DMA Form 1

DEFENSE MINERALS ADMINISTRATION
Control Slip

CONTROLLED DOCUMENT

DMA Docket No. 3735

DO NOT DETACH THIS SLIP

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Cys to USBM, USGS, and Reg. III.

This document has been recorded as

Exploration

Any action taken to change the type of request for assistance must be promptly reported to the Reports and Records Branch. Use DMA Form 2 for submitting these reports.

Routing Slip

To:	700	Date	3/24/55
To:	Oper Comm	Date	4-19-55
To:	Oper Comm	Date	7-28-55
To:	Oper Comm	Date	8-10-55
To:	130	Date	4-9-57
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3-20-55

Joel L. Stevens
DMEA-3735

Forwarded the following to-day, (1st to Crawford then to Troy):

1. U.S.G.S. Bulletin 1009-A
2. Bound Vol. AEC, RME-1002
3. 12 Settlement Sheets of shipments to A.S. & R. Dated Dec. 52 thru to July '53

Applicant wants these documents returned.

Surname 700
A.G. Keating
Ellis
Bishop
Williams
Martin
Johnson

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

AUG 1 1955

Mr. Joel L. Starnes
1962 South Sherman
Denver, Colorado

Re: Docket No. DMEA-3735 (Uranium)
Silver Cliff Mine
Niobrara County, Wyoming

Dear Mr. Starnes:

Your application for aid in an exploration project and other data available to us in Washington relating to the above-named property have been reviewed.

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

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

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

Sincerely yours,

C. O. Mittendorf

Administrator

A. G. Keating:am

cc to: Admr. Reading File
Operating Committee
Docket
Messrs. J. E. Crawford, Rm. 3641
T. H. Kiilsgaard, Rm. 5222
J. O. Hosted, Rm. 3210, GSA
Code 700
Mr. Ching
DMEA File, Mr. Keating (2)

8/12/55 gla

C

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

224 New Customhouse
Denver 2, Colorado

August 9, 1955

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA-3735 (Uranium), Joel L. Starnes, Silver Cliff mine, Niobrara County, Wyoming

Enclosed are four copies of a memorandum which is in reply to your letter dated August 1, 1955.

W. M. Traver

W. M. Traver

Enclosures

RECEIVED
AUG 11 1955

DMEA
Date Rec'd.

AUG 8 1955

BUREAU OF MINES
Denver, Colorado

Region III

Building 20
Denver Federal Center
Denver 2, Colorado
August 8, 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: John F. Shaw

Subject: DMEA 3735 (Uranium), Joel L. Starnes, Silver Cliff mine, Niobrara County, Wyoming

Reference is made to your memorandum dated August 3, 1955, to which was attached a letter from the Acting Chairman of the Operating Committee requesting that certain documents be returned to the Washington office.

We gave these documents to Joel L. Starnes when he requested them in this office.

John F. Shaw
Supervising Mining Engineer

cc 8
DMEA 3735
Chron

JFS/em

RECEIVED
AUG 11 1955

DMEA
Data Recd
AUG 8 1955
BUREAU OF MINES
Denver Colorado

Region III

Building 20
Denver Federal Center
Denver 2, Colorado
August 8, 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region III

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John F. Shaw
Supervising Mining Engineer

cc S ✓
DMEA 3735
Chron

JFS/am

RECEIVED
AUG 11 1955

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

224 New Customhou[redacted]
Denver 2, Colora[redacted]

August 9, 1955

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA-3735 (Uranium), Joel L. Starnes, Silver Cliff mine, Niobrara County, Wyoming

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W. M. Traver

W. M. Traver

Enclosures

RECEIVED
AUG 11 1955

DMEA
Date Rec'd.

AUG 8 1955

BUREAU OF MINES
Denver, Colorado

Region III

Building 20
Denver Federal Center
Denver 2, Colorado
August 8, 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: John F. Shaw

Subject: DMEA 3735 (Uranium), Joel L. Starnes, Silver Cliff mine, Niobrara County, Wyoming

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We gave these documents to Joel L. Starnes when he requested them in this office.

John F. Shaw
John F. Shaw
Supervising Mining Engineer

cc S ✓
DMEA 3735
Chron

JFS/em

RECEIVED
AUG 11 1955

DMEA
Date Rec'd.

AUG 8 1955

BUREAU OF MINES
Denver, Colorado

Region III

Building 20
Denver Federal Center
Denver 2, Colorado
August 5, 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: John F. Shaw

Subject: DMEA 3735 (Uranium), Joel L. Starnes, Silver Cliff mine, Niobrara County, Wyoming

Reference is made to your memorandum dated August 3, 1955, to which was attached a letter from the Acting Chairman of the Operating Committee requesting that certain documents be returned to the Washington office.

We gave these documents to Joel L. Starnes when he requested them in this office.

John F. Shaw
John F. Shaw
Supervising Mining Engineer

cc: 8
DMEA 3735
Chron

JFS/em

RECEIVED
AUG 11 1955

(Docket Copy) 700

A. A. Fleming
Ellis
Bishop
Williams

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

August 9, 1955

Summary of Proposed Project

Subject: Denial of application for an exploration project.

Docket No.: DMEA-3735

Commodity: Uranium

Applicant: Joel L. Starnes
1962 South Sherman
Denver, Colorado

Silver Cliff Mine
Niobrara County, Wyoming

Property: 25 acres in S. W. 1/4 and N. E. 1/4, Sec. 7, Township 32 North, Range 63 W. Sixth principal meridian. Niobrara, Wyoming.
All lands covered by lease agreement dated February 2, 1955, and recorded in Book 156, Page 56, Town of Lusk, County of Niobrara, State of Wyoming

Date of Application: March 15, 1955

Amount of Application: $27,818.70

Work Proposed: Stage I

Drive and inclined adit 200 feet @ $35.47/ft. $7,094.70

(Upon completion of this work the applicant, at his own expense will perform up to 1,000 feet of diamond drilling from the adit for radiometric probing if necessary or recommended.)

Stage II

Rehabilitation of creek level tunnel to permit deeper core drilling from the level

600 feet @ $13.27/ft. $7,964.00

Core drilling from the above level
4,000 feet @ $3.19/ft. $12,760.00

Work
Proposed: Stage II Cont'd

Total estimated cost	$27,818.70
Government participation	$20,864.02

Field Team
Report: July 8, 1955 - R. L. Bolmer, U.S.B.M.
D. R. McLaren, U.S.G.S.

"The past production of uranium from the deposit has been derived from a zone in Cambrian-quartzite which lies adjacent to and up 25 feet into the foot wall of the Silver Cliff fault. The upthrow erosional remnant of the quartzite horizon on the hanging wall of the fault was not mineralized. Uranium was not deposited to any extent in the underlaying pre-Cambrian schist. The fault itself at lower depths in the schist, as evidenced by previous drilling, apparently contains only minor uranium mineralization.

"The favorable zone for the occurrence of uranium ore is limited in extent and already has been extensively explored and developed. This zone may yet contain a number of undiscovered pockets of ore, but such bodies are expected to vary and to be small in size and widely disbursed.

"It is concluded that additional exploration would not result in a significant discovery.

"It is recommended that the application for exploration assistance be denied."

Commodity Committee Members' Comments:

U. S. Geological Survey - W. P. Williams, August 1, 1955

"Considerable information about the property is already in Government files. The U. S. Geological Survey mapped the workings in 1950, and the U. S. Bureau of Mines drilled the property in 1952 - 53.

"The examining team concludes that ore deposits on the property are small and widely distributed. An exploration project would, therefore, have small chance of making a worthwhile discovery. I agree with the examining team's recommendation that the application for DMEA assistance be denied."

U. S. Bureau of Mines - John E. Crawford - July 29, 1955

"I have reviewed the Field Team Report of examination Silver Cliff Mine and have discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission. We concur with the recommendation of the Field Team that the application be denied."

Rare and Miscellaneous Metals Division - A. G. Keating - August 3, 1955

Information similar to that which would result from the initial stages of the proposed project work could be accomplished by the applicant at small cost for cleaning out the raise, uncovering the outcrop and drilling a few jackhammer holes from the floor of the pit. The amount of work and expense involved would not justify Government assistance.

The program of work proposed is not considered the most feasible method of exploring the remaining untested sections of the deposit.

There is some doubt as to the ability of the Applicant to properly conduct the work or finance his share of the proposed project.

This division concurs with the Commodity Members and the Field Team that the application be denied.

Ernest Wm. Ellis

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

CLASS OF SERVICE

This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION
TELEGRAM

W. P. MARSHALL, PRESIDENT

1201

SYMBOLS

DL=Day Letter

NL=Night Letter

LT=International Letter Telegram

The filing time shown in the date line on domestic telegrams is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

SA269 KA418 (35)

K DVA612 PD AR=DENVER COLO 8 NFT=

C D MITTENDORF=ADMINISTRATOR DMEA

INTERIOR BLDG WASHDC=

AUG 8 AM 5 16

PLEASE ADVISE STATUS OR RECOMMENDATIONS ON DOCKET 3735 SILVER CLIFF MINE LUSK WYOMING. HAVE RECEIVED ALL MATERIAL REQUESTED RETURNED=

J L STARNES 1962 SOUTH SHERMAN=

RECEIVED

AUG - 9 1955

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

Surname copy

Ching
Ellis

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

AUG - 9 1955

Department of the Interior

DMEA
14X1401(01) Revolving Fund, Defense Production Act, Interior
(Allocated Working Fund to the Office of the Secy.)

TELEGRAM

J. L. STARNES
1962 SOUTH SHERMAN
DENVER, COLORADO

REURTEL DOCKET 3735 FINAL DECISION ON YOUR APPLICATION WILL BE MADE SHORTLY. WILL ADVISE YOU AT LUCK ADDRESS UNLESS DIRECTED OTHERWISE.

C. O. Mittendorf

C. O. MITTENDORF, ADMINISTRATOR, DMEA

MChing/gla
8-9-55
cc to: Admr.'s Reading File
Docket
Code 700
Mr. Ching
Confirmation to addressee
DMEA Field Team, Region III (2)

R.C.L.

8/8/55 gla

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

RECEIVED
AUG - 8 1955

224 New Customhouse
Denver 2, Colorado

August 3, 1955

Memorandum

To: J. F. Shaw

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA-3735 (Uranium), Joe L. Starnes, Silver Cliff mine, Niobrara County, Wyoming

Enclosed is a copy of a letter from the Chairman of the Operating Committee dated August 1, 1955 requesting the return of certain data.

