, records of Yavapai County.

PARCEL TWELVE: "Old State" Lode Mining Claim, located in Martinez Mining District, designated by the Surveyor General as Lot No. 1189, known as Mineral Certificate, No. 287, and described in Patent No. 27441, dated Oct. 6, 1896, recorded March 18, 1897, in the office of the County Recorder of Yavapai County, Arizona, in Book 41 of Deeds at page 110, records of Yavapai County.

PARCEL THIRTEEN: "Snow Storm" Lode Mining Claim, located in Martinez Mining District, designated by the Surveyor General as Lot No. 1188, known as Mineral Certificate No. 285, and described in Patent No. 27870, dated Feb. 26,1897, recorded March 18, 1897, in the office of the County Recorder of Yavapai County, Arizona, in Book 41 of Deeds at page 104, records of Yavapai County.

PARCEL FOURTEEN: "Golden Thread" Lode Mining Claim, located in the Martinez Mining District, designated by the Surveyor General as Lot No. 1352, known as Mineral Certificate No. 369, and described in Patent No. 31956, dated Jan. 17, 1900, recorded March 26, 1901, in the office of the County Recorder of Yavapai County, Arizona, in Book 54 of Deeds at page 104, records of Yavapai County.

PARCEL FIFTEEN:	"Bellick" Lode Mining Claim, the certificate of location of which appears of record in the office of the County Recorder of Yavapai County, Arizona, in Book 24 of Mines at page 291½, records of Yavapai County.
PARCEL SIXTEEN:	"Remnant" Lode Mining Claim, the certificate of location of which appears of record in the office of the County Recorder of Yavapai County, Arizona, in Book 25 of Mines at page 314, records of Yavapai County.
PARCEL SEVENTEEN:	" Boundary" Lode Mining Claim, the certificate of location of which appears of record in the office of the County Recorder of Yavapai County, Arizona, in Book 35 of Mines at page 161, records of Yavapai County.
PARCEL EIGHTEEN:	" Sunnyside " Lode Mining Claim, the Certificate of location of which appears of record in the office of the County Recorder of Yavapai County, Arizona, in Book 45 of Mines at page 499, records of Yavapai County.
PARCEL NINETEEN:	"Highland" Lode Mining Claim, the Certificate of location of which appears of record in the office of the County Recorder of Yavapai County, Arizona, in Book 45 of Mines at page 496, records of Yavapai County.
PARCEL TWENTY:	"Keystone" Lode Mining Claim, the Certificate of location of which appears of record in the office of the County Recorder of Yavapai County, Arizona, in Book 50 of Mines at page 364, records of Yavapai County.
PARCEL TWENTY-ONE:	"East Extension of Golden Thread" Lode Mining Claim, the certification of location of which appears of record in the office of the County Recorder of Yavapai County, Arizona, in Book 51 of Mines at page 156, records of Yavapai County.
PARCEL TWENTY-TWO	"Martinez" Lode Mining Claim, the certification of location of which appears of record in the office of the County Recorder of Yavapai County, Arizona, in Book 66 of Mines at page 591, records of Yavapai County.

PARCEL TWENTY-THREE: "Ophir" Lode Mining Claim, the certificate of location of which appears of record in the office of the County Recorder of Yavapai County, Arizona, in Book 86 of Mines at page 341, records of Yavapai County.

PARCEL TWENTY-FOUR: Beginning at the Collar of the No. 2 Shaft on the Congress Vein, which is s. 60 57' 38" E. 2287.40 feet from U.S. Mineral Monument No.1; thence:

No. 2 Shaft to Corner 1: Due east 50'
Corner 1 to Corner 2: Due south 45'
Corner 2 to Corner 3: Due west 100'
Corner 3 to Corner 4: Due north 45'
Corner 4 to No.2 shaft: Due east 50'

containing 0.103 acres and situated in Section 14, Township 10 North of range 6 West, G. & S. R. B. & M. Yavapai County Arizoma.

