UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE

Terminated (or cancelled) without certification. DMEA No. 1186

This is the official contract file containing all official records of the project. Duplicate material has been removed. The records contained in the files are checked and are arranged in this manner:

Left Side

- Certificate of Audit (Final).
- Interim Audit(s).
- ✓ Report of Review.
- ✓ Termination Notice or Agreement.
- Recision Notice.
- Assignment of Contract.
- ✓ Contract Amendments (latest on top).
- ✓ Contract with all exhibits and annexes.
- Owner's Consent to Lien.
- ✓ Subordination Agreement.
- Leases and assignments of leases.
- ✓ Application and attachments.
- Schedule of Collections.
- ✓ Operator's monthly reports and all attachments (latest on top).

Right Side

- ✓ Project summary.
- ✓ Work completed analysis.
- ✓ All other material is filed in chronological order with correspondence including the following reports as checked:
  - ✓ Final Field Team Report. (Tab)
  - Operator's Final Report.
  - ✓ Interim Reports.
  - ✓ On-site Exam Report(s). (Tab)
  - Settlement Sheets.

If additional folders are required because of volume of records, show folder numbers and contents below:

Maps in folder number _____

Operator's Monthly Reports in folder number _____

R.C.G.
Reviewer's Initials

7973

DEFENSE MINERALS EXPLORATION ADMINISTRATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

2 1953

REPORT OF REVIEW

I have reviewed the Monthly Reports of

Elkhorn Mining Company
Boulder Bank Building
Boulder, Montana

pertaining to Exploration Project Contract No. Idm-X144, Docket No. DMA-1186X, including Amendments Nos. 1 and 2, covering a project of exploration for therium located in Beaverhead County, Montana, commonly known as the Last Chance Group, for the month of October 1951 and August through October 1952.

My review included an examination of the Monthly Reports (Form MF-104), comparison of the costs claimed with the contract and pertinent schedules, consultation with the Executive Officer of the DMEA Field Team, and a determination of the reasonableness and propriety of the costs.

This review was made in lieu of a final audit of the Operator's accounts and records for the following reasons:

(a) The administrative cost to the Government of an audit would be excessive in relation to the estimated amount of possible disallowances thereunder, and

(b) a major portion ($4,195.75) of the costs covered diamond drilling at rates specified in an approved sub-contract and a further portion ($840.00) covered bulldozing at hourly rates prevailing in the area.

The review disclosed the following facts in regard to the amount paid or to be paid to the Contractor:

Total cost as billed by contractor	$5,039.86
Exceptions:	
By DMEA Finance Officer	none
By audit	none
Total accepted cost	$5,039.86

The contract calls for a 90 percent participation of exploration expenses by the United States Government. Therefore, payment to the contractor by the Government in the amount of Four Thousand Five Hundred Thirty Five and 87/100 Dollars

$4,535.87

is considered valid and proper.

Robert M. Hull

Robert M. Hull
Auditor

October 5, 1953

Government Copy

RECEIVED
SEP 21 1953

TERMINATION OF EXPLORATION PROJECT CONTRACT BY AGREEMENT
AFTER COMMENCEMENT BUT BEFORE COMPLETION OF THE WORK

It is agreed this 10th day of June, ~~1952~~ 1953, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and

Elkhorn Mining Company
Boulder Bank Building
Boulder, Montana,

hereinafter called the "Operator," parties to that certain Exploration Project Contract I-dm-E 144, Docket No. DMEA-1186X dated September 14, 1951, that the said contract shall be and is hereby terminated as of the first date above written.

Any work prosecuted or costs incurred by the Operator after the date first above written shall be for the sole account of the Operator, except for (a) such necessary and reasonable costs and expenses as may be incurred in preserving and disposing of any facilities, buildings, fixtures, equipment, or other items, to the cost of which the Government has contributed and in which the Government has an equity, and (b) the costs of any reports, accounts, and winding-up and settlement actions provided for in the contract.

The undersigned Operator hereby releases and agrees to save harmless the Government from all claims and demands under or arising out of said Exploration Project Contract, except as herein expressly otherwise provided.

Witness the following signatures as of the day and year first above written.

UNITED STATES OF AMERICA

By C. Mitteendorf
Administrator, Defense Minerals
Exploration Administration
~~(XXXXXXXX)~~

~~By~~ ELKHORN MINING COMPANY

By R. J. Mulvaney
Asst. Secretary

GOVERNMENT'S COPY

(Amendment to Change Starting and/or Completion Dates)

AMENDMENT NO. 2

It is agreed this 9th day of December 1952, between the United States of America, acting through the Department of the Interior, Defense Minerals Administration and the Elkhorn Mining Company, Boulder Bank Building, Boulder, Montana

each acting in consideration of the agreement to the other to the terms hereinafter set forth, that the Exploration Project Contract Idm-E144 dated September 14, 1952 between the parties hereto be modified and amended to change the starting date from --- (No. of days) to within --- (No. of days) of the date of the contract and the completion period from 12 (No. of months) to 24 (No of months) from the date of the contract. The effective date of this amendment shall be December 9, 1952.

This amendment is made by authority granted the Executive Officer, DMEA Field Team, Region II, in Order No. 2684 by the Acting Secretary of the Interior.

This amendment shall not be construed to increase the estimated total cost of the project, the amount of the Government's contribution, or any item of allowable cost which is expressly designated "Allowable Maximum".

Executed in sextuplicate the day and year first above written.

ELKHORN MINING COMPANY
(Operator)

By Walter Lewis Pres

THE UNITED STATES OF AMERICA

By A. E. Weissenborn
A. E. Weissenborn
Executive Officer
DMEA Field Team, Region II

Elkhorn Mining Company
DMEA Docket No. 1186X
Contract Idm-E144
Last Chance property (thorium)

Justification for Amendment No. 2

This amendment was necessary because the Elkhorn Mining Company was unable to complete all of the work stipulated under contract terms owing to the onset of winter and its attendant bad weather.

Government Copy

APPROVAL

Contract dated June 18, 1952, between ELKHORN MINING COMPANY, Boulder, Montana, (Docket No. 1186X, thorium), and GUST & GUSTAF CARLSON, Helena, Montana, for carrying out certain specified work under the provisions of Exploration Project Contract Idm-E144 between the United States of America and the Elkhorn Mining Company, Boulder, Montana, is hereby approved with the provision that plug bit drilling shall be done only after two holes have probed the ore zone and then only at the discretion of the Field Team; furthermore, that EX size drilling shall be done only when necessary as a final size reduction imposed by caving ground.

This approval shall not be construed to increase the estimated total cost of the project, the amount of the Government's contribution, or any item of allowable cost which is expressly designated "Allowable Maximum".

Dated June 25, 1952 THE UNITED STATES OF AMERICA

By A. E. Weissenborn
A. E. Weissenborn, Exec. Officer
DMEA Field Team, Region II

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
JUL 7 - 1952

P. O. Box 278
Helena, Montana
18 Jun 52

Elkhorn Mining Company
Boulder Bank Building
Boulder, Montana

Gentlemen:

We submit herewith our proposal for diamond drill sampling of your Last Chance uranium property west of Armstead, Beaverhead County, Montana. It is our understanding that there will be approximately 1350 feet of drilling, and that the potential ore bearing formation is to be cored in the AX size; also, that there are to be five angle holes drilled from the surface and ranging in depths from 200 to 410 feet.

Angle Drilling, surface to 410 feet:	
NX, incl. B casing if necessary	$6.75
BX, " A " " "	$6.75
AX, " E " " "	$6.50
AX plug bit drilling where practicable	$6.00
EX,	$6.00
Angle Drilling, 410 to 500 feet:	
AX,	$6.75
EX,	$6.25
Reaming AX to BX, and setting A casing	$5.00
Reaming EX to AX, and setting E casing	$4.00
Cementing	$3.00
Delays, for probing, surveys, etc.	$7.50/hr.

Notes: From surface examination it appears that B and/or A casing will be necessary for but relatively few feet.

The indications are that plug bit drilling will be feasible to those depths where intersection of the vein is anticipated.

The return of circulating waters is expected.

All core will be retained and filed in adequate core boxes.

Respectfully submitted,

Gust & Gustaf Carlson

By Gust Carlson

and Gustaf Carlson

MF-200
June 195

Docket No. DMA 1186X
Commodity Thorium
Idm-E 144

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

12/11/51

EXPLORATION PROJECT CONTRACT [1]

It is agreed this 14th day of September, 1951, between the United States of America, acting through the Department of the Interior, Defense Minerals Administration, hereinafter called the "Government," and [2]

Elkhorn Mining Company
Boulder Bank Building
Boulder, Montana

hereinafter called the "Operator," as follows:

1. *Authority for contract.* This agreement is entered into under the authority of the Defense Production Act of 1950, pursuant to Mineral Order 5, entitled "Regulations Governing Government Aid in Defense Exploration Projects."

2. *Operator's property rights.* The exploration project shall be conducted on that certain property situated in the State of Montana, County of Beaverhead described as follows: [3] Last Chance, Shady Tree, and Brown Bear Claims, in Secs. 20, 28 and 29, T. 10S., R. 15W., M.P.M.

with respect to which the Operator represents and undertakes: [4]

~~(a) That he is the sole owner, in possession and entitled to possession, and that the property is subject only to the following claims, liens, or encumbrances as to each of which the subordination agreement of the holder is attached:~~

(b) That he is a lessee, in possession and entitled to possession, and the subordination agreement of the lessor is attached.

3. *Exploration project.* The Operator, within Thirty (30) days from the date of this contract shall commence work on a project of exploration for [5] Thorium; shall prosecute the work efficiently, expertly, in a workmanlike manner, in accordance with good mining standards, with suitable and adequate equipment, materials, and labor, all properly designed to bring the project to completion within a period of [6] Twelve (12) months from the date of this contract. The exploration project and the work to be performed are more fully described on Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, is made a part of this contract.

4. *Performance of the work.* The work shall be performed by the Operator, under his sole direction and control: *Provided,* That with the consent of the Government and its written approval of the contract or contracts, all or any part of the work may be performed by the Operator through contract or contracts with independent contractors. The Government shall have the right to enter and observe and inspect the work at all reasonable times, and the Operator shall provide the Government with all available means for doing so. The Government may consult with and advise the Operator on all phases of the work.

5. *Fixtures and improvements.* The Operator shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of the exploration project without any allowance for the use, rental value, depreciation, depletion, or other cost of acquiring, owning, or holding possession thereof. Any additional facilities, buildings, and fixtures, to be purchased, installed, or erected by the Operator, with the estimated cost of each, to which the Government will contribute currently its agreed pro rata share, are listed in Exhibit "A" attached hereto. The difference between the cost of such additional facilities, buildings, or fixtures, and the salvage value thereof at the conclusion of the work, shall be charged as a cost of the project to which the Government has contributed its pro rata share.

6. *Operating equipment.* Any operating equipment to be rented, purchased, or furnished by the Operator, with the allowable rental, purchase price, or depreciation, as the case may be, is listed under appropriate headings in Exhibit "A" attached hereto. As to equipment purchased for the project, the Government will contribute its agreed pro rata share of the cost thereof, and the difference between the cost and the salvage value at the conclusion of the work shall be charged as a cost of the project to which the Government has contributed its pro rata share.