The Field Team letter to you dated April 27, 1955 requested the return of the five items listed in the Chairman's transmittal letter which was forwarded to you at that time.

Your memorandum dated July 8, 1955 to the Field Team, Region III states that "the copies of the settlement sheets and the AEC report on the property are being returned to the applicant at his request."

Will you please advise your disposition of the remaining data requested by the Chairman of the Operating Committee.

W. M. Traver

Enclosure

HMC:sr

cc Subject
Chairman Op. Comm. (2)
Connors
Chron

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

RECEIVED
AUG - 8 1955

224 New Customhouse
Denver 2, Colorado

August 3, 1955

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W. M. Traver

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Enclosure

HMC:sr

cc Subject
Chairman Op. Comm. (2)
Connors
Chron

IN REPLY REFER TO:

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

RECEIVED
AUG - 2 1955

August 1, 1955

Memorandum

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

From: W. P. Williams, U. S. Geological Survey

Subject: Review of Report of Field Examination, DMEA Docket No. 3735, Joel L. Starnes, Silver Cliff Mine, Niobrara County, Wyoming.

I have reviewed the report of field examination covering the above referenced property.

Considerable information about the property is already in Government files. The U. S. Geological Survey mapped the workings in 1950, and the U. S. Bureau of Mines drilled the property in 1952-53.

The examining team concludes that ore deposits on the property are small and irregularly and widely distributed. An exploration project would, therefore, have small chance of making a worthwhile discovery; and I agree with the examining team's recommendation that the application for DMEA assistance be denied.

WPWilliams

W. P. Williams

IN REPLY REFER TO:

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

RECEIVED
AUG 2 - 1955

August 1, 1955

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WPW

W. P. Williams

WPWilliams:iml
G-8/1/55

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

IN REPLY REFER TO:

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

RECEIVED
AUG - 2 1955

August 1, 1955

Memorandum

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

From: W. P. Williams, U. S. Geological Survey

Subject: Review of Report of Field Examination, DMEA Docket No. 3735, Joel L. Stearns, Silver Cliff Mine, Kiowa County, Wyoming.

I have reviewed the report of field examination covering the above referenced property.

Considerable information about the property is already in Government files. The U. S. Geological Survey mapped the workings in 1950, and the U. S. Bureau of Mines drilled the property in 1952-53.

The examining team concludes that ore deposits on the property are small and irregularly and widely distributed. An exploration project would, therefore, have small chance of making a worthwhile discovery; and I agree with the examining team's recommendation that the application for DMEA assistance be denied.

WPW

W. P. Williams

WPWilliams:iml
G-8/1/55

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

IN REPLY REFER TO:

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

RECEIVED
AUG - 2 1955

August 1, 1955

Memorandum

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

From: W. P. Williams, U. S. Geological Survey

Subject: Review of Report of Field Examination, DMEA Docket No. 3735, Joel L. Starnes, Silver Cliff Mine, Niobrara County, Wyoming.

I have reviewed the report of field examination covering the above referenced property.

Considerable information about the property is already in Government files. The U. S. Geological Survey mapped the workings in 1950, and the U. S. Bureau of Mines drilled the property in 1950-51.

The examining team concludes that ore deposits on the property are small and irregularly and widely distributed. An exploration project would, therefore, have small chance of making a worthwhile discovery; and I agree with the examining team's recommendation that the application for DMEA assistance be denied.

WPW

W. P. Williams

WPWilliams:iml
G-8/1/55

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

7/29/55 gla

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

RECEIVED
JUL 29 1955

July 29, 1955

Memorandum

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

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

Subject: Report of Examination, DMEA Docket 3735, Joel L. Starnes, Silver Cliff mine, Niobrara County, Wyoming

I have reviewed the Field Team report of examination, Silver Cliff mine, DMEA Docket 3735; and I have discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

We concur with the recommendation of the Field Team that the application be denied.

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

John E. Crawford
John E. Crawford

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

RECEIVED
JUL 29 1955

July 29, 1955

Memorandum

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

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

Subject: Report of Examination, DMEA Docket 3735, Joel L. Starnes, Silver Cliff mine, Niobrara County, Wyoming

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We concur with the recommendation of the Field Team that the application be denied.

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John R. Crawford

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

RECEIVED
JUL 29 1955

July 29, 1955

Memorandum

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Uranium Commodity Committee, Room 4445

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

Subject: Report of Examination, DMEA Docket 3735, Joel L. Starnes, Silver Cliff mine, Niobrara County, Wyoming

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We concur with the recommendation of the Field Team that the application be denied.

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

John E. Crawford

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

Surname copy
A.G. Keating
Ellis
Martin
Hepman
Mallardoy

AUG - 1 1955

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

Re: Docket No. DMEA 3735 (Uranium)
Joel L. Starnes
Silver Cliff Mine
Niobrara County, Wyoming

Dear Mr. Traver:

This is with reference to our letter to you dated April 21, 1955, to which the following data were attached:

1. U.S.G.S. Bulletin 1009-A

2. Bound volume AEC Report RME-1082

3. Twelve settlement sheets of shipments to the Edgemont Receiving Station dated December, 1952, through July, 1953.

4. A Lease Agreement, dated February 2, 1955, between Helen F. Lincoln and Butler Corporation, Lessors, and Joel L. Starnes, Lessee.

5. An Agreement, dated February 18, 1955, between J. L. Starnes and Sam H. Smith.

We call your attention to the first paragraph of the letter in which we requested that the material listed above should be returned to this office when it has served its purpose in the field. A search of our files indicates that the data have not been returned and therefore, if you find that you have the material, and that it has served its purpose, will you please forward it to us.

Sincerely yours,

APPROVED:

W. S. Martin
ACTING Chairman, Operating Committee (GHB)

/s/ Robert W. Gechan (GHB)
Member, Bureau of Mines

Thor H. Kiilsgaard (GHB)
Member, Geological Survey

see J. L. Starnes telegram 8/8/55

R.C.H.

AGKeating:ai
7/27/55
cc to: Admr. Reading File
Operating Committee
Docket
Messrs. J.E.Crawford, Rm 3641
T.H.Kiilsgaard, Rm. 5224
J.O.Hosted, Rm. 3210, GSA
Code 700
Mr. Keating

7/25/55 gh

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

RECEIVED
JUL 18 1955

224 New Customhouse
Denver 2, Colorado

July 14, 1955

Memorandum

To: Secretary to the Operating Committee, DMEA

From: DMEA Field Team, Region III

Subject: Joint Report of Examination, DMEA Docket 3735 (Uranium), Joel L. Starnes, Silver Cliff mine, Niobrara County, Wyoming

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

We concur in the recommendation of the field examiners that the application be denied.

DMEA Field Team, Region III

W. M. Traver

W. M. Traver

E. N. Harshman

E. N. Harshman

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
7-22-55
(date)

DMEA
Date Rec'd.

JUL 13 1955

BUREAU OF MINES
Denver, Colorado

Region III

TRANSMITTED
JUL 14 1955

Building 20, Room 137
Denver Federal Center
Denver 2, Colorado
July 8, 1955

RECEIVED
JUL 1 8 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: E. N. Harshman and John F. Shaw

Subject: DMEA 3735, (Uranium) Silver Cliff mine, Niobrara County, Wyoming, Joel L. Starnes

Enclosed are the original and eleven copies of a joint engineering and geologic report by R. L. Bolmer, mining engineer, Bureau of Mines and D. R. MacLaren, geologist, Geological Survey, covering docket DMEA 3735.

The applicant requested exploration assistance in the amount of $27,818.70 to explore the Silver Cliff mine. A field examination was made by D. R. MacLaren of the Geological Survey and R. L. Bolmer of the Bureau of Mines on March 17 and 18, 1955.

The examining team concluded that the deposit had already been extensively explored and developed and that any additional exploration would not result in a significant discovery of uranium.

It is recommended that the application for exploration assistance be denied.

E. N. Harshman

E. N. Harshman
Member, Field Team

John F. Shaw

John F. Shaw
Supervising Mining Engineer

Enclosures

cc 11
DMEA 3735
Chron

JFS/ph

Reviewed by
DMEA OPERATING COMMITTEE
7-22-55
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

RECEIVED
JUL 1 3 1955

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

DMEA 3735

Silver Cliff Mine

Joel L. Starnes

Niobrara County, Wyoming

Uranium

Joint Engineering and Geologic Report

by

R. L. Bolmer, Mining Engineer
Bureau of Mines

D. R. MacLaren, Geologist
Geological Survey

June 29, 1955

Reviewed by
DMEA OPERATING COMMITTEE
7-22-55
(Date)

DMEA 3735

SILVER CLIFF MINE
JOEL L. STARNES
NIOBRARA COUNTY, WYOMING

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History and production..... 3
Ownership and extent..... 4
Geology and description of the deposit..... 5
Present status of the property..... 8
Exploration and development..... 8
Mining and milling equipment and other facilities..... 9
Project proposals with costs..... 10
Conclusions and recommendations..... 11

ILLUSTRATIONS

Figure — Follows page

1. Location map of Silver Cliff Mine, Niobrara County, Wyoming..... 2

Geologic map, underground workings, and sections of the Silver Cliff Mine, Lusk, Niobrara County, Wyoming..... at end of report

DMEA 3735

SILVER CLIFF MINE
JOEL L. STARNES
NIOBRARA COUNTY, WYOMING

INTRODUCTION

Joel L. Starnes, P. O. Box 151, Lusk, Wyoming, made application for aid in an exploration project, pursuant to DMEA Order 1, under the Defense Production Act of 1950, as amended. The applicant proposed a two-stage project of exploration for uranium at the Silver Cliff Mine near Lusk, Niobrara County, Wyoming, which he estimated would cost a total of $27,818.70.

The property, which the applicant has under lease, covers only the northernmost sections of the Silver Cliff fault and includes only part of the old surface and underground workings along that structure. As a first stage of the project, the applicant proposes to explore the contact of the Cambrian quartzite with the underlaying pre-Cambrian schist along the footwall side of the fault by means of a 200-foot inclined adit. As a second stage, he proposes to explore the fault at greater depth in the schist by means of 4,000 feet of core-drilling from a lower tunnel level of the mine. The proposed second stage drilling would entail the reopening and rehabilitation of some 600-feet of the lower tunnel level.