PARCEL TWENTY-FIVE: Beginning at the Portal of the No. 3 Shaft on the Congress Vein, which is S. 70 50' 56" E. 1217.64 feet from U.S. Mineral Monument No.1, thence:

Portal No.3 Shaft to Corner 1: S. 13 16' W.116':
Corner 1 to corner 2: N. 76 44' W 40'
Corner 2 to Corner 3 N. 13 16' E 216'
Corner 3 to corner 4 S. 76 44' E 100'
Corner 4 to corner 5 S. 13 16' W 200'
Corner 5 to corner 6 S. 28 00' E 132'
Corner 6 to corner 7 Due West 36'
Corner 7 to corner 1 N. 37 00' W 145'

containing 0.63 acres and situate in Section 14, Township 10 North of Range 6 West, G. & S. R. B. & M., Yavapai County, Arizona.

PARCEL TWENTY-SIX: Beginning at a point on the South Edge of an old Stamp Mill Site, designated as stake S 21, which is S. 55 05' 52" E., 2540.02 feet from U. S. Mineral Monument No.1: which is S. 15 05' 18" E. 345.23 feet from the portal of No. 2 Congress Shaft; thence:

S. 21 to corner 1: N. 75 W 50':
Corner 1 to corner 2: N 15 E 50'
Corner 2 to corner 3 S. 75 E100'
Corner 3 to corner 4 S. 15 W 50'
Corner 4 to S. 21 N. 75 W 50'

containing 0.115 acres and situate in Section 23, Township 10 North of Range 6 West, G. & S. R. B. & M, Yavapai County, Arizona.

PARCEL TWENTY-SEVEN: Beginning at a point on the footwall of the No. 5 Niarara Shaft, designated as Stake S 22 which is S. 56 06' 40" E. 3411.28 feet from U.S. Mineral Monument No. 1, thence:
S 22 to Corner 1: Due South 50'
Corner 1 to Corner 2: Due West 50'
Corner 2 to Corner 3: Due N. 130'
Corner 3 to Corner 4: Due E. 100'
Corner 4 to Corner 5: Due S. 130'
Corner 5 to Corner 1: Due West 50';
containing 0.298 acres and situate in Sec. 23, Township 10 North of Range 6 West, G. & S. R. B. & M., Yavapai County, Arizona.

SUBJECT to the reservations contained in that certain deed dated October 15, 1947, from Hal Bogle and Dorothy T. Bogle, his wife, and Congress Metals, Inc., a corporation, first parties to E.A. Colburn, Jr., second party, recorded in Book 189 of Deeds at pages 364-365, records of the County Recorder of Yavapai County, Arizona.

Lessee shall have immediate possession of the mining claims described herein for the purpose of mining operations thereon and lessee agrees that all work performed on said mining claims shall be in a good miner-like fashion and in compliance with all state and federal rules and regulations pertaining to the mining industry.

Lessee hereby assumes and agrees to pay, during the term of this lease, all taxes which E. A. Colburn, Jr. is obligated to pay under the terms of that certain lease dated October 22, 1947, between Hal Bogle and Dorothy T. Bogle, his wife, and Congress Metals, Inc., a Corporation, first parties, and E. A. Colburn, Jr., second party, recorded in Book 10 of Leases at pages 397-398, records of the County Recorder ofYavapai County, Arizona, and that certain easement agreement dated October 15, 1947, between Hal Bogle and Dorothy T. Bogle, his wife and Congress Metals, Inc., a corporation, first parties, and E. A. Colburn, Jr., second party, recorded in Book 16 of Agreements at pages 292-294, records of the County Recorder of Yavapai County, Arizona. In this connection it is understood and agreed that leassee shall have all privileges accuring to E. A. Colburn, Jr., under the terms of the aforementioned lease and easement agreement. Payment of the taxes above referred to for the year 1955 shall be prorated between the parties hereto as of August 1,1955.

From and after the date hereof lessee shall pay to lessors a ten per cent (10%) royalty on all gold and silver ores, concentrates and bullion mined from the property. Fifteen per cent (15%) on all Uranium and Tungston ores mined from property.