[1] If sufficient space is not provided in any blank, use an extra sheet of paper and refer to it in the blank.
[2] State name, address, and nature of organization if any.
[3] Give legal description or enough to identify the property.
[4] Strike out the provision not applicable.
[5] Name of mineral.
[6] Not in excess of 2 years.

7. *Title to and disposition of property.* All facilities, buildings, fixtures, equipment, or other items costing more than $50 each, paid for or purchased with funds contributed jointly by the Operator and the Government, shall belong to the Operator and the Government jointly, in proportion to their respective contributions, and upon the termination of the contract, if they have any salvage value, shall be disposed of for their joint account unless the Government, in writing, waives its interest in any such items. The Government may require the dismantling, severance from land, and removal of any such items in order to realize its interest in the salvage value thereof, and the cost of any such removal and of the disposal of the items shall be for the joint account of the parties in proportion to their respective interests.

8. *Labor and supervision.* An itemized schedule of labor, by numbers and classes (miners, muckers, millmen, etc.), and of supervisors, by numbers and positions, with the maximum wages or salaries that may be paid to each as an allowable cost of the project is set forth in Exhibit "A" attached hereto.

9. *Rehabilitation and repairs.* A statement of the cost of any necessary rehabilitation or repairs to put existing facilities, buildings, installations, and fixtures into useful and operable condition and which are to be allowed as costs of the project is included in Exhibit "A."

10. *Allowable costs of the project.* The costs of the project in which the Government will participate are limited to the necessary, reasonable, direct costs of performing the exploration work, including the costs of materials, supplies, engineering, power, water, analytical work, accounting, and utilities, including items of equipment costing less than $50 each; and the costs referred to in Articles 5, 6, 8, and 9, and the exhibits annexed to and referred to in this contract. Although the Government may pay part of the cost of new or additional facilities, structures, buildings, and equipment, only the depreciation on such items, computed as indicated in Articles 5 and 6, will be charged as a cost of the project. No items of general overhead, corporate management, interest, taxes, or any other indirect costs not expressly allowed by these provisions, or work performed or costs incurred before the date of this contract, shall be allowed as costs of the project in which the Government will participate.

11. *Accounts and audits.* The Operator shall keep suitable records and accounts of operations, which the Government may inspect and audit at any time. The Government may at any time require an audit of the Operator's records and accounts by a certified public accountant, the cost thereof to be treated as a cost of the project. The Operator shall keep and preserve said records and accounts for at least 3 years after the completion of the project or the termination of this contract.

12. *Progress reports.* The Operator shall provide the Government with monthly reports of work performed under the contract upon forms to be provided by the Government. Each monthly progress report shall bear the certification of the Operator and shall constitute the Operator's invoice of costs incurred on the project during the period covered by the report.

13. *Payment to the Operator.* The monthly progress report (invoice), to the extent approved by the Government, shall be processed for payment by the Government. Payment shall be made in the amount of 90 percent of the approved costs incurred; *Provided,* That the aggregate total of all sums paid by the Government under this agreement shall not exceed $ 9,193.50, which is 90 percent of the agreed estimated total cost of this project, $ 10,215.00.

14. *Final reports by Operator.* Upon completion of the project or termination of this contract, the Operator shall provide the Government with a comprehensive geologic and engineering report, including an estimate of ore reserves, to the best of his ability. Four copies of all reports shall be furnished to the Government.

15. *Repayment by Operator.* If, upon the completion of the exploration project or termination of the contract, the Government considers that a discovery or development has resulted from the work from which commercial production of ore may be made, the Government, within 6 months thereafter, shall so certify to the Operator, particularly describing and delimiting its estimate of the discovery or the development. Thereafter, if and as ore is produced as a result of such discovery or development, the Operator and his successor in interest shall be and become obligated to pay to the Government a percentage royalty on the net smelter returns or other net proceeds realized from such ore, concentrates, or metal produced within ten (10) years from the date of this contract, until the total amount contributed by the Government, without interest, is fully repaid or said 10 years have elapsed, whichever occurs first, as follows:

Of net smelter returns or other net proceeds not in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent.

Of net smelter returns or other net proceeds in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent, plus one-half (½) percent for each additional full fifty cents ($0.50) in excess of eight dollars ($8.00) per ton of ore, but not in excess of a maximum of five (5) percent.

This obligation to repay from net returns or proceeds shall be and remain a claim and lien upon the mineral deposit which is the subject of the exploration project and upon any production resulting from such discovery or development, in favor of the Government, until fully paid, or until said 10-year period has elapsed; and this claim and lien and the Government's right to repayment shall survive any termination of the contract, whether by completion of the exploration project or otherwise. This article is not to be construed as imposing any obligation on the Operator or his successor in interest to produce ore from any such discovery or development.

16. *No assignment of contract.* Without the written consent of the Government, the Operator shall not assign or otherwise transfer or hypothecate this contract or any rights thereunder.

17. *Termination and completion.* The Government may, at any time, by written notice to the Operator, terminate this contract: (*a*) If the Operator fails to provide his share of the money necessary to prosecute operations pursuant to the terms of the contract; (*b*) if the Operator, in the opinion of the Government, fails to prosecute operations pursuant to the terms of the contract; or (*c*) if in the opinion of the Government, operations up to the time of the notice have not indicated the probability of making any worthwhile discovery and in the opinion of the Government further operations are not justified. Upon the completion of the project or any termination of the contract the Operator shall render to the Government a full and final accounting of his operations under the contract and his expenditures of money; shall dispose of any unused materials, supplies, and equipment for the joint account of the Operator and the Government in the proportion of their respective interests; and shall pay to the Government its pro-rata share of any money remaining.

Executed in sextuplicate the day and year first above written.

Elkhorn Mining Company
(Operator)

By W. J. Lewis
President

THE UNITED STATES OF AMERICA

By C. O. Mittenbergs
Director, Production Expansion Division
Defense Minerals Administration

U. S. GOVERNMENT PRINTING OFFICE 16—64066-2

Re: Docket No. DMA - 1186X
Commodity: Thorium
Elkhorn Mining Company
Exploration Project Contract Idm-E144

EXHIBIT "A"

Performance of Work:

The purpose of this exploration is to determine by trenching and diamond drilling the continuity and grade along the strike of the veins to the Last Chance, Shady Tree and Brown Bear claims.

Time Schedule:

Month

1st a. Bulldoze 400 feet of trenches in the Last Chance and Shady Tree claims, approximately as indicated on map.

1st b. Bulldoze 300 feet of trenches in the Brown Bear claim to connect vein segments (see attached maps).

2nd
3rd
4th
5th
6th c. Diamond drill 1,350 feet in the Last Chance and Shady Tree claims, holes are indicated on map. All holes will have an inclination of 45°. Following are the bearings and approximate footages of the holes:

D.D.H. No. 1, N. 34° E., 220 feet
D.D.H. No. 2, N. 34° E., 410 feet
D.D.H. No. 3, N. 40° E., 270 feet
D.D.H. No. 4, N. 50° E., 200 feet
D.D.H. No. 5, N. 70° E., 250 feet

The work to be performed and the estimated cost is as follows:

700 feet of bulldozer trenching (includes all costs)	$ 840.00
1,350 feet of diamond drilling @ $5.50 per foot	7,425.00
Assays of surface, core, and sludge samples	750.00
Supervision and sampling	1,200.00
Total Cost	$10,215.00

Fixtures and Improvements:

None

Operating Equipment:

None

Labor and Supervision:

Labor: by contract

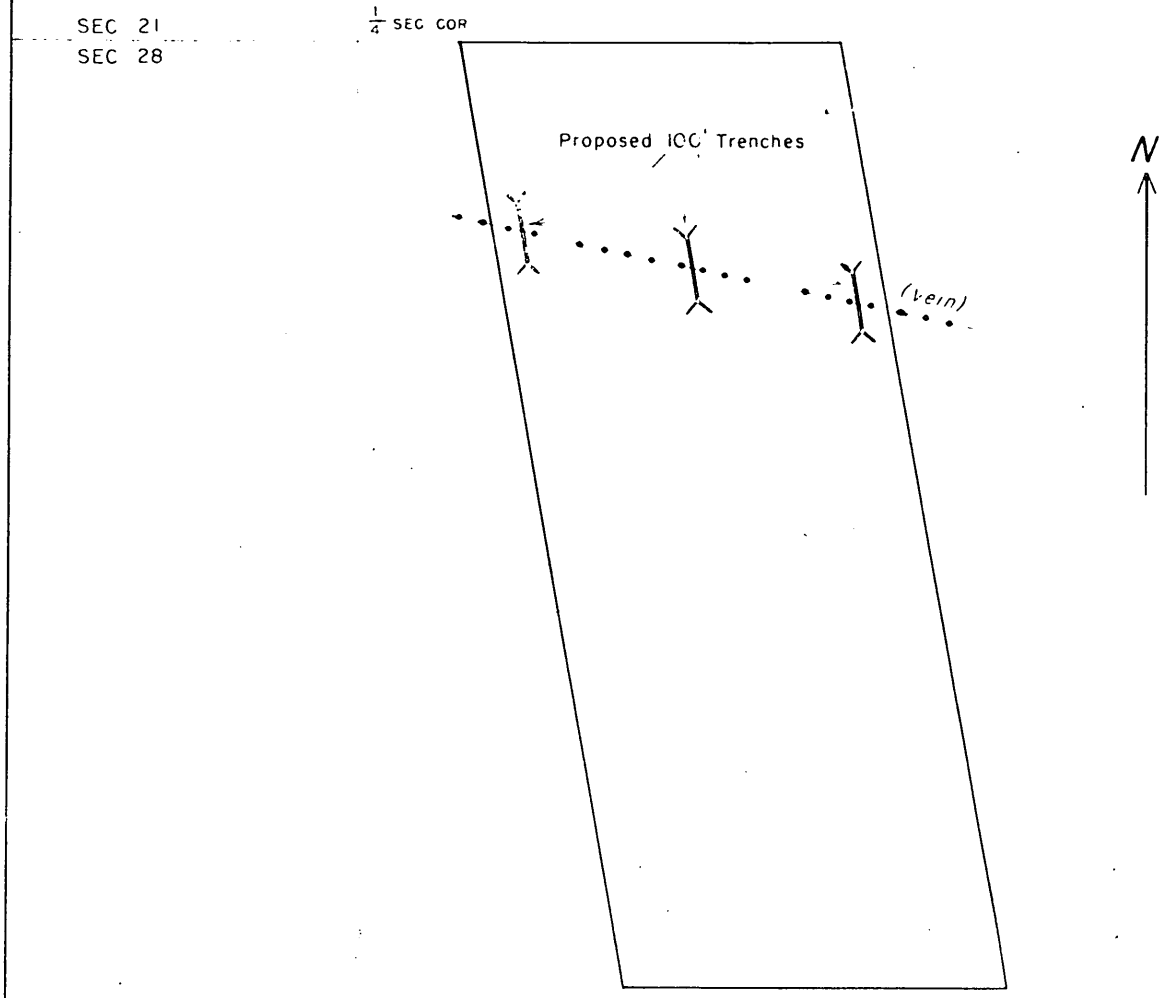
Supervision:

1 - Geologic Engineer (1/4 time)	1/	$ 400.00 per month
1 - Foreman		300.00 per month
1 - Sampler (1/4 time)	2/	400.00 per month