The application, dated March 15, 1955, was received by the Defense Minerals Exploration Administration, Washington, D.C., on March 23, 1955. The application was reviewed, assigned Docket No. DMEA 3735, and, on April 21, 1955, was referred to the DMEA Field Team, Region III for

investigation, for field examination if warranted, and for recommendations. The property was examined by D. R. MacLaren of the Geological Survey and R. L. Bolmer of the Bureau of Mines on March 17 and 18, 1955. The examination was made with the applicant.

This report is based on the results of the field examination and is prepared for the purpose of aiding the Field Team, and others concerned, in evaluating the applicant's request for exploration assistance.

LOCATION, TOPOGRAPHIC, AND PHYSICAL FEATURES

The Silver Cliff Mine is located one-half mile west of Lusk, in section 7, T. 32 N., R. 63 W., sixth principal meridian, Niobrara County, Wyoming, (fig. 1). Lusk, a town of 2,000 population in east-central Wyoming, is the county seat and the center of the local oil production and refining industry. The town is at the junction of U. S. Highways 20 and 87 and is a shipping point on the Chicago and Northwestern Railroad.

The elevation of the mines is about 5,200 feet above sea level. It is located near the top of Silver Cliff Hill, a prominent topographic feature that rises nearly 300 feet above the surrounding plains. The rangeland surrounding the property contains no timber suitable for mining purposes. Sufficient water for most exploration and production operations is available from Niobrara Creek, a small permanent stream on the northern boundary of the property. The mine workings are accessible via a steep unimproved road that extends from the western outskirts of Lusk. The nearest uranium ore purchasing depot is located some 70 miles northeast of the mine, at Edgemont, South Dakota.

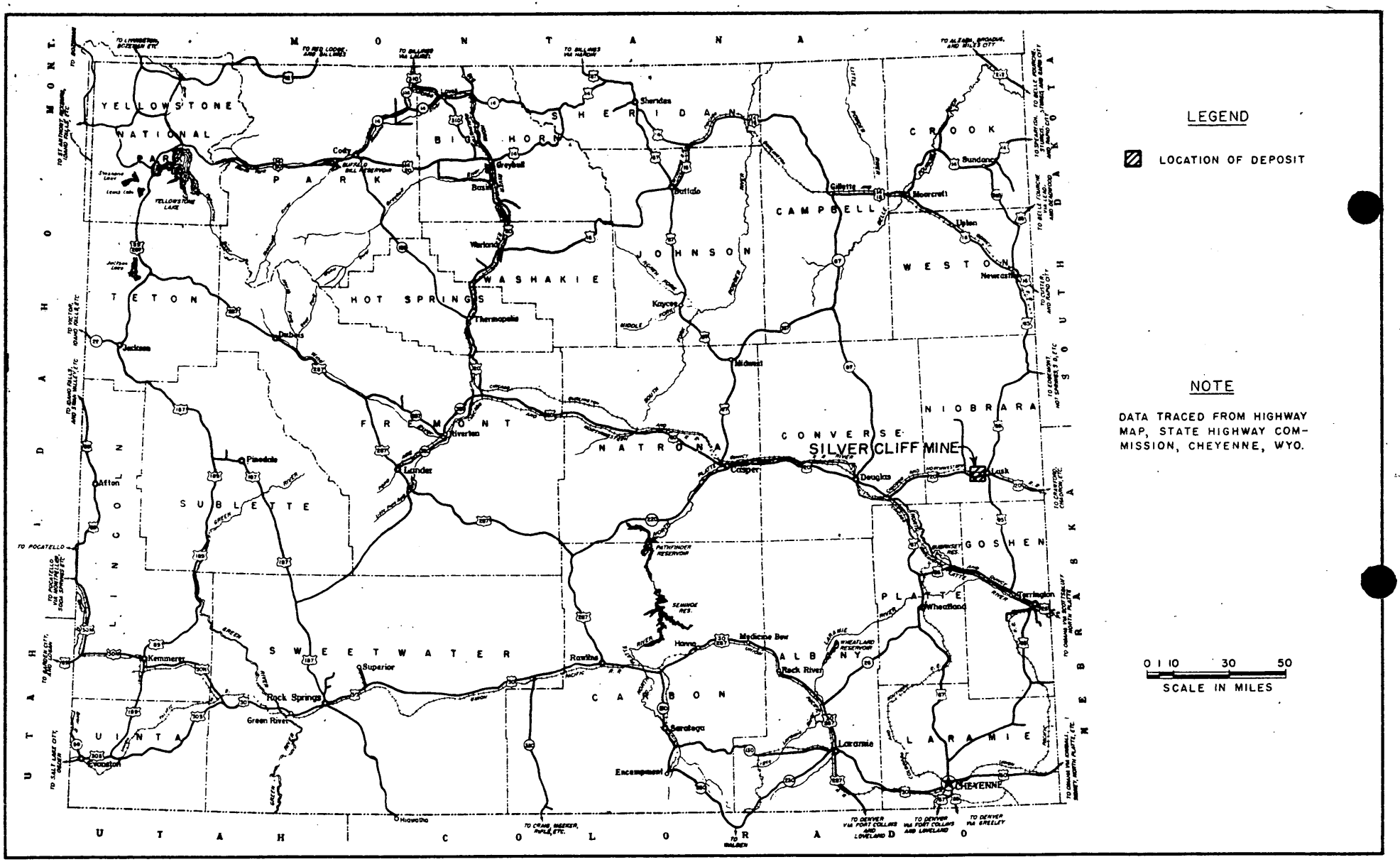


FIGURE 1 - LOCATION MAP, SILVER CLIFF MINE, NIOBRARA COUNTY, WYO. (JOEL L. STARNES DMEA 3735)

HISTORY AND PRODUCTION

High grade silver-copper ore was discovered along the Silver Cliff fault in 1879 and, in 1880, the Great Wyoming Mining and Milling Company was organized to develop and mine the indicated deposit. The company built a 400-ton amalgamation mill on the property which operated only intermittently as the grade of the ore proved lower than anticipated. Between 1880 and 1884, a 285-foot shaft was sunk from the top of Silver Cliff Hill and the 1,200-foot creek level tunnel was driven from the north side of the hill to intersect with the bottom of the shaft. A winze from the tunnel was abandoned because of excessive water. Intermediate and upper level tunnels were extended into and through the hill. The copper-silver production during this period mainly was from surface pits and small underground stopes along the fault. The mine was abandoned in 1884 and the mill dismantled in 1886.

Between 1918 and 1922, the property was leased by E. D. Lorimer, who constructed a small mill and reworked the old mine dumps for their radium content. Some selective mining along and above the upper tunnel was performed. From 4 to 6 carloads of ore containing about 3 percent uranium oxide reportedly were shipped from the property during this period.

The property was idle until 1950 when the Wyoming Uranium Company leased the ground and began hand sorting the old dumps. Seven carloads of uranium ore, reportedly averaging better than 0.3 percent U_3O_8, were shipped to the Vitro Chemical Company, Salt Lake City, Utah, during 1951-52. The company was dissolved in May 1952 due to difficulties

arising with the landowner and lessor of the south portion of the property. Joel L. Starnes, one of the officials of the former company and the applicant for exploration assistance, later the same year obtained a lease on the north end of the property and organized the Uranium Development Corporation. Since that time, spasmodic operations have been carried out on the north end of the deposit. About 250 tons of ore ranging from 0.15 to 0.68 percent U_3O_8 were shipped to the buying station at Edgemont. Part of this ore was mined from the old open cut at the north side of the hill; the remainder was hand sorted from old dump material and mill tailings. The applicant leased the north end of the deposit under his own name in January 1955 and continued spasmodic work at the mine. Application for Government assistance in an exploration project at the property was submitted to the Defense Minerals Exploration Administration in March 1955.

OWNERSHIP AND EXTENT

The property leased by the applicant comprises an area of some 25 acres located in the SW1/4NE1/4 section 7, T. 32 N., R. 63 W., sixth principal meridian, Niobrara County, Wyoming. The property extends north of the east-west fence line that crosses the crown of Silver Cliff Hill (Plate 1, U.S.G.S. Bul. 1009-A). Only about one-fourth of the developed length of the Silver Cliff fault lies north of the fence line on the applicant's lease.

The surface rights to the property and one-half the mineral rights are owned by Helen F. Lincoln. The remaining mineral rights are owned by the Butler Corporation, a defunct Wyoming corporation.

The owners have leased the property to the applicant for a period of one year beginning January 10, 1955. The lease is renewable yearly upon an annual payment to the lessors of $500.00. The lease provides for royalty payments to the lessors in the amount of 10 percent of the sale price of the ores extracted and sold from the property.

The railroad right-of-way crosses the northernmost end of the applicant's lease. Although the fault may extend into this area, the upper ore horizons have been eroded and are not present on the northern sections of the lease.

The applicant was to have submitted a map showing the extent of his holdings. Such a map had not been submitted to the date of this report. A rather confusing and incomplete description of the extent of the property is given in the copy of the lease which is included with the application.

The major portion of the deposit occurs south of the east-west fence line on property owned by Mrs. Jamesetta Hale, who reportedly will not lease the ground to this particular applicant.

GEOLOGY AND DESCRIPTION OF THE DEPOSIT

The geology of the Silver Cliff Mine has been described in U. S. Geological Survey Bulletin 1009-A by Verl R. Wilmarth and D. H. Johnson (1954), and in U. S. Atomic Energy Commission RME-1002 by Charles P. Bromley (1953). These two papers have been freely drawn upon in preparing this report. A reproduction of Plate 1 of Bulletin 1009-A (Geologic map, underground workings,

and sections of the Silver Cliff Mine, Lusk, Niobrara County, Wyoming.) has been included with this report.

Rocks in the area of the Silver Cliff Mine are steeply dipping schists of Precambrian age, unconformably overlain by gently dipping Cambrian quartzite. The schist is essentially quartz-biotite with some muscovite and plagioclase. Below the zone of oxidation the schist contains graphite, hematite, specularite, and pyrite as masses and blebs along the planes of schistosity. Within the schist there are a few small lenses of pegmatite also Precambrian in age. The quartzite is light buff to dark reddish brown in color, and massive with only slightly noticeable bedding. For the most part the grains are water worn fragments of quartz and feldspar that have been cemented by silica and calcite. Within the quartzite there are intermittent lenses of conglomerate and siltstone.

Both the schist and the quartzite have been displaced by the Silver Cliff fault, a high angle reverse fault that strikes N. 20° E. and dips 65° to 70° SE. Movement along the fault has placed schist on the hanging wall side adjacent to quartzite on the foot wall side, the stratigraphic throw being about 70 feet.