The above values shall be based on the net amount paid by the smelter for each shipment of ore as evidenced by smelter returns made in duplicate, one copy of which shall belong to lessors. Commencing with the month of September, lessee guarantees to pay lessors a minimum monthly royalty of three hundred ($300.00) dollars per month which shall apply on the purchase price as herein after set out and will be credited in the 10% royalty provision as set out.

Lessees further agree to construct and install a milling plant, either cyanide or flotation and of a size to process the equivalent amount or volume of ore as a five foot by four foot (50 tons) ball mill, within a period of nine (9) months from date hereof for the purpose of processing ores and minerals removed from the above described property. Until said mill has been constructed, lessee may ship and sell ores and minerals to other mills and smelters for processing, but after the completion of said mill all ores and minerals shall be processed therein, except uranium and tungsten ores which may be marketed elsewhere.

The terms of this lease shall run for ten (10) years or until the purchase price is paid in full as agreed herein or until the lease is otherwise terminated.

That as a part of the consideration given in this contract E. A. Colburn, Jr., and Etta M. Colburn, his wife, hereby gives and grants unto W. A. Murray the right and option to purchase said above described mining claims upon and under the following terms and conditions:

That the total purchase price shall be the sum of three hundred thousand ($300,000.00) dollars. The payments on this purchase price will be the sum of three hundred ($300.00) dollars per month as set out under the minimum royalty provision herein, with the first payment to be paid on or before September 1, 1955. All royalties paid under this contract are to be credited to the purchase price.

In the event W. A. Murray, or his heirs, or assigns fail to perform under this contract, the lessors shall accept all payments made hereunder as their liquidated damage and W. A. Murray, his heirs, or assigns, shall be relieved of any further liability hereunder.

Lessee further agrees that he will be wholly responsible for all debts and liabilities incurred by him in the performance of work on said mining claims and will keep posted notices of non-liability as provided by law, which notices shall be furnished by lessors. Lessee further agrees that he will comply with the

rules and regulations of the Arizona State Industrial Commission pertaining to insurance of employees.

Lessee agrees to perform all assessment work necessary to mantain the possessory rights of the parties to all unpatented mining claims and to furnish lessors with proof of full and complete performance thereof not less than ninety (90) days prior to the expiration of each assessment year.

Lessee shall have the right to terminate this agreement at any time while this contract is in effect by giving fifteen (15) days written notice mailed to lessors at Wickenburg, Arizona, of his intention to do so, and thereupon be relieved of any further liability hereunder. In the event of such termination or upon the termination for any cause under this lease, lessee shall have the right, within sixty (60) days, to remove all his machinery, equipment and personal property from said mining claims. It is understood and agreed, however, that lessee shall not remove any timbers, track or pipe from the underground working of said mining claims.

Lessors shall have the privilege of entering upon said mining claims for the purpose of inspection. If lessee shall fail to perform the covenants imposed upon him by the terms hereof, as and within the time provided in this agreement, then at the option of lessors, on thirty (30) days written notice mailed to lessee at Wickenburg, Arizona, this lease may be terminated unless lessee shall have complied with the terms of this lease before the expiration of said thirty (30) day period.

In the event lessee is prohibited from conducting mining operations on the property described herein by any rule, order, regulation, or statute, promulgated or enacted by the federal government or any constituted authority or agency thereof, then lessee shall be entitled to a moratorium during the continuance of such prohibition, during which period lessee shall not be obligated to conduct mining operations or perform the covenants herein imposed upon him.

This lease and option shall be assignable and the terms hereof shall be binding upon the heirs, executors, administrators, and assigns of the respective parties.

IN WITNESS WHEREOF, the parties have hereunto set their hands as of the day and year above written.

A. Fellows

C. M. Gotthardt

Lessors

W. A. Murray

Lessee

STATE OF ARIZONA)
) ss
County of Maricopa)

The forgoing lease and option to purchase was acknowledged before me the 24th. day of August 1955 by E. A. Colburn, Jr., and Etta M. Colburn, his wife.