1. Total monthly salary not to exceed $100.00 per month
2. Total monthly salary not to exceed $100.00 per month.

Rehabilitation and Repairs:

None



ADVANCE or TRIAL COPY
Not Yet Approved for Official Release Subject to Recall and Revision. Your Comments Are Invited
U. S. GEOLOGICAL SURVEY

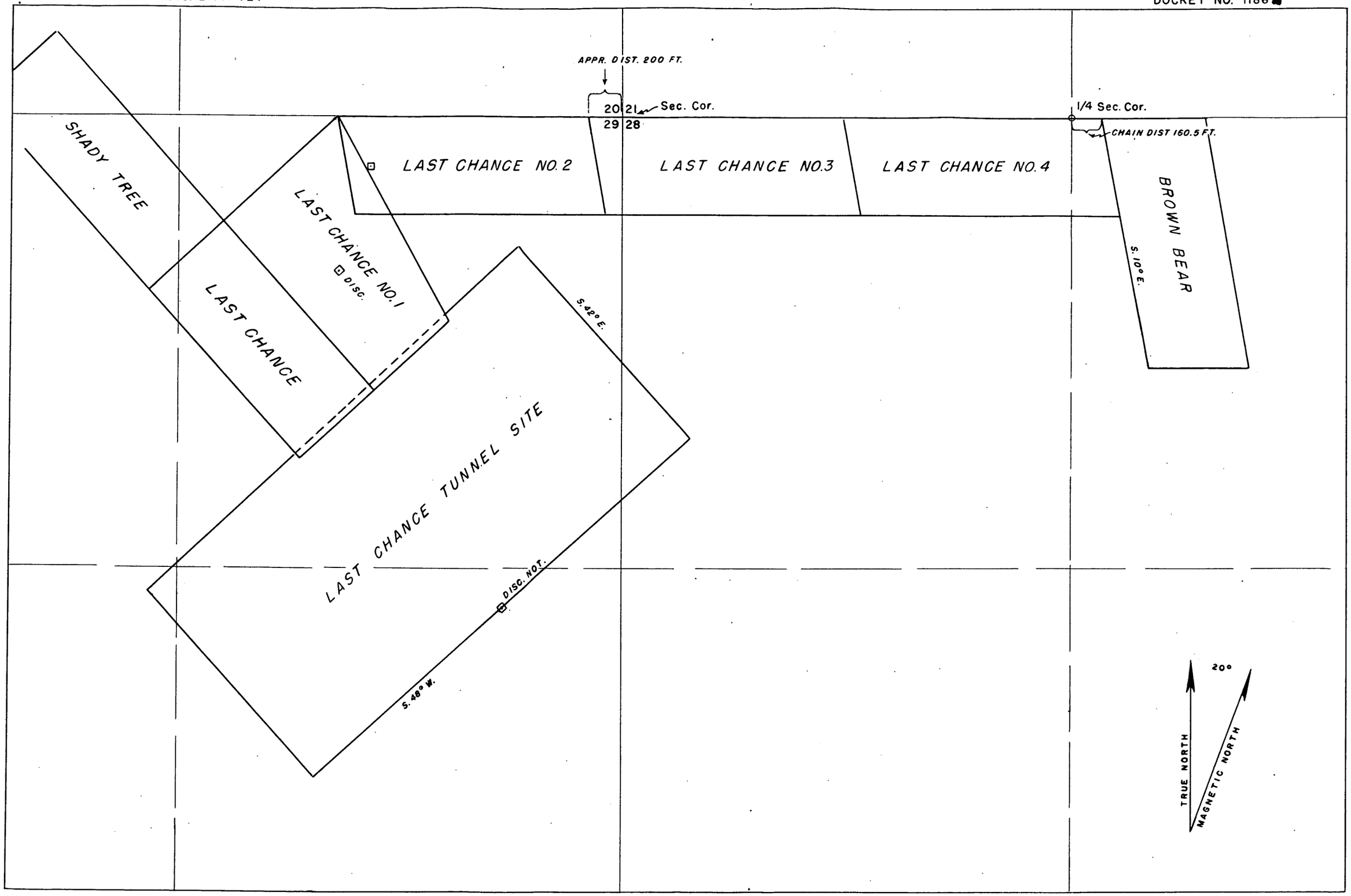
PROPOSED TRENCHES ON BROWN BEAR CLAIM
Sec. 28, T. 10 S., R. 15 W., Beaverhead County, Montana

0 100 200 300 400 500 600 FEET

MAP "B"

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

DEFENSE MINERALS ADMINISTRATION
DOCKET NO. 1186



LAST CHANCE GROUP

THORIUM, URANIUM, RARE-EARTH

T. 10 S., R. 15 W., BEAVERHEAD COUNTY, MONTANA

600 0 600 1200 FEET

ADVANCE or TRIAL COPY
Not Yet Approved for Official Release, Subject to Possible Revision, Your Comments are Invited
U. S. GEOLOGICAL SURVEY

MF-202

LANDLORD'S SUBORDINATION AGREEMENT

Last Chance: Thorium-uranium-rare earths
DMA:1186X

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the undersigned is the owner in fee simple of that certain parcel of ground in the county of Beaverhead, State of Montana, described in a certain Exploration Project Contract dated September 14, 1951, between Elkhorn Mining Company, a Montana Corporation, the Lessee of said property, and the United States of America;

NOW, THEREFORE, the undersigned, as Lessor of said property under lease dated July 25th, 1950, does by these presents subordinate all of his right, title, and interest under the provisions of said lease to the right, title, and interest of the United States of America under the provisions of said Exploration Project Contract, and agrees that the lien and claim of the United States of America under the provisions of said contract shall be prior to the undersigned's rights to rentals or royalties under the terms of said lease; and

The undersigned further agrees that if said leasehold interest should be surrendered or if said lease should terminate at any time prior to the expiration of the rights of the United States of America under said Exploration Project Contract, the undersigned shall assume and does hereby assume all of the obligations of the Lessee under said Exploration Project Contract to make repayment to the United States of America according to the terms of said contract; and

The undersigned agrees to commit no act, nor assert any claim under judicial process or otherwise that may contravene or conflict with the prior lien and claim of the United States of America under the provisions of said Exploration Project Contract.

This undertaking and covenant shall be binding upon the heirs, successors, and assigns of the undersigned.

Dated this 25th day of June, 1951.

Leonard Kesel

R. A. Wellborn

Dave Wellborn

Billy Wellborn

Ned Wellborn

Darrel Peterson

U. S. GOVERNMENT PRINTING OFFICE 940768

Docket No. DMA-1186X
Commodity: Thorium

Elkhorn Mining Company

Exploration Project Contract, Last Chance

Shady Tree, and Brown Bear Claims,

Beaverhead County, Montana

EXHIBIT "A"

Exploration Project

The purpose of this exploration is to determine the continuity, and grade, along the strike of the veins in the Last Chance, Shady Tree, and Brown Bear Claims.

Time Schedule

Month		
1st	A.	Bulldoze 400 feet of trenches in the Last Chance and Shady Tree claims, approximately as indicated on map.
1st	B.	Bulldoze 300 feet of trenches in the Brown Bear claim to connect vein segments. (See attached map).
2nd, 3rd, 4th, 5th 6th	C.	Diamond drill 1,350 feet in the Last Chance and Shady Tree claims, holes are indicated on map. All holes will have an inclination of 45°. Following are the bearings and approximate footages of the holes:

D.D.H. No. 1, N. 34° E., 220 feet.
D.D.H. No. 2, N. 34° E., 410 feet.
D.D.H. No. 3, N. 40° E., 270 feet.
D.D.H. No. 4, N. 50° E., 200 feet.
D.D.H. No. 5, N. 70° E., 250 feet.

The work to be performed and the estimated cost is as follows:

Step I

1.	700 feet of bulldozer trenching (Includes all costs)	$ 840.00
2.	1,350 feet of diamond drilling at $5.50/ft.	7,425.00
3.	Assays of surface, core, and sludge samples	750.00
4.	Supervision, sampling, and overhead	1,200.00
		10,215.00

DMA Docket No. 1186X
Commodity: Thorium

Elkhorn Mining Company

EXHIBIT "B"

Detailed list of additional facilities, buildings, and fixtures to be purchased, installed, or erected by operator.

None

DMA Docket No. 1186X
Commodity: Thorium

Elkhorn Mining Company

EXHIBIT "C"

Detailed list of operating equipment to be rented, purchased, or furnished by the operator with the allowable rental, purchase price, or rental value.

None

DMA Docket 1186X
Commodity: Thorium

Elkhorn Mining Company

EXHIBIT "D"

Labor Schedule

Quantity	Name & Position	Wage Rate
1	Geologic Engineer ($\frac{1}{4}$ time) 1/	$400.00/month
1	Foreman	300.00/month
1	Sampler ($\frac{1}{4}$ time) 2/	400.00/month

1. Total monthly salary not to exceed $100.00/month.

2. Total monthly salary not to exceed $100.00/month.

DMA Docket No. 1186 X
Commodity: Thorium

Elkhorn Mining Company

EXHIBIT "E"

Detailed schedule of existing facilities, buildings, installations and fixtures on the Last Chance, Shady Tree and Brown Bear claims of the Elkhorn Mining Company in Beaverhead County, Montana.

None.

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

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

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

DO NOT FILL IN THIS BLOCK

Docket No. dma 1186X

Date received 5-17-51

Participation

Elkhorn Mining Company
Boulder Bank Building
Boulder, Montana.

Rec'd May 21 '51 WB.

Name and address of applicant

Date May 7th, 1951.

FILL IN THIS BLOCK

Date of application May 7, 1951.

Estimated cost $49,882.00

Mineral or metal Thorium, uranium, cerium, minerals of rare earth group.

Percentage of Government participation 90%

Location of mine Beaverhead County, 30 miles west of Armstead, Montana. T10 S.,R.15 W.M.P.M.

Date of filing MF-100 May 7, 1951.

DMA Docket Number, if available dma 1186X

INSTRUCTIONS

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

THE APPLICANT

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

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

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

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

16—64067-1

THE PROPERTY

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

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

*11. State the present and former names of the property, if any.

*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.

*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.

*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.

15. State in detail how the ore could be shipped and how and where milled.

*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

*17. Production:
    (*a*) If mine is in production, furnish the following information:

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

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.

19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?

21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

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

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

THE REQUIREMENTS AND COSTS

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

24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

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

ELKHORN MINING COMPANY, By Walter Sears
(Name of company) (Signature of authorized official)

May 7th, 1951. President.
(Date) (Title)

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

*Same as footnote on page 1.

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

ELKHORN MINING COMPANY • Elkhorn Mining District - - Elkhorn, Montana . . . . .

PHONE 2121 . . . OFFICES: Boulder Bank Building BOULDER, MONTANA

MF 103

Defense Minerals Administration,
U. S. Department of the Interior,
Washington 25, D. C.

The Applicant

1 to 5 inclusive: Answered on MF 100.

6 . Lessee of property, Last Chance Group, Beaverhead County, Montana. No claims, liens or encumbrances , lease only.

7. Copy of Lease (and option) is herewith attached to this application. Such agreement is certified as inngood standing.

8. Current financial statement showing assets and liabilities, as well as statement of receipts and disbursements Jan.1,1951 to April 15th, 1951, are attached hereto.