Minerals of silver, copper, and uranium occur in the quartzite within 25 to 30 feet of the fault, and to some extent along and near the fault in the schist as coatings along fractures, fillings in calcite veins, and irregular replacement bodies. Of four uranium minerals, pitchblende, gummite, uranophane, and metatorbernite that have been identified from the Silver Cliff Mine, uranophane is by far the most abundant. The uranium minerals are associated with

native copper and silver, chalcocite, malachite, azurite, cuprite, and chrysocolla, in a gangue of calcite, limonite and clinozoisite (1954).

At the time of the examination the only accessible workings on the Starnes property were the upper tunnel and an open cut from which the tunnel enters the hill. The open cut represents the first 80 feet of the original upper tunnel which has been mined to the surface. About 80 feet from the present portal, the upper tunnel is connected by a break-through to a tunnel driven from the south side of the hill about 10 feet below the upper level. Although the south boundary of the Starnes lease is only 40 feet south of the break-through, radiometric readings were made throughout the length of both tunnels. Only within 5 feet of the ends of an old stope above the south tunnel and south of Starnes' lease was radioactivity appreciably above background recorded. Within the area of the stope radioactivity as much as 4 times background was recorded. Wilmarth (1954) reports the following assays of 6 samples he took from the walls around the stoped area:

Sample No.	U_3O_8 (percent)	Description
W-13	0.039	6-foot vertical channel in quartzite (s.s.)
W-14	0.034	" " " " " "
W-15	0.005	4-foot channel in quartzite (sandstone)
W-52	0.72	Chip sample radioactive quartzite (sandstone)
W-53	1.75	" " " " "
W-54	1.66	" " " " "

Of 22 other samples taken by Wilmarth in the quartzite, one assayed 0.11 percent U_3O_8 and the others ranged from 0.001 to 0.03 percent U_3O_8. Of 9 samples taken in the fault zone, one assayed 0.24 percent U_3O_8, while the others ranged from 0.001 to 0.009 percent U_3O_8. Only 2 samples were taken in the schist, and they assayed 0.001 and 0.007 percent U_3O_8, respectively.

PRESENT STATUS OF THE PROPERTY

Exploration and development

The existing development of the deposit, both north and south of the fence line, is shown on Plate 1 of U.S.G.S. Bulletin 1009-A. The underground workings essentially are unchanged since their mapping in 1950. A few pods of ore have been mined from Pit 1 since that time.

In 1952-53, 9 holes aggregating 2,677.5 feet were drilled on the property by the Bureau of Mines on behalf of the Atomic Energy Commission. The Silver Cliff fault was intersected at depths between 100 and 400 feet below the lowest accessible underground workings. Minor radiometric anomalies were detected in five of the holes, but none were of commercial size and grade. The details of this drilling are described in the Commission's report RME-1002.

The south portion of the deposit was leased during 1952-53 by the Edmund Key interests who drilled 504 6-to-9-foot jackhammer exploration holes from the surface trenches and the accessible underground working in the footwall of the fault. Small amounts of ore were blocked out in the south pit, in a pillar just inside the main south portal, and in a stope north of the shaft.

Pit 1 is at the north portal of the upper tunnel. The floor of this open cut is at an elevation of 5,243 feet. The cut is on the fault; it exposes the pre-Cambrian schist on the east, or upthrow side of the fault and the Cambrian quartzite on the west, or downthrow side. The quartzite-schist contact of the downthrow block outcrops on the north slope of the hill at an elevation of about 5,230 feet or some 13 feet below the floor of the cut. The contact dips 4° southeast and, therefore, is at slightly greater depth below the pit level (approximately 25 feet) near the face of the cut. An intermediate level adit was driven into the north slope of the hill at an elevation of 5,190 feet, or approximately 53 feet below the floor of the pit and between 30 to 40 feet below the schist-quartzite contact. A raise along the fault from the adit level holed into the floor of the cut. The connecting raise presently is full of broken rock from the surface operations. The adit level is uncaved; its portal, however, has been blocked by a large boulder.

Mining and milling equipment and other facilities.

There are no existing facilities on the property. The applicant's bulldozer, which was broken down and in need of repairs, was the only equipment observed on the ground during the inspection. The applicant owns a truck, with which he has been hauling the ore produced recently from the property, a core drill, a jackhammer, and certain other smaller equipment and tools. The other equipment that would be needed to perform the proposed project work presumably would be rented.

PROJECT PROPOSALS WITH COSTS

The applicant proposes to drive an inclined adit from the north slope of the hillside for a distance of 200 feet along the schist-quartzite contact in the downthrow, or western, side of the fault. The heading apparently would be driven either along the fault zone or parallel to and only a few feet west of the fault. The 200 feet of adit are estimated to cost a total of $7,094.70, or $35.47 per foot. Upon the completion of this work, the applicant, at his own expense, will perform up to 1,000 feet of necessary or recommended diamond drilling from the adit for the purpose of radiometric probing.

The applicant also proposes a second stage of work which involves the reopening of the lower or creek level tunnel for the purpose of examination and to conduct deeper core-drilling from that level. The applicant estimates that some 600 feet of the tunnel can be reopened and rehabilitated for a total cost of $7,964.00, or $13.27 per foot. The applicant also proposes 4,000 feet of core-drilling from the lower tunnel at an estimated cost of $3.19 per foot, or a total of $12,760.00. The proposed holes would be collared in or near the fault and be drilled in or parallel to the strike and dip of that structure.

The total estimated cost of the two-stage exploration project proposed by the applicant is $27,818.20. The applicant states that the proposed work could commence within 10 days.

TRANSMITTED
JUL 14 1955

RECEIVED
JUL 1955

CONCLUSIONS AND RECOMMENDATIONS

The past production of uranium from the deposit has been derived from a zone in the Cambrian-quartzite which lies adjacent to, and extends up to 25 feet into, the footwall of the Silver Cliff fault. The upthrow erosional remnant of the quartzite horizon on the hanging wall of the fault was not mineralized. Uranium was not deposited to any extent in the underlaying pre-Cambrian schist. The fault itself at lower depths in the schist, as evidenced by previous drilling on the property, apparently contains only minor uranium mineralization.

The uranium ore zone in the quartzite extends for some 230 feet north onto the ground leased to the applicant. Within the applicant's property, the depth of the zone along the dip of the fault, from its surface outcrop to its contact with the underlaying schist, ranges from 90 to 0 feet. This favorable zone for the occurrence of uranium ore is limited in extent and already has been extensively explored and developed. The zone may yet contain a certain number of undiscovered pockets of uranium ore but such bodies are expected to vary small in size and to be widely dispersed.

The quartzite-schist contact, which the applicant proposes to explore, occurs only a few feet below the floor of the main surface pit and only a few feet above the intermediate adit level. This contact also has been cut at one point by a raise from the adit level.

The same information, as would result from the initial stage of the proposed project, could be obtained at only a nominal cost by (1) cleaning out the raise and exposing the quartzite-schist contact; (2) uncovering the surface outcrop of this contact by hand or with a bulldozer; and (3) drilling a few jackhammer holes from the floor of the pit. The exploration potential of this section does not justify more work or greater expense. The small amount of work and expense that is warranted for the deposit could be performed by the applicant. The amount of work and expense, which would be involved, does not justify Government assistance.

It is concluded that the favorable sections for the occurrence of uranium in the Silver Cliff deposit already have been extensively explored and developed and that any additional exploration of the deposit would not result in a significant discovery. The project proposed by the applicant is not considered the most feasible method of exploring the remaining favorable but untested sections of the deposit. There remains some doubt as to the experience and ability of the applicant and as to whether he could financially undertake his share of the cost of the proposed project.

A denial of the application for exploration assistance at the Silver Cliff Mine is recommended.

/ph

Surname 700

Ching
Ellis
Kilsgaard
Hedges
Selfridge
F. Johnson

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

APR 21 1955

Mr. Joel L. Starnes
P. O. Box 151
Lusk, Wyoming

Re: Docket No. DMEA-3735 (Uranium)
Silver Cliff Mine
Niobrara County, Wyoming

Dear Mr. Starnes:

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

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

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

Sincerely yours,

Frank E. Johnson

ACTING Administrator

MChing:am
4-18-55
cc to: Admr. Reading File
Docket
Code 700
Mr. Ching
DMEA Field Team, Region III(2)

R.C.L.

Surname 700

Ching
Ellis

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

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

APR 21 1955

Re: Docket No. DMEA-3735 (Uranium)
Joel L. Starnes
Silver Cliff Mine
Niobrara County, Wyoming

Dear Mr. Traver:

The subject application is being referred to you for investigation, a field examination if warranted, and recommendation. A copy of the application was forwarded to you on March 24. The following attached material, which should be returned to this office when it has served its purpose in the field, was not forwarded to you with the application inasmuch as only one copy of each was made available to this office:

1. U.S.G.S. Bulletin 1009-A
2. Bound volume AEC Report RME-1002
3. Twelve settlement sheets of shipments to the Edgemont Receiving Station dated December, 1952, through July, 1953.
4. A Lease Agreement, dated February 2, 1955, between Helen F. Lincoln and Butler Corporation, Lessors, and Joel L. Starnes, Lessee.
5. An Agreement, dated February 18, 1955, between J. L. Starnes and Sam N. Smith.

In the event a contract is recommended by the Field Team the following documents should be secured from the Applicant:

1. Owner's Consent to Lien executed by Helen F. Lincoln and Butler Corporation.
2. A Subordination Agreement executed by Sam N. Smith.
3. A property map showing the boundaries of the property in relation to the old and proposed workings.

Enclosed are two copies each of comments and recommendations by John E. Crawford and E. L. Newcomb of the Uranium Commodity Committee, dated April 5 and April 7, 1955, respectively.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (JHB)

see applicants telegram 8/8/55

Enclosures

APPROVED:

J. H. Hedges (JHB)
Member, Bureau of Mines

Thor H. Kiilsgaard (JHB)
Member, Geological Survey

R.C.

Code 700
Mr. Ching

Messrs. J.E.Crawford,Rm.3641
T.H.Kiilsgaard,Rm.5224
J.O.Hosted,Rm.3210,GSA

cc to: Admr. Reading File
Operating Committee
Docket

MChing:am
4-18-55

4/12/55 gla

IN REPLY REFER TO:

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 12 1955

April 7, 1955

Re: DMEA-3735
Joel L. Starnes
(Silver Cliff Mine)
Niobrara Co., Wyo.
$27,818.70 - Uranium

Memorandum

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

From: E. L. Newcomb, U. S. Geological Survey

Subject: Review of proposed exploration

The operator has proposed 200 feet of drift or incline at the base of the quartzite and along the footwall of the Silver Cliff fault. He plans to do 1000 feet of long-hole drilling from this drift at his own expense. As a second stage after completion of drifting and long-hole drilling, the Lower Creek tunnel will be reopened and 4,000 feet of core drilling planned to test for primary uranium mineralization at depth.

