DMA Form 1

DEFENSE MINERALS ADMINISTRATION
Control Slip

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To: Code 700 Date 11/9/53

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INT.-DUP. SEC., WASH., D.C. 98868

Bat

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

REGION IV

OFFICE OF
REGIONAL DIRECTOR

224 NEW CUSTOMHOUSE
DENVER 2, COLORADO

February 25, 1953

Confidential [Not security]

Air Mail
Special Delivery

2752

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Regional Director, Region IV

Subject: Mr. George S. Groves

You will recall a conference in your office some months ago regarding an application of George S. Groves in the Joe Reynolds mine case. Mr. Chambers pointed out that the information submitted by Mr. Groves was inaccurate and that his financial statement, when analyzed, showed the man to be at least $15,000 in the red instead of having $150,000 worth of assets.

I do not recall the name of the third man who was at the conference, but it was agreed definitely that any application whatever, regardless of the sum of money involved in the application, would be forwarded to your office for handling. Since your office is in full possession of the records of the investigation made by the Securities and Exchange Commission and other investigating agencies, it was decided that it would be advantageous to the Government to channel all of the applications, in which Mr. Groves is active, through persons that are familiar with his method of conducting operations.

We have received a letter dated February 20, signed by George C. Selfridge and approved by the Operating Committee, wherein it states certain short comings in the short-form contract we proposed, and in the last paragraph, the letter states: "These comments from the legal department together with all copies of the proposed contract, are returned to you for your guidance in finalizing the contract which it has been decided should be executed in your office after taking into consideration the points suggested herewith".

We have received a copy of another letter dated February 20, signed by E. W. Ellis, addressed to George S. Groves, which states that his exploration application, Docket No. DMEA-2752 (Uranium), Pewabic and Iron mines, is to be processed in this office.

Penrabic - Iron Mine
Gilpin County
Colo.
Sec. 23 T. 3 S.
R. 73 W.

Paper No. 94 (U.S.G.S.)
Bastin & Hill

A.E.C. RMO 634
Anderson & Towle

DMEA FORM 6 REFERENCE SLIP
REV. 12-56 DEFENSE MINERALS EXPLORATION ADMINISTRATION

TO:	INITIALS	DATE
1. 220		
2.		
3.		
4.		
5.		
FROM: 100		

Bat 34

FOR: Check items for action desired

____ Action ____ Reply for signature of ____
____ Approval ____ Investigate ____ Surname
____ Comment ____ Recommendations ____ Signature
____ Conference ____ Rewrite ✓ File
____ Instructions ____ Your information

REMARKS:

Catherine:
Mr. Mittendorf held this because it came to him in the blue personal envelope. He says it can go in the docket now. (Commodity Division was told of contents when it came.)
fw

INT.-DUP. SEC., WASH., D.C. M25803

We forwarded you the final report on this Docket No. DMEA-2752 on February 19. You will note that again there is title trouble.

In view of the fact that your office has complete information on Mr. Groves and in view of our agreement, I wish to suggest that Mr. King be advised by you to revise the proposed contract in so far as he is able, and that the negotiations with Mr. Groves be confined to your office, even though it is within our delegated authority. Mr. Groves does not hesitate to play both ends against the middle to obtain any result he wishes to attain.

J. H. East, Jr.

Copy to: J. H. Hedges
George C. Selfridge
A. H. Koschmann
W. H. King

11/17/53 gla

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
NOV 16 1953

224 New Customhouse
Denver 2, Colorado

November 12, 1953

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA 2752 (Uranium), Atomic Energy Uranium, Incorporated (Pewabic-Iron Mine), Gilpin County, Colorado

We approve of your letter dated November 9, 1953 to Mr. George S. Groves, and have forwarded the original to him.

W. H. King

MF-500

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

REFERENCE SLIP

DATE 11/16

REFERRED TO:

DMEA-2752

1. ~~Mr. Ellis~~
2. ~~Mr. Mittendorf, Rm. 4624~~
3. Mails & Files, Rm. 4070
4.

FOR:

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

REMARKS: Denial letter, dated Nov. 9, 1953, forwarded to Region IV, has been approved and mailed to Applicant. This docket may now be closed.

gla

Check (X) before the items needing attention.

ROBERT E. ADAMS

Initials of sender.

GPO 16—63815-1

FILE COPY
SURNAME:

Mr. Selfridge
Mr. Johnson

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

NOV 9 1953

[illegible]
Security Officer
[illegible]
[illegible]
Denver 1, Colorado

[illegible]
Access Permit [illegible]
[illegible]
[illegible]

Dear [illegible]

[illegible] concerning the [illegible] application.

[illegible] Atomic Energy Commission, Inc., [illegible] Commission [illegible] to [illegible]. [illegible] view of [illegible] [illegible] be [illegible].

Accordingly, [illegible] letter signed by the [illegible] Administrator grants the [illegible]. If [illegible] of its contents, [illegible] the letter to [illegible]. If [illegible] of the letter, then return it to [illegible], or [illegible].

Sincerely yours,

George C. Selfridge

(GCS)

Enclosure

[illegible]

J. H. Hedges (GHB)

[illegible]

A. R. Kinkel, Jr. (ARK)

[illegible]/[illegible]
11-5-53
cc to: Adm. Security Office
Operating Committee
Docket
Lessrs. [illegible], No. 3641
A. [illegible] Butler, Jr., No. 3212, [illegible]
Ellis
[illegible] Johnson

R.C. 11-9-53

See Mr. Hoffland

DRAFT
FEJohnson/bih
10/30/53

Keep for docket

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

Re: Docket No. DMEA-2752 (Uranium)
Atomic Energy Uranium, Incorporated
(Pewabic Iron Mine)
Gilpin County, Colorado

Dear Mr. King:

This is with reference to your letter of September 25, 1953 concerning the subject application.

It is noted you recommend that Docket No. DMEA-2752 be cancelled because Mr. Groves, President of the Atomic Energy Uranium, Inc., has not fulfilled the requirements mentioned in our letter to you of March 24, 1953. We, of course, cannot cancel an application, except after due notice to the applicant. However, inasmuch as Mr. Groves has not demonstrated that ~~he~~ his organization can satisfactorily operate a mine and is no longer in a position to show that he can satisfactorily perform operations under a DMEA contract, in view of the assignment of the contract with American Mining Company to another concern, we feel that the subject application should be denied. ~~For this purpose there is enclosed a suggested form of a letter to Mr. Groves denying the subject application.~~

Accordingly, we enclose a letter signed by the Administrator denying the application. If you approve of its contents kindly forward the letter to Mr. Groves. If you do not approve of the letter then return it to Washington with your comments.

Sincerely yours,

Chairman, Operating Committee

Enclosure

APPROVED:

Member, Bureau of Mines

Member, Geological Survey

DEFENSE MINERALS ADMINISTRATION

97021

PRODUCTION EXPANSION DIVISION

LOAN APPLICATIONS

Name of Company and Address _____

Name of Mine and Location _____

Docket No. DMA - _____ Date received by P.E.D. _____

Metals or Minerals involved _____

Amount of loan and interest rate _____

Type of Loan (R.F.C. or Guaranteed Bank Loan) _____

Term of Loan _____

Purpose of Loan — Mine Equipment _____

Mill or Reduction Plant _____

Operating Funds _____

Other _____

Repayment and Rate _____

Comments on Contract: _____

_____

_____

_____

_____

Date sent to Legal Division: _____

Date of Recommendation to D.P.A. for Certification _____

Date Certification sent to R.F.C. by D.P.A. _____

Date Signed into Contract by R.F.C. _____

Additional Remarks: _____

_____

_____

_____

_____

Interior—Duplicating Section, Washington, D. C.

Signed _____

DRAFT
FEJohnson/bih
Oct. 30, 1953

Mr. George S. Groves, President
Atomic Energy Uranium, Incorporated
405 Trust Building
Denver 2, Colorado

Re: Docket No. DMEA-2752 (Uranium)
Atomic Energy Uranium, Inc.,
(Pewabic Iron Mine)
Gilpin County, Colorado

Dear Mr. Groves:

Reference is made to the subject application for Government aid in an exploration project.

As you previously have been advised, favorable consideration of the subject application was dependent upon your demonstrating that you could satisfactorily perform under a DMEA contract granted to you on the German-Belcher mine. In view of the facts that you have not shown that you can comply with this requirement and that you are no longer in a position to comply with it, because you have assigned the contract on the German-Belcher mine to another operator, you are advised that the application of the Atomic Energy Uranium, Inc., for exploration assistance from DMEA is denied.

Your attention is called to the fact that DMEA contracts are entered into with the operators on the basis of their operating experience and background, as well as other criteria. To assure completion of a contract it is necessary that we have evidence that the operator can perform satisfactorily under the terms of the contract. In your case this has not been done.

DEFENSE MINERALS ADMINISTRATION

97021

PRODUCTION EXPANSION DIVISION

LOAN APPLICATIONS

Name of Company and Address _____

Name of Mine and Location _____

Docket No. DMA - _____ Date received by P.E.D. _____

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Comments on Contract: _____

_____

_____

_____

_____

Date sent to Legal Division: _____

Date of Recommendation to D.P.A. for Certification _____

Date Certification sent to R.F.C. by D.P.A. _____

Date Signed into Contract by R.F.C. _____

Additional Remarks: _____

_____

_____

_____

_____

Interior—Duplicating Section, Washington, D. C.

Signed _____

We regret the necessity of this action but only by satisfactory performance under the contract can the purpose of the exploration program of finding additional reserves of strategic and critical minerals be accomplished.

Sincerely yours,

W. H. King

DEFENSE MINERALS ADMINISTRATION

97021

PRODUCTION EXPANSION DIVISION

LOAN APPLICATIONS

Name of Company and Address _____

Name of Mine and Location _____

Docket No. DMA - _____ Date received by P.E.D. _____

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_____

_____

Date sent to Legal Division: _____

Date of Recommendation to D.P.A. for Certification _____

Date Certification sent to R.F.C. by D.P.A. _____

Date Signed into Contract by R.F.C. _____

Additional Remarks: _____

_____

_____

_____

_____

Interior—Duplicating Section, Washington, D. C.

Signed _____

FILE COPY
SURNAME:

140

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

Rewritten by

Hofflund
Ellis
Hofflund
Selfridge
Ellis
Hedges
Selfridge
Selfridge

NOV 9 1953

Mr. George S. Groves, President
Atomic Energy Uranium, Inc.
405 Interstate Trust Building
Denver 2, Colorado

Re: Docket No. DMEA-2752 (Uranium)
Atomic Energy Uranium, Inc.
Pewabic-Iron Mine
Gilpin County, Colorado

Dear Mr. Groves:

This is to advise you that your application for an exploration project contract dated October 9, 1952, Docket No. DMEA-2752, relating to the Pewabic property, is denied.

A review of this application, and of the various applications filed by yourself as president of other corporations, indicates neither in this case nor in any case has the application been filed with the intention that the applicant itself would engage in and prosecute the exploration work.

This agency is not authorized to enter into exploration project contracts to aid the applicant in promotional enterprises. On the contrary, we are required to take into consideration the operating experience and background of the applicant. It was with this in mind that Mr. W. H. King, Executive Officer, DMEA Field Team, Region IV, under date of April 10, wrote to you with respect to the subject application:

> "A contract for work on the Pewabic property will be prepared after operations on the German-Belcher Mine have been in progress for a sufficient time to permit an appraisal of the quality of the operation.

Your assignment of all interest in the German-Belcher project to Intercounty Corporation, of course, makes it impossible for DMEA to make any appraisal of the quality of any operation that might have been carried out by your corporation.

In any case, DMEA concluded some months ago that the project set forth in this application would neither justify nor require the expenditure there indicated in the sum of

R.C.G.
11-9-53

$27,770, and that we would not consider contributing to any expenditure in excess of the sum of $9,815. In your letter of March 14 to Mr. King, you rejected this amount as inadequate. I therefore conclude that the action I am now taking denying your application may be of small interest to you, but I deem it necessary in order to clear the records of DMEA.

Sincerely yours,

C. O. Mittendorf (fw)

Administrator

JLHofflund:ep 11-2-53

Copy to: Mails & Files (DMEA-2752)
Mails & Files (DMEA-2878)
Administrator
Admr. Reading File
Region IV (2)
Mr. Ellis
Mr. Hofflund
Chron.
Pending

FILE COPY
SURNAME:

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

N.S. in R.R.

November 2, 1953

Memorandum

To: The Administrator
Through: Mr. E. W. Ellis

From: Chief Counsel

Subject: Atomic Energy Uranium, Inc. (George S. Groves), Docket No. DMEA-2752 (Uranium), Pewabic Iron Mine, Gilpin County, Colorado

Attached hereto is a proposed letter for your signature to Mr. George S. Groves. If it meets with your approval, I suggest that you forward it to Mr. Groves through Mr. King for his concurrence.

The subject letter for your signature is a redraft of one prepared by Mr. Johnson. I come to the same point as Mr. Johnson, i.e., the denial of the application, but by a somewhat different route. We have to bear in mind, in writing this letter, that we are not dealing with Mr. Groves as a person, but with the particular corporation or corporations which he represents. Each corporation is a separate entity, and entitled to be treated as such. If George S. Groves himself has no qualifications for carrying out a mining project, this is no indication that the applicant-corporation which he represents may not be so qualified. In the case of Atomic Energy Uranium, Inc., Mr. Groves at least represents, in the application, that the work will be carried on under the direction of a qualified technician who is there named.

Moreover, we frequently accept applications from corporations that are admittedly formed for no purpose but to carry out the exploration work. We do not require that the members of the corporation should be qualified mining men, but rather that they should employ qualified mining men to carry out the work.

The record in this matter might put DMEA in a bad light. In the last letter we have from Mr. Groves, dated March 14, he does not expressly reject the Government's

proposal to reduce the cost of the work from $27,000 to $9,500. What he says is:

> "If in your opinion such a small loan is justified, there is certainly no excuse for a six months' delay in approving the same."

In his reply to this letter dated April 10, Mr. King unfortunately says:

> "A contract for work on the Pewabic property will be prepared after operations on the German-Belcher Mine have been in progress for a sufficient time to permit an appraisal of the quality of the operation."

In this state of the record, Mr. Groves might well be justified in assuming that it is our intention to send to him for signature a contract on the Pewabic property as soon as we can appraise the work being done on the German-Belcher property. The purpose of my suggested letter for your signature to Mr. Groves is to rebut at the earliest possible date such a construction of the record as it now exists.

It is Mr. Ellis' idea, worked out with Mr. Adams, that we write nothing at all to Mr. Groves and treat the subject docket as closed, unless and until he makes some move. I would not object to Mr. Ellis' suggested procedure, but to my mind it is preferable to put the record straight at this time rather than to hope that all will be forgotten and forgiven in the future. To cross a bridge before we reach it, it is my opinion that if Mr. Groves should see fit to renew his application on the Pewabic property with sufficient showing and representation that the corporation he represents will itself carry out the work with qualified technicians, this agency would be in a poor position to deny the application for the amount heretofore suggested in the sum of $9,815.

J. L. Hofflund

J. L. Hofflund
Chief Counsel

Attachments

JLHofflund:ep

Copy to: Mails & Files
Mr. Ellis

Mr. Hofflund
Chron.

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

November 2, 1953

Memorandum

To: The Administrator
Through: Mr. E. W. Ellis

From: Chief Counsel

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J. L. Hofflund

J. L. Hofflund

J. L. Hofflund
Chief Counsel

Attachments

Frank

To Technically "close" this docket it seems necessary to me that we advise applicant accordingly — If we do not wish to take that step — then we must consider the case just as "inactive". At this point it appears that we implied the approval of a modified project, provided he demonstrated performance under 501. Has he demonstrated? Granting the guy is a 'rat' I don't see how we can "close" the case & still keep our action from the applicant.

Guilds Branum Inc.

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

October 28, 1953

Memorandum

To: The File - Attention: Mr. Robert E. Adams

From: Ernest Wm. Ellis, Chief
Rare and Miscellaneous Metals Division

Subject: Docket No. DMEA-2752 (Uranium)
Atomic Energy Uranium, Inc.,
Pewabic-Iron Mine
Gilpin County, Colorado

Oct. 27, 1952 Application received requesting aid in a contract totaling $27,770.00. Proposed work was to unwater and rehabilitate the Iron shaft to the bottom (700 foot) level; also rehabilitate the 3rd level; also drift for 300 feet on the 3rd level and raise 100 feet; lower workings also to be cleaned up prior to examining, sampling, and mapping.

Nov. 28, 1952 Field Examination of property attempted but shaft found to be inaccessible 225 feet below collar of shaft.

Jan. 5, 1953 Field men examined workings on the 3rd level. Examiners recommended rehabilitation of shaft to 3rd level and a portion of the 3rd level followed by 150 feet of drifting and 75 feet of raising. Total cost of such work was estimated at $9,815.00.

Feb. 24, 1953 Field Team report and recommendation received. Executive Officer recommends denial of application if the proposed revised program is not acceptable to the Applicant. Executive Officer further states that Applicant represents itself to be the owner of subject property. However it seems apparent that title is held in trust subject to terms of a note for $55,000.00 and Executive Officer suggests present status of mortgage be studied before making any commitment.

March 6, 1953	Bureau of Mines commodity member recommends modified program suggested by Field Team.
March 9, 1953	Geological Survey commodity member recommendation received concurring with Field Team program.
March , 1953	Letter (unsigned) from Applicant dated March 14, 1953, indicates that George S. Groves, President, believes the recommended modified program is inadequate for the purpose of exploring the property.
March 17, 1953	F. SOmmer Schmidt phoned W. H. King, Executive Officer, Region IV, to the effect that no contract would be made on subject property until Mr. Groves shows satisfactory performance at the German-Belcher Mine (American Mining Company, Gilpin County, Colorado. Docket No. DMEA-2878, Contract No. Idm-E501). This phone call was verified by letter dated March 24, 1953.
April 10, 1953	W. H. King wrote Mr. Groves and stated the following: "A contract for work on the Pewabic property will be prepared after operations on the German-Belcher Mine have been in progress for a sufficient time to permit an appraisal of the quality of the Operation."
Sept. 1, 1953	On this date Mr. Groves without Government approval transferred the German-Belcher Mine, (Contract No. Idm-E501) to the Intercounty Corporation. While this was a breach of contract it was decided to permit the assignment of the German-Belcher Mine to the Intercounty Corporation.
Oct. 8, 1953	A assignment (prepared by Legal) of the German-Belcher Mine to the Intercounty Corporation was sent to Region IV for the signatures of the parties concerned.
Sept. 25, 1953	Memo from King, Region IV, addressed to the Administrator states: "In view of the fact that the American Mining Company desires to transfer Contract No. Idm-E501 to the Atomic Uranium Company, (Intercounty Corporation) we do not believe that Mr. Groves has fulfilled the requirements mentioned in the letter dated March 24, 1953. We, therefore, recommend that Docket No. DMEA-2752 be cancelled."

Conclusions:

1. From past experience with Mr, Groves it is not apparent that Mr. Groves really intends to do any actual exploration work with DMEA contracts.

2. Up-to-date Mr. Groves has failed to demonstrate a capacity to get the work done.

3. Mr. Groves appears to be dissatisfied with the modified program recommended by the AEC and the DMEA examiners.

4. The Pewabic-Iron Mine is in the Front Range area where no discoveries of importance have been found to date.

5. The subject property has been a producer of gold, silver, and lead ore. There is one small area in the 3rd level where pitchblende was discovered in a thin seam ranging from 0.3 to 0.6 feet in thickness. Even the proposed modified program is a "long shot" proposition in so far as the possibility of discovering uranium ore is concerned.

6. In veiw of points 1 to 5 inc. it does not appear that the Applicant is interested in continuing with the application, especially since the last word received from Mr. Groves was dated March 14, 1953, at which time dissatisfaction with the proposed modified program was registered.

Recommendation:

It is recommended that this docket be closed and no further action be taken with respects to writing to the subject Applicant unless the case is reopened by a letter from said Applicant or by another company which might subsequently acquire the property.

Ernest Wm. Ellis

Ernest Wm. Ellis, Chief
Rare & Miscellaneous Metals Division

FILE COPY
SURNAME:

Ellis

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

October 28, 1953

Memorandum

To: The File - Attention: Mr. Robert E. Adams

From: Ernest Wm. Ellis, Chief
Rare and Miscellaneous Metals Division

Subject: Docket No. DMA-2752 (Uranium)
Atomic Energy Uranium, Inc.,
Pewabic-Iron Mine
Gilpin County, Colorado

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March , 1953	Letter (unsigned) from Applicant dated March 14, 1953, indicates that George S. Groves, President, believes the recommended modified program is inadequate for the purpose of exploring the property.
March 17, 1953	F. SOmner Schmidt phoned W. H. King, Executive Officer, Region IV, to the effect that no contract would be made on subject property until Mr. Groves shows satisfactory performance at the German-Belcher Mine (American Mining Company, Gilpin County, Colorado. Docket No. DMEA-2878, Contract No. Idm-E501). This phone call was verified by letter dated March 24, 1953.
April 10, 1953	W. H. King wrote Mr. Groves and stated the following: "A contract for work on the Pewabic property will be prepared after operations on the German-Belcher Mine have been in progress for a sufficient time to permit an appraisal of the quality of the Operation."
Sept. 1, 1953	On this date Mr. Groves without Government approval transferred the German-Belcher Mine, (Contract No. Idm-E501) to the Intercounty Corporation. While this was a breach of contract it was decided to permit the assignment of the German-Belcher Mine to the Intercounty Corporation.
Oct. 8, 1953	A assignment (prepared by Legal) of the German-Belcher Mine to the Intercounty Corporation was sent to Region IV for the signatures of the parties concerned.
Sept. 25, 1953	Memo from King, Region IV, addressed to the Administrator states: "In view of the fact that the American Mining Company desires to transfer Contract No. Idm-E501 to the Atomic Uranium Company, (Intercounty Corporation) we do not believe that Mr. Groves has fulfilled the requirements mentioned in the letter dated March 24, 1953. We, therefore, recommend that Docket No. DMEA-2752 be cancelled."

Conclusions:

1. From past experience with Mr, Groves it is not apparent that Mr. Groves really intends to do any actual exploration work with DMEA contracts.

2. Up-to-date Mr. Groves has failed to demonstrate a capacity to get the work done.

3. Mr. Groves appears to be dissatisfied with the modified program recommended by the AEC and the DMEA examiners.

4. The Pewabic-Iron Mine is in the Front Range area where no discoveries of importance have been found to date.

5. The subject property has been a producer of gold, silver, and lead ore. There is one small area in the 3rd level where pitchblende was discovered in a thin seam ranging from 0.3 to 0.6 feet in thickness. Even the proposed modified program is a "long shot" proposition in so far as the possibility of discovering uranium ore is concerned.