9. Applicant, Elkhorn Mining Company, is prepared to invest its part of the cost of proposed project as detailed in question 23. It is prepared to invest 10% of total amount of project expense, or $5,542.44, assuming loan application represents 90% of total, or $4,988.20, if amount named in loan application represents 100% of total. Elkhorn Mining Company money to be derived from funds currently on hand, ore returns from Last Chance operation where encountered, profits from other mine operations where available and when not otherwise allocated or committed for, and/or from security sales in market, sufficient to meet funds required, anticipating filing Form S-3b-1, Letter of Notification with the US SEC. A fairly active market exists for Elkhorn Mining Company outstanding stock, and officials of this company anticipate no problem in meeting requirements. Elkhorn Mining Company would plan to meet development requirements as the work proceeds and before monies are needed.

10. (a) The Property

Mining claims for which exploration and development is proposed are contained on map exhibit "A", and are as follows :

Last Chance,
Last Chance No.2,
Last Chance No.3,
Last Chance No.4,
Last Chance No.1,
Shady Tree,
Brown Bear, all representing one contiguous group of unpatented lode Mining Claims, recorded in the office of the Couty Clerk and Recorder, at Dillon, Montana. Also included in property group is the Last Chance Tunnel Site.

(a) Legal Descriptions:

Foregoing claims and tunnel site location are contained in Sections 20, 28 and 29, of Township 10 South, Range 15 West, Montana Principal Meridian, Beaverhead County, Montana, all surveyed in reference to government section or quarter corners, found in place and properly identified.

11 to 14 inclusive: Elkhorn Mining Company
(cont.) Boulder, Montana.

Continuation sheet on back. — note in Minerals Rec Mills & Records. Copy in Files

ELKHORN MINING COMPANY

Balance Sheet

(Period Jan. 1st, 1951 ..... April 15th, 1951, incl.)

Assets

Cash in Banks.....		5,902.20
Cash in Transfer fund.....		3.72
Notes receivable.....		150.00
Placer gold on hand.....		135.30
Due on uranium-silver shipments.....		5,000.00
Due from smelter.....		250.00
Inventory:		
Properties and interests in properties based on ores indicated by exploratory work and geological structural conditions....	$400,000.00	
Value construction work.....	85,000.00	
Machinery and equipment.....	25,000.00	
Truck and car.....	3,479.60	
Geiger counters, radiation equipment.....	450.00	
Halroes Scintillometer.....	800.00	
		514,729.60
		526,170.82

Liabilities

Unsecured accounts:		
Industrial Accident Board.....	79.97	
Loans by stockholders.....	7,500.00	
Cash advanced by director.....	1,532.98	9,112.95
Secured accounts:		
G. B. Bashaw, development expense.....	1,500.00	
Timepayments, car.....	1,897.50	3,397.50
Net Worth:		
Common stock (less stock unissued, par).....	74,481.50	74,481.50
Surplus:		
Paid in.....	86,803.50	
Unrealized appreciation.....	352,375.27	449,178.77
		526,170.82

*** MF 103 ....8.

Elkhorn Mining Company,
Boulder, Montana.

ELKHORN MINING COMPANY

(Period January 1st, 1951 .... April 15th, 1951, incl.)

Receipts

Bank balances, January 1st, 1951	487.40
Cash, office transfer fund.....	0.72
Sale of stock.....	7,900.00
Reduction plant and smelter returns..	2,197.67
Loans, individuals	7,500.00
Royalties.....	31.16
Grazing fee.....	25.00
Refunds.....	61.60
Transfer fees.....	7.00
	18,210.55

Disbursements

Wages, mining.....	4,461.00	
Mine supplies.....	1,410.74	
Insurance.....	525.89	
Gas,oil, car.....	392.14	
Repairs and replacements.....	31.73	
Hotel rent.....	54.75	
Subsistence.....	27.22	
Communication.....	270.72	
Withholding Tax.....	357.30	
Social Security.....	240.62	
Unemployment Compensation Commission.	105.65	
Railroad fares.....	57.63	
Office supplies and expense.....	254.89	
Taxes.....	454.41	
Technical publications.....	11.75	
Freight.....	20.63	
Royalties.....	553.03	
Electric power.....	732.21	
Commissions.....	450.00	
Postage.....	21.50	
Mine camp supplies.....	23.85	
Assays.....	71.30	
Geological and engineering fees.....	725.00	
Property payments.....	250.00	
Travelers checks and travel expense..	378.00	
Express.....	11.98	
Trucking.....	23.36	
Attorney fees.....	50.00	
Car payment.....	30.00	
Mileage allowance, miners only.....	126.00	
Notary and fees.....	31.50	
Bank charges.....	2.25	12,157.05
Bal. Union Bank & Trust Co. Helena, Mont.		307.72
Bal. Metals Bank & Trust Co. Butte, Mont.		5,742.06
Cash, office transfer fund.....		3.72
		18,210.55

***

IF 103 (continued)

11 to 14 inclusive: Answered on IF 100.

15. Metallurgy of the ore which contains thorium, uranium, cerium, and other minor is of the rare earth group would be determined best by working through the Lindsay Light and Chemical Company of West Chicago, Illinois which has expert staff for handling such types of ores, and is at this time in the business of handling such ores. Full cooperation has been indicated by Dr. Howard E. Kressers of that company. Handling of the ore might call for a reduction plant near Armstead, Montana, where water supply is plentyful. An alternative might be in shipping to the Vitro Chemical Company of Salt Lake City for uranium extraction, prior to treating the ore reject for its thorium and rare earth minerals content. All ore could be readily trucked from mine to RR shipping point Union Pacific RR, at Armstead, Montana.

16 to 18 inclusive: Answered on IF 100.

19: No other conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

The Exploration

20.

Exploration will be conducted for thorium, uranium, cerium, didymium, yttrium, lanthanum, and other associated minerals of the rare earth group and already identified as present in the ore through tests made by the Lindsay Light and Chemical Company at West Chicago, Illinois.

21. Proposed development program entertains a one year period. Outline program provides for approximately 4 months diamond drill program, 4½ months of shaft sinking, 8 months on drift work and auxiliary work. Time periods to vary dependent on conditions encountered. Shaft work to be performed near site of discovery cut for the Last Chance claim as noted on exhibit "A". Drift work to be performed laterally along vein, shaft to be vertical or on incline dependent on operating factors. For first work incline is suggested at footwall of vein.

22.

Geological basis for the proposed project is contained in report herewith attached, by Wade V. Lewis. Outcrop near discovery point on the Last Chance claim lenses important information, sufficient to indicate probability of finding commercial thorium-uranium-rare earth ores at depth, as some of surface uncovered outcrop has yielded on analysis 5.4% combined thorium and rare earth products with some attendant uranium values. (See report attached.) Reference is made to Exhibit "A" for location of improvements and exploration herein recommended.

Elkhorn Mining Company
Butte, Montana.

MF 108 --Last Chance Group.

Requirements and Costs	1 Year Period
12.	
(a) Labor: (Alternative contract or wage labor)	
1. Shaft development 100' @ 50 ft..	[illegible],000.00
2. Drift development, 100' @ 45 per ft.	5,000.00
3. Diamond Drilling: 2,000' @ 4.5 ft.	3,500.00
(b) Supervisors:	
1. Foreman @ 300.00...	3,600.00
2. Engineering geologist (part time) 100 per mo. fee....	1,200.00
(c) Cost of repairs, etc. : None	.....
(d) Cost of necessary installation or construction of facilities, structures, buildings.....	2,200.00
(e) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each:	
1. Compressor (air) 160 cu.ft Ing.Rand.	1,250.00
2. Hoist (air)	850.00
3. Hoist cable...	90.00
4. Gardner-Denver drill...Sinker .	800.00
(f) Cost of Rental: None.	
(g) Rental values equipment not owned: None.	
(h) Cost of materials and supplies, including items of equipment costing less than $50 each	4,200.00
(i) Cost of power, water, utilities, and any other items not provided for above:	
1. Mine supplies, powder, caps, fuse, bits, steel, etc. and gasoline for power.....	4,000.00
2. Road approaches, dozier cuts.....	4,000.00
3. Mine timbers , logging and lumber.....	1,200.00
4. Mine camp supplies	750.00
5. Trucking & transportation (exclusive of ores) ..	1,500.00
6. Minor repairs and replacements.....	600.00
7. Assaying and chemical work.(tactus,[illegible],etc.)	500.00
8. Freight and express.....	100.00
9. Scintillometer grid surveys, [illegible], [illegible], [illegible] equipment repl[illegible]	750.00
10. Industrial Accident [illegible] Insurance.. [illegible]...	730.00
11. Contribution to Unemployment Compensation ...7[illegible]	78.00
12. Social Security ..... 1.5[illegible] ...	10.00
Total	[illegible],[illegible]8.00

P 108- [illegible].. Fractured Vein Group, Tactus, [illegible], [illegible], etc.

Lemon Mining Company
Bonner, Montana.

July 7, 1951.

MF 103... 24.

Requirements and Costs

Time Schedule:		1 year period
1st Month:	Machinery, hoist, installation drilling equipment mine.....	$4,010.00
	Diamond drilling, 500'....	2,125.00
2nd Month:	Diamond drilling 500'...	2,125 .00
	Shaft sinking, approx.40'.	3,600.00
3rd Month:	Cost as 2nd month... 40' shaft..	3,725.00
4th Month:	Costs as 2nd mo. 20' shaft only	3,525.00
5th to 12th	incl.	
	Drifting costs allocate over 8 months period, following completion of 100' shaft @ $625.00 mo.	5,000.00
1st to 12th	mos. incl.:	
	Balance of costs of $23,372.00 as listed alloacted over 12 months @ approx. $1947.50 per month...	23,372.00
	Total	49,382.00

Yellowhorn Mining Company
Boulder, Montana.

MF 103...21 (detailed exploration program)

21: Allocation of Proposed Exploration

1. Incline shaft, 100 feet deep, directed approximately South 48° West, at right angles to strike of Last Chance vein, on Last Chance claim, at point "A", angle of incline approximately 45°.

2. From bottom of inclined shaft, drifts each 100 feet in length along strike of vein, directed approximately North 42° West 100 feet, and South 42° East 100 feet.

3. Diamond Drilling: 2,000 feet:
   a. Diamond Drill Hole No.1, Last Chance Claim, directed N 48° E at 45° angle, 300 feet, hanging wall side
   b. Diamond Drill Hole No. 2, Last Chance Claim, directed N 48° East, 45° angle, 300 feet, hanging wall side
   c. Diamond Drill Hole No. 3, Last Chance Claim, directed N 48° E, 45° angle, 500 feet, hanging wall side.
   d. Diamond Drill Hole No.4, Shady Tree Claim, directed N 48° E , 45° angle, 300 feet, hanging wall side.
   e. Diamond Drill Hole No.5, Shady Tree Claim, directed N 48° E, 45° angle, 300 feet, hanging wall side.
   f. Diamond Drill Hole No.6, Brown Bear Claim, directed N 48° E, 45° angle, 300 feet, hanging wall side.

Foregoing assumes a dip of orebody of approximately 45° to the Southwest and strike of orebody of about North 42° West. Such diamond drill holes should pierce the orebody on line perpendicular to slope.

***

Elkhorn Mining Company
Boulder, Montana.

The Requirements and Costs.