The Silver Cliff mine has produced 300 tons to 400 tons of uranium ore in the last 2 or 3 years which has averaged about 0.3 percent U_3O_8. Attached A.E.C. ore purchase certificates total about 229 tons ranging from 0.15 to 0.68 percent U_3O_8.

The operator's proposed second stage drilling appears to be more suitable DMEA exploration than drifting along the quartzite-fault contact. This drifting when compared to the deeper drilling can be considered development work. The possibility of finding primary uranium mineralization below the present known oxidized zone merits favorable consideration.

I recommend this application be referred to the Field Team for their examination and report with recommendations.

E. L. Newcomb

E. L. Newcomb

4/6/55 gla

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 6 1955

April 5, 1955

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee

From: Bureau of Mines Member
Uranium Commodity Committee

Subject: DMEA Docket 3735, Joel L. Starnes,
P. O. Box 151, Lusk, Wyoming

I have reviewed the application of Joel L. Starnes, Docket 3735 and have discussed it with Joseph O. Hosted, representative of the Atomic Energy Commission.

We suggest the application of Mr. Starnes be referred to the Field Team and that the Field Team consult with Charles C. Towle, Jr., Atomic Energy Commission, Denver, Colorado.

I am forwarding the application and attached material to Mr. Thor Kiilsgaard in accordance with the routing slip attached thereto.

John E. Crawford
John E. Crawford

Copy to: Division of Minerals
Branch of Rare & Precious Metals
J. O. Hosted (2)
J. E. Crawford (2)

March 24, 1955
Subject: DMEA 3735
Re: Exploration Assistance
Silver Cliff

Mr. Joel L. Starnes
C/o Mr. A. N. Rundquist
P. O. Box 151
Lusk, Wyoming

Dear Mr. Starnes:

The receipt of your application dated March 15, 1955 for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA 3735 and referred to the Rare and Miscellaneous Metals Division.

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

Sincerely yours,

Robert E. Adams, Chief
Operations Control and
Statistics Division

60932

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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

Not to be filled in by applicant

Docket No. 3735
Metal or Mineral Uranium
Date Received 3-23-55
Estimated Cost $27,818.70
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: Joel L. Starnes - P.O. Box 151 - Lusk, Wyoming

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

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

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract All lands covered by accompaning lease agreement dated the 2nd. day of February, 1955., and recorded in book 156 on page 56., County of Niobrara, State of Wyoming.

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

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

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

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

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

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

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

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

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

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

5. *The exploration project.*—(*a*) [illegible]e the mineral or minerals for which you wis[illegible] explore Uranium

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

(*c*) The work will start within 10 days and be completed within 8 months from the date of an exploration project contract.

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

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

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

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

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

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

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

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

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

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

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

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

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

☐ 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 March 15, 1955

Joel L. Sternes
(Applicant)

By

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

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

OF THE INTERIOR
Administration

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

MAR 23 1955

(1). Joel L. Starnes - P.O. Box 151 - Lusk, Wyoming - (% A. N. Rundquist).

(b). Individual

(c). Not applicable

(d). Not applicable

(2). Complied with

(3-a). All lands covered by accompaning lease agreement dated the 2nd. day of February, 1955., and recorded in Book 156 on Page 56, Town of Lusk, County of Niobrara, State of Wyoming.

(3-b). Silver Cliff

(3-c). As lessee

(3-d). Complied with

(3-e). No known liens or encumbrances

(3-f). Patented grounds

(4-a). Please refer to U. S. Geological Survey Bulletin 1009-A., Atomic Energy Commission Program RME-1002., Radium, Uranium, and Vanadium by Frank L. Hess, all enclosed.
Joel L. Starnes is a former officer and director of the Wyoming Uranium Corporation which shipped 7 carloads of uranium ore averaging better than 0.30% U_3O_8 to the Vitro Chemical Company at Salt Lake City, Utah, from the described property. Later, Joel L. Starnes, acting as a partner and manager for Midland Investments, shipped uranium ore to the American Smelting and Refining Company at Edgemont, South Dakota. The accompaning settlement sheets herein enclosed with original application. The dumps on the described property are now being readied for continued production under enclosed agreement with one Sam N. Smith.
The accessibility of the workings provide entrance and examination to the upper workings only. The shaft, intermediate workings, and the lower workings have not been accessible since probably 1887 and no later than 1922.

(4-b). Listed in enclosed reports and the ore reserves are not known.

(4-c). Please refer to Survey Bulletin 1009-A., The mineral occurs in the form of uranophane, meta-torbernite, autonite, gummite, and torbernite, as facial coatings and replacement bodies within the quartzite and the fault material. Pieces of a fine grained micaceous schist with a diameter of more than one foot with replacement pockets of uranophane with a diameter of about 2 inches abundantly included therein are to be found in the dumps on the described property. This material has torbernite crystals associated with other uranium minerals on one face only, suggesting perhaps that the true geology of the property is not yet known.

(4-d). The accessibility of the property is excellent, it is just 64 miles from the American Smelting and Refining Company at Edgemont, South Dakota. The property itself is located just outside the City limits of the town of Lusk, Wyoming. All essential items such as power, water, supplies, and labor are located in Lusk. Mining machinery and timber however have to be transported into Lusk.

& (4-e).

(5-a). Uranium

(5-b). I wish to perform 200 feet of drifting, inclined if necessary, commencing at the north-most point, adjoining the Silver Cliff Fault. Said drift to be driven in footwall at the base of the quartzite and showing where-ever possible all igneous contact and said Silver Cliff Fault. The 200 feet of drift shall be conducted in a south-east direction and ending no less than 50 feet from any adjoining property.

Upon completion of proposed drifting, the applicant at his own expense shall perform any necessary or recommended long-hole drilling from said drift for the purpose of radiometric probing. Said long-hole drilling shall not exceed a total of 1000 feet at applicants expense and shall be of ample depth or length so as to thoroughly intersect any possible mineralized area in relationship to its thickness of bedding or zoning.

A suitable portal shall be installed and all dump material assaying less than 0.10% U_3O_8 shall be kept seperate and distinct from any portion of dumps from which production is now being made under agreement between applicant and one Sam N. Smith dated the 18th day of February, 1955., and herein enclosed with original application.

Upon completion of the above drifting, (hereafter refererence being made to the above as Stage 1.) and upon recommendation of the DMEA field team, applicant wishes to commence a second stage of exploration to be conducted in and from the Lower Creek Level Tunnel. Applicant desires to re-open said Lower Creek Level Tunnel for the purpose of entrance and examination, and to conduct a practical and well engineered program of core-drilling therefrom, proving the presence of commercial and primary mineralization.

(5-c). Enclosed lease designates such a time and the applicant will start work on the proposed project within 10 days.

(5-d). The applicant is well experienced with all phases connected with the property, and the project itself. Experienced and good workmen will be employed.

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

(6). Estimate of costs as follows:
Stage 1., 200 feet of drifting at base of quartzite.

Labor:

3 men at $1.50 per hour, $78.00 per week each, for 3 months - - - - -	$2808.00

Material:

Powder - - 7/8 ton, or 35 cases at $12.60 per case - - - - - - - - - -	441.00
Fuse - - - 9,000 feet -	118.00
Caps -	36.90
Carbide insert steel, $18.60 per 5' length, 7 peices - - - - - - - -	130.20
Lamp carbide - -100# at $7.60 -	7.60
Track, 16# rail, 2 tons at $140.00 per ton - - - - - - - - - - - - -	280.00
2" Air line - 230 feet, valvves, connections, and volume tank, - - -	230.00
1" Water line - 220 feet, -	35.00
Track ties, thorns, and timber - - - - - - - - - - - - - - - - - - -	50.00
Blower and ventilation line -	300.00
Oil and grease -	30.00
Fuel and care on Compressor - $8.50 per day, 3 months - - - - - - - -	612.00
Freight, transportation, and incidentals - - - - - - - - - - - - - - -	276.00

Rentals:

Mine car - 24" gauge, $20.00 per month, 3 months - - - - - - - - - -	60.00
Sinclair Air Locomotive - 24" gauge, $120.00 per month, 3 months - -	360.00
G.D. 10 Mucker, 24" gauge, $240.00 per month, 1 month - - - - - - -	240.00
365 C/F/M/. Compressor - $360.00 per month, 3 months - - - - - - - -	1080.00
	$7094.70

Total estimated costs of proposed drift - - - -$7094.70

Total estimated costs of proposed drift per/foot - - - -$35.47

Please refer to (5-b).

MAR 23 1955

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

(6). Estimate of costs as follows: continued.
Stage 2., The re-opening of the Lower Creek Level Tunnel to enable further and continued exploration therefrom.

Labor:

4 men, $1.50 per hour, $78.00 per week each, 3 months - - - -	$3744.00

Materials:

Access to lower tunnel (road) - - - - - - - - - - - - - - - - - -	250.00
Cleaning out portal and leveling for track and shelter -- - -	300.00
Installing new portal -	110.00
Suitable compressor and shelter house - - - - - - - - - - - - -	110.00
Track, 16# rail, 5 tons, $140.00 per ton - - - - - - - - - - - -	700.00
Track ties and thorns -	80.00
Timber, needed for remaining 250 feet along fault - - - - - -	200.00
2" Air line, $42.85 per 100 feet, 600 feet - - - - - - - - - -	300.00
Blower and ventilation line - - - - - - - - - - - - - - - - - - -	400.00

Rentals:

365 C/F/M. G.D. Compressor - $360.00 per month - 3 months - -	1080.00
G.D. 10 Mucker, 24" gauge, $240.00 per month - 1 month - - - -	240.00
Sinclair trammer, 24" gauge, $120.00 per month, 3 months - - -	360.00
Mine cars, (2) 24" gauge, $30.00 per month, 3 months - - - - -	90.00
	$7964.00

Total estimated costs of proposed work necessary prior to Stage 3. $7964.00
Total estimated costs of proposed work per/foot - - - - - - - - - - - 13.27

Upon completion of the portion of Stage (2)., as listed above, and upon examination and approval of the DMEA Field Team, applicant wishes to continue Stage (2) with a practical and extensive core-drilling program as outlined below.