6. In veiw of points 1 to 5 inc. it does not appear that the Applicant is interested in continuing with the application, especially since the last word received from Mr. Groves was dated March 14, 1953, at which time dissatisfaction with the proposed modified program was registered.

Recommendation:

It is recommended that this docket be closed and no further action be taken with respects to writing to the subject Applicant unless the case is reopened by a letter from said Applicant or by another company which might subsequently acquire the property.

Ernest Wm. Ellis

Ernest Wm. Ellis, Chief
Rare & Miscellaneous Metals Division

EWEllis/db
10-28-53
cc to: Adm. Reading File
Docket
Mr. Ellis

J. O. Hosted, Division of Raw Materials
Washington, D. C.

October 20, 1953

C. C. Towle, Chief, Denver Exploration
Branch, Division of Raw Materials

DMEA-2752 PEWABIC IRON MINE

DEB:~~CCT~~ KEB

With reference to your memorandum of October 12, 1953 on the above subject, we have attempted to follow the activities of Atomic Energy Uranium, Inc. at the Pewabic Iron mine. At the time of the original application our office was consulted regarding exploration and results of our examination and reports were made available to the U.S. Bureau of Mines.

It was the recommendation of the DMEA field team that complete reconditioning of the Iron shaft and rehabilitation below the third level was not warranted in view of the limited pitchblende occurrence on the third level and, consequently, a program of limited exploration was recommended ($9,815.00). We concur with this recommendation of a limited program of exploration.

Oct. 26 1953

This is merely a confirmation of the original modified program.

ALR

Copy to Mr. DMEA - 10/27/53

75856

9/29/53 gla

Department of the Interior
Defense Minerals Administration
RECEIVED
SEP 28 1953

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

224 New Customhouse
Denver 2, Colorado

September 25, 1953

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA 2752, Atomic Energy Uranium Company (Pewabic Iron Mine), Gilpin County, Colorado

Reference is made to a letter dated March 24, 1953 from the Chairman of the Operating Committee, in which he states, "Explain following to Groves, concerning Pewabic, we are not writing contract, and will not do so, until such time as he has proven that he is performing satisfactorily on the German Belcher, and your office is satisfied that he has competent men, is getting something done, is paying his bills, and is in general a satisfactory partner."

In view of the fact that the American Mining Company desires to transfer Contract Idm-E501 to the Atomic Uranium Company, we do not believe that Mr. Groves has fulfilled the requirements mentioned in the letter dated March 24, 1953.

We, therefore, recommend that Docket No. DMEA 2752 be cancelled.

W. H. King

W. H. King

Oct. 6 - 1953

Atomic Energy Uranium, Inc.
DMEA - 2752

Jon Hosted of AEC is writing their Field men to see what the latest thinking is on this application. Therefore withhold action for the present. Hosted stated that at one time the AEC was interested in seeing a minor amount of work done at this property. Property is in the Front Range which has not produced too well in the past.

EWE

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
SEP 23 1953

224 New Customhouse
Denver 2, Colorado

September 25, 1953

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA 2752, Atomic Energy Uranium Company (Pewabic Iron Mine), Gilpin County, Colorado

Reference is made to a letter dated March 24, 1953 from the Chairman of the Operating Committee, in which he states, "Explain following to Groves, concerning Pewabic, we are not writing contract, and will not do so, until such time as he has proven that he is performing satisfactorily on the German Belcher, and your office is satisfied that he has competent men, is getting something done, is paying his bills, and is in general a satisfactory partner."

In view of the fact that the American Mining Company desires to transfer Contract Idm-E501 to the Atomic Uranium Company, we do not believe that Mr. Groves has fulfilled the requirements mentioned in the letter dated March 24, 1953.

We, therefore, recommend that Docket No. DMEA 2752 be cancelled.

W H King
W. H. King

7/8/53 gla

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

224 New Customhouse
Denver 2, Colorado

July 1, 1953

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 2752 (Uranium), Atomic Energy Uranium, Inc.

Enclosed are three copies of each of two maps of the Pewabic Iron Mine, which were submitted by the Atomic Energy Uranium, Inc. These maps were for use in the preparation of a contract. However your attention is called to the fact that we did not believe it desirable to enter into this contract until such time Mr. Groves proved to be a satisfactory operator under the terms of Contract Idm-E501.

W. H. King

W. H. King

Enclosure

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

224 New Customhouse
Denver 2, Colorado

July 1, 1953

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 2752 (Uranium), Atomic Energy Uranium, Inc.

Enclosed are three copies of each of two maps of the Pewabic Iron Mine, which were submitted by the Atomic Energy Uranium, Inc. These maps were for use in the preparation of a contract. However yourattention is called to the fact that we did not believe it desirable to enter into this contract until such time Mr. Groves proved to be a satisfactory operator under the terms of Contract Idm-R501.

W. H. King

W. H. King

Enclosure

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

224 New Customhouse
Denver 2, Colorado

April 10, 1953

Mr. George S. Groves, President
American Mining Company
405 Interstate Building
Denver 2, Colorado

Dear Mr. Groves:

This will acknowledge receipt of four copies of Exhibit "A", Contract Idm-E 501, four copies of Owner's Consent to Lien, and four copies of a claim map of the German Belcher Property, which were sent to this office by Mrs. Scott on April 8, 1953.

We have revised contract Idm-E 501 to provide for reimbursement by the Government of 90% of the agreed estimated costs. The contract has been sent to the Washington Office, DMEA, for their approval and signature.

DMEA-275

A contract for work on the Pewabic property will be prepared after operations on the German Belcher Mine have been in progress for a sufficient time to permit an appraisal of the quality of the operation.

As soon as we have received the approved signed contract on the German Belcher Mine we will forward it to you for signature.

Very truly yours,

W. H. King

W. H. King
Executive Officer
DMEA Field Team, Region IV

cc COMittendorf, Administrator, DMEA

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
APR 15 1953

700

FILE COPY
SURNAME:

Schmidt
Selfridge
Hedges
Kinkel

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

Mr. A. A. King
Executive Officer
DMA Field Team, Region IV
221 New Customhouse Building
Denver 2, Colorado

MAR 24 1953

Re: Docket No. DMA-2752 (Uranium)
Atomic Energy Uranium, Inc.
Pewable Iron Mine, Gilpin County, Colo.
Docket No. DMA-2775 (Lead-Uranium)
American Mining Company
German-Belcher Mine, Gilpin County, Colo.

D.C. 3/24/53

Dear Mr. King:

The following is confirmation of a letter dictated by Mr. Schmidt which was part of a telephone conversation on March 17 between yourself and Mr. Schmidt concerning the proposed contracts for the subject applications:

"Received copies of letters of March 11 to King from Groves. Tell Groves we are preparing contract on German-Belcher. Will forward in few days to your office for his signature. You can explain it was written in Washington and not your office. Explain following to Groves, concerning Pewable, we are not writing contract, and will not do so, until such time as he has proven what he is performing satisfactorily on the German-Belcher, and your office is satisfied that he has competent men, is getting something done, is paying his bills, and is in general a satisfactory partner. He can take this up with Washington if he wants. When you so inform us we will, on your recommendation, make out a Pewable contract. There is not enough precedent for Groves' practical mining operations for us to make several contracts on a 90-10 basis, all to start nearly simultaneously. The background of applicant in mining is important, especially in this type of contract, for protection of Government. Recognize that Pewable team cannot be watching operation continuously. Further mining above will be mailed."

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

J. H. Hedges

Member, Bureau of Mines

A. R. Kinkel, Jr.

Member, Geological Survey

FSSchmidt/gla 3-20-53
cc to: Adm. Reading File
Operating Com.
Docket 2752
Mr. Schmidt

Mr. HDKeiser, Rm. 3647
Mr. ARButler, Rm. 3206 GSA Bldg.

Fone Region IV Denver and dictate following 3/17/53

Schmidt- Washington to King- Denver Foned OK

following read and approved by Frank Johnson before foning.

"Received copies of letters 3/14 to King from Groves.

Tell Groves we are preparing contract on German Belcher. Will forward in few days ~~It will be signed by Mr. Mittendorf for the Government. to your office for his signing./~~ You can explain it was written in Washington and ~~not your office. Explain following to Groves, concerning Pewabic, we are not writing contract, and will not do so, until such time as he has proven that he is performing satisfactorily on the German Belcher, and your office is satisfied that he has competent men, is getting something done, is paying his bills, and is in general a satisfactory partner.~~ He can take his up with Washington if he wants. ~~When you so inform us we will then on your recommendation make out a Pewabic contract.~~ There is not enough precedent for Groves practical mining operations for us to make several contracts on a 90-10 basis, all to start nearly simultaneously. The background of applicant in mining is important ~~xxxxxxxxxxx~~ expecially in this type of contract for pretection of Government. Recognize that field team ~~xxxx~~ cannot be watching operation continually. Letter confirming above will be mailed."

Talked to King and dictated to his steno. King was very well pleased with this above arrangement.

3/23/53 gla

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

224 New Customhouse
Denver 2, Colorado

March 17, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 20 1953

Memorandum

To: C.O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 2752 (Uranium), Pewabic and Iron Mines

Enclosed for your information are two copies of a letter dated March 14, 1953, from George S. Groves, President, Atomic Energy Uranium, Inc.

W. H. King

W. H. King

Enclosures

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

224 New Customhouse
Denver 2, Colorado

March 17, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 26 1953

Memorandum

To: C.O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 2752 (Uranium), Pewabic and Iron Mines

Enclosed for your information are two copies of a letter dated March 14, 1953, from George S. Groves, President, Atomic Energy Uranium, Inc.

W. H. King

W. H. King

Enclosures

C
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P
Y

ATOMIC ENERGY URANIUM INC.
405 Interstate Trust Building
Denver 2, Colorado

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 20 1953

March 14, 1953

Mr. W.H. King, Executive Officer
Field Team, Region IV
Defense Minerals Exploration Administration
224 New Customhouse
Denver 2, Colorado

Re: Docket No. DMEA-2752 (Uranium)
Pewabic and Iron Mines
Gilpin County, Colorado

Dear Mr. King:

On October 9, 1952 we filed an application for a $25,000 exploration loan on the Iron vein of our Pewabic Group of mining claims. On November 28th you sent two men there to examine the property without a Geiger counter, but the timbers were bad and upon your request we had them fixed and again you sent your men there, but this time with a broken Geiger counter, in accordance with the caretaker's report.

On December 9th you wrote enclosing Owner's Consent to the Loan which we promptly had executed and delivered to you.

On March 12th, more than five months from the date of the filing of this application, Mr. Shaw of your office requested another map of the mine. This map requires a competent engineer to prepare it, which will delay the matter for approximately another month. This map should have been requested by you months ago instead of after five months.

This letter is to advise that I am going to have the map prepared, and it will be delivered to you as soon as possible.

I was also informed by Mr. Shaw that you are going to approve a $9,500 exploration loan, which is about enough to buy a mucking machine, and disregard our engineer's request for the $25,000 as requested in our program. I want to call your attention to the fact that this Pewabic property (which is the concensus of opinion of most engineers familiar with the property) is one of the most valuable uranium properties in the Front Range. The Iron vein has a 6-foot in width vein of high-grade pitchblende (uranium) ore and this property should be developed without delay, as our government needs this uranium and needs it badly, and there is no excuse for the treatment we have received pertaining to this matter. If in your opinion such a small loan is justified, there is certainly no excuse for a six months' delay in approving the same.

Very truly yours,

ATOMIC ENERGY URANIUM, INC.

By /s/ Geo. S. Groves

President

GSG:S

C
O
P
Y

ATOMIC ENERGY URANIUM INC.
405 Interstate Trust Building
Denver 2, Colorado

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 20 1953

March 14, 1953

Mr. W.H. King, Executive Officer
Field Team, Region IV
Defense Minerals Exploration Administration
224 New Customhouse
Denver 2, Colorado

Re: Docket No. DMEA-2752 (Uranium)
Pewabic and Iron Mines
Gilpin County, Colorado

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On December 9th you wrote enclosing Owner's Consent to the Loan which we promptly had executed and delivered to you.

On March 12th, more than five months from the date of the filing of this application, Mr. Shaw of your office requested another map of the mine. This map requires a competent engineer to prepare it, which will delay the matter for approximately another month. This map should have been requested by you months ago instead of after five months.

This letter is to advise that I am going to have the map prepared, and it will be delivered to you as soon as possible.

I was also informed by Mr. Shaw that you are going to approve a $9,500 exploration loan, which is about enough to buy a mucking machine, and disregard our engineer's request for the $25,000 as requested in our program. I want to call your attention to the fact that this Pewabic property (which is the concensus of opinion of most engineers familiar with the property) is one of the most valuable uranium properties in the Front Range. The Iron vein has a 6-foot in width vein of high-grade pitchblende (uranium) ore and this property should be developed without delay, as our government needs this uranium and needs it badly, and there is no excuse for the treatment we have received pertaining to this matter. If in your opinion such a small loan is justified, there is certainly no excuse for a six months' delay in approving the same.

Very truly yours,

ATOMIC ENERGY URANIUM, INC.

By /s/ Geo. S. Groves

President

GSG:S

3/12/53 gla

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 12 1953

224 New Customhouse
Denver 2, Colorado

March 9, 1953

Memorandum

To: Administrator, Defense Minerals Exploration Administration

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 2752, Atomic Energy Uranium, Inc.
Pewabic Iron Group

Enclosed for your approval and appropriate action are six copies of a letter to George S. Groves.

W. H. King

W. H. King

Enclosures

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 12 1953

224 New Customhouse
Denver 2, Colorado

March 9, 1953

Memorandum

To: Administrator, Defense Minerals Exploration Administration

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 2752, Atomic Energy Uranium, Inc.
Pewabic Iron Group

Enclosed for your approval and appropriate action are six copies of a letter to George S. Greves.

W. H. King

W. H. King

Enclosures

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 12 1953

Mr. George S. Groves, President
Atomic Energy Uranium, Inc.
60 East 42nd Street (Room 839)
New York 17, New York

Superseded by letter from Groves dated 3/19/53

Dear Mr. Groves:

A field examination of the Pewabic Iron Group, Docket DMEA 2752, indicates that the proposed work on the third level is not warranted at this time.

The Defense Minerals Exploration Administration will consider a modified exploration program which would reduce the rehabilitation to a minimum required for safe mining and to confine the work to drifting a maximum distance of 150 feet east on the third level at the point of pitchblende occurrence. If you are interested in this modified exploration program please furnish us a map showing the location of the third level with reference to the boundaries of the claims included in the application.

Evidence that the March payment on the mortgage agreement has been made will also be required.

Very truly yours,

Administrator

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

Mr. George S. Groves, President
Atomic Energy Uranium, Inc.
60 East 42nd Street (Room 839)
New York 17, New York

Dear Mr. Groves:

A field examination of the Pewabic Iron Group, Docket DMEA 2752, indicates that the proposed work on the third level is not warranted at this time.

The Defense Minerals Exploration Administration will consider a modified exploration program which would reduce the rehabilitation to a minimum required for safe mining and to confine the work to drifting a maximum distance of 150 feet east on the third level at the point of pitchblende occurrence. If you are interested in this modified exploration program please furnish us a map showing the location of the third level with reference to the boundaries of the claims included in the application.

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Very truly yours,

Administrator

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 12 1953

Mr. George S. Groves, President
Atomic Energy Uranium, Inc.
60 East 42nd Street (Room 839)
New York 17, New York

Dear Mr. Groves:

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Very truly yours,

Administrator

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 12 1953

Mr. George S. Greves, President
Atomic Energy Uranium, Inc.
60 East 42nd Street (Room 839)
New York 17, New York

Dear Mr. Greves:

A field examination of the Peachic Iron Group, Docket DMEA 2752, indicates that the proposed work on the third level is not warranted at this time.

The Defense Minerals Exploration Administration will consider a modified exploration program which would reduce the rehabilitation to a minimum required for safe mining and to confine the work to drifting a maximum distance of 150 feet east on the third level at the point of pitchblende occurrence. If you are interested in this modified exploration program please furnish us a map showing the location of the third level with reference to the boundaries of the claims included in the application.

Evidence that the March payment on the mortgage agreement has been made will also be required.

Very truly yours,

Administrator

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 12 1953

Mr. George S. Greves, President
Atomic Energy Uranium, Inc.
60 East 42nd Street (Room 839)
New York 17, New York

Dear Mr. Greves:

A field examination of the Pesabic Iron Group, Docket DMEA 2752, indicates that the proposed work on the third level is not warranted at this time.

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Evidence that the March payment on the mortgage agreement has been made will also be required.

Very truly yours,

Administrator

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

Mr. George S. Groves, President
Atomic Energy Uranium, Inc.
60 East 42nd Street (Room 839)
New York 17, New York

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Evidence that the March payment on the mortgage agreement has been made will also be required.

Very truly yours,

Administrator

March 14, 1953

Mr. W. H. King, Executive Officer
Field Team, Region IV
Defense Minerals Exploration Administration
224 New Customhouse
Denver 2, Colorado

Re: Docket No. DMEA-2752 (uranium)
Pewabic and Iron Mines
Gilpin County, Colorado

Dear Mr. King:

On October 9, 1952 we filed an application for a $25,000 exploration loan on the Iron vein of our Pewabic group of mining claims. On November 28th you sent two men there to examine the property without a Geiger counter, but the timbers were bad and upon your request we had them fixed and again you sent your men there, but this time with a broken Geiger counter, in accordance with the caretaker's report.

On December 9th you wrote enclosing Owner's Consent to the Loan which we promptly had executed and delivered to you.

On March 12th, more than five months from the date of the filing of this application, Mr. Shaw of your office requested another map of the mine. This map requires a competent engineer to prepare it, which will delay the matter for approximately another month. This map should have been requested by you months ago instead of after five months.

This letter is to advise that I am going to have the map prepared, and it will be delivered to you as soon as possible.

I was also informed by Mr. Shaw that you are going to approve a $9,500 exploration loan, which is about enough to buy a mucking machine, and disregard our engineer's request for the $25,000 as requested in our program. I want to call your attention to the fact that this Pewabic Pewabic property (which is the concensus of opinion of most engineers familiar with the property) is one of the most valuable uranium properties in the Front Range. The Iron vein has a 6-foot in width vein of high-grade pitchblende(uranium) ore and this property should be developed without delay, as our government needs this uranium and needs it badly, and there is no excuse for the treatment we have received pertaining to this matter. If in your opinion such a small loan is justified, there is certainly no excuse for a six months' delay in approving the same.

Very truly yours,

ATOMIC ENERGY URANIUM, INC.
By

President

GMG:S

March 14, 1953

Mr. W. H. King, Executive Officer
Field Team, Region IV
Defense Minerals Exploration Administration
224 New Customhouse
Denver 2, Colorado

Re: Docket No. DMEA-2752 (uranium)
Pewabic and Iron Mines
Gilpin County, Colorado

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This letter is to advise that I am going to have the map prepared, and it will be delivered to you as soon as possible.

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Very truly yours,

ATOMIC ENERGY URANIUM, INC.
By

President

GSG:S

3/11/53 gla

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

Defense Minerals Administration
RECEIVED
MAR 6 1953

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

DATE: March 4, 1953

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

SUBJECT: Final Report, DMEA Docket 2752 (Uranium), Atomic Energy Uranium, Inc., Pewabic-Iron Mine, Gilpin County, Colorado.

I have reviewed the Field Team report on the property identified in the subject above.

The applicant proposes to explore an occurrence of pitchblende on the 300-foot level of the mine, and to unwater and rehabilitate the lower levels of the mine to prospect for other possible occurrences of pitchblende.

After inspecting the property and reviewing information made available by uranium program geologists of the Survey and Atomic Energy Commission, the examining members of the field team recommend modification of the proposed exploration to include only the following:

1. Such repairs to the Iron shaft to the third level and to the main drift west from the Iron shaft on the third level as will afford safe passageway for the men and equipment to and from the site of their work,

2. Drifting up to a maximum of 150 feet on the pitchblende occurrence shown on the plan maps, and

3. Raising up to a maximum of 75 feet on the best showing developed by the drifting.

I concur with the recommendations of the Field Team that Government assistance for exploration be granted for the Government's proportionate share of $9,815.00.

Arthur P. Butler Jr.

Arthur P. Butler, Jr.

Copy to: E. Wm. Ellis (2)

IN REPLY REFER TO:

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

DEPARTMENT OF THE INTERIOR
Colorado Minerals Association
RECEIVED
MAR 6 1953

E. Wm. Ellis, DMEA Member
Uranium Commodity Committee
Arthur P. Butler, Jr., USGS Member, Uranium Commodity Committee

March 4, 1953

Final Report, DMEA Docket 2752 (Uranium), Atomic Energy Uranium, Inc., Pewabic-Iron Mine, Gilpin County, Colorado.

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3. Raising up to a maximum of 75 feet on the best showing developed by the drifting.

I concur with the recommendations of the Field Team that Government assistance for exploration be granted for the Government's proportionate share of $9,815.00.

Arthur P. Butler, Jr.

Copy to: E. Wm. Ellis (2)

3/9/53 gla

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

March 5, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 6 1953

Memorandum

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

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

Subject: Final report, DMEA Docket 2752, Atomic Energy Uranium, Inc., Pewabic-Iron Mine, Gilpin County, Colorado.

I have reviewed the subject report and discussed it with Arthur P. Butler, Geological Survey Member, and Joseph O. Hosted, representative of the Atomic Energy Commission.

I concur with the recommendations made by the Field Team, Region IV, in the report and in its letter of transmittal dated February 19, 1953.

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

H D Keiser

H. D. Keiser

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

March 5, 1953

DEPARTMENT OF THE INTERIOR
Bureau Minerals Administration
RECEIVED
MAR 6 1953

Memorandum

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

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

Subject: Final report, DMEA Docket 2752, Atomic Energy Uranium, Inc., Pewabic-Iron Mine, Gilpin County, Colorado.

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I concur with the recommendations made by the Field Team, Region IV, in the report and in its letter of transmittal dated February 19, 1953.

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

Signed

H. D. Keiser

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 24 1953

224 New Customhouse
Denver 2, Colorado

February 19, 1953

Memorandum

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

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 2752 (Uranium) Atomic Energy Uranium, Inc., Pewabic-Iron Mine, Gilpin County, Colorado

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

The field examiners conclude that the known pitchblende occurence on the third level warrants some exploration, but does not justify rehabilitation of the shaft below the third level at this time.

If this revised program is acceptable to the applicant we recommend it.

The applicant corporation represents itself to be the owner of this property, but apparently the title is held in trust subject to the terms of a note for $55,000. It is suggested that the details and present status of this mortgage be carefully studied before any commitments are made.

W. H. King
W. H. King

A. H. Koschmann
A. H. Koschmann

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
3-2-53
(Date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
FEB 20 1953

Mining Division
Region IV

February 19, 1953

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 2752, (Uranium) Atomic Energy Uranium, Inc., Fewabic-Iron Mine, Gilpin County, Colorado

Enclosed are 10 copies of the final engineering report on the subject docket.