MF 108

. (Continued) Operation of (a) Labor 1 & 2:

Contract ora suggest [illegible] be allocated under caps as follows: (6 day week, 1 year period):

Miners, 15.00..	6th day,	Time	:1½,		Average:	1[illegible].00
Tramer, 10.00	"	"	"	"	" :	10.[illegible]
Hoistman, 15.00	"	"	"	"	" :	16.15

Summary:

1 Hoistman :	2,251.00
2 Miners	7,800.00
1 Tramer.	[illegible],248.00
	14,000.00 Total [illegible]ge cost.

[illegible]lahoma Mining Company
[illegible], [illegible].

Loc-1
MT loc----M.

Report on the "Last Chance" Group of
Lode Claims, Deerlodge County, Montana.
(Thorium, uranium, cerium & rare earths)

The "Last Chance" group of lode mining claims cover a recent discovery of a vein type deposit, highly radioactive, situated in Sections 30, 31, 6, 25, Township 1 South, Range 13 West, M.P.M., Deerlodge County, Montana. Locators thereof are H. A. Welborn, et al residing in Deerlodge County. Properties herein described in lease and option are those additionally shown on map exhibit herewith were leased and optioned to Elkhorn Mining Company on July 28, 1950. Under agreement, geological and claim survey was to be performed by applicant Elkhorn Mining Company, and any additional ground appropriated by survey needed to cover the structure was to be located in name of H. A. Welborn, et al but to become part and parcel of lease and option agreement to Elkhorn Mining Company.

The most important ore bearing found on the Last Chance group is contained in vein exposed on the Last Chance claim (see map exhibit "A", attached), striking North 45° West, dipping 45° southwest. The vein is about 20 feet in width and represents either an intrusive into sandstones or an altered, highly silicified limestone bed interbedded with the sandstone thicknesses. Origin should be deep. Radioactive ore exposures on the Brown Bear claim and other claims of the group may be considered in the same category. Seven lode claims and one Tunnel Site location make up the claim group, subject to additional locations, appropriation of other lands by location or lease in other sections sufficient to include all important mineral findings.

The Last Chance ore exposure is the most highly radioactive surface ore exposure found by the undersigned in the State of Montana, not excepting the Free Enterprise uranium property from which applicant is now shipping commercial uranium ores.

Preliminary chemical reports on ore samples performed for Elkhorn Mining Company, applicant, through Dr. [illegible] Krewers and his laboratory staff of the Linde Light and Chemical Company, of West Chicago, Illinois. A 50 lb. sample of Last Chance ore was submitted to Dr. Krewers, taken from a 6 foot section of the vein of the Last Chance ore body, near discovery point of lode. Dr. Krewers reported 5.4% combined thorium and rare earth minerals, including cerium. Dr. Krewers did not assay for uranium. The 5.4% represented as follows: 3.8% thorium, 1.6% cerium, 0.1% yttrium, 0.1% lanthanum, yttrium, and associated rare earth products. Linde Light and Chemical Company, through Dr. Kenneth R. Kremers, has indicated interest in developing commercial cerium and rare earth product for any concentration of such minerals from the Last Chance property and other properties of the Elkhorn Mining Company.

Elkhorn Mining Company
Butte, Mont.

F 100 1[illegible]
F 100 [illegible] . (Continued)

Attached hereto are reports on assays made through [illegible] and [illegible]ker, Security Laboratories, both of Butte, Montana, on U3O8 content of samples from the Last Chance claims. Also attached is radiometric equivalent report through the USGS, Denver, Colorado, with chemical report in parallel, referring to probable large amounts of thorium and/or premium present, which may account for the high radioactivity of the Last Chance ores. The variance in these work on uranium content has been shown by assayers. It is suggested that further exploration work on the Last Chance group to greater depth may result in more consistent results on all minerals present. Some increase in uranium content can be anticipated through the year development.

Probable tonnage of ore material may be calculated for a 800 ft. strike along the Last Chance vein, 100 ft. depth, 10 ft. width, or approximately 50,000 tons of thorium, uranium, cerium and rare earths ore, allowing 12 cu. ft. of material for each ton of ore in place.

While the Last Chance property still represents an undeveloped prospect, it is an unusual prospect, heretofore examined by representatives of the United States Geological Survey, to which reference is made for more detailed information and data. Considerable detailed and valuable geological work was performed by Geologist Fritts, staff of the USGS, Denver Department during the fall of 1950.

The Last Chance group is recommended for some further development as outlined, based on geological conditions favorable for ore continuity and development of large tonnages with possible increases in thorium, uranium, cerium and other rare earth minerals in depth below a [illegible] ore outcrop already showing high thorium and rare earth percentages with some attendant uranium. Assuming the finding of commercial radioactive ores at the 100 foot level, it is recommended that separation metallurgical processes be attempted from such ores. Separation of commercial premium products may be very commercial and profitable for recovery of thorium and rare earth products, already requested by the Minerals Light and Chemical Company of Last Chance, Montana Company, it is understood however, at this time the major portion of the rare earth minerals produced are strictly.

Wesley L. Lewis
Wesley L. Lewis, Geologist.
Helena, Montana.

Anchorn Mining Company,
Boulder, Montana.

MF 103- 22

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Box 7618, Lakewood Branch
Denver 15, Colorado

March 22, 1951

* Mr. Jade V. Lewis, President
Elkhorn Mining Company
Elkhorn, Montana

Dear Mr. Lewis:

Thank you for returning the affidavit and request for factual data form and the letter permitting us to publish information obtained during the investigation of the Brown Bear, Shady Tree, and Last Chance claims, Beaverhead County, Montana.

Listed below are the results of analyses of samples taken from the above claims:

Sample No.	Description and Location	Equivalent uranium (percent)	Uranium (percent)
44638	Grab sample of dark brown cherty lens in small prospect pit south of bulldozer cut, Last Chance claim.	0.10	0.003
44639	Grab sample of brownish red hematitic quartz in small prospect south of bulldozer cut, Last Chance claim.	0.43	0.005
44640	Grab sample of red vein material with hematite from vein a few feet south of bulldozer cut, Last Chance claim.	0.44	0.004
46746	Chip sample across 5 feet of radioactive vein, bulldozer cut, Last Chance claim.	0.15	0.002
46747	Chip sample across 10 feet of hangingwall side of vein, bulldozer cut, Last Chance claim.	0.041	0.001
46748	Chip sample across north end of outcrop, Shady Tree claim	0.009	0.001
46749	Chip sample across south end of outcrop, Last Chance claim.	0.014	0.001

Radioactivity measurements do not distinguish between the radioactive elements; hence, the percent equivalent uranium shown above is a measure of the total radioactivity of the sample. A large difference between percent equivalent uranium and percent uranium suggests that other radioactive elements are present. These elements are probably thorium or radium or both.

We trust this information is of interest to you.

Sincerely yours,

F. A. McKEOWN /s/
for

Lincoln R. Page
Geologist in Charge of
Reconnaissance Group

Roy H. Hammond

Walter F. Averly

McCARTHY LABORATORIES
Assayers and Chemists

P. O. Box 201 Phone 2-1738
27 W. Granite St., Butte, Montana

Elkhorn Mining Co. Mr. Wade Lewis Aug. 14, 1950

Sample of Cerium rare Earth ore Uranium Oxide U_3O_8 0.33%

Respectfully,

Charges $3.00

ROY HAMMOND /s/

Roy M. Hammond

alter F. Everly

McCARTHY LABORATORIES
Assayers and Chemists

P. O. Box 201 Phone 2-1738
27 W. Granite St., Butte, Montana

Elkhorn Mining Co. (Mr. Wade Lewis) Sept. 1, 1950

No.		Ozs. Silver	Per Cent U_3O_8
101	Last Chance		0.12
102	" "		0.17
200	85 Level Free Enterprise S.W. Drift 6" Face	0.8	
201	85' level Floor 113'S.W. 7" Ore High Grade Eliminated	44.6	0.57
202	85' Level 115S.W. High Grade Only	800.4	1[illegible].78

Respectfully,

Charges $15.00

ROY HAMMOND /s/

MF 103-7

(Elkhorn Mining Company
Boulder, Montana)

MINING LEASE AND OPTION

THIS AGREEMENT made by and between R. A. ELLIORN, BILLY ELLIORN, NED ELLIORN, SAMUEL PETERSON and EDWARD VESEL, DAVE ELLIORN, first parties, and ELKHORN MINING COMPANY, a corporation, second party,

WITNESSETH: That for and in consideration of, and upon the terms and conditions hereinafter named, the first parties do hereby demise, lease and let unto the second party all of those certain unpatented lode mining claims situated in the Frying Pan (unorganized) Mining District, Beaverhead County, Montana; the location certificates whereof are recorded in the office of the Clerk and Recorder of said county in Book 108, at the pages following:

The Brown Bear Lode, page 259 et seq
Shady Tree Lode, page 285 et seq
Last Chance Lode, page 267 et seq

for the term of five years from and after the date hereof.

The conditions of this lease are as follows:

1. Within thirty days after the date hereof the second party will take possession of all of said properties, and will commence, in good faith, the exploration thereof to determine their mineral values; and will thereafter, so long as this agreement remains in effect, prosecute continuously and diligently the work of extracting mineral values therefrom.

2. The second party will survey the lines of said claims and will determine what additional claims, if any, ought to be included in this group. If any such are found the second party will cause the same to be located in the names of the first parties as locators. The cost of discovery work, marking and recording certificates of location upon such additional claims shall be borne by the second party; but the first parties, or one of their number, shall sign and verify all such certificates of location. In case this contract is not performed by the second party then such additional claims shall belong to the first parties. There shall be included in such additional claims at least one tunnelsite.

3. In performing the work herein prescribed the second party will install and put into operation sutiable mining equipment with a sufficient force of men, with which it will perform not less than $4000. worth of work upon said properties during each and every year while this agreement remains in effect. The first year's work shall be complete within one year from the date hereof; and the successive years herein contemplated shall begin and end on corresponding dates.

4. All mining operations herein contemplated shall be performed in good and minerlike fashion. Sufficient timbering shall be installed wherever required under good mining practice; and no waste or other matter shall be permitted to obstruct the active workings.

5. The first parties shall be permitted at all reasonable times, to inspect said properties and all the workings therein.

6. All values produced from said property shall be marketed by the second party as soon after produced as a market therefor is available. It shall pay to the first parties a royalty of 10% on the net returns of all values marketed; payment therefor to be made accordingly as shipped. Net returns shall comprise the gross returns less costs of transportation and treatment of ores. If ores are treated by the second party, the same shall be done at reasonable cost, and at no higher rate than is charged by other processors to whom that ore might be shipped at reasonable cost. The minimum of royalties to be paid by the second party are set forth in paragraph 15 hereof.

7. The second party shall keep a true and correct account of all tonnage and values by it produced; and shall, at all reasonable times, permit the first parties, or their representative, to inspect the same.

8. During each year of its operations hereunder, the second party shall perform all necessary assessment work upon said properties and shall, in due form and season, file proof of the performance of such assessment work conformably to law.

9. The second party shall throughout its operations comply with all requirements of Workmens Compensation, Unemployment Compensation and all other State and Federal laws then in force.

10. The second party shall not suffer any lien to be filed against said properties which may arise by reason of taxes assessed or as a result of its failure to discharge its obligations with any person with whom it may sustain contractual relations.