A maximum of 4000 feet of drilling exploring the Silver Cliff Fault at depth. With said drill holes angled North-East or South-West with the strike of the fault so as to catch any possible cross-fracture or ore-shoot in or adjacent to the Silver Cliff Fault.

All holes shall be collared in the fault or in the foot-wall and shall follow as near as possible the strike and dip of the fault to locate any favorable host material in or surrounding the fault that would prove capable of holding uranium solutions.

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

(6). contd.

Stage 3.

All core-drilling shall be done on a contract basis of $3.19 per foot with no casing or mudding clauses. Applicant shall furnish one Sullivan # 12 core-drilling rig and equipment. Said rig being suited for either surface or underground operations and capable of drilling the desired depths. Applicant shall assume the responsibility of providing suitable drill-sites underground or surface, supervision, labor, and a thorough and reliable core registering system. All drill holes shall be collared and directed upon the DMEA Field Teams' recommendations after a complete examination of the remaining 225 feet of drift along the Silver Cliff Fault is re-opened in the lower tunnel.

4000 feet of core-drilling - at $3.19 per foot -- -- -- -- -- -- --$12,760.00

Total costs of Proposed Project -- -- -- -- -- -- -- -- -$12,760.00
Total costs of work per foot - -- -- -- -- -- -- -- -- - $$3.19

(6-b). Complied with

(6-c). To be furnished by applicant

(6-d). Rented equipment shall be obtained from the Harry "Hardrock" Sinclair firm in Denver, Colorado. The applicant shall furnish all necessary tools and equipment not listed under item (6). The applicant shall furnish his personal equipment including 1 Allis Chalmers Bull-dozer, 1 dump-truck, 1 pick-up truck, 1 754-A Atlas-Copco rock drill, 1 62-A BMK-A Jackleg, 1 Sullivan # 12 core-drill and equipment, air and water hoses, tanks, various picks and shovels, geiger counters, and such.

(6-e). None

(6-f). Listed under item (6).

(6-g). Listed under item (6).

(6-h). None

(7). Yes

(7-b). I propose to furnish my share of the costs through equipment furnished by myself, through labor, through present production from the property, and through any production brought about through this agreement.

Joel L. Starnes, applicant

Bureau of Mines
Minerals Administration
RECEIVED
2 3 1955

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

The property immediately adjoining the described property to the South, owned by one Jamesetta Hale and comprising 160 Acres, cannot through any means be obtained except through an exorbitant and impossible sale-purchase.

This Hale Property has been investigated and ore shipments have been made by and through the efforts of the applicant in conjunction with the Wyoming Uranium Corporation in past operations. The fact that the adjoining Hale Property should receive any consideration detrimental to this application is over-shadowed in the applicants opinion as follows.

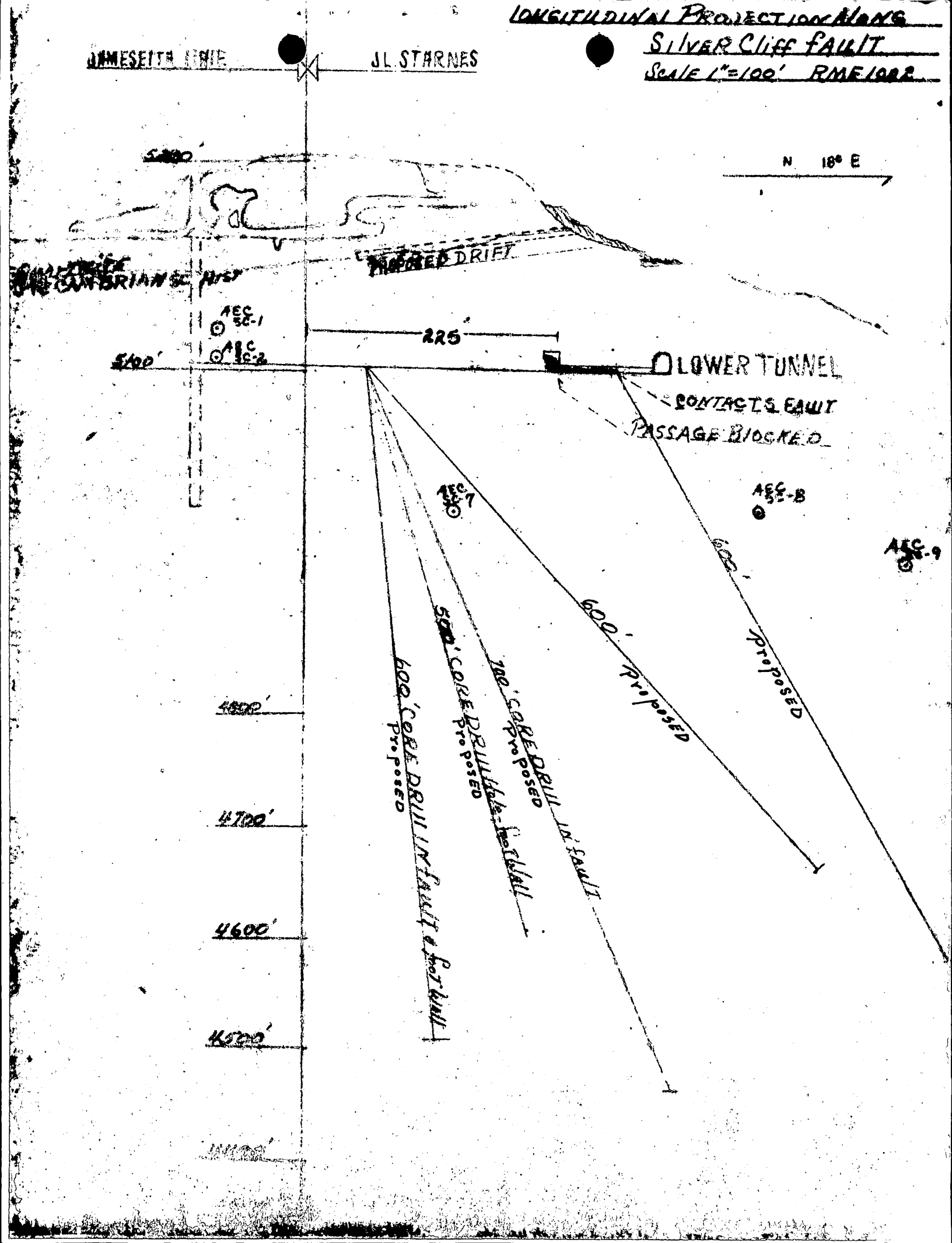
1. The applicant desires to explore the base of the quartzite to not only locate new and additional ore reserves, but to also determine and locate the source of primary mineralization.
2. The size of commercial ore deposites increase to the North and reach a maximum on the applicants lease.
3. The percent of contained uranium oxide from isolated uranium minerals increases to the North and reach a maximum on the applicants lease.
4. The original apex of the hill, now denuded, lies on the applicants lease.
5. Mineral occurrences and past production of the applicants lease has been much greater than the aforesaid Hale Property.
6. Applicant proposes to perform and supervise all phases of exploration and to keep all information obtained in the greatest confidence with the DMEA Field Team.

The applicant wishes to call attention to and offer a difference of opinion regarding the proceedings and results of enclosed drilling program performed on the described property, as follows:

1. The commencement of the program without any known sufficiently mineralized portion of the Silver Cliff Fault or any other favorable cross or parallel fault.
2. The continuing 45-60 degree, right angle holes in the hanging wall after the strike and the dip of the Fault were known.
3. The failure to explore or continue drilling in a mineralized area where the source of uranium was not known.
4. The failure to explore any cross or parallel structure possibly related to any uranium deposition in or adjacent to the Silver Cliff Fault.

Joel L. Starnes,
applicant

LONGITUDINAL PROJECTION ALONG
SILVER CLIFF FAULT
SCALE 1"=100' RME 1082



Crawford

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

RECEIVED
MAR 23 1955

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. 3735
Metal or Mineral Uranium
Date Received 3-23-55
Estimated Cost $27,818.70
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: Joel L. Starnes • P.O. Box 151 - Lusk, Wyoming

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

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

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract All lands covered by accompanying lease agreement dated the 2nd. day of February, 1955., and recorded in book 156 on page 56., County of Niobrara, State of Wyoming.

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

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

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

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

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

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

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

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

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

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

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

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

(*c*) The work will start within 10 days and be completed within 6 months from the date of an exploration project contract.

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

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

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

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

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

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

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

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

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

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

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

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

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

☐ 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 March 16, 1955

Joel L. Starnes
(Applicant)
Joel L. Starnes

By

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

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

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...ch Administration
MAR 23 1955

ACCOMPANING APPLICATION FOR AID IN AN EXPLORATION PROJECT, PURSUANT TO PMPA ORDER 1, UNDER THE ESPIONAGE PRODUCTION ACT OF 1950, AS AMENDED.

(1). Joel L. Starnes - P.O. Box 151 - Lusk, Wyoming - (% A. H. Sundquist).

(b). Individual

(c). Not applicable

(d). Not applicable

(2). Complied with

(3-a). All lands covered by accompening lease agreement dated the 2nd. day of February, 1955., and recorded in Book 158 on Page 58, Town of Lusk, County of Niobrara, tate of Wyoming.

(3-b). Silver Cliff

(3-c). As lessee

(3-d). Complied with

(3-e). No known liens or encumbrances

(3-f). Patented grounds

(4-a). Please refer to U. S. Geological Survey Bulletin 1009-A., Atomic Energy Commission Program RME-1002., Radium, Uranium, and Vanadium by Frank L. Hess, all enclosed.
Joel L. Starnes is a former officer and director of the Wyoming Uranium Corporation which shipped 7 carloads of uranium ore averaging better than 0.30% U_3O_8 to the Vitro Chemical Company at Salt Lake City, Utah, from the described property. Later, Joel L. Starnes, acting as a partner and manager for Midland Investments, shipped uranium ore to the American Smelting and Refining Company at Edgemont, South Dakota. The accompening settlement sheets herein enclosed with original application. The dumps on the described property are now being readied for continued production under enclosed agreement with one Sam N. Smith.
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(4-c). Please refer to Survey Bulletin 1009-A., The mineral occurs in the form of uranophane, meta-torbernite, autonite, gummite, and torbernite, as facial coatings and replacement bodies within the quartzite and the fault material. Pieces of a fine grained micaceous schist with a diameter of more than one foot with replacement pockets of uranophane with a diameter of about 2 inches abundantly included therein are to be found in the dumps on the described property. This material has torbernite crystals associated with other uranium minerals on one face only, suggesting perhaps that the true geology of the property is not yet known.