The applicant requested $27,700 to completely recondition the Iron shaft for a full scale mine operation. The examining engineer believes any work below the third level is not warranted at this time, but he does recommend a small amount of work down to and including the third level at a total cost of $9,815.00.

If this revised program is not acceptable to the applicant, we recommend that the application be denied.

W. H. King

W. H. King

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
3-2-53
(date)

AMERICAN MINING COMPANY

60 EAST 42ND STREET

NEW YORK 17, N. Y.

DENVER OFFICE:
405 INTERSTATE TRUST BUILDING
DENVER 2, COLORADO
TELEPHONE: KEYSTONE 0583

Denver, Colorado
February 17, 1953

Mr. C. O. Mithendorf
Defense Minerals Administration
Department of the Interior
Between 17th and 18th Streets S. W.
Washington 25, D. C.

Dear Mr. Mithendorf:

Isn't there some way that you, as head of the Defense Minerals Exploration Administration's office, can get behind Mr. Schmidt of your office and Mr. King of the Denver office and get them to finally dispose of the two applications that are now pending, namely,

DMEA-2878

German-Belcher, in the name of American Mining Company. This application was approved in the name of Uranium Company of America, but it was decided that we operate under the name of American Mining Company, and it was only a matter of changing the name, but it seems that it has taken over three months to do this, and the application has not been finally approved.

DMEA-2752

Application was made by Atomic Energy Uranium, Inc., on the Pewabic on October 9, 1952, more than four months ago. While this was for only $25,000, I was informed by the Denver office today that it was sent to Washington for processing, although, if I understand correctly, it should have been attended to right here in Denver without sending it to Washington.

It is extremely discouraging to be held up so long in order to get a decision on these two applications. I am anxious to get going, and I would appreciate it very much if you will communicate with the Denver office and also with Mr. Schmidt and see if you can get them to moving.

Thanking you, I am,

Sincerely yours,

Geo. S. Groves

George S. Groves, President
American Mining Company

February 16, 1953

Mr. Schmidt
Department of the Interior
Defense Minerals Exploration Administration
Washington 25, D. C.

DMEA-752

COPY

Dear Mr. Schmidt:

About three or four months ago we made application for a D.M.E.A. loan for $25,000 on the Pewabic property. I have heard nothing from the Denver D.M.E.A.'s office, and today I called at their office and was informed that they had sent this application down to Washington, so I presume it went to your office. Inasmuch as this matter has been pending for such a long period of time, I would appreciate you trying to find this application and having it returned to the Denver office with your comments, as soon as possible.

Very truly yours,

ATOMIC ENERGY URANIUM, INC.

By

George S. Groves,
President

GSG/S

CC: Mr. Mithendorf

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
February 17, 1953

Memorandum

To: Executive Officer, Field Team, Region IV

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

Subject: DMEA 2752 (Uranium), Atomic Energy Uranium, Inc. (Pewabic-Iron mine), Gilpin County, Colorado

Please find enclosed the original and ten copies of the "Summary, Conclusions, and Recommendations", by Frank J. Belina and D. R. MacLaren, and of Belina's engineering report on the subject docket.

Belina concludes the applicant's request for reconditioning the Iron shaft to make it satisfactory in all respects for a full-scale mine operation is not necessary and also considers rehabilitation of the mine workings below the third level in the same category. He does, however, consider the pitchblende showing in a crosscut and drifts on the third level west of the shaft merit a limited amount of exploration. He recommends a minimum amount of shaft repair, sufficient to permit safe passage of men up and down the manway and lowering supplies through the hoisting compartment, and preparation of the third level to allow for dumping waste from 150 feet of drifting and 75 feet of raising in old stopes below the level. The cost of this work is estimated at $9,815.00.

I concur with his conclusions and recommendations.

The proposed program may not be acceptable to the applicant as it is suspected Atomic Energy Uranium, Inc., may intend to utilize the present interest in uranium for obtaining financial aid for subsequent mining operations in the event immediate project results are negative. If such proves to be the case, denial of this application is recommended.

W. M. Traver

W. M. Traver

enclosures

cc 10
DMEA 2752
Chron

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.
200 New Customhouse
Denver 2, Colorado

February 10, 1953

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 2752, Atomic Energy Uranium, Inc., Powable-Iron Mine, Gilpin County, Colorado.

Attached are 10 copies of the geological report by D. R. MacLaren, and the Summary, Conclusions, and Recommendations, by F. J. Bailne and D. R. MacLaren, covering DMEA Docket 2752, Atomic Energy Uranium, Inc., Powable-Iron Mine, Gilpin County, Colorado.

The applicant proposes to explore an occurrence of pitchblende on the 300-foot level of the mine, and to unwater and rehabilitate the lower levels of the mine to prospect for other possible occurrences of pitchblende.

The rocks in the mine are pre-Cambrian gneiss and schist intruded by granite pegmatites and early Tertiary? bostonite dikes and sills. Veins in the mine carry pyrite, galena, hematite, sphalerite, silver, and gold, in a gangue of quartz. The veins have been extensively developed and mined through the iron shaft.

Pitchblende has been found on the 300-foot level, the only accessible level at the time of examination, at 2 places. MacLaren points out that there is no evidence of any other occurrences of pitchblende other than that found, and that any ore body discovered will probably be small, as are all the pitchblende ore bodies so far discovered in this district. He concludes that the known pitchblende occurrence warrants some exploration, but recommends that a minimum amount of rehabilitation of the 300-foot level be done. He also recommends that rehabilitation of the mine below the 300-foot level be held in abeyance, pending results of work on the 300-foot level.

I concur in this recommendation.

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

Enclosures (10)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

GCS
11/5/53

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 2752, Atomic Energy Uranium, Inc.

Pewabic-Iron Mine

Gilpin County, Colorado

Uranium

Frank J. Belina, Mining Engineer
Bureau of Mines

D. R. MacLaren, Geologist
U. S. Geological Survey

February 13, 1953

Reviewed by
DMEA OPERATING COMMITTEE
3-2-53
(date)

DMEA 2752

ATOMIC ENERGY URANIUM, INC.
PENABIC-IRON MINE
GILPIN COUNTY, COLORADO

Summary, Conclusions, and Recommendations

By Frank J. Belina
Mining Engineer
Bureau of Mines

and

D. R. MacLaren
Geologist
U. S. Geological Survey

DMEA 2752

ATOMIC ENERGY URANIUM, INC.
PEWABIC-IRON MINE
GILPIN COUNTY, COLORADO

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By Frank J. Belina and D. R. MacLaren

Atomic Energy Uranium, Inc., of Denver, Colo., has applied to the Defense Minerals Exploration Administration for assistance to explore for uranium in the Pewabic-Iron mine, Gilpin County, Colo. The applicant proposes to spend $27,770.00 (Government participation--$24,993.00) to explore an exposure of pitchblende on the third level and to unwater and rehabilitate the lower levels of the mine to prospect for other possible occurrences of pitchblende.

An examination of the mine disclosed that the occurrence of pitchblende on the third level warrants limited exploration, provided that the preliminary rehabilitation work can be kept down to a moderate cost and that the work proposed below the third level is not warranted at the present time.

It is recommended that the original proposal as presented by the applicant be modified to allow for:

(1) Repair of the Iron shaft from surface to the third level only to the extent that it will serve as a safe manway, installation of air and water lines, and provision for lowering supplies through the hoisting compartment with a tugger hoist.

(2) Repair of the main drift west from the Iron shaft on the third level only to the extent that it will be a safe passage-way for the men to and from the site of their work.

(3) Drifting up to a maximum of 150 feet on the pitch-blende occurrence shown on the plan maps.

(4) Raising up to a maximum of 75 feet on the best showing developed by the drifting.

It is estimated that the cost of the modified program will be $9,815.00 (Government participation--$8,833.50).

PEWABIC-IRON MINE
GILPIN COUNTY, COLORADO

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Atomic Energy Uranium, Inc., of Denver, Colorado, has applied to the Defense Minerals Exploration Administration for assistance to explore for uranium in the Pewabic-Iron Mine, Gilpin County, Colorado. The applicant proposes to spend $27,770 (Government's share $24,993) to explore an exposure of pitchblende on the 300 foot level and to unwater and rehabilitate the lower levels of the mine to prospect for other possible occurrences of pitchblende.

An examination of the mine disclosed that the work proposed below the 300 foot level is not warranted at the present time, but that the occurrence of pitchblende on the 300 foot level warrants limited exploration provided that the preliminary rehabilitation work can be kept down to a moderate cost.

It is recommended that the original proposal as presented by the applicant be modified to allow for repair work only sufficient to provide a safe passageway through the shaft and the Iron drift to the site of the exploration, and to allow for 150 feet of drifting and 75 feet of raising on the pitchblende bearing vein. It is estimated that the cost of the modified program will be $9,815.00 (Government's share $8,833.50).

ATOMIC ENERGY URANIUM, INC.

PEWABIC-IRON MINE

GILPIN COUNTY, COLORADO

DMEA DOCKET 2752

Geologic Report

By D. R. MacLaren
U. S. Geological Survey

PEWABIC-IRON MINE
GILPIN COUNTY, COLORADO

INTRODUCTION

Atomic Energy Uranium, Inc., of Denver, Colorado, has applied to the Defense Minerals Exploration Administration for assistance to explore for uranium in the Iron Mine, Russel Mining District, Gilpin County, Colorado. The mine, in sec. 23, T. 3 S., R. 73 W., is easily accessible throughout the year over half a mile of unimproved gravel road from the town of Russel Gulch, which in turn is 3 miles south of Central City on State Highway 279.

The applicant proposes to determine the extent of a pitchblende occurrence on the 300 foot level of the Iron mine by drifting 300 feet and raising 100 feet, and to unwater the lower levels of the mine to examine them for possible occurrences of pitchblende. The applicant estimates that the cost of this program will be $27,770 (the Government's share $24,993).

Engineers for the AEC and geologists for the Reconnaissance Group of the U. S. Geol. Survey have examined this property and have kindly made available to the DMEA examining team all the information on hand, much of which has been incorporated into this report. F. J. Belina, of the U. S. Bureau of Mines, and G. C. Ridland, consultant for the applicant, visited the mine on November 30, 1952, but were not able to reach the 300 foot level as some of the ladders were missing from the manway in the shaft. Ladders were installed and on January 5, 1953, D. R. MacLaren of the U. S. Geol. Survey and F. J. Belina of the U. S. Bureau of Mines accompanied by Tom Otter,

employed by the applocant, visited the mine and were able to reach the 300 foot level without difficulty.

It is concluded that:

1. The proposed work below the 300 foot level is not justified at the present time.

2. An occurrence of pitchblende in a cross-cut and drift south of the Iron vein, 525 feet west of the Iron shaft, warrants further exploration. However, because of the small size of other pitchblende bodies occurring in the district and the probability that this body will be similarly small, the preliminary expense necessary for the complete rehabilitation of 300 feet of shaft and 525 feet of drift is not warranted (see section on applicant's exhibit "B"). Therefore, it is recommended that the application as presented be denied. An alternative program, estimated by the Bureau of Mines to cost $9,815.00 (Government's share $8,833.50) is recommended for approval should it be acceptable to the applicant.

GEOLOGY

The geology of the area has been described by Bastin and Hill (1917). The rocks are pre-Cambrian gneiss and schists of the Idaho Springs formation that have been intruded by pre-Cambrian granite pegmatite and late Cretaceous or early Tertiary bostonite dikes and sills. Northeast to easterly striking fissures have been filled by veins that contain pyrite, galena, marmatite, sphalerite, silver and gold, in a gangue of quartz.

In the Iron mine three veins (fig. 2) have been producers of gold, silver, and lead ores. They are the Iron vein which strikes nearly east and west and dips from vertical to 75° S.; the Richardson vein which strikes

about N. 45° E., and dips 65°-80° S., and the Grasshopper vein which appears, on the 300 foot level, to be a continuation of the Iron vein, but which Bastin and Hill say makes a true junction with the Iron vein on the 400 foot level. These veins have been extensively developed and mined through the Iron shaft.

Pitchblende has been identified on the 300 foot level at only two locations. At the northeast end of the Richardson vein, Ridland reports that he found a small patch of pitchblende, but in conversations with a representative of the AEC he stated that he had removed the entire patch with a prospector's pick and that to his knowledge no more pitchblende was found in that area. A 55 foot cross-cut, driven south from the Iron vein 525 feet west of the Iron shaft, cut a vein 6 to 30 inches wide that is principally quartz containing varying amounts of disseminated pyrite, galena, marmatite, and chalcopyrite (?). A drift at the south end of the cross-cut has followed this vein for about 31 feet to the west and 16 feet to the east. At the west end the vein has been partially stoped above the drift, and a raise inclined to the west, now inaccessible, is of unknown height. Near the east end of the drift the vein, 2 to 8 inches wide, is quartz, pyrite, clay, and sericite, with thin laminated streaks of pitchblende, less than a quarter of an inch thick. The AEC engineers took 9 samples from the vein that show there is no uranium mineralization of any consequence west of the cross-cut (fig. 3). The U. S. Geol. Survey sampled a 0.3 foot streak at the end of the cross-cut which assayed 1.38% U_3O_8. The DMEA examining team took two check samples at locations 9 and 10.

The assays of all samples taken were:

Sample No.	Width Feet	Description	Samples taken by AEC % U_3O_8	USGS % U_3O_8	DMEA % U_3O_8
1	0.5	HW qtz, pyrite, galena, clay	.001		
2	1.9	FW qtz, pyrite	.001		
3	2.8	Qtz, pyrite,	.001		
4	1.6	HW qtz, pyrite, clay, zinc, galena	.001		
5	1.6	FW qtz, pyrite	.001		
6	2.0	Qtz, pyrite, zinc	.001		
7	0.6	Qtz, pyrite, clay	.001		
8	1.5	Qtz, pyrite	.002		
9	0.6	Qtz, pyrite, pitch-blende	2.02		.012(0.6')
10	0.3	Qtz, pyrite, pitch-blende		1.38	.067(2.2')

The weighted average of the two samples at location 9 is 0.6 feet at 1.07% U_3O_8 and at location 10 is 1.25 feet at .224% U_3O_8.

MINE DEVELOPMENT

The Iron shaft has been driven on the Iron vein to a depth of 700 feet, and seven levels have been turned at depths of 120, 250, 300, 400, 500, 600, and 700 feet. At present only the 300 foot level is accessible as the upper levels are caved at the shaft and the lower levels are flooded. Normally the water level stands about 15 feet above the 400 foot level, but during the spring thaws excessive seepage from the surface raises the water level to, and sometimes above, the 300 foot level. Drainage from the normal water level is said to be through a diamond drill hole, EX size,

near the Becky Sharp shaft, into the workings of the Old Town mine which is connected with the Argo tunnel.

On the 300 foot level (fig. 2) the Iron vein has been followed about 880 feet west and 190 feet east of the shaft. From the east end of the Iron vein the Richardson vein has been followed 550 feet northeast and the Grasshopper vein has been followed 250 feet east. A cross-cut, driven south from the Iron vein about 45 feet east of the shaft, cuts two easterly striking veins. One of these, the Mars, also known as the Golden Opportunity, vein has been followed for 185 feet. A second cross-cut south from the Iron vein has been described in the section on geology.

CONCLUSIONS

It is concluded that at the present time there is no evidence of pitchblende other than that in the cross-cut and drift south of the Iron vein 525 feet west of the shaft, and that therefore the rehabilitation proposed below the 300 foot level is not yet justified. It is also concluded that the known pitchblende occurrence warrants further exploration, but it is likely that any ore body discovered will be small as are all other pitchblende bodies so far discovered in this district. Therefore, complete rehabilitation of the Iron shaft from the surface to the 300 foot level, and of the Iron drift from the shaft to the cross-cut will be too costly to be justified.

RECOMMENDATIONS

It is recommended that the minimum amount of shaft repair work be done to make the manway safe and the skipway serviceable for the handling of

supplies, and that only sufficient retimbering be done in the drift to make it a safe passageway. It is also recommended that the pitchblende showing be followed for 150 feet on the level and that 75 feet of raise be driven to test the vertical extent of the pitchblende shoot. The location of the raise should be determined after completion of the drift, or at least after the east limit of the shoot has been determined. A large open stope in the Iron vein below the level, 30 feet west of the cross-cut, can be used for disposal of development muck thus making it unnecessary to lay track the full 525 feet to the shaft and hoisting muck to the surface. The Bureau of Mines estimates that the cost of this curtailed program will be $9,815.00, the Government's share $8,833.50. Should this curtailed program be acceptable to the applicant, it is recommended that it be approved. In any case, it is recommended that the original program as presented in the application be denied.

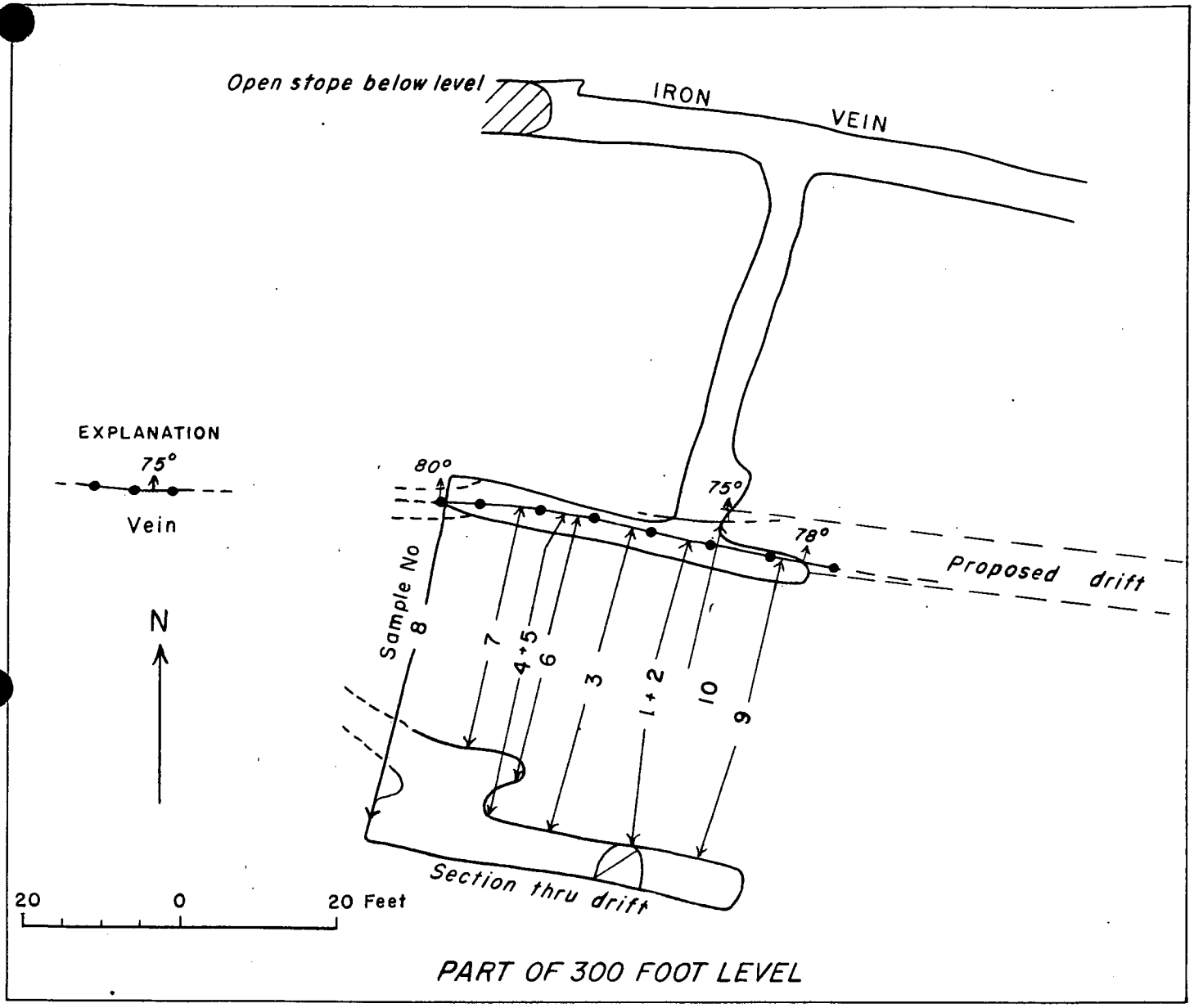
REFERENCES

Bastin, E. S., and Hill, J. M., U. S. Geol. Survey Prof. Paper No. 94; Economic geology of Gilpin County and adjacent parts of Clear Creek and Boulder Counties, Colo., 379 pp., 23 pls., 1917.

Anderson, T. P., and Towle, C. C., Atomic Energy Commission RMO 634; Investigation and recommendation for the exploration of an uranium occurrence in the Iron mine, Russel Gulch, Gilpin County, Colo., 7 pp., 2 sketches, 1951.

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

DMEA DOCKET NO. 2752.



By D. R. MacLaren after C. C. Towle January 1953.

FIGURE 3. PLAN SHOWING GEOLOGY AND LOCATIONS OF SAMPLES, IRON MINE, GILPIN COUNTY, COLORADO.

DMEA 2752

ATOMIC ENERGY URANIUM, INC.
PEWABIC-IRON MINE
GILPIN COUNTY, COLORADO

GCL
11/5/53

Engineering Report

By Frank J. Belina
Mining Engineer
Bureau of Mines

DMEA 2752

ATOMIC ENERGY URANIUM, INC.
PEWABIC-IRON MINE
GILPIN COUNTY, COLORADO

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ILLUSTRATIONS

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2. Plan showing level workings and proposed exploration drift, Iron mine, Gilpin County, Colorado	*
3. Plan showing geology and locations of samples, Iron mine, Gilpin County, Colorado	*

* See figure following geological report

DMEA 2752

ATOMIC ENERGY URANIUM, INC.
PEWABIC-IRON MINE
GILPIN COUNTY, COLORADO

ENGINEERING REPORT

By

Frank J. Belina

INTRODUCTION

Atomic Energy Uranium, Inc., 405 Interstate Trust Building, Denver 2, Colo., has applied for a Defense Minerals Exploration Administration loan in the amount of $27,770.00. The corporation proposes to rehabilitate the shaft and workings of the Iron (Pewabic) mine, Russell Mining District, Gilpin County, Colo., to explore an exposure of pitchblende on the third level, and to examine and sample the workings below the third level for similar occurrences.

An attempt was made to examine the mine workings on November 28, 1952. At that time it was impractical to descend below the second level of the shaft because of the unsafe condition of the manway. The applicant corrected this condition and the open workings on the third level were examined on January 5, 1953.

ACKNOWLEDGMENTS

Dr. G. C. Ridland, the applicant's consultant, acted as guide during the first visit to the property. Thomas L. Otter, of Idaho Springs, repaired the shaft manway and served as guide during the examination on January 5, 1953.