11. From the time of commencing mining, milling, or development operations, the second party shall be excused from operation by reason of strikes, floods, military orders, war requirements, governmental orders or limitations as to materials and labor or other factors, acts of God, and conditions as beyond control of the second party, which make said operations impossible, impracticable, or commercially unprofitable.

12. In the event of any alleged failure to perform the covenants of this lease, the lessors shall notify the lessee in writing of said alleged failure, and the lessors herein grant the said lessee a period of sixty (60) days after receiving said notice of writing in which to remedy or cure any alleged failure to perform the covenants of this lease.

13. It is agreed that all machinery, tools and mining equipment that may be placed upon said properties by the second party for its use shall remain the property of the second party, and shall not become a part of the real estate; and the same may be removed by the second party at any time prior to the termination of this lease, or within three months thereafter. These provisions, however, shall not apply to timbering or other underground workings, or to such properties as are ordinarily treated as fixtures to real estate other than mining properties.

14. In case the second party shall default in the performance of any of the conditions by this agreement imposed upon it, then the first parties will give written notice to the second party in which the default of which they complain

shall be specifically pointed out. Such notice may be served personally or it may be mailed to the second party, postage prepaid, addressed to the second party at Boulder Bank Building, Boulder, Montana. Should the second party fail, within sixty days after said notice, to remedy each and every default so pointed out, then the second party shall be subject to forfeiture as hereinafter provided.

15. In consideration of the premises the second party is hereby given the following options:

(a) Upon full performance of the conditions herein named to renew this lease, upon like terms, for an additional period of five years thereafter.

(B) If all of said conditions are performed for such second five - year period, then the second party may have a further extension of five years after the expiration of said second period.

(c) To purchase all of said properties for the sum of $100,000.; payments thereof are to be made as follows:

$3,000. on or before January 1, 1952;
$5,000. on or before January 1, 1953;
$5,000. on or before January 1, 1954;
$5,000. on or before January 1, 1955.

All royalties and installments paid hereunder shall be credited upon the purchase price. If, during any year, such royalties shall exceed the installment required to be paid for that year, the excess shall be credited upon the amount to come due in the next succeeding year.

To avail itself of any of the foregoing options the second party shall, not less than sixty days prior to the termination of each successive period give written notice to the first parties of its intention to exercise such option. Such notice may be delivered personally to R. A. Wellborn above named, or may be served by mail, postage prepaid, addressed to him, at Armstead, Montana.

16. All royalties to be derived hereunder shall be transmitted by the consignee to the First National Bank of Dillon, Montana, for the use and benefit of the first parties.

17. The first parties have signed, acknowledged and caused to be certified a conveyance to the second party of all of their interests in the properties described on page 1 hereof. Said conveyance, together with this instrument, shall be deposited in escrow with said bank.

18. Upon full compliance by the second party of all of the terms and conditions hereof, said depositary shall surrender said conveyance to the second party.

19. Also, upon such full performance by the second party, the first parties will execute and deliver to the second party a like conveyance of all of the properties that are herein designated as additional claims.

20. Should the second party fail to perform any of the terms or conditions hereof accordingly as performance thereof comes due, then the first parties may terminate this agreement and may withdraw all of said papers from escrow and thereafter

the second party shall have no claim in any amount or character against the first parties by reason of the premises, except the right of the second party to remove its equipment from the properties as authorized in paragraph 13 hereof.

21. This agreement shall bind the heirs, personal representatives and successors in interest of all of the parties hereto.

IN WITNESS WHEREOF said parties have executed the foregoing at Dillon, Montana, on July 25, 1950.

R. A. WELLBORN /s/
BILLY WELLBORN /s/
NED WELLBORN /s/
DARREL PETERSON /s/
LEONARD KESEL /s/
DAVE WELLBORN /s/
First Parties

ELKHORN MINING COMPANY, a Corporation

By ADE V. LEWIS /s/
President

Attest: J. P. LEWIS /s/
Secretary

Second Party

STATE OF MONTANA,)
SS.
COUNTY OF BEAVERHEAD, (

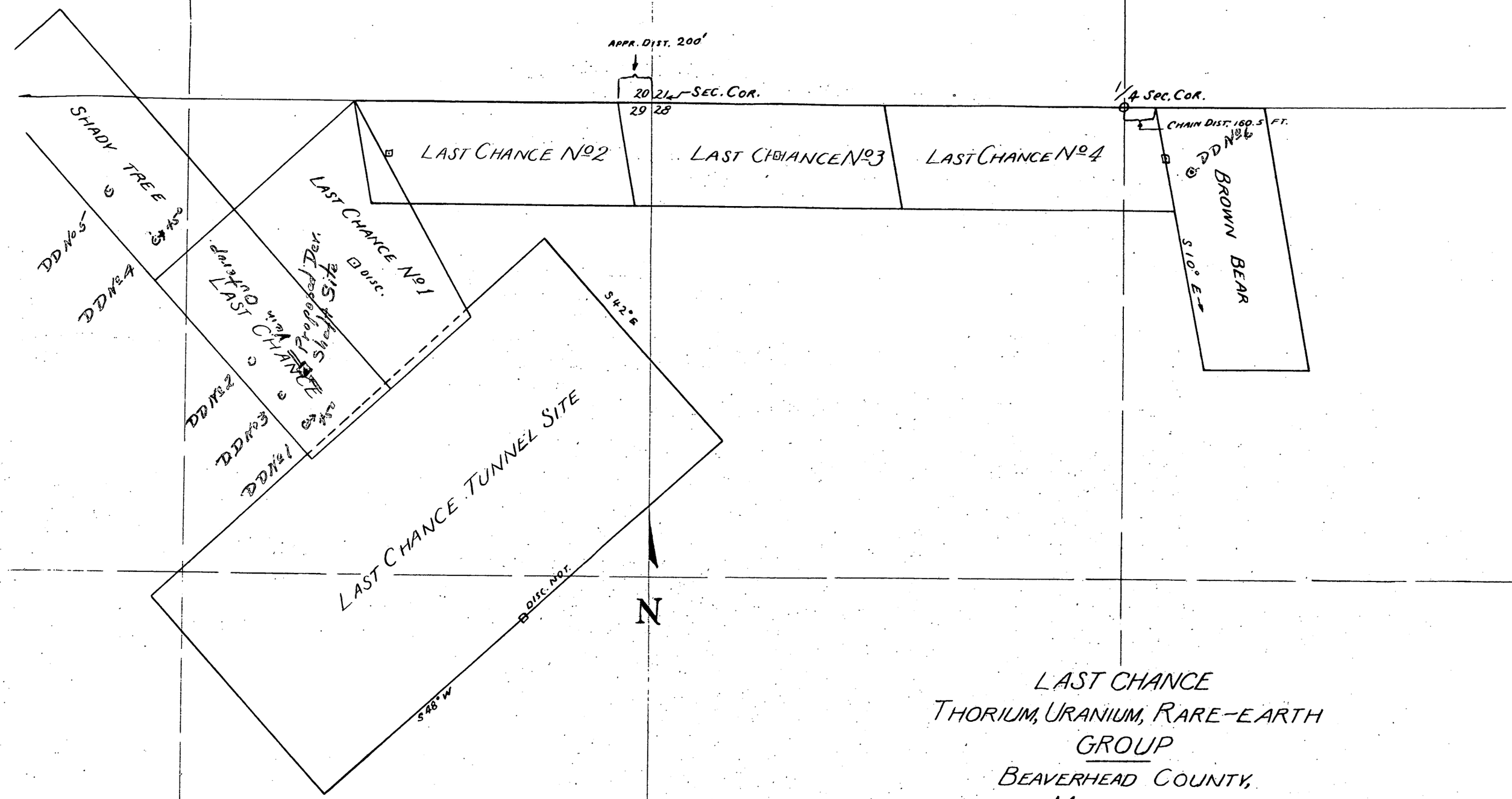
On July 25, 1950, before me, the undersigned, a Notary Public for the State of Montana, personally appeared R. A. Wellborn, Billy Wellborn, Ned Wellborn, Darrel Peterson, Leonard Kesel and Dave Wellborn, known to me to be the persons whose names are subscribed as first parties to the foregoing instrument, and acknowledged to me that they executed the same.

At the same time and place personally appeared Ade V. Lewis, known to me to be the President of the corporation named as second party in the foregoing instrument, and acknowledged to me that said corporation executed the same.

IN WITNESS WHEREOF I have hereunto set my hand and affixed the seal of my office on the date in this certificate above written.

JOHN COLLINS /s/
Notary Public for the State of Montana.
Residing at Dillon, Montana.
My commission expires July 14, 1952.

(SEAL)



LAST CHANCE
THORIUM, URANIUM, RARE-EARTH
GROUP
BEAVERHEAD COUNTY,
MONTANA.
T. 10 S., R. 15 W.
SCALE: 1" = 600' — DECLINATION: 20° E.
TRACED — 5/1/51

ELKHORN MINING COMPANY . Elkhorn Mining District - - Elkhorn, Montana . . . . .

PHONE 2121 . . . OFFICES: Boulder Bank Building BOULDER, MONTANA

April 30,1951.

Defense Minerals Administration,
U. S. Department of the Interior,
Washington, 25, D. C.

Through: Mr. A. E. Weissenborn,
Executive Officer, DMA.,
Spokane, Washington.

Gentlemen:

Herewith enclosed is MF Form 100, original and three copies, executed by the Elkhorn Mining Company, a Montana Corporation, with offices at Boulder Bank Building, Boulder, Jefferson County, Montana, MF 103 also having been fully executed (re Free Enterprise uranium property) and delivered to Mr. A. E. Weissenborn, Executive Officer, the Defense Minerals Adiministartion, Field Team, Region II, South 157 Howard Street, Spokane 8, Washington.

This letter is to make application at this time for Serial Number or Numbers for operations of the Elkhorn Mining Company, with particular reference to the following properties:

applicable to these two only.

1. Free Enterprise Mine, T 6 N Range 4 West, Jefferson Co., Montana. (Uranium producer).
2. Last Chance Mine Group: T 10 S., R 15 W., M.P.M., Beaverhead Co., Montana. (Thorium, uranium, rare earth group including cerium, lanthanum, didymium, yttrium)
3. Elkhorn Mine: T 6 N., R 3 W., MP.P.M., Jefferson County, Montana. (Lead, zinc, silver).
4. Outlying radioactive claims and properties in Jefferson and Beaverhead Counties interrelated to foregoing operations including Red Rock, Indian Head, West End, East End claims. (Containing radioactive minerals.)

Respectfully submitted,

Elkhorn Mining Company,

Wade V. Lewis

Wade V. Lewis, President.

Form MF-100
(March 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Form approved.
Budget Bureau No. 42-R1026.

GENERAL TECHNICAL DATA
FOR USE UNDER THE
DEFENSE PRODUCTION ACT OF 1950

NOT TO BE FILLED IN BY APPLICANT

Docket No. DMA-1186X

Date received 0239

Elkhorn Mining Company
Boulder Bank Building
Boulder, Montana

Name and address of applicant

Date May 7th, 1951.