Mildred E. Hanna
Notary Public

My commission expires;

My Commission Expires Sept. 27, 1958

STATE OF ARIZONA)
) ss
County of Maricopa)

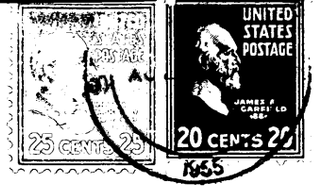
The foregoing lease and option to purchase was acknowledged before me this 24th. day of August, 1955, by W. A. Murray.

Mildred E. Hanna
Notary Public

My commission expires:

My Commission Expires Sept. 27, 1958

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
1201 N. [illegible] AVE.
SPOKANE 2, WASHINGTON



Contract Administration and Audit Division
Defense Minerals Exploration Administration
Department of the Interior
Washington 25, D. C.

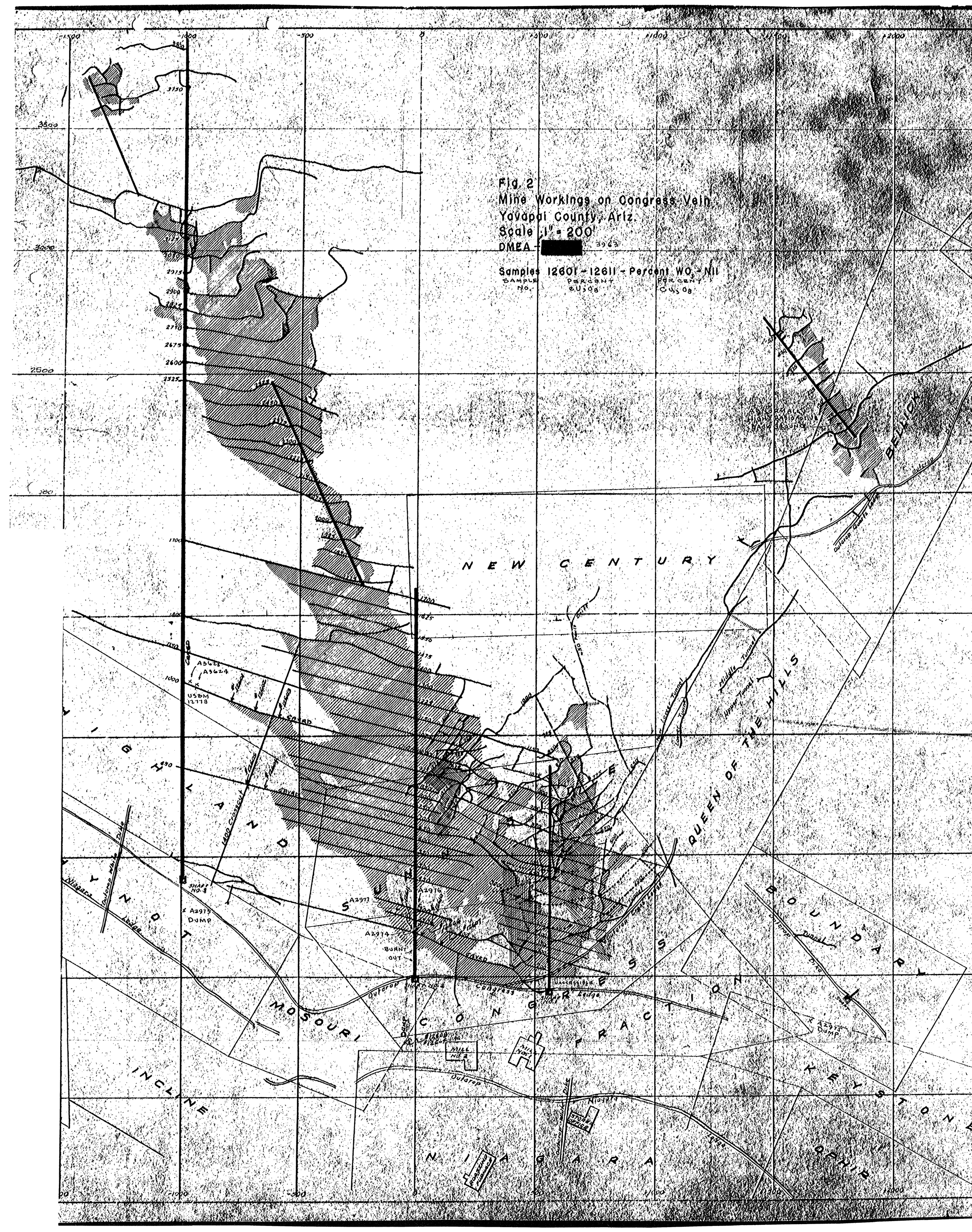
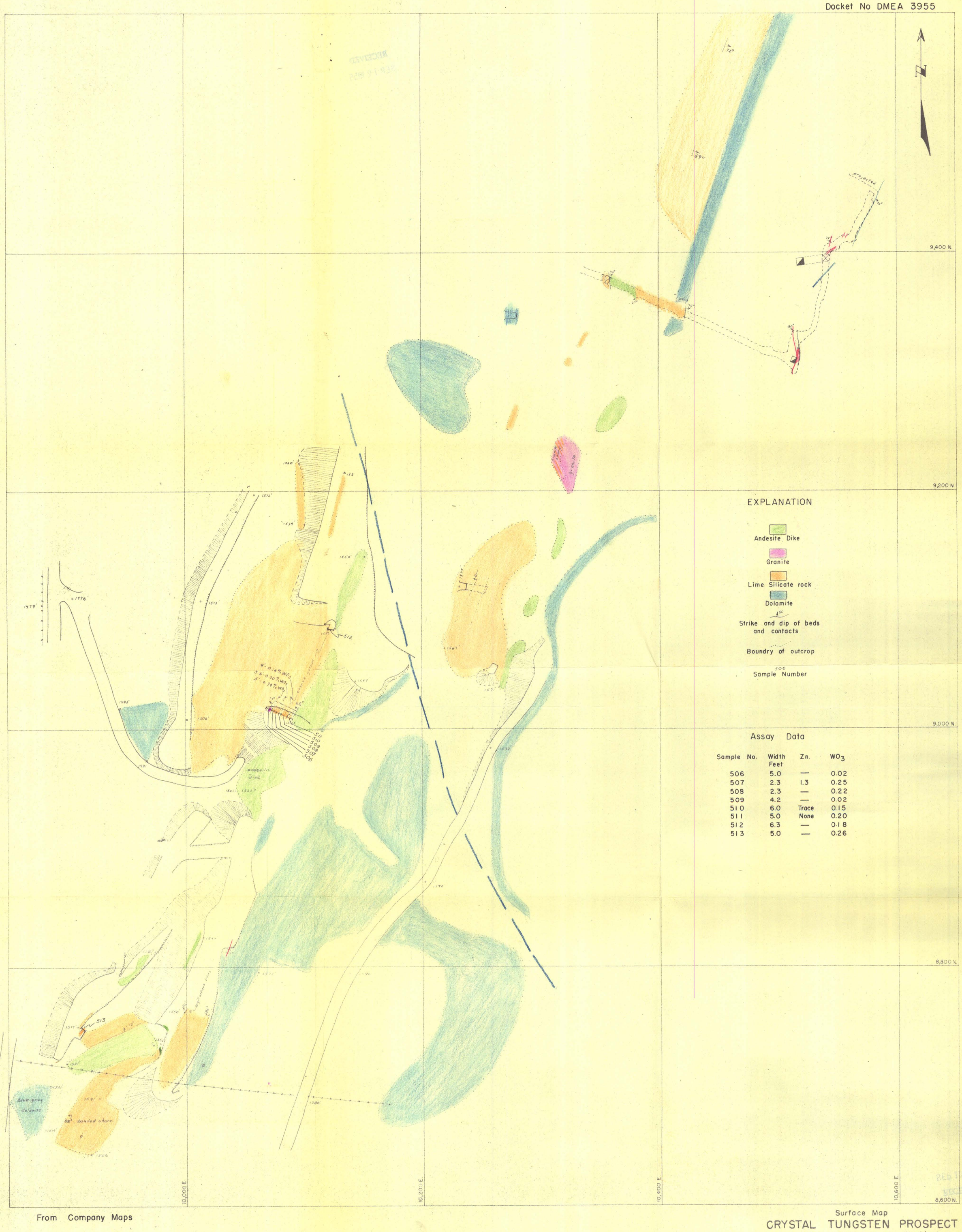