MAR 23 1956

(4-d). The accessibility of the property is excellent, it is just 84 miles from the American Smelting and Refining Company at Edgemont, South Dakota. The property itself is located just outside the City limits of the town of Lusk, Wyoming. All essential items such as power, water, supplies, and labor are located in Lusk. Mining machinery and timber however have to be transported into Lusk.

& (4-e).

(5-a). Uranium

(5-b). I wish to perform 200 feet of drifting, inclined if necessary, commencing at the north-most point, adjoining the Silver Cliff Fault. Said drift to be driven in footwall at the base of the quartzite and showing where-ever possible all igneous contact and said Silver Cliff Fault. The 200 feet of drift shall be conducted in a south-east direction and ending no less than 50 feet from any adjoining property.

Upon completion of proposed drifting, the applicant at his own expense shall perform any necessary or recommended long-hole drilling from said drift for the purpose of radiometric probing. Said long-hole drilling shall not exceed a total of 1000 feet at applicants expense and shall be of ample depth or length so as to thoroughly intersect any possible mineralized area in relationship to its thickness of bedding or zoning.

A suitable portal shall be installed and all dump material assaying less than 0.10% U_3O_8 shall be kept seperate and distinct from any portion of dumps from which production is now being made under agreement between applicant and one Sam U. Smith dated the 18th day of February, 1955., and herein enclosed with original application.

Upon completion of the above drifting, (hereafter refererence being made to the above as Stage 1.) and upon recommendation of the DMEA field team, applicant wishes to commence a second stage of exploration to be conducted in and from the Lower Creek Level Tunnel. Applicant desires to re-open said Lower Creek Level Tunnel for the purpose of entrance and examination, and to conduct a practical and well engineered program of core-drilling therefrom, proving the presence of commercial and primary mineralization.

(5-c). Enclosed lease designates such a time and the applicant will start work on the proposed project within 10 days.

(5-d). The applicant is well experienced with all phases connected with the property and the project itself. Experienced and good workmen will be employed.

ACCOMPANYING APPLICATION FOR AID IN AN EXPLORATION PROJECT, PURSUANT TO PUBLIC LAW 1, UNDER THE STRATEGIC MATERIALS ACT OF 1950, AS AMENDED.

(6). Estimate of costs as follows:
Stage 1., 200 feet of drifting at base of quartzite.

Labor:

3 men at $1.50 per hour, $78.00 per week each, for 3 months - - - - - $2808.00

Material:

Powder - - 7/8 ton, or 35 cases at $12.60 per case - - - - - - - - - -	441.00
Fuse - - - 9,000 feet -	118.00
Caps -	36.90
Carbide insert steel, $18.60 per 5' length, 7 peices - - - - - - - -	130.20
Lamp carbide - -100# at $7.60 -	7.60
Track, 16# rail, 2 tons at $140.00 per ton - - - - - - - - - - - - - -	280.00
2" Air line - 280 feet, valvves, connections, and volume tank, - - -	230.00
1" Water line - 220 feet, -	35.00
Track ties, thorns, and timber -	50.00
Blower and ventilation line -	300.00
Oil and grease -	30.00
Fuel and care on Compressor - $8.50 per day, 3 months - - - - - - - -	612.00
Freight, transportation, and incidentals - - - - - - - - - - - - - - -	276.00

Rentals:

Mine car - 24" gauge, $20.00 per month, 3 months - - - - - - - - - -	60.00
Sinclair Air Locomotive - 24" gauge, $120.00 per month, 3 months - -	360.00
G.D. 10 Mucker, 24" gauge, $240.00 per month, 1 month - - - - - - -	240.00
365 C/F/M/. Compressor - $360.00 per month, 3 months - - - - - - - -	1080.00
	$7094.70

Total estimated costs of proposed drift - - - -$7094.70

Total estimated costs of proposed drift per/foot - - - -$35.47

Please refer to (5-b).

OF THE [illegible]
[illegible] Administration
2 3 1955

ACCOMPANYING APPLICATION FOR AID IN URANIUM EXPLORATION PROJECT, PURSUANT TO DMEA ORDER 1, UNDER ESTIMES PROCUREMENT ACT OF 1950, AS AMENDED.

(6). Estimate of costs as follows: continued.
Stage 2., The re-opening of the Lower Creek Level Tunnel to enable further and continued exploration therefrom.

Labor:

4 men, $1.50 per hour, $70.00 per week each, 5 months - - - -	$3744.00

Materials:

Access to lower tunnel (road) - - - - - - - - - - - - - - - - - -	280.00
Cleaning out portal and leveling for track and shelter - - - -	360.00
Installing new portal -	110.00
Suitable compressor and shelter house - - - - - - - - - - - -	110.00
Track, 16# rail, 5 tons, $140.00 per ton - - - - - - - - - - -	700.00
Track ties and thorns -	80.00
Timber, needed for remaining 250 feet along fault - - - - - -	200.00
2" Air line, $42.35 per 100 feet, 800 feet - - - - - - - - - -	300.00
Blower and ventilation line - - - - - - - - - - - - - - - - - -	400.00

Rentals:

365 C/F/M. G.E. Compressor - $360.00 per month - 3 months - -	1080.00
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Sinclair trammer, 24" gauge, $120.00 per month, 3 months - - -	360.00
Mine cars, (2) 24" gauge, $30.00 per month, 3 months - - - - -	90.00
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Total estimated costs of proposed work necessary prior to Stage 3. $7964.00
Total estimated costs of proposed work per/foot - - - - - - - - - - - 13.27

Upon completion of the portion of Stage (2)., as listed above, and upon examination and approval of the DMEA Field Team, applicant wishes to continue Stage (2) with a practical and extensive core-drilling program as outlined below.

A maximum of 4000 feet of drilling exploring the Silver Cliff Fault at depth. With said drill holes angled North-East or South-West with the strike of the fault so as to catch any possible cross-fracture or ore-shoot in or adjacent to the Silver Cliff Fault.

All holes shall be collared in the fault or in the foot-wall and shall follow as near as possible the strike and dip of the fault to locate any favorable host material in or surrounding the fault that would prove capable of holding uranium solutions.

ACCOMPANIES APPLICATION FOR AID IN AN EXPLORATION PROJECT, PURSUANT TO DMEA ORDER 1, UNDER THE BUNDEY AMENDMENT ACT OF 1950, AS AMENDED.

(6). contd.

Stage 3.

All core-drilling shall be done on a contract basis of $3.19 per foot with no casing or mudding clauses. Applicant shall furnish one Sullivan # 12 core-drilling rig and equipment. Said rig being suited for either surface or underground operations and capable of drilling the desired depths. Applicant shall assume the responsibility of providing suitable drill-sites underground or surface, supervision, labor, and a thorough and reliable core registering system. All drill holes shall be collared and directed upon the DMEA Field Teams' recommendations after a complete examination of the remaining 325 feet of drift along the Silver Cliff fault is re-opened in the lower tunnel.

4000 feet of core-drilling - at $3.19 per foot -- -- -- -- -- -- --$12,760.00

Total costs of proposed project -- -- -- -- -- -- -- -- -$12,760.00
Total costs of work per foot - -- -- -- -- -- -- -- -- - $3.19

(6-b). Complied with

(6-c). To be furnished by applicant

(6-d). Rented equipment shall be obtained from the Harry "Hardrock" Sinclair firm in Denver, Colorado. The applicant shall furnish all necessary tools and equipment not listed under item (6). The applicant shall furnish his personal equipment including 1 Allis Chalmers bull-dozer, 1 dump-truck, 1 pick-up truck, 1 754-A Atlas-Copco rock drill, 1 62-A RHK-A Jackleg, 1 Sullivan # 12 core-drill and equipment, air and water hoses, tanks, various picks and shovels, geiger counters, and such.

(6-e). None

(6-f). Listed under item (6).

(6-g). Listed under item (6).

(6-h). None

(7). Yes

(7-b). I propose to furnish my share of the costs through equipment furnished by myself, through labor, through present production from the property, and through any production brought about through this agreement.

Joel L. Starnes, applicant

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ACCOMPANING APPLICATION FOR AID IN AN EXPLORATION PROJECT, PURSUANT TO ERDA [illegible] 1, UNDER THE DOMESTIC PRODUCTION ACT OF 1959, AS AMENDED.

The property immediately adjoining the described property to the South, owned by one Jamesetta Hale and comprising 160 acres, cannot through any means be obtained except through an exorbitant and impossible sale-purchase.

This Hale Property has been investigated and ore shipments have been made by and through the efforts of the applicant in conjunction with the Wyoming Uranium Corporation in past operations. The fact that the adjoining Hale Property should receive any consideration detrimental to this application is over-shadowed in the applicants opinion as follows.

1. The applicant desires to explore the base of the quartzite to not only locate new and additional ore reserves, but to also determine and locate the source of primary mineralization.
2. The size of commercial ore deposites increase to the North and reach a maximum on the applicants lease.
3. The percent of contained uranium oxide from isolated uranium minerals increases to the North and reach a maximum on the applicants lease.
4. The original apex of the hill, now denuded, lies on the applicants lease.
5. Mineral occurrences and past production of the applicants lease has been much greater than the aforesaid Hale Property.
6. Applicant proposes to perform and supervise all phases of exploration and to keep all information obtained in the greatest confidence with the ERDA Field Team.