INSTRUCTIONS

This form is to be filed with Defense Minerals Administration, Department of the Interior, Washington 25, D. C. It should be accompanied by appropriate application form when a specific type of Government assistance is requested, in the form of (1) loan, (2) purchase contract, (3) Government guarantee of a private loan, (4) Necessity Certificate pursuant to the provisions of Sec. 124-A (Amortization Deduction) of Internal Revenue Code, 1950, (5) priorities or allocation of mining equipment, and maintenance, repair and operating supplies, and (6) other forms of Government assistance that might arise under the Act. Submit four (4) signed copies of the form and accompanying papers. Name and address should be stamped or typed on each sheet of this form and all accompanying papers. *When a question is inapplicable it should be so stated on the form.* Additional sheets may be attached in answering any questions or in supplying additional information. (IF YOU CANNOT ANSWER A QUESTION, SO STATE.) If a question is answered elsewhere indicate where answered. It is not necessary to answer it again.

GENERAL TECHNICAL DATA

Supply the following information on separate sheets, arranged, numbered, and lettered as indicated:

1. Materials produced:
   (*a*) What are the chief mine, mill, or smelter products?
   (*b*) What are the byproducts, if any?
2. Name(s) and type(s) of mine(s), mill(s), smelter(s), refinery(ies), pit(s), quarry (ies), drilling operation(s). Include old names of property, if any. Show extent of workings, including the following:
   (*a*) Linear feet of shafts.
   (*b*) Linear feet of drifts and crosscuts.
   (*c*) Linear feet of tunnels or adits.
   (*d*) Linear feet of other mine openings (explain briefly).

   Indicate whether mine is flooded or not. Describe any pumping problems. Give size or productive capacity.
3. For each operation listed above supply the following:
   (*a*) Distance and direction from nearest town and shipping point.
   (*b*) Mining district.
   (*c*) Township, Section, Range.
   (*d*) County, State.
4. (*a*) State whether or not property is now in operation, and if in operation, by whom operated.
   (*b*) Are you operating this property as:
   - ☐ Owner.
   - ☒ Lessee.
   - ☐ Contractor.

   Prospecting ,Developing only since July 25,1950.
5. Number of years in production _____ 6mos to 1 year development.

   If not in production or operation, estimated date when production will begin _____
6. Experience of operators:

   Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who manage the project.
7. History:
   (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for suspension of operation.
   (*b*) State briefly the known history and production of adjoining and neighboring properties.
   (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

8. Names and addresses of Officers, Directors, or Partners, and in addition thereto, the five largest stockholders if applicant is a corporation.

* Sheet attached

Name and Address (a)	Official Title (If officer is also director indicate by "D") (b)	Total of Annual Salary, Commissions, Bonuses, Etc., Received From Applicant and Affiliates During Last Fiscal Year (c)	Estimated Net Worth Outside of Interest in Applicant (d)	Number of Shares Held in Applicant Corporation: Common (e)	Number of Shares Held in Applicant Corporation: Preferred (f)	Life Insurance Carried for Benefit of Applicant: Amount (g)	Life Insurance Carried for Benefit of Applicant: Net Cash Surrender Value After Loans (h)
* Wade V. Lewis Boulder, Mont.	D President	0	15000	148,490	none	none	..
J. T. Lewis same	D Sec.Treas	0	15000	148,490	"	"	"
W. St. Doyle Yakima, Wn.	Vice-PresD	0	125000	2000	"	" "	"
Walter B. Smith Boulder, Mont.	Director	0	7500	500	"	"	"
Hugh S. Cannon 2220 20th S., Seattle Wn.	"	0	100000	28235	"	"	"
J. E. Stiegler Naches, Wn.	"	0	16,000	200000	"	"	"
Floyd L. Lewis Yakima, Wn.	"	0	50000	6250	"	"	"
		00.00		349965			

No salaries pd to officers and directors; x x x Wade V. Lewis employed as x x x geologist $3600 per year, W. B. Smith, hoistamdn, foreman $225 per month.

If more lines are needed continue on separate sheet.

9. Capital Stock Issues:

For Corporate Applicants

Item	Authorized (a)	Outstanding (b)	Par Value (c)	Number of Shares Outstanding (d)	Dividend Rate Last Paid* (e)
Common stock	$ 1,000,000	$ 744,875	$ 0.10	744,815	none
Preferred stock	$ None	$ ..	$ ..	..	..

*Indicate period covered.

10. Production: None, outcrops only, dozier and cut work exposing ores.

Item	Kind of Product (a)	1948 Total (b)	1949 Total (c)	1950 Total (d)	Present Average Monthly (e)
1. Quantity of product mined or quarried (Short, long, metric tons; barrels; pounds; etc.)	as above				
2. Quantity of product processed (specify unit of measure and type of process)					
3. Quantity and grade of product sold or shipped (specify units of measure)					

11. Do you contemplate a change in the present average monthly rate of production? If so, state estimated maximum monthly production and basis of change. Production only following development and based on findings through such development.

12. Ore or Mineral Reserves:

(a) Describe the ore or mineral deposit briefly. Accompany the application by an available report on the geology and ore reserves. See reports attached (12).

16—63792-1

ELKHORN MINING COMPANY • Elkhorn Mining District - - Elkhorn, Montana . . . . .

PHONE 2121 . . . OFFICES: Boulder Bank Building BOULDER, MONTANA

MF 100

May 7th, 1951.

Defense Minerals Administration,
U. S. Department of the Interior,
Washington 25, D. C.

Pursuant to instructions and general technical data required in submitting MF 100 , the following information is supplied:

1. Materials produced: Thorium, uranium, cerium, other minerals of the
   (a) rare earth group
   (b) No byproducts indicated other than the above.
2. Name of mine and type: "Last Chance" group, also known as the Armstead, Montana group.
   (a) Linear feet of shaft : None
   (b) Linear feet of drifts and crosscuts: None.
   (c) Linear feet of tunnels or adits: none
   (d) Linear feet of other mine openings: Open cuts and dozier work aggregating 400 feet of work, together with road approaches to cut work, length about 3 miles road.

   Property now awaiting spring development, no water problem contemplated nor indicated; creek water available for diamond drilling about 1500 feet distant.
3. a Property group about 30 miles west of nearest RR shipping point, Armstead. Montana, Beaverhead County, Union Pacific line, reached by County road and continuation built by Elkhorn Mining Company.
   (b) Mining District: Frying Pan, Beaverhead County, Montana.
   (c) Township 10 South Range 15 West.,M.P.Meridian.
   (d) Beaverhead County, Montana.
4. (a) Operations suspended since winter account of snow conditions, resumption work anticipated this spring and summer.
   (b) Elkhorn Mining Company operating as Lessee in manner as provided in Lease and Option, instrument herewith attached to this application. Lease and Option in good standing.
5. Property not in production, development stage only as described.
6. Experience of Operator:
   (a) Applicant, Elkhorn Mining Company, operating since incorporation in 1945, Elkhorn Group, Elkhorn, Montana. Producing commercial uranium ore at Free Enterprise group Jefferson County, Montana at this time. Only commercial producer in Montana of uranium. This company has specialized in radioactive ores for past two years.
   (b) Wade V. Lewis, present engineer for company, in mining since 1913, graduate Oregon State, School of Mines, 12 years as engineer and geologist with USGLO,Department of Interior. Operator since 1933 in Montana. With Government , operated with Portland, Denver and Billings divisions.
7. (a) Only previous exploration on property prior to last locations consisted of very few surface cuts by early day prospectors searching for other minerals, claims since abandoned .
   (b) No adjoining properties with history of Production of rare earth minerals. Discoveries in 1950.
   (c) Copy of USGS report through Denver is herewith attached and reference made to that office for more complete data. Report of Wade V. Lewis, geologist, is attached hereto. This latter includes findings of Lindsay Light &Chem Co.West Chicago.

MF 100 Contunued -EMCo. Boulder, Montana.

PHONE 2121 . . . OFFICES: Boulder Bank Building BOULDER, MONTANA

7 (c) continued)
Recommended exploration and development detailed in exhibits attached, including map exhibit "A". (See MF 103)
Diamond drill locations, in part, are indicated on claim map, exhibit "A". Locations and depths of diamond drill holes following initial drilling can be based on geological and mineralogical information secured through the initial drilling. Any expanded development is recommended as based on information secured as work proceeds.

8 to 12 incl See MF 100 form attached.

13. Access Roads:
Property about 30 miles west of U.P.RR station of Armstead, Montana. County road up to about last 3 miles improved and constructed by dozier work through applicant to site of Last Chance ore showings. Roda condition:good.

14. Water Supply: Water for mine drilling and diamond drilling may be secured from creek within few hundred yards of locations. No probable water problem in near surface development. Water from snow resevoirs year around.

15. Power: No installations at present. Anticipate gas power for initial development and mine work, as outlined.

16. Labor: Work up to present through applicant has been by contract work only, through local employment, R. A. Wellborn.

17. Equipment and Facilities:
No equipment nor buildings at present on ground. Operatio anticipates compressor house and cabin only.

19. No particualr conditions or circumstances other than above noted.

****

MF 100

Elkhorn Mining Company
Boulder, Montana.

ELKHORN MINING COMPANY • Elkhorn Mining District - - Elkhorn, Montana . . . . .

PHONE 2121 . . . OFFICES: Boulder Bank Building BOULDER, MONTANA

MF 100... 8 (continued)

8. (Continued)

Five Largest Stockholders of
Elkhorn Mining Company

	Shares Held
Wade V. Lewis, Boulder, Montana	148,490
J. T. Lewis, " "	148,490
John R. Dodson, 224 Emerald Bay Drive, Laguna Beach, Calif.	41,000
R. M. Harris, 413 N. First Street, Yakima, Washington.....	24,300
Leon Butori, Butte, Montana. ..... (Meaderville)	25,600

*****

Elkhorn Mining Company
Boulder, Montana.

(*b*) If deposit is other than placer:

(1) Submit assay plans and/or sections showing location and size of proved (measured) and probable (indicated) ore or mineral reserve.

(2) State the tonnage (indicate type of ton) and grade of each class of ore reserve, as above, and show how computed. Tabulated total ore reserve as follows:

TOTAL ORE OR MINERAL RESERVES

Ore or Mineral Reserve	Estimated Tons (a)	Metal or Mineral Content Per Ton (Grade) (b)	Gross Value Per Ton (c)	Recoverable Unit Value Per Ton (d)	Estimated Cost of Production Per Ton (e)
Measured (proved)	Outcrops only, as observed by government geologists and examiners				
Indicated (probable)	50,000 (thorium, uranium, cerium, other rare earth content not known, high thorium at surface (see report attached).				

(*c*) If placer:

(1) Give estimated total yardage and average marketable mineral content of each deposit.

(2) Submit map showing location of placer deposit and surrounding area, with all test holes or pits. Submit logs of each hole and test pit with depth and average value of each.

(3) Describe gravel, stating whether fine, medium or coarse; loose, tight, cemented, or frozen, and whether it contains stumps or boulders more than 1 foot in diameter; if so, how large, and in what proportion.

(4) Describe bedrock, giving type (granite, sandstone, shale, etc.) and state whether it is hard or soft, smooth, uneven or rough.

(5) Describe overburden, stating whether loose, tight, or cemented; fine or coarse textured; furnish estimate of average thickness and total amount.

(6) Tabulate the reserves using the form outlined above for ore or mineral reserves.

13. Access Roads:

Give road distances to shipping, supply and residence points, stating kind and condition of roads.

14. Water Supply:

State source and quantity of water available for operations and whether sufficient for all seasons of year.

15. Power:

State amount of power used, rate per hour, and source thereof.

16. Labor:

State number and classes (miners, muckers, millmen, etc.) of men employed during a recent representative payroll period.