The geology of the district and the lower workings of the mine are described in U. S. Geological Survey Professional Paper 94 (1917), by Bastin and Hill. The field work for this report was done at a time when all the mine workings were accessible and can be relied on for detail that is not available to the present-day observer. Information from this paper was used freely in the preparation of this report.

Personnel from the Atomic Energy Commission investigated the property in 1951. Their report was made available to the Bureau of Mines and was used in evaluating the evidence of radioactivity on the third level.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The Iron is one of several claims that comprise the Pewabic group. They are located on the south side of Russell Gulch in sec. 23, T. 3 S., R. 73 W., Gilpin County, Colo. (fig. 1). A short unimproved road to the Iron shaft branches from Colorado State Highway 279 at a point 3 miles southwest of Central City or 2-1/2 miles north of Idaho Springs.

The claims lie in an area of relatively gentle relief at an average altitude of 9,150 feet. The general area has been the scene of intense mining activity in the past and the landscape is scarred by old dumps and abandoned workings.

The climate is temperate, with a mean annual temperature of 38° F. Snowfall is not excessive and mining operations are carried out throughout the year.

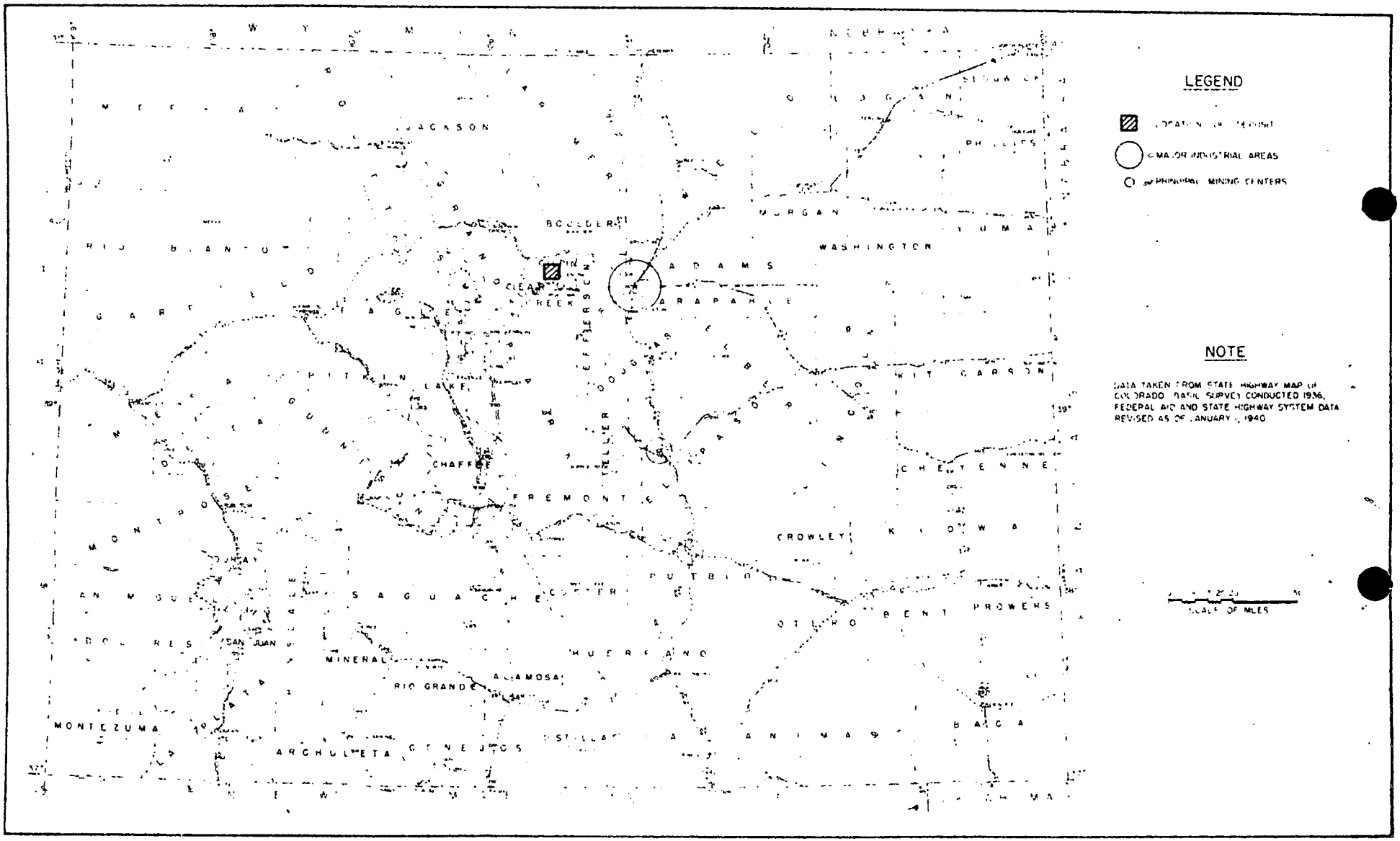

FIGURE 1 - LOCATION MAP, PEWABIC-IRON MINE, ATOMIC ENERGY URANIUM, INC., GILPIN COUNTY, COLORADO (DMEA 2752)

Water for mining purposes and electric power are available at the collar of the Iron shaft. Denver, 35 miles east, is the main supply center.

HISTORY AND PRODUCTION

The district has a production record dating back to 1859 when placer gold was discovered in Russell Gulch. Reliable production figures give a value of $95,000,000 to the metal produced from Gilpin County mines during the years 1859-1914, which was the period of the most intense activity. Ninety-five percent of the value of the ores has been from the precious metals. The bulk of the production has come at shallow depths from the exploitation of a large number of high-grade small veins under separate ownership.

Pitchblende was first identified in the ores of the district in 1871. Production in small lots of high-grade material has been recorded from several of the mines during the period 1872-1916.

OWNERSHIP AND EXTENT

The applicant corporation represents itself to be the owner of the property on which it requests financial aid to carry out exploration work. Apparently the title is held in trust, subject to the terms of a note for $55,000.00, payable to C. P. Griffith and L. D. Burt as surviving directors and trustees of Pewabic Mining and Milling Company. A payment of $5,000.00 becomes due on March 15, 1953, and full payment of the balance is due on or before May 15, 1957. The details and present status of this mortgage should be carefully studied before any commitments are made.

The position of the pitchblende exposure on the third level from the Iron shaft relative to the property lines has not been exactly determined. Continuation of exploration work to the west on the apparent strike of the vein would pass into ground under other ownership in about 150 feet. However, work proposed in this application lies to the east of present vein exposures and will be well within the property lines as described in the loan request.

DESCRIPTION OF THE DEPOSITS

The geology and ore deposits of the district are described in detail by Bastin and Hill in U. S. Geological Survey Professional Paper 94. In the vicinity of the Iron mine, numerous steeply dipping east-west veins occur along fracture zones in a country rock of pre-Cambrian granite gneiss that has been intruded by Bostonite porphyry dikes. The Iron, which is one of the better developed veins of this system, has been exposed by mine workings through a strike length of over 1,200 feet and to a depth of 700 feet below surface. Evidence from old maps and from accessible openings in the shaft and on the third level indicates that it has been stoped through a large part of this area.

As exposed on the third level, the Iron vein strikes east-west and dips vertically to 75° south. It follows a strong fracture zone in granite gneiss. Sulfide mineralization--primarily pyrite with some chalcopyrite, and later galena and sphalerite--is disseminated in the altered gneiss in widths from a few inches up to

6 feet. Bastin and Hill comment on the mineralization as follows: "Although pyrite is the principal ore mineral, chalcopyrite and tennantite also occur in more or less pockety distribution and commonly indicate comparative richness. In most places where the ore carries over 2 ounces in gold, it also carries copper in commercial amounts (over 1.5 percent). The coarse pyrite is prevailingly of low grade, but much of the fine pyrite is fairly rich in gold." The occurrence of pitchblende is reported, but to what extent it occurred in the previously mined ore is not known. Past studies by Bastin and Hill of polished sections of the ores indicate that, "the pitchblende is contemporaneously intergrown with the same suite of minerals that characterizes the ores of the pyritic type".

Personnel from the Atomic Energy Commission traversed the accessible workings on the third level in February 1951. They found no evidence of radioactivity except in a parallel vein that on this horizon lies about 55 feet to the south of the Iron vein, but dips steeply to the north. This vein is exposed in short drifts east and west from a crosscut driven from the drift on the Iron vein at a point 525 feet west of the shaft (fig. 3 with the geological report). It pinches out in the breast of the drift to the west, where it has been stoped above to an undetermined height. In the drift to the east, the vein goes into the north wall about 4 feet back from the breast. Vein exposures in the back of the drift and in the crosscut are radioactive.

A weighted average of samples taken by the applicant's consultant over a strike length of about 30 feet assayed 0.27 percent U_3O_8 over a width of 2.7 feet. Samples in this exposure taken by personnel from the Atomic Energy Commission average 0.09 percent U_3O_8 over a width of 2.5 feet, provided that samples 9 and 10 are weighted to an over-all width of 5 feet.

The Bureau of Mines engineer took two samples as shown on figure 3 with the geological report, with the following widths and assay values:

Sample number	Width, feet	Percent U_3O_8	Ounces per ton Au	Ounces per ton Ag	Percent Pb	Percent Zn
FJB-1	0.6	0.012	0.10	1.1	0.2	<.05
FJB-2	2.2	.067	.02	.1	<.1	<.05

Note: Sample FJB-1 corresponds to AEC sample 10 and sample FJB-2 corresponds to AEC sample 9 with respect to location.

Comparison of Assays

	Width, feet	Percent U_3O_8
Bureau of Mines samples, weighted to include 2.2 feet of waste between mineralized zones	5.0	0.031
Atomic Energy Commission samples 9 and 10, weighted as above	5.0	.32
Applicant's two samples in same exposure	6.0	.27

The results of the sampling indicate a very erratic distribution of pitchblende in the mineralized zone.

MINEABLE ORE RESERVES

Too little is known about the character and extent of the pitchblende mineralization in the veins of the district to assign any reserve to the occurrence.

The applicant's engineer has sampled the vein material remaining in the old stoped areas of the Iron vein and has computed a reserve with values in gold and silver. Inasmuch as this area is not radioactive, the ore reserve is not considered to be pertinent to the investigation.

PRESENT STATUS

Exploration, Development, and Existent Equipment

The Iron mine has not been worked for some time and all equipment, including the surface plant, has been removed. According to old reports, the underground workings consist of a shaft 700 feet deep that follows the dip of the vein and seven levels cut at irregular intervals.

The shaft is open and in fair shape down to the third level, 298 feet below the collar. It has two compartments and averages 5 by 8 feet in cross section inside the timber. It is timbered with solid cribbing down to a point 32 feet below the collar. This cribbing is still sound and in good shape. Below this point the shaft is timbered with three rows of stulls on an average of 5-foot centers. Most of the stulls are still in place and in fairly sound condition. The lining boards in the skip compartment are all loose and many of them are missing. The bucket skids are all loose and

are missing in the interval from 270 to 298 feet below the collar. The vein has been stoped directly off both ends of the shaft through much of the interval between the cribbed section and the third level. In these stoped sections, the ends of the shaft have been lagged off. Much of this lagging is rotted and loose, and the stope fill and loose slabs they retain are definite and serious hazards. The shaft is partially blocked with debris below the third level and the elevation of the water could not be determined, but all the lower levels are reported to be flooded. Most of the stulls appear to be still in place to a point at least 75 feet below the third level.

The first and second level drifts are choked with fill directly off the shaft and are inaccessible.

The workings on the third level are practically all still open and lie as shown on figure 2 with the geological report. The vein has been stoped throughout much of this area, both above and below the level. In some cases the back of the main drift has been stulled to support the fill, but open sections both above and below the level are hazards to safe passage.

PROJECT PROPOSALS, WITH COSTS

The applicant proposes to:

(1) Unwater and rehabilitate the Iron shaft to the bottom (700 feet).

(2) Clean up and lay track on the third level, west of the Iron shaft.

(3) Drift east 150 feet on the pitchblende-bearing vein on the third level from a point 525 feet west of the Iron shaft.

(4) Drift west 150 feet, same location.

(5) Raise 100 feet on the pitchblende vein, location to be chosen after completion of (3) and (4).

(6) Clean up and rehabilitate any caved drifts below the third level in order to examine lower workings for pitchblende exposures.

(7) Examine, sample, and map levels below the third level.

The applicant's estimate of the cost of labor and supplies for this work is $27,770.00.

Any shaft rehabilitation work under item (1) below the third level and all of items (6) and (7) are considered to be beyond the scope of the Defense Minerals Exploration Administration program. Even if this type of work was allowable, the net contribution to the fund of knowledge regarding pitchblende mineralization in the district would be negligible. The possibility that the applicant is attempting to use the current interest in uranium to subsidize a later gold mining operation should be considered.

Direct exploration work on a definite, even though small, occurrence of primary uranium, such as shown in illustrations, can be considered in a different light, provided that the expenditure for "dead work" can be held to a reasonable figure. The determination of the extent and grade of mineralization would assist in evaluating similar occurrences and thus help to determine the production potential of the district.

If the applicant will agree to a revised program pointed toward a definite target, the following work can be recommended:

(1) Repair the Iron shaft from surface to the third level to the extent that it will serve as a safe manway, install air and water lines, and make it safe for lowering supplies through the hoisting compartment with a tugger hoist.

(2) Repair the main drift west from the shaft on the third level only to the extent that it will be a safe passageway for the men to reach the site of the work. The track will not be replaced; the men can carry their tools and supplies.

(3) Drive a drift with a maximum 5-by 7-foot cross section east on the pitchblende occurrence shown on the plan maps. The length of the drift shall depend on the persistence of the vein. A maximum length of 150 feet is recommended and is used for cost computation purposes. Light rail can be laid in the crosscut and the muck from drifting dumped in the open holes to stopes west of the crosscut along the main drift below the third level.

(4) Drive a raise with a maximum 4- by 8-foot cross section on the best showing developed by the drifting if mineralization found justifies such work. Muck disposal can be the same as in (3), and here, too, the length of the raise should depend on the persistence of the pitchblende mineralization in vein. A maximum length of 75 feet is suggested.

The work can be done by a two-man crew; one of the men will be designated as lead man and paid a higher rate. The $16.25 per man-shift used in the cost estimates is an average figure computed from a base rate of $1.75 per hour for miner and $2.00 per hour for lead

miner, for a 48-hour work week. The employer's share of the social security and workman's compensation is considered separately under miscellaneous items.

ESTIMATED PROJECT COSTS

Rehabilitation
(Time required: 1-1/2 months)

New Facilities and Fixtures		none
Operating Equipment		
Depreciation	none	
Purchase	none	
Rental		
Compressor, $225.00 per month, 1-1/2 months	$337.50	
Tugger hoist, $75.00 per month, 1-1/2 months	112.50	$ 450.00
Labor		
Shaft repair, 30 man-shifts at $16.25 per shift	$487.50	
Drift, 12 man-shifts at $16.25 per shift	195.00	
Track, 4 man-shifts at $16.25 per shift	65.00	
Pipe, 16 man-shifts at $16.25 per shift	260.00	
Miscellaneous, 4 man-shifts at $16.25 per shift	65.00	1,072.50
Operating Materials and Supplies		
Timber		
Shaft, 6,000 board feet at $80.00 per thousand	$480.00	
Drift, 2,000 board feet at $80.00 per thousand	160.00	
Track, 100 feet, 12-pound, including ties, et cetera	115.00	
Pipe		
900 feet, 2-inch at $0.65 per foot	585.00	
900 feet, 1-inch at $0.35 per foot	315.00	1,655.00
Miscellaneous, including social security, compensation, bookkeeping, et cetera		175.00
Power for compressor to provide air for tugger hoist		147.50
Total rehabilitation		$3,500.00

Exploration
Unit Footage Costs

(Estimated completion time for drifting and raising: 3-1/2 months, single-shift basis)

New Facilites and Fixtures		none
Operating Equipment		
Depreciation		none
Purchase		none
Rental	Per month	
Compressor	$225.00	
Tugger hoist	75.00	
Jackhammer and jackleg	75.00	
Bit grinder	25.00	
Mine car	10.00	
	$410.00	
Rental - 3-1/2 months		$1,435.00
Cost per foot, 150 feet of drifting and 75 feet of raising		6.38

Drifting

		Per foot
Labor, 1.5 feet per man-shift, $16.25 per shift		$10.83
Technical services - engineer and geologist		1.00
Equipment rental		6.38
Supplies	Per foot	
Explosives	$4.30	
Track	.75	
Pipe	1.00	
Bits, steel, tools	1.00	7.05
Power		1.25
Miscellaneous, compensation, social security, bookkeeping, et cetera		.50
		$27.01

Total drifting, 150 feet at $27.00 per foot — $4,050.00

Raising

		Per foot
Labor, 1.25 feet per man-shift, $16.25 per shift		$13.00
Technical services - engineer and geologist		1.00
Equipment rental		6.38
Supplies	Per foot	
Timber	$2.12	
Explosives	4.30	
Pipe (50 feet only)	.65	
Bits, steel, tools	1.00	8.07
Power		1.25
Miscellaneous, compensation, social security, bookkeeping, et cetera		.50
		$30.20

Total raising, 75 feet at $30.20 per foot — 2,265.00

Total cost of project — $9,815.00

Government participation - 90 percent — $8,833.50

SUMMARY

A revised program, if acceptable to the applicant, that would reduce the rehabilitation work to a minimum and still serve to explore the occurrence of pitchblende on the third level of the Iron mine could be carried out for an estimated cost of $9,815.00. Of this amount, $3,500.00 would be a rehabilitation charge necessary to prepare the mine for exploration of the pitchblende occurrence. The remaining $6,315.00 is the estimated cost of the exploration work necessary to evaluate the occurrence properly.

CONCLUSIONS

Certain items of work proposed in the loan application--namely, to unwater and rehabilitate the Iron shaft below the third level and to rehabilitate, map, and sample the lower workings for pitchblende--are considered to be beyond the scope of the Defense Minerals Exploration Administration program. Exploration work to delimit the lateral and upward extension of the pitchblende occurrence on the third level can be justified to the extent that it will aid in evaluating similar occurrences and thus contribute toward establishing a production potential for the district.

RECOMMENDATIONS

It is recommended that the application in its present form be denied on the bases that large-scale rehabilitation programs directed toward vague targets are beyond the scope of the Defense Minerals Exploration Administration program and that only a small portion of the funds requested would be spent for work that would be a direct contribution toward evaluating pitchblende occurrences in the district.

If the applicant wishes to participate in a program that will reduce the rehabilitation work to a minimum required for safe mining practice and confine the work to a definite target, the revised program outlined in this report can be recommended at a total over-all cost of $9,815.00, with Government participation $8,833.50. A short-form contract is suggested.

cb

700 FILE COPY
SURNAME:

Ell.
Schmidt
Mello

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

FEB 2 0 1953

Mr. George S. Groves, President
Atomic Energy Uranium, Inc.
405 Interstate Trust Building
Denver 2, Colorado

BH.

Re: Docket No. DMEA-2752 (Uranium)
Pewabic and Iron Mines
Gilpin County, Colorado

Dear Mr. Groves:

This will acknowledge receipt of your letter dated February 16, 1953, addressed to Mr. F. Sommer Schmidt of this Division. Since your letter refers to the "Pewabic property" it is assumed that the subject application, which was filed under the name of the Atomic Energy Uranium, Inc. and docketed under the above number, is the one to which you refer.

This application is not being processed in the Washington Office though a copy of the application is on file here. However, it is being handled in the office of the DMEA Field Team, Region IV, at Denver, Colorado, under the delegation of authority given that Region to process exploration applications in which the Government's share of the cost does not exceed $25,000.00.

It is our understanding that the Iron shaft was made available for inspection to the 300-foot level and that an examination of the 300-foot level was made in January. Therefore, it is suggested that you contact the Region IV office and you will undoubtedly receive the information you are seeking.

Sincerely yours,

SIGNED

BH. 2/20/53

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

EWEllis/gla
2-19-53
cc to: Adm. Reading File
Docket
Mr. Ellis
DMEA Field Team, Region IV (2)

ATOMIC ENERGY URANIUM INC.

405 INTERSTATE TRUST BUILDING · DENVER 2, COLORADO
TELEPHONE KEYSTONE 0583

February 16, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 18 1953

Mr. Schmidt
Department of the Interior
Defense Minerals Exploration Administration
Washington 25, D. C.

DMEA - 2752

Dear Mr. Schmidt:

About three or four months ago we made application for a D.M.E.A. loan for $25,000 on the Pewabic property. I have heard nothing from the Denver D.M.E.A.'s office, and today I called at their office and was informed that they had sent this application down to Washington, so I presume it went to your office. Inasmuch as this matter has been pending for such a long period of time, I would appreciate you trying to find this application and having it returned to the Denver office with your comments, as soon as possible.

Very truly yours,

ATOMIC ENERGY URANIUM, INC.

By Geo S. Groves

George S. Groves,
President

GSG/S

CC: Mr. Mithendorf

Taken from Region IV January, 1953, status report

DMEA-2752 - Atomic Energy Uranium, Inc. (Pewabic and Iron mines) (Uranium), Gilpin County, Colo.

A field examination was attempted on November 28, 1952, but the shaft was found to be in an unsafe condition and a number of the ladders were missing below the 225-foot level.. The applicant reconditioned the shaft and an examination was made January 5, 1953. A modified program of exploration will be recommended and reports are in preparation.

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

BV

224 New Customhouse
Denver 2, Colorado

December 11, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 15 1952

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 2752 (Uranium), Atomic Energy Uranium, Inc. Pewabic and Iron mines, Gilpin County, Colorado

Enclosed is a copy of a memorandum from Frank J. Belina, Bureau of Mines engineer, to the Chief of the Colorado Branch, Mining Division, and a copy of a memorandum from D. R. MacLaren, Geologist, U.S. Geological Survey, and Frank J. Belina, Mining Engineer, to the Field Team, Region IV, regarding their visit to the Pewabic and Iron mines. Also enclosed is a copy of our letter to George S. Groves, President, Atomic Energy Uranium, Inc.

These copies are being sent to you for your information because Mr. Groves probably will be requesting information from the Washington office regarding his application.

W. H. King
W. H. King

Enclosures

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

224 New Customhouse
Denver 2, Colorado

December 11, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 16 1952

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 2752 (Uranium), Atomic Energy Uranium, Inc. Pewabic and Iron mines, Gilpin County, Colorado

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These copies are being sent to you for your information because Mr. Groves probably will be requesting information from the Washington office regarding his application.