Fig. 2
Mine Workings on Congress Vein
Yavapai County, Ariz.
Scale 1" = 200'
DMEA - [redacted] 3963
Samples 12601 - 12611 - Percent WO3 - Nil
SAMPLE NO.
PERCENT $2U_3O_8$
PERCENT CU_3O_8
NEW CENTURY
QUEEN OF THE HILLS
BELLICK
HIGHLAND
MOSOURI
CONGRESS
KEYSTONE
INCLINE
NIAGARA
BOUNDARY
FRACTION
Outcrop
Tunnel
Upper Tunnel
Middle Tunnel
Lower Tunnel
Outcrop Quartz Ledge
Dike
Congress Ledge
Niagara Ledge
Niagara Outcrop Dike
Outcrop Dike
Congress Shaft
Inaccessible
Mill No. 2
Mill No. 1
Roasting Furnace
Stamp Mill
Shaft No. 3
A2973 Dump
A2974
A2975
A2976
A2977
Burnt Out
Caved
1400 Crosscut
USBM 12778
A3623
A3624
3130
3125
3050
2915
2900
2825
2750
2675
2600
2325
1700
1625
1550
1475
1400
1300
1225
1150
1000
950
850
775
500
300
125
100
-1500
-1000
-500
0
+500
+1000
+1500
+2000
3500
3000
2500
1500
1000
500

Number		eU_3O_8	cU_3O_8	
A-2973	Shaft #2 Dump-select	0.10	0.14	
A-2974	Shaft #2 Select from 250' level at fault	0.10	0.14	
A-2976	" " " " 300' "	0.04	0.10	
A-2975	Select from #5 shaft dump	0.06		
A-2977	Select from #2 shaft 250' level W drift	0.03		
A-3625	Shaft #3 -1000' E. drift shaft # 40'E, select from S Wall	0.43	0.92	
A-3624	Shaft #3 - 1000' E drift Shaft # 55' E - S wall $1\frac{1}{2}$' vert. chip from lens $1\frac{1}{2}$' x 6' long	0.81	1.60	(contains thorium)
USBM No. 12278	Efflorescent coating on face of 20-foot inclined raise, 60 - 73 ft. east of No. 3 shaft, 1000-foot level. Zone 54 inches long (strike length) by average of 15 inches thick.	0.05	0.08	