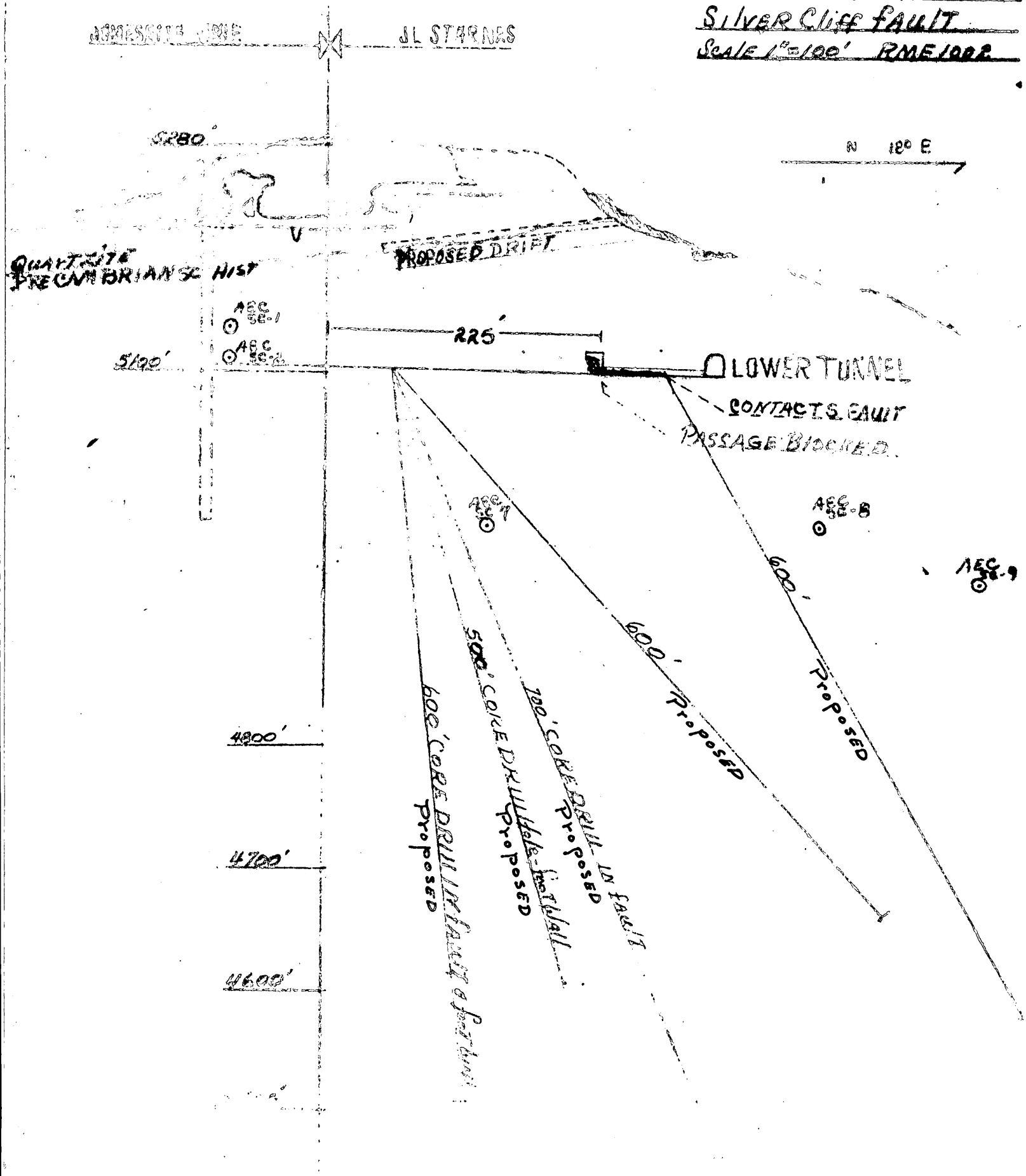
The applicant wishes to call attention to and offer a difference of opinion regarding the proceedings and results of enclosed drilling program performed on the described property, as follows:

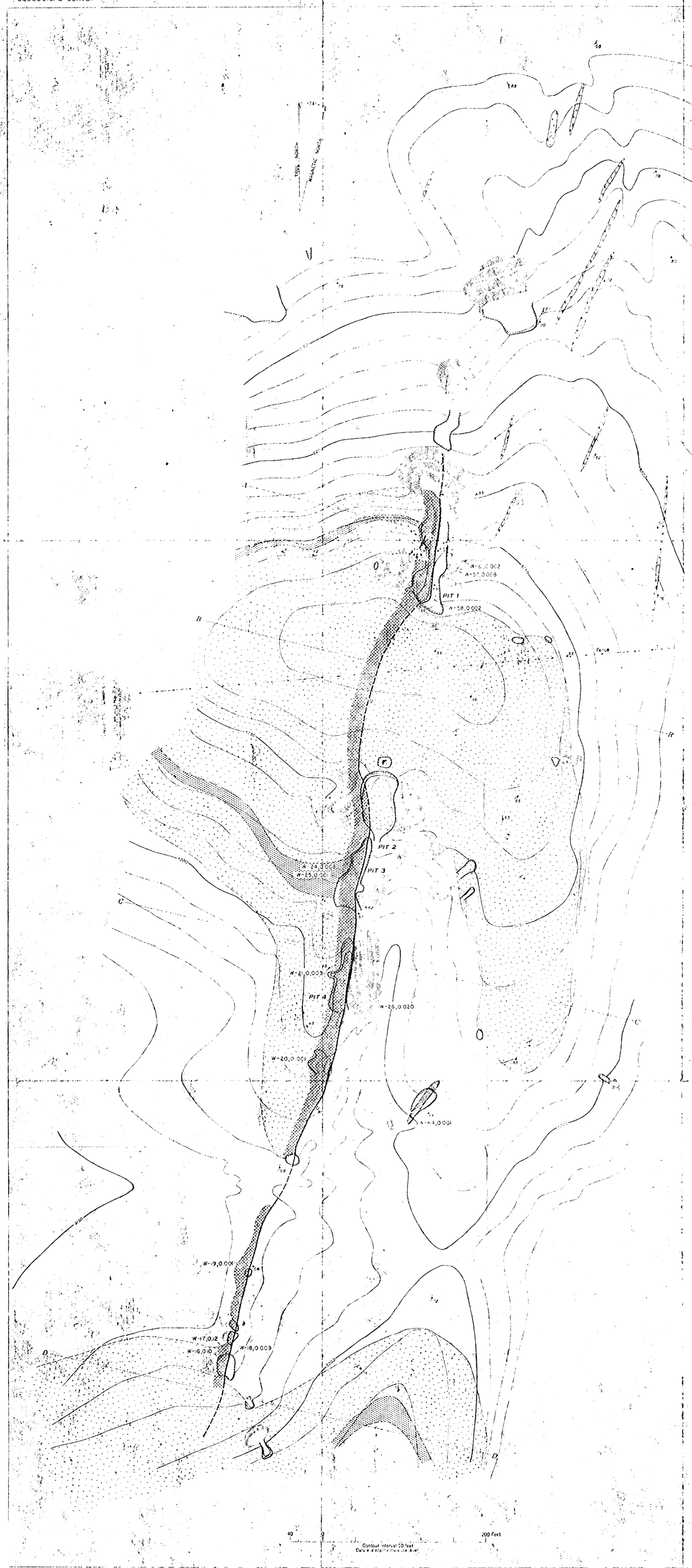
1. The commencement of the program without any known sufficiently mineralized portion of the Silver Cliff fault or any other favorable cross or parallel fault.
2. The continuing 45-60 degree, right angle holes in the hanging wall after the strike and the dip of the fault were known.
3. The failure to explore or continue drilling in a mineralized area where the source of uranium was not known.
4. The failure to explore any cross or parallel structure possibly related to any uranium deposition in or adjacent to the Silver Cliff fault.

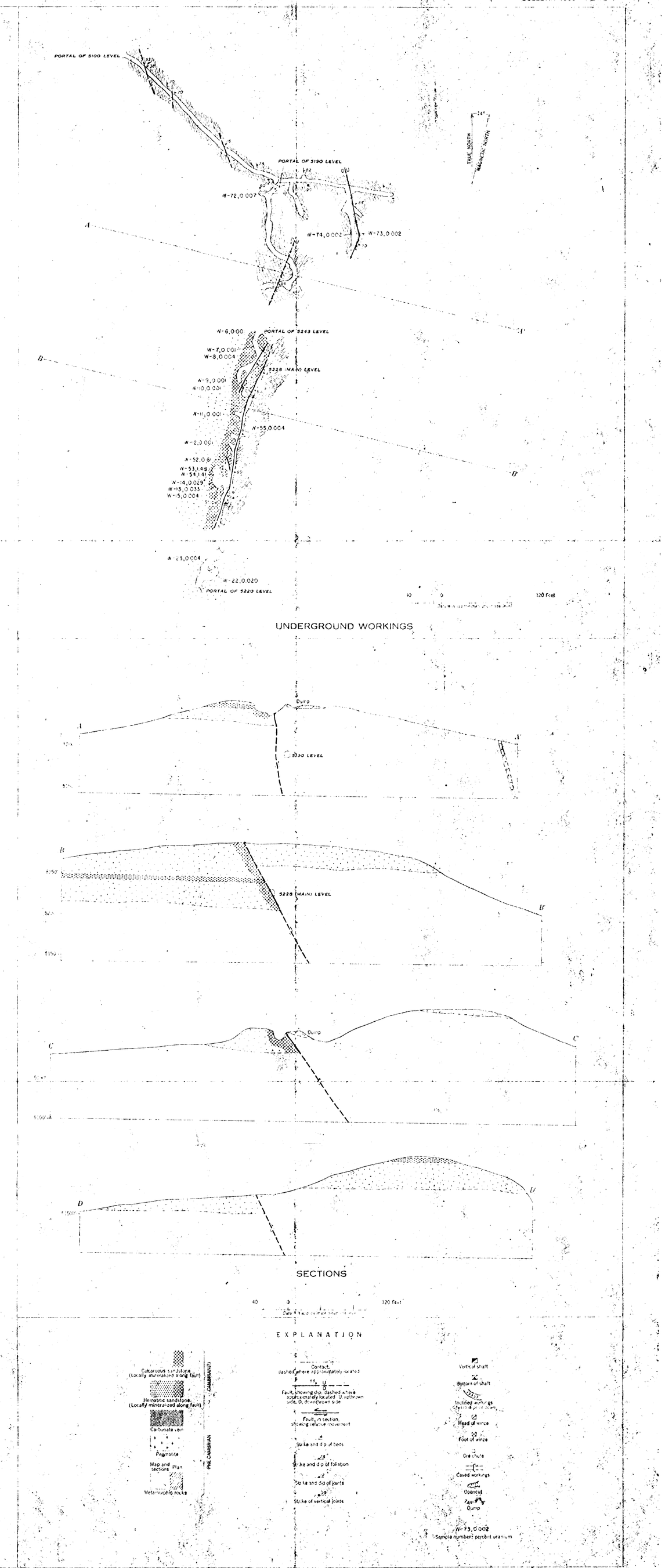
Joel L. Sturnes,

Applicant

LONGITUDINAL PROJECTION ALONG
SILVER CLIFF FAULT
SCALE 1" = 100' RME 1982







GEOLOGIC MAP, UNDERGROUND WORKINGS, AND SECTIONS OF THE SILVER CLIFF MINE, LUSK, NIOBRARA COUNTY, WYOMING

Geology and topography by R. W. Swanson and D. H. Johnson, August 1951

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