W. H. King
W. H. King

Enclosures

C O P Y

224 New Customhouse
Denver 2, Colorado

December 9, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 15 1952

Mr. George S. Groves
President
Atomic Energy Uranium, Inc.
405 Interstate Trust Building
Denver 2, Colorado

Dear Mr. Groves:

This will acknowledge your letter of November 28 regarding the inability of our engineers to examine the Pewabic property because of the condition of the shaft.

Please let us know when the shaft is in condition for our engineers to proceed with their examination.

Very truly yours,

/s/ W.H. King

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

cc: W.M. Traver, Jr.
A.H. Koschmann (2)
Sub
Chron

WHK:bh

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
December 2, 1952

Memorandum

To: Field Team, Region IV

From: D. R. MacLaren
F. J. Belina

Subject: DMEA 2752 (Uranium), Atomic Energy Uranium, Inc., Pesabic and Iron mines, Gilpin County, Colorado

Arrangements were made with G. C. Ridland, consultant to the subject applicant, for an examination of the Iron mine on November 28, 1952. However, after arriving at the property and starting down the Iron shaft, which is the only means of access to the 300-foot level, it was found that the shaft was inaccessible below a point about 225 feet from the collar because several of the ladders were missing. For this reason it was impossible to make any examination of the condition in the mine below this point.

Until the 300-foot level has been made accessible no cost estimates can be made or possible alternative programs considered, and, therefore, no conclusions can be reached or recommendations made.

Donald R. MacLaren

D. R. MacLaren, Geologist,
U. S. Geological Survey

F. J. Belina, Mining Engineer
Bureau of Mines

F. J. Belina

DRM/cb

cc WHKing (2)
Gen
Chron
DRMacLaren (2)

Region IV

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
December 2, 1952

Memorandum

To: Chief, Colorado Branch, Mining Division, Region IV

From: Frank J. Belina

Subject: DMEA 2752 (Uranium), Atomic Energy Uranium, Inc., Pewabic and Iron mines, Gilpin County, Colorado

The subject property was visited on November 28, 1952. I was accompanied by Wilbert Dare of the Bureau of Mines and Dr. G. C. Ridland, whom I understand is consultant for Atomic Energy Uranium, Inc.

The Iron shaft, which is the means of access to the pitchblende occurrence on the 300-foot level, was found to be inaccessible beyond 225 feet below the shaft collar. Several of the manway ladders had rotted out and fallen into the sump or been removed.

The surface plant has been removed from the property. The headframe timber is still sound. The shaft is vertical to a point about 50 feet below its collar and then dips south at 75 to 80 degrees. It is two compartment and cribbed solid from the collar to a point about 50 feet below surface. The cribbing is still sound and gives adequate support. The shaft timber below the cribbing consists of three rows of round stulls on 5-foot centers with spreaders to support the ladders and bucket skids. The vein has been stoped directly off both ends of the shaft from a point directly below the cribbed section down as far as we were able to descend. Sluff rock and sorted waste has been lagged off from the shaft with pole lagging, which is now in poor shape and gives inadequate protection to the manway and skip compartments. Several loose slabs on the hanging wall of the shaft should be barred down to provide a safe passageway.

Dr. Ridland was advised that no action could be taken on the application until such time as the remainder of the shaft, the 300-foot level, and the reported pitchblende occurrences on the 300-foot level are made accessible for inspection by a DMEA examining team.

Frank J. Belina
Mining Engineer

FJB/cb

cc WHKing (2)
DMEA 2752
Chron

Onea-2752

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

224 New Customhouse
Denver 2, Colorado

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
OCT 27 1952

October 24, 1952

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: 210

From: Executive Officer, Field Team, Region IV

Subject: Docketing for Exploration Assistance

Enclosed herewith in duplicate is DMA Form 3a and Form MF-103 in triplicate and supporting data pertaining to the following application for Government assistance in exploration work.

Atomic Energy Uranium, Inc.
405 Interstate Trust Bldg.
Denver, Colorado

W. H. King
W. H. King

Enclosures

MF-10
(Revised April 1952)

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
OCT 27 1952

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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

Not to be filled in by applicant

Docket No. Dmea-2752
Metal or Mineral
Date Received 10-27-52
Estimated Cost
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: ATOMIC ENERGY URANIUM, INC.,
405 INTERSTATE TRUST BUILDING,
DENVER 2, COLORADO.

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

(*c*) If a corporation, add to above statement, titles, names and addresses of officers.
(*d*) If a partnership, add to the above statement the names and addresses of all partners. } See attached sheet

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

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

(*b*) State any mine name by which the property is known. Pewabic Mine, Iron Mine

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

(*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. Owner

(*e*) If you own the land, describe any liens or encumbrances on it Mortgage, copy attached as Exhibit "A"

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

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

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

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

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

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

5. *The exploration project.*—(*a*) [redacted]te the mineral or minerals for which you wi[redacted] explore

Pitchblende (Uranium)

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

(*c*) The work will start within 60 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 attached sheet**

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

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

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

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

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

(*e*) *Rehabilitation and repairs.*—Furnish a detailed list showing the cost of any necessary initial rehabilitation or repairs of existing buildings, installations, fixtures, and movable operating equipment, now owned by the Operator and which will be devoted to the exploration project.

(*f*) *New buildings, improvements, installations.*—Furnish a detailed list showing the cost of any necessary buildings, fixed improvements, or installations to be purchased, installed or constructed for the benefit of the exploration project.

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

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

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

7. (*a*) Are you prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation (Sec. 7, DMEA No. 1)? **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 OCT 9 1952, 1952

ATOMIC ENERGY URANIUM, INC.,
(Applicant)

By Mabel N. Scott
Secretary

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

APPLICATION FOR AID IN AN EXPLORATION PROJECT,

PURSUANT TO DMEA ORDER 1,

UNDER THE DEFENSE PRODUCTION ACT OF 1950, AS AMENDED.

1. Name of Applicant:

(a) Atomic Energy Uranium, Inc.,
405 Interstate Trust Building,
Denver 2, Colorado.

(b) A Delaware corporation

(c) George S. Groves, President and Director,
Box 126, Goodsprings, Nevada.

C. Hammond Burton, Vice President and Treasurer and Director,
225 Northway Road, Baltimore, Maryland.

Mable N. Scott, Secretary,
405 Interstate Trust Building,
Denver 2, Colorado.

N. D. Miller, Director,
423 East Baltimore Street,
Baltimore, Maryland.

3. Applicant's property rights: (Claim Map Attached)

(a) The following lode mining claims located in Russell Mining District, Gilpin County, Colorado, in Sec. 23, T. 3 S., R. 73 W:

Name of Claim	U. S. Survey No.
Pewabic and Millsite (Except that portion that conflicts with No. 857)	125
Pewabic and millsite	126
Pewabic	560
William Richardson	233
Bangor	571
Iron	572
Bobtail	573
Grasshopper	853
Eighty-Three	874
Eighty-Four	5141
Bloomfield	5720
Croesus	12988
Croesus Extension	12988
Congressional	17147
Senatorial	17147
Rose Bud	16963

Also Water Right specially reserved upon the incidental Placer Tract "B", U. S. Survey No. 858.

(b) Pewabic Mine
Iron Mine

(c) Owner

(d) Owner

(e) Mortgage, copy attached as Exhibit "A".

4. Physical description:

The applicant is successor to Gold Uranium Mining Company who originally obtained the contract to purchase the property. Gold Uranium Mining Company, as Lessee, rehabilitated one of the shafts, the Iron, to the 3rd level and gained access to the third level for examination purposes. A report of this examination, prepared by G. C. Ridland, is attached as Exhibit "B".

No mining or exploration operation is in progress at this time.

The only part of the mine workings of the property that is accessible is the Iron shaft and the 3rd level of the Iron mine.

(b) Past Production: From U.S.G.S. Prof. Paper 94, page 255:

"The Iron and Pewabic mines being under one management and carrying ore entirely similar in character, the tenor and production of the two may be considered together. Records of shipments show that the smelting ore shipped from February 19, 1910, to December 28, 1910, had an average value of $58.40 per ton. The poorest shipment showed 0.14 ounce in gold and negligible amounts of other metals; the richest showed gold, 10.47 ounces; silver 15.25 ounces; and copper, 11.65 per cent.

"One shipment which approaches the average in value showed gold, 2.62 ounces; silver, 5.75 ounces; and copper, 1.55 per cent. The average value of the concentrating ore is stated to be about $11 per ton, mainly in gold."

"The gross production of the Iron and Pewabic mines from 1904 to 1910, inclusive, was $526,000. The production before this period is estimated at $1,500,000 to $2,000,000."

Current production: None

Ore reserves: Only information that the applicant has on ore reserves is contained in G. C. Ridland's report, Exhibit "B", for the 3rd level of the Iron mine, page 6. Ore in place, 7,310 tons; broken, 2,620 tons; dump, 9,900 tons. Please see page 6, Exhibit "B" for grade.

Atomic Energy Uranium, Inc.,
405 Interstate Trust Building,
Denver 2, Colorado.

4. Physical description: Cont'd.

(c) Geological Features:

Pre-Cambrian granite-gneiss on the property is fractured and fissure veins in fractures carry values in gold, lead, zinc, silver and uranium. At a point 525 feet west of the Iron shaft, 3rd level, a crosscut extends south a distance of 25 feet. It intersects a vein 6 feet wide approximately paralleling the Iron vein and containing stringers and globs of a hard, solid variety of pitchblende.

A channel sample across the vein was broken in two parts. The first over 44 inches returned 0.38% U_3O_8 and the second, an extension of the first, over 28 inches returned 0.10%. A short drift along one wall of the vein exposes pitchblende almost continually along the drift. The vein is open at both ends of the drift. The applicant proposes:

1. To determine the size of the pitchblende ore body by extending the drift in both directions and by raising on the occurrence.

2. Unwater the lower levels of the Iron mine and examine the remaining accessible workings for other pitchblende occurrences.

Further geological features are given in U. S. G. S. Prof. Paper 94, pages 123, 124, 125, 254, 255 and 256, photostat copies attached as Exhibit "C". Maps are included with the Geological Report 41, Exhibit "A".

(d) Accessibility:

The property is on Colorado State Route 279, a gravel road connecting Central City two miles northeast of the property and Idaho Springs, 2½ miles south of the property. Denver, the main supply point, is 35 miles east of the property.

(e) Manpower, Materials, Supplies, Equipment, Water and Power:

Manpower - available locally. Supplies, equipment and material - available in Central City, Idaho Springs and Denver. Water is available from mine drainage. Power - electric power, connected at the Iron and Rowabic shafts, is available in any desired amounts from the Public Service Company of Colorado.

5. The Exploration Project:

(a) Pitchblende (Uranium)

5. The Exploration Project: Cont'd.

(b) Proposed Work:

1. Dewater and rehabilitate Iron shaft to bottom (700 ft.)

2. Clean up and lay track on 3rd level, west of Iron shaft

3. Drift east on pitchblende-bearing vein, 3rd level, 525 feet west of the Iron shaft, 150 ft.

4. Drift west, same location, 150 ft.

5. Raise 100 ft. on pitchblende vein, location to be chosen after 3 and 4, above, completed 100 ft.

6. Clean up and rehabilitate any caved drifts and crosscuts below the 3rd level in order to examine lower workings for pitchblende exposures.

7. Examine, sample and map levels below 3rd level, Iron Mine.

(c) The work will start within sixty (60) days and be completed within twelve (12) months from the date of an exploration project contract.

(d) The applicant, a Delaware corporation, has just been organized to take possession of the property. The work, however, will be under the direction and supervision of Dr. G. C. Ridland. A copy of his experience record is attached as Exhibit "D".

6. Estimate of costs:

(a) Independent contracts: None

(b) Labor, supervision and consultants:

4	miners or timbermen driving drifts and raises	$1.75/hr*
	sinking shafts or winzes	$2.00/hr*
4	muckers driving drifts and raises	$1.65/hr*
	sinking shafts or winzes	$1.85/hr*
1	hoistman	$1.75/hr*
1	carpenter	$2.10/hr*
1	superintendent	$500/month
1	geological engineer-consultant	$500/month

The crew engaged in drifting or crosscutting may be paid at the rate of $10 per foot of advance.

Total estimated cost of labor $11,425.00

*Based on an 8-hour, 5-day week with time and one-half for overtime.

Atomic Energy Uranium, Inc.,
405 Interstate Trust Building,
Denver 2, Colorado.

6. Estimate of cost: Cont'd.

If work is conducted on more than a one shift per day basis, the above schedule of labor shall apply to other shifts except for the position of geological-engineer-consultant.

(c) Operating materials and supplies:

Powder, caps, fuse	$3,540	
Drill Steel and bits	240	
Timber	1,000	
Track, ties	550	
Pipe, pipe fittings	1,700	
Powder	1,000	
Small tools	500	
Total Estimated Supplies.		$8,530.00

(d) Operating equipment: (to be rented)

1 sinker pump	$130 per mo.	
1 mine hoist	100 per mo.	
1 mine pump	50 per mo.	
1 compressor	250 per mo.	
1 mucking machine	100 per mo.	
	(4.1 Months)	
Total estimated rent		$2,590.00

Operating equipment: (to be purchased)

1 ½-ton pickup truck	$1,500	
2 Copco drills	1,000	
Total estimated cost		$2,500.00

Operating equipment: (to be furnished by operator)

None.

(e) Rehabilitation and Repairs:

Repair of compressor house	$250*	$250.00

*This includes estimates of cost of supplies and labor.

(f) New buildings, improvements, installations:

None.

Atomic Energy Uranium, Inc.,
405 Interstate Trust Building,
Denver 2, Colorado.

6. Estimate of costs: Cont'd.

(g) Miscellaneous:

Maintenance of equipment	$475	
Analytical work - none		
Accounting, $100/month	1200	
Workmen's compensation and O.D.	275	
Social Security Tax	175	
Unemployment tax	350	
Total Miscellaneous		$2,475.00

(h) Contingencies:

No estimate

$27,770.00

Summary:

(a)	Contracts - none	
(b)	Labor and supervision	$11,425.00
(c)	Material and supplies	8,530.00
(d)	Equipment to be rented	2,590.00
	Equipment to be purchased	2,500.00
(e)	Rehabilitation and repairs	250.00
(f)	Buildings - none	
(g)	Miscellaneous	2,475.00
		$27,770.00

7. (a) Yes

(b) Money

The applicant has, cash on hand, $16,350.00 which will more than cover its share of the cost of the project and hopes that results of the above program will justify amending this application to carry on a much larger exploration program.

Atomic Energy Uranium, Inc.,
405 Interstate Trust Building,
Denver 2, Colorado.

LIST OF EXHIBITS

A. Mortgage

B. Geological Report 41 by G. C. Ridland,
"3rd Level, Iron Mine."
Claim map
Underground maps (2)

C. Photostat copies of pages 123, 124, 125, 254, 255 and 256 from W. S. G. S. Prof. Paper 94.

D. Experience record of G. C. Ridland

Atomic Energy Uranium Inc.
~~Powabic Uranium Corporation~~
405 Interstate Trust Building
Denver 2, Colorado

Exhibit ~~B~~D
Form MF-100
Attachments

Dr. G. C. Ridland graduated from the University of British Columbia in mining engineering and received his Ph.D. degree from Princeton University in June, 1939, and was immediately employed by Bear Exploration and Radium, Ltd., at Yellowknife, N.W.T. as resident geologist. During the 15 months of employment he was in charge of the operation while the general manager was absent most of the time in Toronto. The company employed a crew of 15 to 20 men and sank a 150-foot prospect shaft, drove 500 feet of tunnelling, did considerable surface trenching and approximately 20,000 feet of diamond drilling.

From October, 1940 to August, 1943, Dr. Ridland was employed in the research laboratory of the Johns-Manville Corporation at Mansville, N.J., and from September, 1943 to December, 1945, was in charge of an extensive uranium exploration and development program for the Canadian Radium and Uranium Corporation. He supervised a 20,000-foot diamond drilling program conducted during the summers of 1944 and 1945 at Great Bear Lake, Canada, and in the rehabilitation and examination of an old mine in 1945 near Goodsprings, Nevada.

In 1947-8 he was in charge of the rehabilitation and examination of two mines and a transportation tunnel near Central City, Colorado for the American Mining Company.

From June, 1943 to November, 1949, he was the chief engineer and consultant for the Consolidated Caribou Silver Mines, Inc., Boulder, Colorado. He was in charge of mine mapping, sampling, examination and the planning of the diamond drilling and development work. During this period he prepared a Securities and Exchange registration statement pertaining to a public offering of the company's securities. Following this, and up to the present, he has been engaged in consulting work in Texas, Utah, Colorado, and Nevada.

Recorded at ..... o'clock ..... M. .....
Reception No. ....Recorder.

RECORDER'S STAMP

This Indenture, Made this 15th day of September in the year of our Lord one thousand nine hundred and fifty-two between GOLD URANIUM MINING COMPANY (Assumed by Atomic Energy Uranium, Inc.)

a corporation duly organized and existing under and by virtue of the laws of the State of Colorado, whose address is 405 Interstate Trust Bldg. in the ~~County of~~ City and County of Denver and State of Colorado, party of the first part, and the Public Trustee of the County of Gilpin in the State of Colorado, party of the second part, Witnesseth:

THAT WHEREAS, The said corporation has executed its one certain promissory note, bearing even date herewith, for the principal sum of Fifty-five Thousand ($55,000) Dollars, payable to the order of G. P. GRIFFITH and L. D. HUNT as surviving directors & trustees,* in installments, to-wit: $5,000.on or before March 15, 1953, $3,000.00 on or before September 15, 1953, and in royalties on ore, which royalties ~~principal sum of~~ ~~Dollars, payable to the order of~~ beginning September 15, 1953, shall amount to a guaranteed minimum of $1,000.00 per year, with interest thereon after default at 6% per annum, payable in full balance thereof in any event on or before May 15, 1957, all as more particularly set forth in said promissory note, to which reference is hereby ~~after the date thereof, with interest thereon from the date thereof at the rate of per cent per annum, payable~~ made for greater certainty.

*of Pewabic Mining and Milling Company, A Colorado corporation, dissolved, & the survivor and successors of them as such trustees,

AND WHEREAS, The said corporation is desirous of securing the payment of said promissory note, in whosoever hands said note may be.

NOW, THEREFORE, The said party of the first part, in consideration of the premises, and for the purpose aforesaid, has granted, bargained, sold and conveyed, and hereby does grant, bargain, sell and convey unto said party of the second part, in trust forever, the following described property, situate in the Russell Mining District in the ~~County~~ of Gilpin, State of Colorado, to-wit:

Pewabic Lode and Mill Site, U. S. Survey No. 125, (excepting so much as conflicts with U. S. Survey No. 857); Pewabic Lode and Mill Site, U. S. Survey No. 126; Pewabic Lode, U. S. Survey No. 560; the William Richardson Lode, U. S. Survey No. 233; the Bangor Lode, U. S. Survey No. 571; the Iron Lode, U. S. Survey No. 572; the Bobtail Lode, U. S. Survey No. 573; the Grasshopper Lode, U. S. Survey No. 853; The Eighty-Three Lode, U. S. Survey No. 874; the Eighty-Four Lode, U. S. Survey No. 5141; the Bloomfield Lode, U. S. Survey No. 5720; The Croesus Lode, U. S. Survey No. 12988; The Croesus Extension Lode, U. S. Survey No. 12988; The Congressional Lode, U. S. Survey No. 17147; The Senatorial Lode, U. S. Survey No. 17147; The Rose Bud Lode, U. S. Survey No. 10923; all grantor's right, title and interest in and to the Water Right specially reserved upon the Incidental Placer Tract "B", U. S. Survey No. 858.

Atomic Energy Uranium, Inc.,
405 Interstate Trust Bldg.,
Denver 2, Colorado.

Exhibit "A"
Form MP-103

TO HAVE AND TO HOLD the same, together with all and singular the privileges and appurtenances, thereunto belonging: **In Trust Nevertheless,** That in case of default in the payment of said note , or any of them, or any part thereof, or in the payment of the interest thereon, according to the tenor and effect of said note , or any of them, or in payment of any prior incumbrance, principal or interest, if any, or in case default shall be made in or in case of violation or breach of any of the terms, conditions, covenants or agreements herein contained, the beneficiary hereunder or the legal holder of the indebtedness secured hereby may declare a violation of any of the covenants herein contained and elect to advertise said property for sale and demand such sale, then upon filing notice of such election and demand for sale with the said party of the second part, who shall upon receipt of such Notice of Election and Demand for Sale, cause a copy of the same to be recorded in the Recorder's Office of the county in which said real estate is situate, it shall and may be lawful for said party of the second part to sell and dispose of the same (en masse or in separate parcels, as said Public Trustee may think best), and all the right, title and interest of the said party of the first part, its successors or assigns, therein at public auction at the front door of the Court House in the County of Gilpin and State of Colorado, or on said premises or any part thereof, as may be specified in the notice of such sale, for the highest and best price the same will bring in cash, four weeks' public notice having been previously given of the time and place of such sale by advertisement weekly in some newspaper of general circulation at that time published in said County of Gilpin , a copy of which notice shall be mailed within ten days from the date of the first publication thereof to said party of the first part at the address herein given and to such person or persons appearing to have acquired a subsequent record interest in said real estate at the address given in the recorded instrument; where only the county and state is given as the address, then such notice shall be mailed to the county seat, and to make and give to the purchaser or purchasers of such property at such sale a certificate or certificates in writing describing such property purchased, and the sum or sums paid therefor, and the time when the purchaser or purchasers (or other persons entitled thereto), shall be entitled to a deed or deeds therefor, unless the same shall be redeemed as is provided by law, and said Public Trustee shall, upon demand by the person or persons holding the said certificate or certificates of purchase, when said demand is made, or upon demand by the person entitled to a deed to and for the property purchased, at the time such demand is made, the time for redemption having expired, make and execute to such person or persons a deed or deeds to the property purchased, which said deed or deeds shall be in the ordinary form of a conveyance, and shall be signed, acknowledged and delivered by the said Public Trustee, as grantor, and shall convey and quit-claim to such person or persons entitled to such deed, as grantee, the said property purchased as aforesaid, and all the right, title, interest, benefit and equity of redemption of the party of the first part, its successors and assigns therein, and shall recite the sum or sums for which the said property was sold, and shall refer to the power of sale herein contained, and to the sale or sales made by virtue thereof; and in case of an assignment of such certificate or certificates of purchase or in case of the redemption of such property by a subsequent incumbrancer, such assignment or redemption shall also be referred to in such deed or deeds; but the notice of sale need not be set out in such deed or deeds; and the said Public Trustee shall, out of the proceeds or avails of such sale, after first paying and retaining all fees, charges and costs of making said sale, pay to the beneficiary hereunder or the legal holder of said note the principal and interest due on said note according to the tenor and effect thereof, and all moneys advanced by such beneficiary or legal holder of said note for insurance, taxes and assessments, with interest thereon at six per cent per annum, rendering the overplus, if any, unto the said party of the first part, its successors, legal representatives or assigns; which sale or sales and said deed or deeds so made shall be a perpetual bar, both in law and equity, against the said party of the first part, its successors and assigns, and all other persons claiming the property aforesaid, or any part thereof; by, from, through or under said party of the first part. The holder or holders of said note or notes may purchase said property or any part thereof; and it shall not be obligatory upon the purchaser or purchasers at any such sale to see to the application of the purchase money. If a release deed be required, the party of the first part, its successors or assigns, hereby agrees to pay all the expenses thereof.