Docket No DMEA 3955

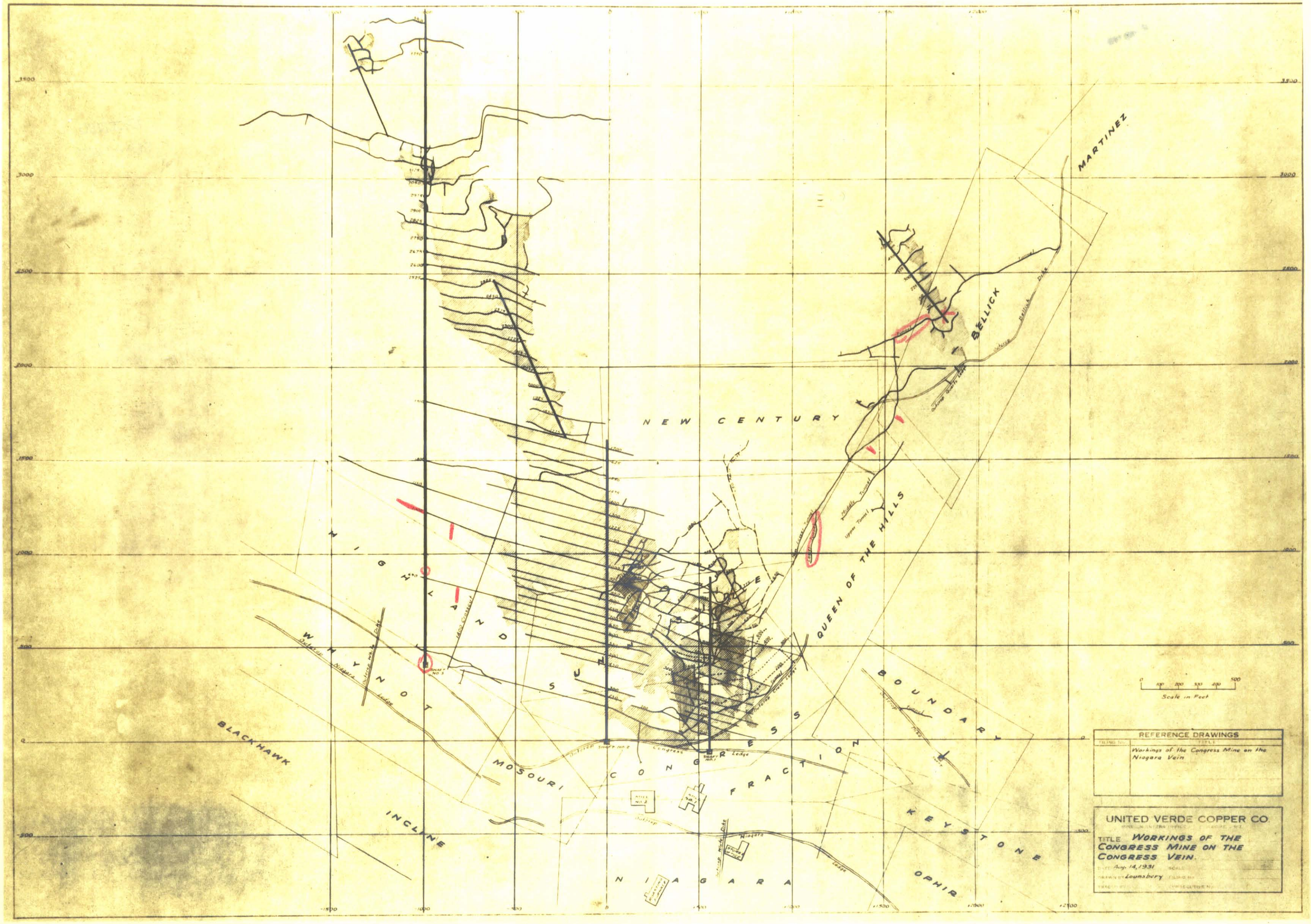


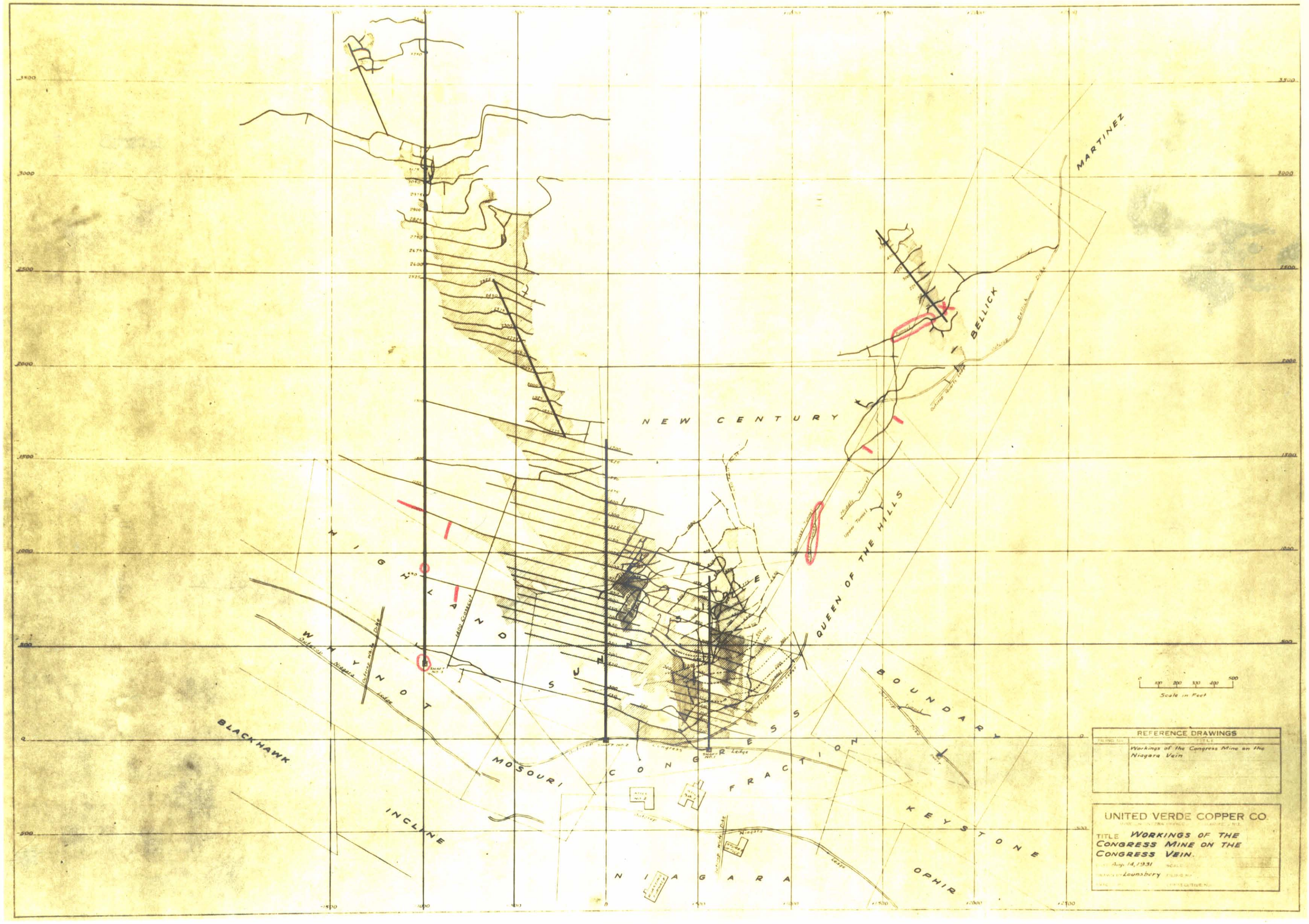
Sample No.	Width Feet	Zn.	WO_3
506	5.0	—	0.02
507	2.3	1.3	0.25
508	2.3	—	0.22
509	4.2	—	0.02
510	6.0	Trace	0.15
511	5.0	None	0.20
512	6.3	—	0.18
513	5.0	—	0.26

From Company Maps

Surface Map
CRYSTAL TUNGSTEN PROSPECT
near Miles, Lincoln County, Washington
Scale: 1" = 40'
August 1955

Map 4


NEW CENTURY
MARTINEZ
BELLICK
QUEEN OF THE HILLS
HIGHLAND
WYNNOT
BLACKHAWK
MOSURI
CONGRESS
FRACTION
BOUNDARY
KEYSTONE
OPHIR
NIAGARA
INCLINE
Scale in Feet
REFERENCE DRAWINGS
Workings of the Congress Mine on the Niagara Vein
UNITED VERDE COPPER CO.
TITLE WORKINGS OF THE CONGRESS MINE ON THE CONGRESS VEIN.
Aug. 14, 1931
Lounsbery


MARTINEZ
BELLICK
NEW CENTURY
QUEEN OF THE HILLS
HIGHLAND
WYNOT
BLACKHAWK
MOSOURI
INCLINE
CONGRESS
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