And the said party of the first part, for itself, its successors and assigns, covenants and agrees to and with the said party of the second part, that at the time of the ensealing of and delivery of these presents it is well seized of the said lands and premises in fee simple, and has good right, full power and lawful authority to grant, bargain, sell and convey the same in manner and form as aforesaid; and that the said property is free and clear of all liens and incumbrances whatever

and the above bargained property in the quiet and peaceable possession of the said party of the second part, his successors and assigns, against all and every person or persons lawfully claiming or to claim the whole or any part thereof, the said party of the first part shall and will **Warrant and Forever Defend.**

And that the said party of the first part will in due season pay all taxes and assessments levied on said property and all amounts due, or to become due, on account of principal and interest on prior incumbrances, if any; and will keep all buildings that may at any time be on said lands, during the continuance of said indebtedness, insured against loss by fire in such company or companies as the holder of said note may, from time to time, direct, for such sum or sums as such company or companies will insure for, not to exceed the amount of said indebtedness, except at the option of said party of the first part, with loss, if any, payable to the beneficiary hereunder as interest may appear, and will deliver the policy or policies of insurance to the beneficiary hereunder, as

further security for the indebtedness aforesaid. And in case of the refusal or neglect of said party of the first part, to thus insure and deliver the policies of insurance, or to pay such taxes or assessments or amounts due, or to become due, on any prior incumbrance, if any, then the holder of said note , or any of them may procure such insurance, or pay such taxes or assessments or amounts due upon such prior incumbrances, if any, and all moneys thus paid, with interest thereon at six per cent per annum, shall become so much additional indebtedness, secured by this deed of trust, and shall be paid out of the proceeds of the sale of the property aforesaid, if not otherwise paid by said party of the first part, and such failure shall be a violation or breach of this covenant and agreement.

AND THAT IN CASE OF ANY DEFAULT, Whereby the right of foreclosure occurs hereunder, the said party of the second part or the holder of said note or certificate of sale shall at once become entitled to the possession, use and enjoyment of the property aforesaid, and to the rents, issues and profits thereof, from the accruing of such right and during the pendency of foreclosure proceedings and the period of redemption, if any there be; and such possession shall at once be delivered to the said party of the second part, or the holder of said note or certificate of purchase, on request, and on refusal, the delivery of such possession may be enforced by the said party of the second part or the holder or holders of said note or certificate of purchase, by any appropriate civil suit or proceeding, and the said party of the second part, or the holder or holders of said note or certificate of purchase, or any thereof, shall be entitled to a Receiver for said property, and of the rents, issues and profits thereof, after any such default, including the time covered by foreclosure proceedings and the period of redemption, if any there be, and shall be entitled thereto as a matter of right without regard to the solvency or insolvency of the party of the first part or of the then owner of said property, and without regard to the value of the property, and such Receiver may be appointed by any court of competent jurisdiction upon ex parte application, and without notice—notice being hereby expressly waived—and all rents, issues and profits, income and revenue of said property shall be applied to the payment of the indebtedness hereby secured, according to law and the orders and directions of the court.

AND, That in case of default in any of said payments of principal or interest, according to the tenor and effect of said promissory note aforesaid, or any of them, or any part thereof, or of a breach or violation of any of the covenants or agreements herein, by the party of the first part, its successors or assigns, then and in that case the whole of said principal sum hereby secured, and the interest thereon to the time of sale, may at once, at the option of the legal holder thereof, become due and payable, and the said property be sold in the manner and with the same effect as if the said indebtedness had matured, and that if foreclosure be made by the Public Trustee, an attorney's fee of the sum of 5% of unpaid indebtedness ~~dollars~~ for services in the supervision of said foreclosure proceedings, shall be allowed by the Public Trustee as a part of the cost of foreclosure, and if foreclosure be made through the courts a reasonable attorney's fee shall be allowed by the court as a part of the cost of foreclosure, and in either event shall be and become a part of the lien hereby secured.

IN WITNESS WHEREOF, The said party of the first part has caused its Corporate name to be hereunto subscribed by its President, and its Corporate Seal to be hereunto affixed, attested by its Secretary the day and year first above written.

(CORPORATE SEAL)

GOLD URANIUM MINING COMPANY

By .....
President.

ATTEST:

.....
Secretary.

STATE OF COLORADO,
City and County of Denver } ss.

The within and foregoing instrument was acknowledged before me this ..... day of September, 19 52, by George S. Groves, the ..... President and Mabel N. Scott, the Secretary of Gold Uranium Mining Company, a Colorado corporation

Witness my hand and official seal.

My commission expires April 1, 1953.

.....
Notary Public.

No.....

Deed of Trust

FROM

GOLD URANIUM MINING COMPANY

....., a corporation

TO

The Public Trustee

FOR THE USE OF

C. P. Griffith, et al, etc.

STATE OF COLORADO,
.....County of ..... } ss.

I hereby certify that this instrument was filed for record in my office at.....o'clock .....M., ..., 19..... and is duly recorded in book..... page.....

.....
Recorder.

By.....
Deputy.

Fees, $.....

6-52 BRADFORD-ROBINSON PTG. CO., DENVER

G. Carman Ridland
Geological Engineer

Denver, Colorado
Geological Report 41
May 15, 1950

THIRD LEVEL OF THE IRON MINE, GILPIN COUNTY, COLORADO

GOLD URANIUM CORPORATION

Summary

The Iron mine is located in the heart of the famous Central City-Idaho Springs mining district and is 2 miles southwest of Central City, 2½ miles north of Idaho Springs, and 40 miles west of Denver, Colorado. It consists of a 700-foot deep, crooked, inclined shaft and 7 levels, only one of which, the 3rd, is accessible at the present time. It is under lease and option to Gold Uranium Corporation.

The Iron vein is a mineralized zone cutting through schists and pegmatites of pre-Cambrian age. It varies in width from 1 to 12 feet and consists of quartz, talc and altered country rock heavily mineralized with pyrite and in places, some copper and zinc sulphides. Cross cuts on the 3rd level have opened other veins roughly parallelling the Iron. In one of these veins pitchblende occurs in commercial quantities.

The Iron has been stoped almost continuously over a horizontal distance of 1,318 feet. Some blocks in the form of pillars and low-grade ore have been left and these have been measured and sampled. The ore remaining in place is estimated to total 7,310 tons; broken ore, 2,620 tons, and dump ore, 9,900 tons.

The evidence at hand in the Iron mine appears to warrant an intensive development program for the whole Pewabic property.

G. C. Ridland

cc: Mr. George S. Groves, Pres.
Mr. Harry H. Hahn, Vice-Pres.
Mr. Harry L. Hahn, Sec.-Treas.
Frank H. Knighton
M. O. Reynard
L. B. Riley

Atomic Energy Uranium Ltd
~~Pewabic Uranium Corp~~
405 Interstate Trust Bldg
Denver 2. Colo

MF 103

Geological Report 41

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G. Carman Ridland
Geological Engineer

Denver, Colorado
Geological Report 41
May 15, 1950

THIRD LEVEL OF THE IRON MINE, GILPIN COUNTY, COLORADO

GOLD URANIUM CORPORATION

Introduction

Location - The Iron is one of several, former, gold-silver producers on the Pewabic group of claims near Russell Gulch, 2½ miles north of Idaho Springs and 2 miles southwest of Central City in Gilpin County, Colorado. Sixteen patented claims and one unpatented claim comprise the group. It lies east of the Old Town group of claims and contains the eastern extension of some of the Old Town veins. The Pewabic property is owned by the Pewabic Mining and Milling Company and is under lease and option to Gold Uranium Corporation.

Scope of Examination - The water-level in the mine was found to be between the 3rd and 4th levels, and, as the U. S. Geological Survey had access to all the levels of the mine and published in Professional Paper 94 (1917) a brief report on its geology, and as other, independent engineering reports are available, it was decided that the cost of dewatering the remaining levels of the mine could be dispensed with for the purpose of this examination.

Mine Workings

Iron shaft - The Iron Mine consists of a 2-compartment, inclined shaft approximately 5 x 8 feet in cross section and 700 feet deep. Levels are established at irregular intervals. The first level is at 97, the 2nd at 227 and the 3rd at 288 feet below the surface. Those below the 3rd level were flooded and not examined, but old reports place them at even hundreds to the 7th level which is 700 feet below the surface. The mine was made accessible to the 3rd level by replacing the ladders in the man-way compartment. The shaft follows down the dip of the east-west trending, Iron vein and varies in its inclination from vertical to 75°. The hanging-wall and footwall sides of the shafts are standing firmly. The adjacent sides are mostly cribbed to support stope fills. There are, therefore, few vein exposures in the shaft.

The 1st and 2nd levels are inaccessible for reason that stope fill has fallen into these levels near the shaft and has blocked entrance to the drifts. Attempts to reach the 2nd level from the 3rd level through old stopes also failed. Examination of the two upper levels, therefore, would be impossible without considerable

rehabilitation expense, and this was deemed unnecessary for this examination.

The 3rd level was accessible in its entirety. West of the shaft it follows the Iron vein for 870 feet. East of the shaft it follows the Iron vein for 180 feet, then branches to follow the Richardson and Grasshopper veins; the breast of the former is 739 feet and the breast of the latter is 438 feet from the Iron shaft.

Cross cuts - Cross cuts leave the main 3rd level drift and head south. The first is 524 feet west of the shaft and is 57 feet long. It intersects a vein at this point, and drifts run 15 feet and 30 feet west. At the west end is an inaccessible raise. The second cross cut leaves the main drift at 42 feet east of the shaft and is 340 feet long. It intersects a vein at 150 feet south of the Iron vein and drifts run 140 feet east and 45 feet west along the vein. The third cross cut takes off from the Richardson drift at a point 617 feet east of the Iron shaft. It follows a branch vein for 60 feet then turns southeast for 35 feet where it intersects a vein. Drifts run 55 feet east and 20 feet west on this vein.

General Geology

The rock enclosing the ore bodies of the Iron mine (the Pewabic property having been credited with a production of approximately $2,300,000 in gold and silver with much of the ore shipments averaging better than 2 ounces per ton gold and 5 ounces per ton silver) is the Idaho Springs formation. It is the oldest pre-Cambrian (Archean) rock formation in the district and is composed mainly of quartz-biotite schist and intrusive dikes and sills of granite pegmatite. Another rock type, a gray to brown-colored and very fine-grained intrusive, composed predominantly of feldspar, and called a Bostonite dike, cuts the Idaho Springs formation. The Iron and related veins cut both the Idaho Springs and Bostonite formations.

Ore Deposits

The 3rd level west of the Iron mine follows the Iron vein for its full 870 feet. The 3rd level east follows the Iron vein to a point 180 feet east of the shaft where the vein splits; one called the Richardson, strikes N.45°E. and dips 65° to 80° SE., and the other called the Grasshopper, continues with the same strike, approximately east-west, and dips vertical to steeply south. The Richardson has been opened for a length of 538 feet and the Grasshopper for a length of 258 feet. The Iron and Richardson veins, therefore, have been opened up on the 3rd level for a total length of 1,060 feet plus 258 feet on the Grasshopper, which is possibly the eastern continuation of the Iron. Almost this full length of 1,318 feet of vein matter has been stoped. Stopes vary in width from 1 to 12 feet. Pillars and remnants of vein material not mined were sampled with results varying from 0.03 to 1.60 oz./ ton gold. Not one sample returned nil for gold or silver. One channel sample taken across the back of a 12-foot stope gave 0.40 oz./ ton gold for a full 142 inches.

The veins exposed on the 3rd level have similar appearances. They are fissure fillings and replacements along fracture-planes. The fillings are of dark-gray or blue quartz containing heavy pyrite mineralization. Commonly associated with the quartz is talc, evidently a result of wall-rock alteration. Copper and zinc sulphide

mineralization was noted in places and zinc occurs in important amounts in places. A small occurrence of galena (lead sulphide) was observed in the far east side. Pyrite mineralization is intense and goes far back into the altered walls of the fissure.

Pitchblende was found at two widely separated areas. The first is in a vein to the south of the Iron vein which is opened by the most westerly cross cut and a short drift. Here a vein 6 feet wide is strongly radioactive across the whole 6 feet and along the length of the drift. Seams of high-quality pitchblende up to ½-inch in width lie in the vein closely parallelling the course of the vein. Channel samples across the 6 feet ran 0.38% for 44 inches and 0.10% for 28 inches for an average of 0.27% U_3O_8 for the 72 inches. A 20-pound sample of hand cobbed pitchblende specimens was knocked from the vein with only a geological hammer in a few minutes. Material representative of the 20 pounds ran 18.0% U_3O_8. This vein also carries important quantities of gold and silver. One channel over 25 inches ran 0.28 in gold and 19.56 in silver in addition to 0.10% U_3O_8. Another ran 0.52 in gold and 2.00 in silver and 0.10% U_3O_8. A third ran 0.16 in gold and 1.98 oz. in silver and 0.15% U_3O_8.

The second occurrence of pitchblende occurs at the east end of the Richardson drift. A thin seam of pitchblende covers a small patch of the footwall. Most, if not all, of this occurrence was removed readily with a geological hammer shortly after it was discovered.

Table of Assay Results

Sample No.	Width of Vein (Inches)	Gold (oz. / ton)	Silver (oz. / ton)	Copper (%)	Zinc (%)	Uranium Oxide (%)
119	44	1.24	4.96			
120	45	0.12	0.94			
121	36	0.10	0.92			
122	18	0.16	0.92			
123	34	0.03	1.63			
124	58	0.12	1.34			
125	36	0.76	0.30			
126	36	0.08	0.42			
127	24	0.84	3.80			
128	25	0.10	4.10			
129	28	0.98	1.02			
130	26	0.20	0.44			
131	24	0.22	0.10			
132	22	0.06	0.56			
133	38	0.14	0.18			
134	43	0.05	0.83			
135	28	0.08	1.04			
136	14	0.06	1.14			
137	26	0.10	1.26			
138	40	0.10	0.92			

Sample No.	Width of Vein (Inches)	Gold (oz. / ton)	Silver (oz. / ton)	Copper (%)	Zinc (%)	Uranium Oxide (%)
139	36	0.05	1.85			
140	39	0.07	0.07			
141	37	0.10	2.86			
142	32	0.07	1.25			
143	20	0.06	0.78			
144	22	0.12	4.58			
145	22	0.30	8.78			
146	21	0.11	6.60			
147	44	0.01	0.10			0.38
148	28	0.52	2.00			0.10
149	25	0.28	19.56			0.10
150	26	0.52	2.46			
151	20	1.60	2.04			
152	18	0.20	1.40			
153	18	0.14	1.06			
154	14	0.16	1.98			0.15
155	17	0.11	1.74			
156	142	0.40	2.18			
157	27	0.03	0.33			
158	30	0.08	0.60			
159	33	0.05	0.45			
160	24	0.13	1.82	0.81	1.83	
161	32	0.11	0.94			
162	18	0.02	0.46			
163	32	0.06	2.16	0.25	1.44	
1026	58	0.09	0.91			
1027	36	0.10	0.50			
1028	35	0.05	1.59			
1029	46	0.04	1.12			
1030	32	0.05	0.15			
1031	23	0.20	1.00			
1032	35	0.06	1.56			
1033	44	0.09	0.95			
1034	23	0.42	0.72			Tr.
1040	46	0.01	1.42			
1041	53	0.08	1.54			
1042	34	0.03	2.02			
1043	25	0.30	1.28		8.82	Tr.
1044	31	0.10	1.94			
1045	30	0.06	2.24			
1046	48	0.11	0.91			
1047	50	0.64	1.60		12.02	
1048	30	0.09	0.62		22.2	
1049	18	0.02	1.18			
1050	44	0.08	1.86			
1051	39	0.02	0.74			
1052	34	0.03	2.21			

Sample No.	Width of Vein (Inches)	Gold (oz. / ton)	Silver (oz. / ton)	Copper (%)	Zinc (%)	Uranium Oxide (%)
1053	22	0.05	1.85			
1054	26	0.07	1.43			
1055	20	1.60	2.62	0.76	19.78	
1056	29	0.07	1.07			
1057	24	0.03	2.31			
1058	26	0.01	1.58			
1059	78	0.26	1.40	0.25	5.47	
1068	31	0.02	0.82			
1069	46	0.03	0.78			
1070	50	0.02	0.90			
1071	34	0.01	0.76			
1073	38	0.03	1.17			
1074	20	0.06	1.10			
1075	26	0.10	0.38			
Stope-fill samples						
F-1		0.15	1.10			
F-2		0.20	1.18			
F-3		0.25	1.22			
F-4		0.09	0.73			
F-5		0.24	0.28	0.25	1.92	
F-6		0.44	2.76	0.38	6.62	
F-7		0.11	1.13			
F-10		0.36	2.28			
F-11		0.22	3.46			
F-12		0.30	1.04			
F-13		0.32	1.06			
F-14		0.48	0.40			
F-15		0.29	1.92			
F-16		0.18	1.48			
F-17		0.15	1.29			
F-18		0.32	1.56			
F-19		0.54	1.40		2.02	
F-20		0.11	0.93			
Dump samples						
D-1		0.06	1.74			
D-2		0.12	0.50			
D-3		0.66	1.12			
D-4		0.22	1.46			

Ore Reserves between the 2nd and 3rd Levels

Veins in place - A fairly thorough job of stoping was done along the Iron vein on the 3rd level. Nevertheless, 81 channel samples were taken across the Iron and other veins where they were not mined. Some of these samples were taken in the

drift under stopes where stoping did not take the full width of the ore zone. This part, not mined, was sampled. The sampling was done with the object of determining the grade of the remnants left by former operators. The parallel veins opened up on the 3rd level south of the Iron were also thoroughly sampled. Two sections on these veins gave commercial results (Blocks P and Q). The table below lists the blocks of vein material in place. All these blocks, however, may not be of commercial value at this time.

Vein Material in Place

Block	Width (ft.)	Amount (tons)	Gold (oz./t.)	Silver (oz./t.)	Copper (%)	Zinc (%)	U_3O_8 (%)
A	9.7	1,560	0.48	2.45			
B	3.1	180	0.10	0.92			
C	2.7	400	0.10	1.42			
D	4.0	20	0.52	1.22			
E	2.2	230	0.40	2.07			
F	1.7	150	0.58	1.83			
G	3.4	270	0.09	0.53			
H	2.6	790	0.08	1.33			
J	1.8	190	0.14	5.00			
K	8.0	2,190	0.20	1.08			
L	2.1	50	0.02	1.93			
M	2.2	410	0.29	1.41	Tr.	Tr.	
N	3.0	650	0.14	1.28		Tr.	Tr.
P	2.7	170	0.24	4.40			0.17
Q	2.4	50	0.24	1.66		13.3	
Total		7,310 tons					

The broken ore remaining in the old stopes cannot be measured or sampled with accuracy at this time. However, a crude attempt was made to arrive at some indication of their extent and worth. The following results were obtained by taking 100 lb. samples and quartering them down to 12-pound samples which were submitted to the assay laboratory.

Broken Ore

Block	Width (ft.)	Amount (tons)	Gold (oz./t.)	Silver (oz./t.)	Copper (%)	Zinc (%)
F-13	7.2	900	0.32	1.06		
F-14	3.4	200	0.38	1.16		
F-16	4.0	390	0.18	1.48		
F-18	3.1	30	0.32	1.56		
F-19	2.7	20	0.54	1.40		2.02
F-11	8.0	370	0.21	1.88		
F-10	4.0	140	0.36	2.28		
F-6	6.0	130	0.44	2.76	0.38	6.62
F-5	3.0	120	0.24	0.28	0.25	1.92
F-1	3.0	320	0.17	1.06		
Total		2,620 tons				

The dumps on the surface at the Iron shaft were sampled in the same manner as the underground broken ore and a similar statement regarding accuracy applies. One sample, D-3, ran 0.66 oz./t. gold and is apparently not representative. It has been reduced to 0.17, the average of the two adjoining samples, for estimating purposes. The result obtained is that the dumps measure 9,900 tons and average 0.12 oz./t. gold and 1.28 oz./t. silver.

Gamma-ray Intensities

Radioactivity was carefully measured, in detail, throughout the 3rd level and accessible stopes. Beginning at the Iron shaft a reading of 11 was obtained in contrast to a surface background count of 3. Going west from the shaft the count dropped slightly and varied from 6 to 9. At the first cross cut south on the Iron vein the reading was 10, and entering the cross cut the reading steadily increased to the point where the vein was reached. Across the 6 feet of vein matter the reading registered a count of 35 to 40. In the short drift running along the south side of the vein, the count varies from 20 to 35. Pitchblende is visible in this vein.

The remainder of the Iron vein to the west gave readings varying from 4 to 8.

East of the Iron shaft the Iron vein and subsidiary structures to the south produced gamma-ray counts varying from 6 to 9 except for one spot near the east end of the Richardson shaft. Here a reading of 15 was obtained at a point on the footwall side. A small occurrence of pitchblende was observed. The occurrence does not appear to be extensive.

Some mild anomalies were noted on the east side along the south veins. These were not of sufficient intensity to indicate the presence of visible pitchblende.

A consistent reading above the normal surface background, along the 3rd level of the Iron mine is considered to be of significance. Readings varying from 4 to 11 do not indicate commercial quantities of radioactive minerals in the immediate vicinity of the reading, but do mean that there is positive radioactivity along the vein and wall rock of the mine, and, when this phenomenon exists, it is believed to mean that there is a possibility that the veins may, in places, contain commercial concentrations of radioactive minerals. The writer has yet to examine a mine where radioactive ores do occur and the general gamma-ray intensities away from the orebodies were not above the normal surface background count at least in places.

The pitchblende in the vein to the south on the west side of the mine is definitely of commercial grade at today's prices for uranium, and further development work on this showing is warranted.

Conclusions

It is evident, from the examination of the 3rd level, that the Iron mine was certainly an important producer in the past. An ore shoot with a horizontal length of over 1,000 feet and widths varying from 1 to 12 feet is impressive.

There is a possibility, however, that one might conclude that this extensive ore shoot owes its existence to secondary enrichment, and, at depths below the present workings, ore of similar grade might not be found. In regard to this, little or no oxidation signs, other than those taking place at the present time due to exposure by the mine openings, were observed. Minerals diagnostic of secondary enrichment, such as chalcocite, covellite, native silver, or an abnormally high ratio of silver to gold content, were not observed. The U. S. Geological Survey, Professional Paper 94, Page 255, states that "the records of careful samplings (in the Iron mine) fail to show any regular decrease in ore values dependent upon depth." For these reasons, the writer is of the opinion that the ore-body on the 3rd level is a primary deposit and not secondary, and that ore shoots of similar width and grade will be found at deeper horizons. From the evidence at hand, an intensive development program is warranted for the Iron mine and Pewabic property.

not an abundant accompaniment of the cobalt-silver type of veins. Its kidney-shaped or rounded shell-like masses are ordinarily associated with chalcopyrite, galena, and brown carbonate. Müller regarded the pitchblende and its accompanying minerals as of slightly later formation than the primary cobalt and nickel minerals and earlier than the rich silver minerals.

CORNWALL DISTRICT, ENGLAND.

In and near the granite batholiths of Cornwall occur not only tin and copper lodes but also, usually at a greater distance from the granite, younger lodes of two types—(1) those containing uranium and nickel ores and (2) iron-manganese lodes.[1] In the vicinity of Bodmin, for example, there occur certain lodes containing arsenic and copper minerals and smaller quantities of uranium, cobalt, and nickel ores. These lodes cross the tin and copper lodes that are the main mineral resources of the district and are therefore somewhat younger, although it is believed that all the lodes are genetically connected with the granitic intrusives of the region.

In the St. Austle Consols mine, according to Williams,[2] uranium minerals have been found in certain small veins that cross the main tin-copper lode. The associates of the uranium minerals in the cross veins are locally copper ores but more commonly ores of nickel and cobalt. The uranium minerals also occur on the sides of the veins.

At Dolcoath, according to Pearce,[3] pitchblende occurred "associated with native bismuth and arsenical cobalt in a matrix of red compact quartz and purple fluorspar." At South Tresavean it occurs with "kupfernickel, native silver, and rich argentiferous galena." "I believe," says Pearce, "in all the localities I have named, it was found in little veins crossing the lodes" (that is, the tin lodes).

At the South Terras or Uranium mine, in Cornwall,[4] "The uranium lode * * * is said to vary in width from 3 to 5 feet, but the uranium ore is confined to a leader a few inches in width, consisting partly of pitchblende and calc and copper uranites with copper pyrites, mispickel, and galena, and small quantities of nickel, cobalt, and chromium ore in a veinstone of quartz and green garnet rock."

PITCHBLENDE IN THE CENTRAL CITY QUADRANGLE.

Within the area of the Central City quadrangle pitchblende has been reported from the Alps, Belcher, Calhoun, German, Kirk, Mitchell, and Wood mines, on Quartz Hill; from the 200-foot level west, in the Pewabic mine, in Russell Gulch; and from the Jo Reynolds mine, near Lawson. The pitchblende occurs as a minor component of gold-silver ores, and most of the mines mentioned above have been worked primarily for gold and silver rather than for pitchblende.

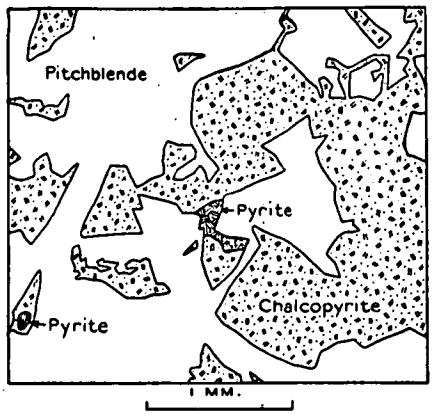

FIGURE 11.—Camera lucida drawing of polished section of ore from the Wood mine, Quartz Hill, showing contemporaneous intergrowth of pitchblende, chalcopyrite, and pyrite.

Although few opportunities were afforded for studying the richer pitchblende ores in place, because of suspension of mining at most of the mines, many excellent specimens from these mines were polished and studied under the reflecting microscope and found to show clearly the relations of the pitchblende to the sulphides which accompany it in the veins.

In a number of specimens it is evident that the pitchblende crystallized contemporaneously with chalcopyrite, pyrite, and probably gray quartz. A specimen from the Wood mine, obtained through the courtesy of Mr. W. C. Denison, presented, when polished, the appearance shown in figures 11 and 12. Some of the intergrown chalcopyrite and pitch-

[1] Ussher, W. A. E., Barrow, G., and MacAlister, D. A., The geology of the country around Bodmin and St. Austell: Geol. Survey England and Wales Mem., Expl. Sheet 347, p. 134, 1909.

[2] Williams, R. H., Notice of the occurrence of nickel and cobalt at St. Austle Consols mine, near St. Austle, Cornwall: Roy. Inst. Cornwall Thirty-ninth Ann. Rept., pp. 32-34, 1857.

[3] Pearce, Richard, Note on pitchblende in Cornwall: Roy. Geol. Soc. Cornwall Trans., vol. 9, pp. 103, 104, 1875.

[4] Ussher, W. A. E., Barrow, G., and MacAlister, D. A., op. cit., p. 157.

Atomic Energy Uranium Inc
~~PEWABIC URANIUM CORP.~~
405 Interstate Trust Bldg.
Denver 2, Colo.
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blende of this specimen show angular outlines, as indicated in figure 11, but more commonly the pitchblende areas are ringlike in cross section, chalcopyrite occupying the center of the ring and inclosing it, as indicated in figure 12. Pyrite and gray quartz, apparently contemporaneous with the pitchblende and chalcopyrite, are present in small amounts. Specimens from the Wood and German mines in the mineral collections at the State Capitol in Denver show chalcopyrite and pitchblende so intimately intergrown as to leave little doubt of their contemporaneous crystallization. In other specimens from the Wood mine botryoidal

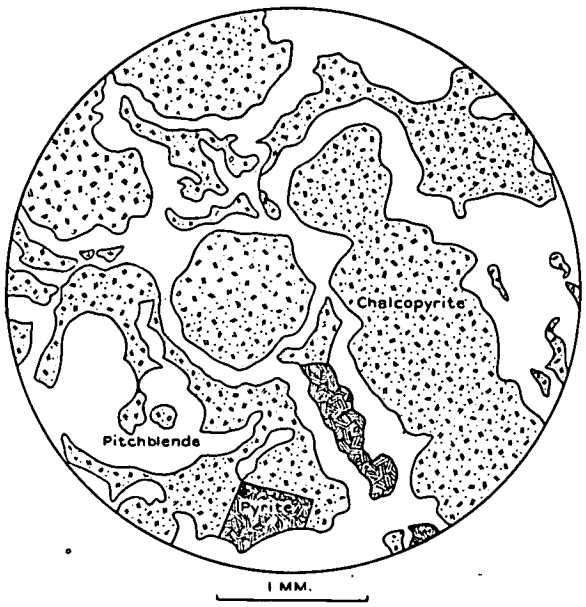


FIGURE 12.—Camera lucida drawing of polished surface of pitchblende ore from the Wood mine, Quartz Hill, showing contemporaneous intergrowth of pitchblende, chalcopyrite, and pyrite. In contrast with figure 11, which was drawn from another part of the same specimen, the pitchblende areas show rounded outlines.

pitchblende has cores of pyrite and is in places fringed with pyrite, as shown in Plate XV, *A*. To summarize, the manner in which the minerals are intergrown in several specimens shows conclusively that pitchblende crystallized contemporaneously with chalcopyrite and probably with minor amounts of pyrite and gray quartz.

Other specimens carry sulphides which are later than the pitchblende. A specimen of rich ore from the Calhoun mine, obtained through the courtesy of Mr. Hugh C. Brown, consists principally of pitchblende, but this mineral is sharply cut by veinlets one-eighth inch or less in width, composed of sphalerite, pyrite, and some galena. The form of some of these veinlets is shown in figure 13. Similar relations in a specimen from the German-Belcher mine, lent by Mr. Forbes Rickard, are shown in Plate XVI, *B*. Another specimen from the Calhoun mine shows pitchblende shattered to minute fragments which lie in a matrix of pyrite and chalcopyrite with some galena, sphalerite, and quartz. Similar brecciation of pitchblende in ore from the German-Belcher mine is shown in Plate XVI, *A*.

Specimens of pitchblende ore from the Jo Reynolds mine near Empire were kindly lent by Mr. R. B. Morton. They came from the tunnel level near the bottom of the old

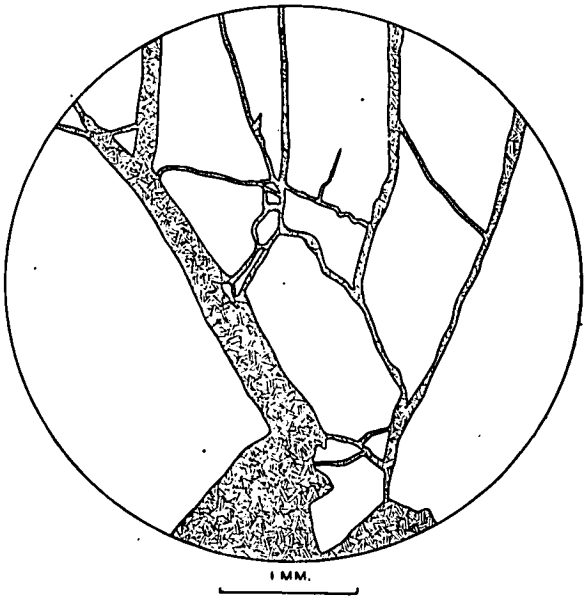


FIGURE 13.—Camera lucida drawing of polished face of ore from the Calhoun mine, showing pitchblende (white) traversed by later veinlets of pyrite, sphalerite, and galena (patterned).

shaft, from a point about 1,000 feet below the surface. Microscopic examination of polished surfaces of the ore showed fragments of pitchblende having characteristic botryoidal forms embedded in a matrix of quartz, siderite, sphalerite, galena, and chalcopyrite. In places minute veinlets of one or more of these minerals traverse the pitchblende. It is clear from the study of these specimens that after the period of pitchblende deposition the ores were fractured and the fractures filled with quartz, sphalerite, galena, chalcopyrite, pyrite, and, in the Jo Reynolds ore, siderite. In the Jo Reynolds ore no sulphides contemporaneous with the pitchblende were noted.

The significance of the contrasting and apparently contradictory modes of association of the pitchblende with the sulphide minerals becomes apparent when it is recalled that there have been in this region two periods of mineralization, an earlier pyritic mineralization and a later galena-sphalerite mineralization. The minerals intergrown contemporaneously with the pitchblende are those characteristic of the pyritic mineralization; those which are later than the pitchblende are characteristic of the galena-sphalerite mineralization. On this evidence it is believed that the pitchblende ores were deposited during the earlier or pyritic mineralization; that they were later fractured; and that ores of the later or galena-sphalerite type were deposited in the fractures. They are, according to this interpretation, merely a local and unusual variation in the main sulphide mineralization of this region—a variation of the same order as the occurrence of enargite in a neighboring group of veins near South Willis Gulch. No evidence was found to indicate that the pitchblende mineralization is genetically connected with the intrusion of the pre-Cambrian granitic rocks;[1] on the contrary, the writer believes that, together with the sulphides that accompany them, they are genetically related to the Tertiary (?) monzonite intrusives.

The general geologic relations and the absence of characteristic high-temperature minerals in the deposits of Quartz Hill, as well as in those of Cornwall and the Erzgebirge, indicate that the pitchblende was deposited under conditions of moderate temperature and pressure. Unlike the European pitchblende, however, the pitchblende of Quartz Hill is not associated with nickel and cobalt minerals, which so far as known have never been found in that region even in small quantities. The occurrence of pitchblende in pegmatite as well as in mineral veins of the type here described shows that the mineral may also form under conditions of high temperature and pressure.

[1] See Rickard, Forbes, Pitchblende from Quartz Hill, Gilpin County, Colo.: Min. and Sci. Press, vol. 106, pp. 851-856, 1913.

more than one-eighth of an inch wide but which locally swell to 1 inch. The narrower stringers are pyrite with a little chalcopyrite; the wider ones carry also some quartz. In the eastern part of the lateral the veinlets of solid pyrite that traverse the pyrite-impregnated gneiss are sharp walled and are plainly fissure fillings. In one place there is 1 foot of solid pyrite.

The so-called Columbus vein exposed on the Hot Time lateral is also pyritic but is only feebly mineralized. It is a fractured zone from a few inches to 2 feet in width carrying here and there a small stringer of pyrite and a little disseminated pyrite.

All ore is now mined through the shaft and is carried 3 miles to Blackhawk by the Gilpin Tramway. Smelting ore is sold to the sampling works at Blackhawk and concentrating ore shipped via the Colorado & Southern Railway to the Jackson mill at Idaho Springs. It has already been pointed out that the strength of the mineralization decreases in the deeper workings, a fact reflected in decreased value of the ore. An example of the richer portion of the lode is a shoot between the surface and the third level, in which the ore averaged about $59 per ton. A lens between the fifteenth and sixteenth levels averaged $40 per ton, mainly in gold. Chalcopyrite is, as a rule, much richer in gold than pyrite, and the better grades of ore commonly carry about 3 per cent of copper. Sampling of the fourteenth and fifteenth levels by Mr. W. H. Wiley gave an average ore value of $40.58 for one block and $32.01 for another, gold being reckoned at $20 and silver at $0.65 an ounce and copper at $0.18 a pound. The average width sampled was 3.8 feet. In these samples the gold ranged from 0.1 to 6.44 ounces, the silver from 0.3 to 22.1 ounces, and the copper from a trace to 8.8 per cent.

From shaft workings below the fifteenth level 124 samples of ore taken by Mr. Wiley showed gold contents from a trace to 4.22 (average 0.29) ounces and silver from a trace to 5.7 (average 0.78) ounces. The ore of the Old Town vein on the Hot Time lateral is said to average only $0.80 to $1 per ton.

The gross production of the mine is said to have been about $2,700,000.

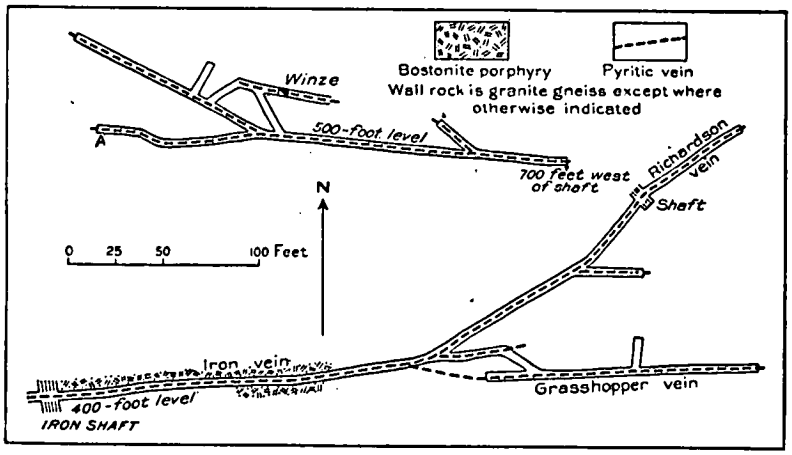


FIGURE 43.—Plans of portions of the 400-foot and 500-foot levels of the Iron mine, showing characteristic branching vein systems.

BECKY SHARP MINE.

The Becky Sharp mine is a short distance southeast of Russell Gulch village, apparently on the westward extension of the Pewabic vein. The development consists of three shafts 120, 135, and 160 feet deep, with connecting drifts. All of the ore is of the pyritic type and of concentrating grade and is sent to the Jackson mill at Idaho Springs, where a concentration of about 3½ into 1 is effected. The value is said to be $8 to $10 per ton.

IRON MINE.

The Iron mine, on the south side of Russell Gulch near the town of that name, is mainly developed through an inclined shaft following the vein, with levels at 120, 250, 300, 400, 500, 600, and 700 feet. The wall rock is granite gneiss except for a small amount of bostonite porphyry. The workings, which are very extensive, are mainly on the Iron vein, whose average strike is nearly east and west and whose dip ranges from vertical to 75° S. On the 300 and 400 foot levels east the junction of the Iron vein with the Richardson and Grasshopper veins is exposed. (See fig. 43.) The 300, 400, and 500 foot levels were examined so far as they were accessible.

The commonest type of mineralization in the Iron vein is a dissemination of pyrite through the altered granite gneiss of a zone of fracturing. This zone may vary in width from a few inches to several feet, the stopes near the shaft on the

400-foot level being 12 feet in width. In a few places this disseminated ore is traversed by a net of minute pyrite stringers and more rarely by several inches of nearly solid pyrite. On the 400-foot level east the vein enters a dike of bostonite porphyry and divides into numerous small stringers, some of which are very vuggy. The mineralization is clearly later than this dike, but in the dike the ore is said to assay only $3 to $4 a ton.

At the time of this survey the mine was being worked by several sets of lessees. Little work was in progress on the Iron vein, the main activity being on branch or subsidiary veins exposed on the 500-foot level more than 800 feet west of the shaft. At the face on this level (A, fig. 43) 1 foot of nearly solid fine-grained pyrite is exposed in a narrow stope; and at a place 320 feet west of the shaft a breccia of gneiss fragments is cemented by pyrite in crystals a quarter of an inch in maximum size. Beautiful green crystals of hydrous iron sulphate are now forming in places on the walls on this level by deposition from surface waters descending along the vein. The waters of this mine are so corrosive that the overalls of miners working in wet places are sometimes eaten to shreds in a day or two, and iron rails, pipes, and nails must be frequently replaced.

The Richardson shaft, about 300 feet northeast of the Iron shaft, was inaccessible. The Richardson vein, however, was studied on the 400-foot level, which connects with the 400-foot level of the Iron mine (fig. 43). The average strike of the Richardson vein is about N. 40° E. and the dip is 65°–80° SE. A shaft with short levels at 160, 200, 300, and 400 feet descends on the vein. East of the shaft the vein was not traced far, but west of the shaft it forms a true junction with the Iron vein. One of the best exposures of the Richardson vein is in a stope 20 feet east of the shaft, where a width of 6 feet of altered granite gneiss is traversed by a network of irregular but sharp-walled sulphide veinlets 5 inches and less in width. These veinlets consist almost wholly of pyrite in crystals whose maximum size is 1½ inches. The vein here is said to sample about $7 per ton, the coarse pyrite being characteristically of low value.

The Grasshopper vein was accessible only on the 400-foot level (fig. 43), where it forms a true junction with the Iron vein about 180 feet east of the Iron shaft. As exposed it strikes nearly east and west and stands about vertical. Its mineralization is feeble. A vein between the Grasshopper and the Richardson (fig. 43) is 1½ feet wide and is similarly but more heavily mineralized.

The Mars vein, which strikes nearly east and west and dips 50°–80° N., is exposed on the 300-foot level of the Iron mine by a crosscut extending south-southeast. It lies about 115 feet south of the Iron vein and has been drifted upon for 85 feet and developed by a stope and winze. The vein shows from 1½ to 3 inches of solid pyrite bordered by granite gneiss carrying disseminated pyrite.

All of the veins described above are similar in mineral character and were formed at the same time. Although pyrite is the principal ore mineral, chalcopyrite and tennantite also occur in more or less pockety distribution and commonly indicate comparative richness. In most places where the ore carries over 2 ounces in gold it also carries copper in commercial amounts (over 1.5 per cent). The coarse pyrite is prevailingly of low grade, but much of the fine pyrite is fairly rich in gold.

The Iron and Pewabic mines being under one management and carrying ore entirely similar in character, the tenor and production of the two may be considered together. Records of shipments show that the smelting ore shipped from February 19, 1910, to December 28, 1910, had an average value of $58.40 per ton. The poorest shipment showed 0.14 ounce in gold and negligible amounts of other metals; the richest showed gold, 10.47 ounces; silver, 15.25 ounces; and copper, 11.65 per cent.

One shipment which approaches the average in value showed gold, 2.62 ounces; silver, 5.75 ounces; and copper, 1.55 per cent. The average value of the concentrating ore is stated to be about $11 per ton, mainly in gold.

The gross production of the Iron and Pewabic mines from 1904 to 1910, inclusive, was $526,000. The production before this period is estimated at $1,500,000 to $2,000,000.

The records of careful samplings fail to show any regular decrease in ore values dependent upon depth, and development has failed to reveal any regularity in the shape or attitude of the richer ore shoots.

PEWABIC VEIN.

The Pewabic vein outcrops about 100 feet north of the Iron vein and nearly parallels it in strike. It dips, however, in the opposite direction; that is, northward. The vein is developed by the Pewabic shaft, over 900 feet deep, and by the East Pewabic shaft, 700 feet deep, each shaft having levels at 100-foot intervals. The amount of drifting done on this vein is much less than that in the Iron mine.

Both shafts having been idle for some time the mine was not entered. The ore is entirely similar in character to that from the Iron vein, except that it is reported to carry uranium in the foot wall on the 200-foot level west. The value of the ore and the production have already been considered in conjunction with the Iron mine.

BANGOR MINE.

The Bangor shaft, which is about 800 feet west-southwest of the Iron shaft, appears to be on the westward continuation of the Iron vein or one of its branches. The shaft is equipped with a whim but could not be entered. The ore seen on the dump was mainly coarse pyrite and some chalcopyrite disseminated in altered schist. A few specimens show vuggy veinlets of galena and sphalerite cutting the pyritic ore sharply and evidently of later formation. Some narrow vugs are lined with crystals of quartz and sphalerite, the latter coated with a thin film of later quartz.

IRON DUKE MINE.

The Iron Duke mine, a short distance southeast of Russell Gulch village, is developed by a shaft 510 feet deep, but was idle at the time of survey. The underground workings are said to total 2,664 feet. The ore is of the pyritic type and appears to be entirely similar to that of the Iron mine.

HALL MINE.

The Hall mine, in the eastern part of Russell Gulch village, is developed by a shaft 260 feet deep, connecting with short levels at depths of 50, 100, and 200 feet. It was idle at the time of survey. The following are sampling-works assays of smelting ore shipped in 1910.

Sampling-works assays of smelting ore from the Hall mine, 1910.

Ore.	Gold.	Silver.	Copper.
Net pounds.	*Ounces.*	*Ounces.*	*Per cent.*
7,223	1.69	11.56	9.20
463	1.16	6.80	.....
6,441	1.66	8.60	3.55
3,674	.44	2.90	.....
591	1.14	2.60	2.00
462	.76	7.30	4.00

All the ore is of the pyritic type.

LOTUS MINE.

The Lotus mine, in the eastern part of the village of Russell Gulch, was not being worked

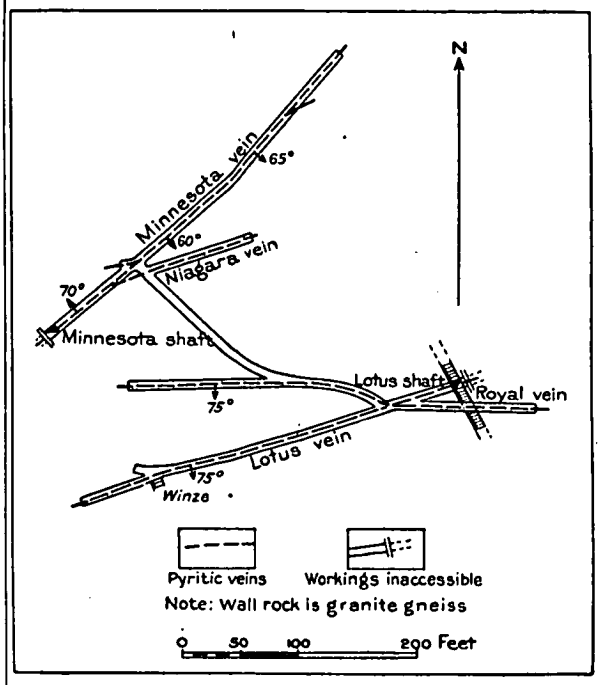
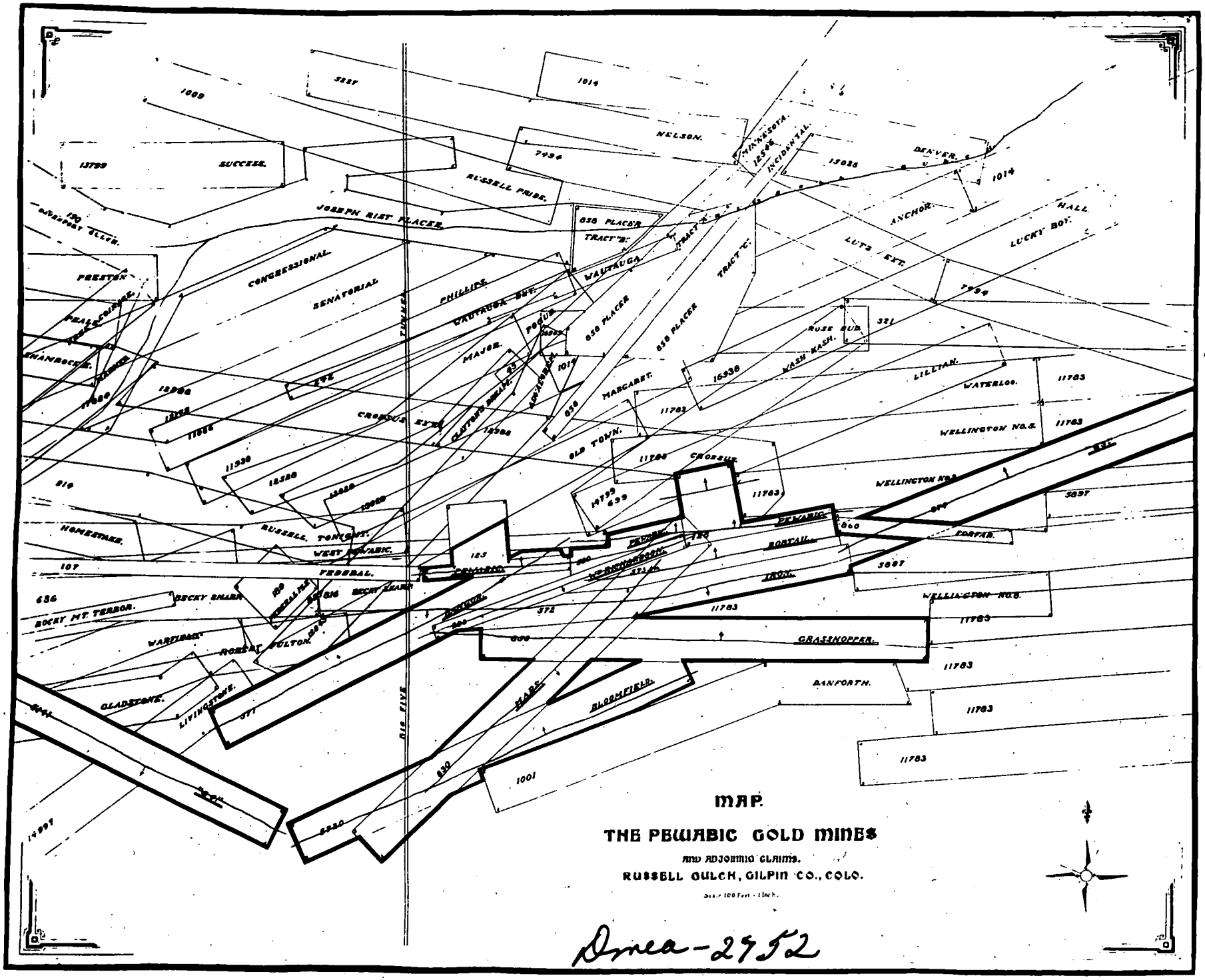


FIGURE 44.—Geologic plan of the 450-foot level on the Lotus vein and connecting workings on other veins. Surveyed by hand compass and pacing.

at the time of survey but was accessible through the first or tunnel level, at the side of the lower road between Russell Gulch and Central City.

The Lotus shaft, 810 feet deep, follows the Lotus vein, which strikes in general about N. 70° E. and dips 65°–75° SE. There are seven levels at intervals of approximately 100 feet. Most of these develop only the Lotus vein, but the 450-foot level (fig. 44) develops also the Royal, Minnesota, and Niagara veins.

The wall rock in the workings is almost exclusively granite gneiss but includes some

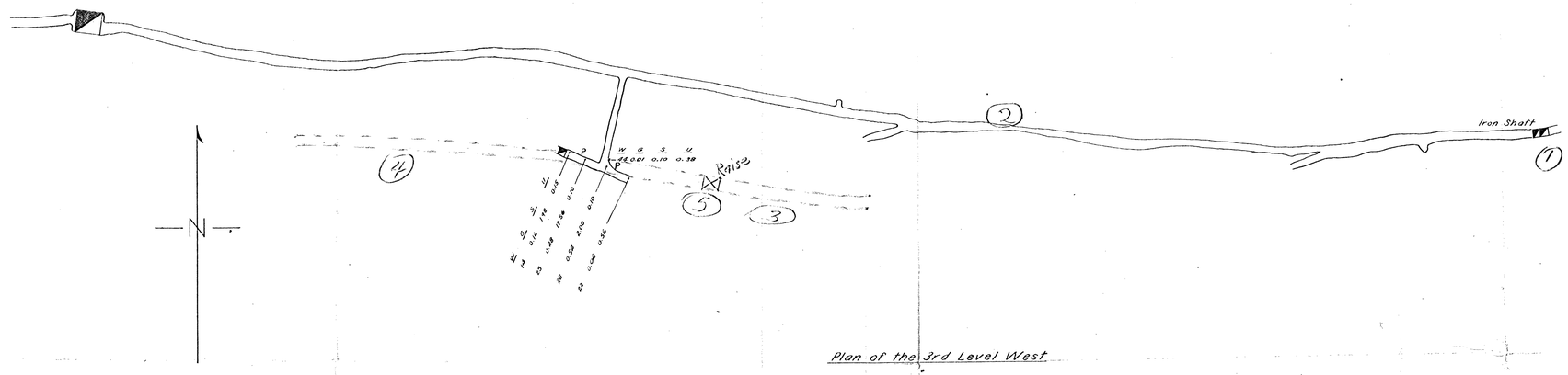

MAP.
THE PEWABIC GOLD MINES
AND ADJOINING CLAIMS.
RUSSELL GULCH, GILPIN CO., COLO.
Scale 100 Feet - 1 Inch.
NELSON.
MINNESOTA.
INDIANTAL.
DENVER.
SUCCESS.
RUSSELL PRIDE.
JOSEPH RIST PLACER.
638 PLACER
TRACT "B"
TRACT "A"
TRACT "C"
ANCHOR.
HALL
LUCKY BOY.
LUTS EXT.
PRESTON
CONGRESSIONAL.
SENATORIAL
PHILLIPS.
WALTAUGA
WALTAUGA EXT.
PEGUS
MAJOR.
638 PLACER
638 PLACER
ROSE BUD.
WASH KASH.
LILLIAN.
WATERLOO.
WELLINGTON NO. 6.
SHAMROCK.
CROCUS EXT.
CLUTTER'S DREAM.
MARGARET.
OLD TOWN.
CROCUS.
HOMESTAKE.
RUSSELL TON EXT.
WEST PEWABIC.
FEDERAL.
PEWABIC.
PEWABIC.
PEWABIC.
BORTAIL.
IRON.
FORFAR.
ROCKY MT. TERROR.
BECKY SHARP.
WARPATH.
ROBERT FULTON.
BORTON.
GRASSHOPPER.
DANFORTH.
GLADSTONE.
LIVINGSTONE.
HARP.
BLOOMFIELD.
BIG FIVE

Omea-2952

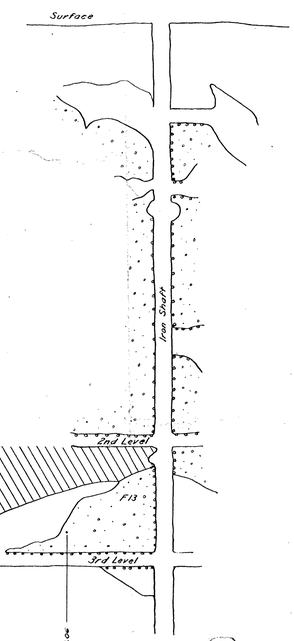
Amen-2752 encl 1 of 2

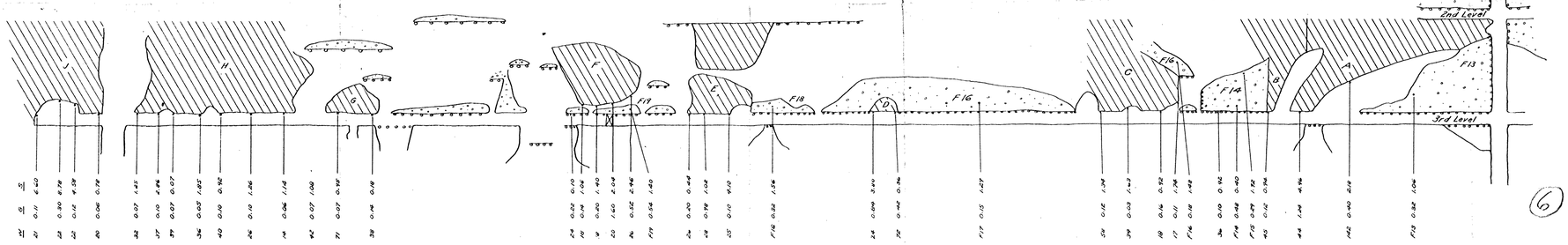
Enclosed: 4 copies assay maps
1 cy. photostat map

Secretary to the Operating Committee
Defense Minerals Exploration Administration
Interior Building
Washington 25, D. C.



Plan of the 3rd Level West





Section through Main Drift

Explanation

Ore in place

Broken Ore

Assays Under:

- W When taken on vein in place, number gives width, in inches, of vein sampled. When taken on broken ore, number is sample number (F)
- G Gold in ounces per ton
- S Silver in ounces per ton
- C Copper in %
- Z Zinc in %
- U Uranium in % U_3O_8

P Pitchblend occurrence

6

7

Dmea-2752

Atomic Energy Uranium Inc.
~~Rocky Mountain Oil Co.~~
405 Interstate Trust Bldg
Denver 2, Colo.
Exhibit B MF 103

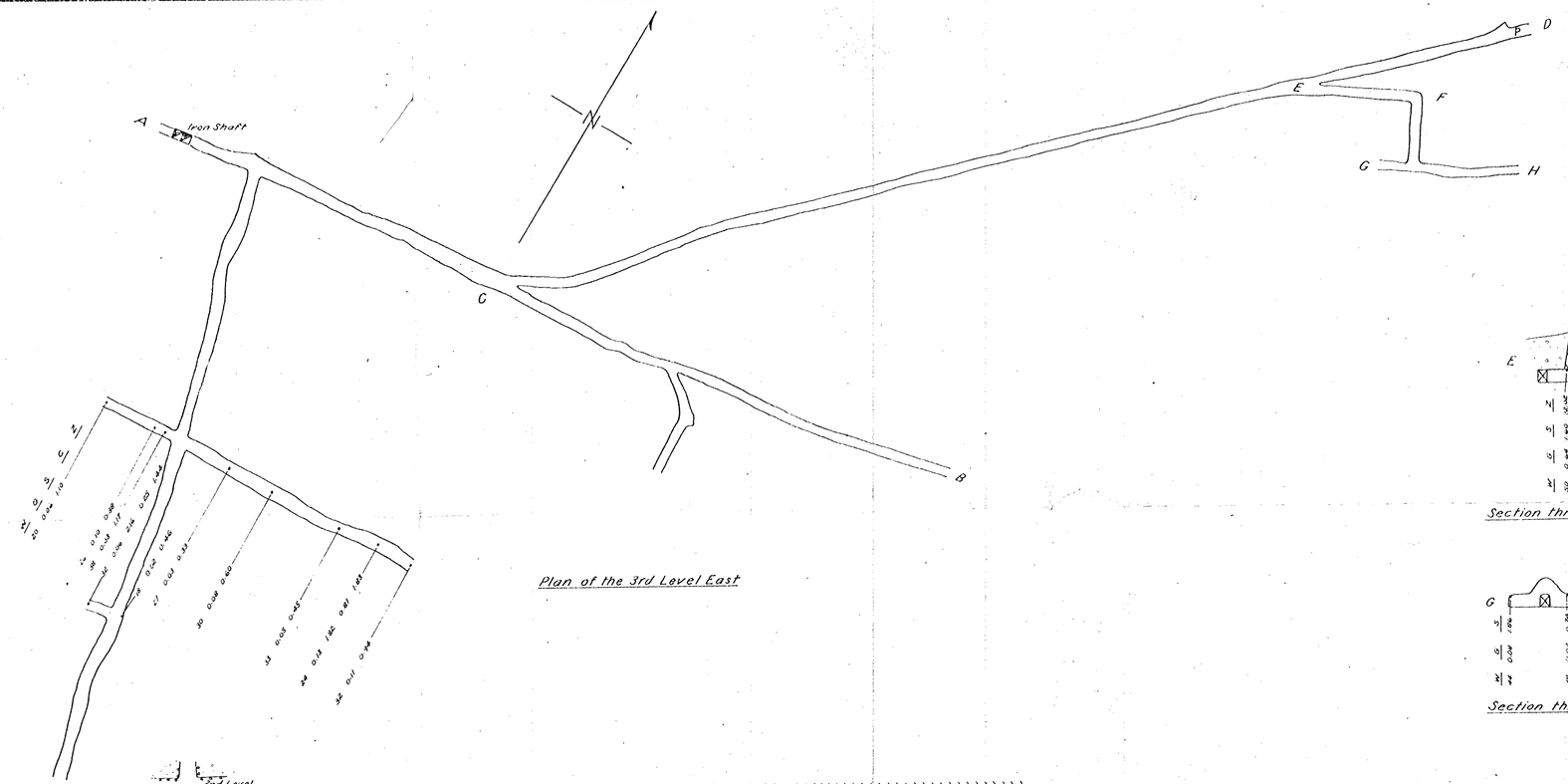
To accompany Geol. Rept 41

ASSAY MAP OF
3rd Level, West,
IRON MINE

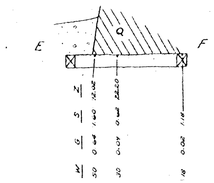
Scale 1" = 40'

March 10, 1950

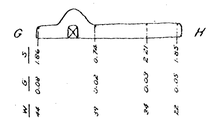
EXHIBIT B



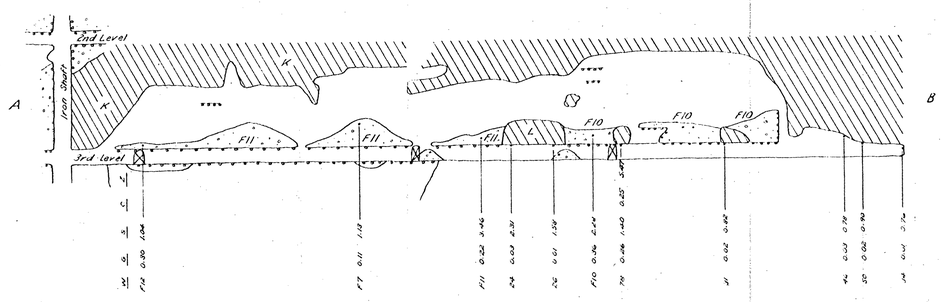
Plan of the 3rd Level East



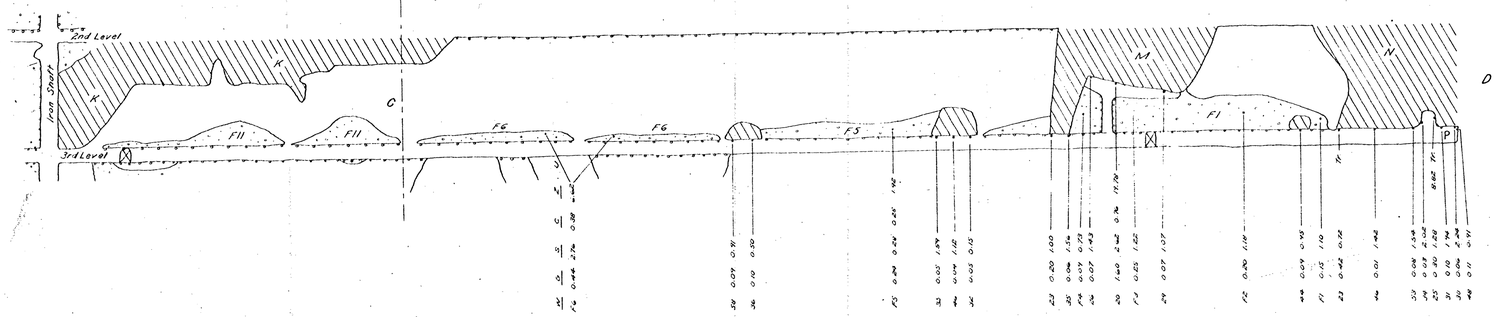
Section through Drift E-F



Section through Drift G-H



Section through Drift A-B



Section through Drift C-D

Explanation

Ore in place

Broken Ore

Assays Under:

- w When taken on vein in place, number gives width, in inches, of vein sampled. When taken on broken ore, number is sample number (F)
- a Gold in ounces per ton
- s Silver in ounces per ton
- c Copper in %
- z Zinc in %
- u Uranium in % U_3O_8

P Pitchblend occurrance

Dnea-2752

Atomic Energy Uranium Inc.
~~Rocky Uranium Corp.~~
405 Interstate Trust Bldg
Denver 2, Colo

To accompany Exhibit B
MF 103

To accompany Geological Report 41

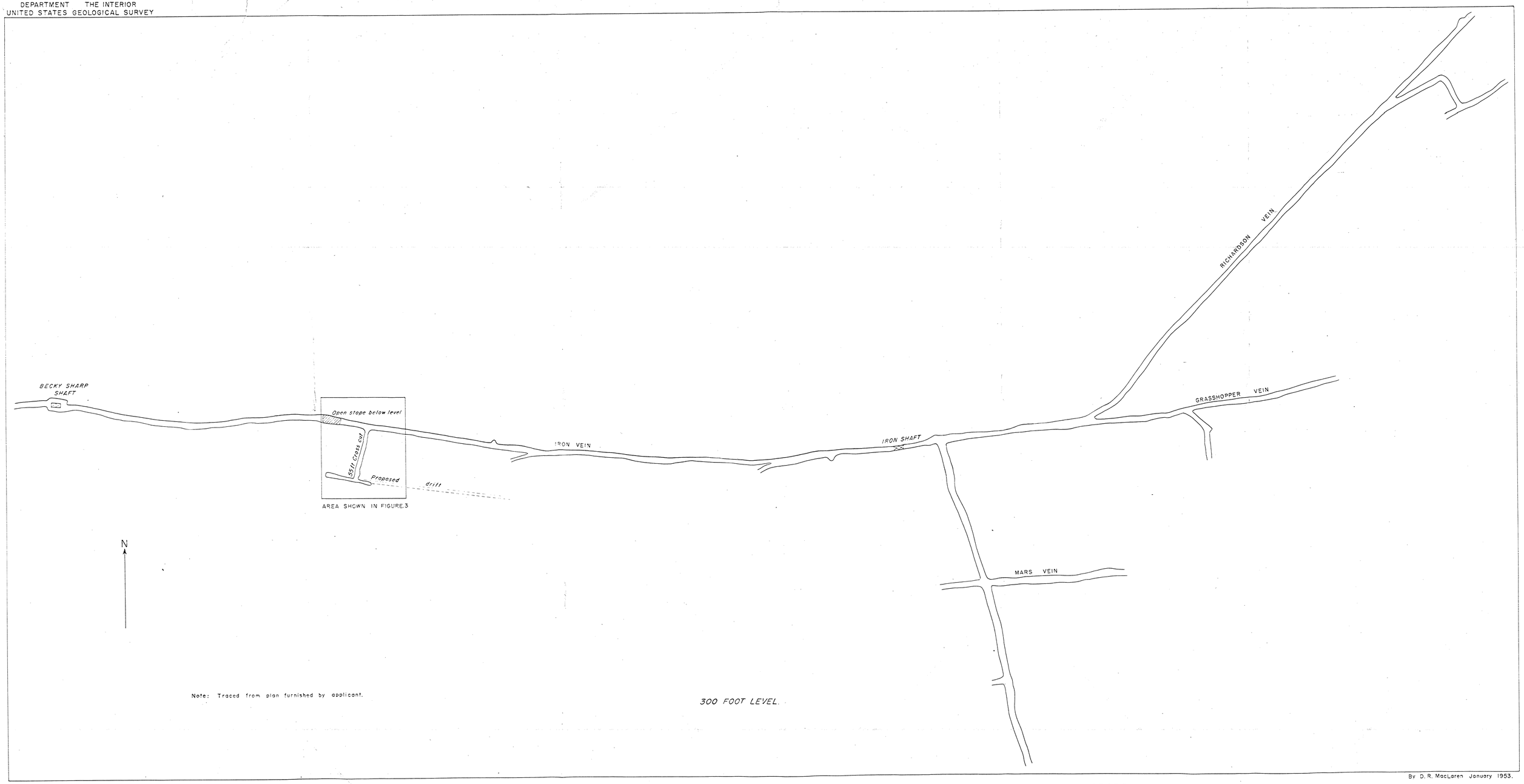
ASSAY MAP OF
3rd Level, East,
IRON MINE

Scale 1" = 40'

March 10, 1950

DEPARTMENT THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

DMEA DOCKET NO. 2752.



By D. R. MacLaren January 1953.

FIGURE 2. PLAN SHOWING LEVEL WORKINGS AND PROPOSED EXPLORATION DRIFT, IRON MINE, GILPIN COUNTY, COLORADO.

40 0 40 80 FEET.