17. Equipment and Facilities:

Describe present equipment on the property, including buildings. (State condition.) List major pieces of equipment now owned or controlled and in serviceable condition available for this operation.

18. Are there any particular conditions or circumstances affecting your operations that are not described above? If so, explain.

CERTIFICATION

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

Elkhorn Mining Company
(Name of company)

By Wade V. Lewis
(Signature of authorized official)

May 7th, 1951.
(Date)

Wade V. Lewis, President
(Title)

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

U. S. GOVERNMENT PRINTING OFFICE 16—63792-1

Form [illegible]-104A
(Ap[illegible] 1952)

Budget Bureau No. 42-R1151
Approval expires 6-30-53.

[illegible] 20 1953

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of October 1952 Docket No. DMEA 1186X Contract No. Idm E 144

Operator's Name Elkhorn Mining Company Minerals Thorium-Rare Earths

Address Boulder, Montana.

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: ~~XXX~~ Diamond	Foot	630.00	95	4,185.75	637	6.57	1350	
Churn								
Auger								
Stripping								
Trenching								
Test Pits								
Roads and Trails								
TOTAL DISTRIBUTED COSTS		630.00		4,185.75				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		630.00		4,185.75				

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

REMARKS: Inclement weather made it impossible to continue work. In the meantime conditions beyond the control of this company, and with the permission of DMEA contract was terminated.

Date September 10, 1953 Operator Elkhorn Mining Company

Per R. J. Mulvaney Title Asst. Secretary

R. J. Mulvaney

→ NOTE.—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.

(Instructions on reverse)

(For Government use only)

INSTRUCTIONS

Preparation of Form MF–104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF–104A has been designed to tie in with Form MF–104 for both monthly and cumulative costs. The "Total Costs" on Form MF–104A for each month should equal the monthly "Total Costs" as reported on Form MF–104. This is also true of the "Total Costs To Date".

In preparing Form MF–104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 83-38475

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E-144 in accordance with the terms of the contract.

Signature Stephen W Zoldok Title Mining Eng Date 9/17/53

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature /S/ Thomas E Howard Title Mining Engr Date 9/17/53

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(*a*) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(*b*) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(*c*) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

GPO 83-38476

Form MF-104 (Rev.)
(Apr. 1952)

11/23/53 /dl6.

Budget Bureau No. 42-R1036.3.
Approval expires 6-30-53.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of October, 1952 Docket No. DMEA 1186X Contract No. Idm E 144

Operator's Name Elkhorn Mining Company Minerals Thorium-Rare Earth

Address Boulder, Montana

Contract Amount, $ 10,215.00 Government Participation: 90 % Amount, $ 9,193.50

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts: Diamond						
Drilling	630.00	3555.75	4185.75	630.00	3555.75	4185.75
Bulldozing		840.00	840.00		840.00	840.00
Crosscutting						
Drifting						
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis		9.15	9.15		9.15	9.15
Payroll Taxes						
Liability Insurance						
Transportation		4.96	4.96		4.96	4.96
(8) Contingencies (specify):						
TOTALS	630.00	4409.86	5039.86	630.00	4409.86	5039.86

I certify that the above bill is correct and just and that payment therefor has not been received.

Date 9/10/53 *Payee Elkhorn Mining Company

Per R. J. Mulvany Title Asst. Secretary

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—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.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 566.99

Signature (Authorized Certifying Officer)

Date 10/29/53 Vou. No. 953
(See other side)

September 10, 1953

Mr. A.E. Weissenborn,
Executive Officer, DMEA,
1203 N. Division Street,
Spokane 2, Washington.

Re: Docket No. DMA-1186X (Thorium)
Elkhorn Mining Company
Last Chance Group
Beaverhead County, Montana
Contract No. Idm-4144

Dear Mr. Weissenborn:-

Herewith is original and four copies of our final report on the above docket. All prior reports have been sent in. Also attached to the original is a copy of the bill of Gust & Gustaf Carlson on the 95 feet of Diamond Drill Hole #4., in the amount of $630.00. In accord with the request of Mr. Weissenborn we are holding seven boxes of cores on this hole in this office, subject to being picked up by his arrangement. There is no labor on this last report and since supervision charges were waived by this company, the only charge is for the actual drilling.

As late as this past spring, this company fully intended to complete the work at Armstead, in spite of the fact that the showing, as far as we had gone, did not warrant continuance. When, however, it became apparent that the company would find itself in financial difficulties, if it endeavored to complete all of it's commitments, the Board decided to quit if possible some of it's operations. Before quitting at Armstead, however, permission to terminate the contract was sought from you, and the same was allowed. The Carlsons were away and would not have submitted a bill until the hole would be completed. When we informed them that we were terminating the contract they sent the bill.

If the entire drilling program had been completed, it is extremely doubtful from the showing obtained, that this company would have gone any further at that place.

We are very grateful for the excellent cooperation of you, as well as the other members of your force in this whole project. If anything further is to be done to complete our end of the contract please inform us and we will be pleased to comply.

Very truly yours,

ELKHORN MINING COMPANY

Fergus C. Fay

Fergus C. Fay, Office Manager.

FCF/s
Encs. 5 copies reports
1 copy Driller's Bill.
5 copies this letter

Final Operation report will be wanted
WE

Standard Form No. 1034a—Revised
Form prescribed by
Comptroller General, U. S.
September 7, 1950
(Gen. Reg. No. 51, Supp. No. 11)

PUBLIC VOUCHER FOR PURCHASES AND SERVICES OTHER THAN PERSONAL

D. O. Vou. No. .....

Bu. Vou. No. DMA - 496

U. S. Interior, Mines
(Department, bureau, or establishment)

Voucher prepared at Spokane, Wash.
(Give place and date)

THE UNITED STATES, Dr., *Payee's Account No.* Idm-E144

To Elkhorn Mining Company
(Payee)

Boulder, Montana
(Address) (City) (State)

PAID BY

(For use of Paying Office)

No. and Date of Order	Date of Delivery or Service	ARTICLES OR SERVICES (Enter description, item number of contract or Federal supply schedule, and other information deemed necessary) Discount Terms	QUANTITY	UNIT PRICE Cost	UNIT PRICE Per	AMOUNT Dollars	AMOUNT Cts.
September 1952		As per attached certified form MF-104 dated 10/6/52				1,786.28	
PAYMENT: Complete ☐ Partial ☐ Final ☐		Use continuation sheet(s) if necessary					
Shipped from	to	Weight	Government B/L No.		Total	1,786	28

(Payee must NOT use this space)

Differences .....

Account verified; correct for 1,786 28

(Signature or initials) .....

Contract No. Idm-E144 Date Req. No. Date Invoice Rec'd.

1,786.28

MEMORANDUM

ACCOUNTING CLASSIFICATION (For completion by Administrative Office)

Appropriation, limitation, or project symbol	Appropriation title	Limit'n. or Proj't. Amount	Appropriation Amount
14X4401	Revolving Fund, Defense Minerals Production Act, Interior	1,786.28	1,786.28

Allotment symbol	Amount	Obligations liquidated	COST ACCOUNT Symbol	COST ACCOUNT Amount	OBJECTIVE CLASSIFICATION Symbol	OBJECTIVE CLASSIFICATION Amount

Paid by { Check No. ..... dated ....., 19....., for $..... } on Treasurer of the United States in favor of payee named above.
{ Cash, $....., on ....., 19.....

16—22900a-2

METHOD OF OR ABSENCE OF ADVERTISING

METHOD OF ADVERTISING

1. Advertising in newspapers Yes ☐ No ☐.
2. (*a*) Advertising by circular letters sent to ..... dealers.

   (*b*) And by notices posted in public places Yes ☐ No ☐.

   (If notices were not posted in addition to advertising by circular letters sent to dealers, explanation of such omission must be made below.)

ABSENCE OF ADVERTISING

3. Without advertising, under an exigency of the service which existed prior to the order and would not admit of the delay incident to advertising.
4. Without advertising in accordance with .....
5. Without advertising, it being impracticable to secure competition because of .....

.....

.....

.....

.....

(Here state in detail the nature of the exigency or circumstances under which the securing of competition was impracticable under 3 and 4)

NOTE.—The above form "Method of or Absence of Advertising" is to be used when purchases are made or services secured under proper authority without written agreement in any form. In case of a written agreement (formal contract, proposal, and acceptance, or less formal agreement) Standard Form No. 1036—Revised should be used for abstracting the method of or absence of advertising and award of contract. (See General Regulations No. 51, as amended.)

U. S. GOVERNMENT PRINTING OFFICE : 1950 O—75805

16—22900a-2

Form MR-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.3.
Approval expires 6-30-53.

Urach

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
NOV 3 1952

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of September, 1952 Docket No. DMEA 1186-X Contract No. Idm -E -144
Operator's Name ELKHORN MINING COMPANY Minerals Thorium - Rare Earth
Address Boulder, Montana
Contract Amount, $10,215.00 Government Participation: 90 % Amount, $9,193.50

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent ~~Short-Term~~ Contracts:						
Drilling Diamond	1984.75	1571.00	3555.75			
Bulldozing						
Crosscutting						
Drifting						
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis				-0-	9.15	9.15
Payroll Taxes						
Liability Insurance						
Transportation				-0-	4.96	4.96
(8) Contingencies (specify):						
TOTALS	1984.75	1571.00	3555.75	1984.75	1585.11	3569.86

I certify that the above bill is correct and just and that payment therefor has not been received.

Date October 6, 1952 *Payee ELKHORN MINING COMPANY

Per W. J. Clark Title Vice President

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

→ NOTE.—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.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 1786.28

Signature (Authorized Certifying Officer)

Date 10/30/52 Vou. No. (See other side)

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. Idm-E 144 in accordance with the terms of the contract.

Signature John S. McNabb Jr. Title Mining Engineer Date 10-11-52

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature ..... Title ..... Date .....

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

GPO 83-38476

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151
Approval expires 6-30-53.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
NOV 5 1952

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of September 1952 Docket No. DMEA 1186-X Contract No. Idm.-E-144
Operator's Name ELKHORN MINING COMPANY Minerals Thorium -Rare Earths
Address BOULDER, MONTANA

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core Diamond	Foot	1984.75	303	3555.75	542	6.56	1350	
Churn								
Auger								
Stripping								
Trenching								
Test Pits								
Roads and Trails								
TOTAL DISTRIBUTED COSTS								TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		1984.75		3555.75				

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

Date October 6, 1952 Operator ELKHORN MINING COMPANY

Per W. S. Doyle Title Vice President
W. S. Doyle

NOTE.—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.

(Instructions on reverse)

REMARKS:

(For Government use only)

STATEMENT OF DIAMOND DRILLING

DMSA: 1186-X LAST CHANCE

URANIUM, BEAVERHEAD COUNTY, MONTANA

GUST & GUSTAF CARLSON

BOX 278, HELENA, MONTANA

30th September, 1952

ELKHORN MINING CO.

BOULDER, MONTANA

Diamond Drill Hole No. 3, drilling	
N X surface bit & Casing B X,	
0 - 26' @ 6.75	$175.50
D D H. #3, drilling BX core, & casing with A X, 26' to 61' @ $6.75	236.25
D D H #3, drill A X core from 61 to 303' (bottom) : $6.50	1,573.00
Total	$1,984.75

GUST & GUSTAF CARLSON

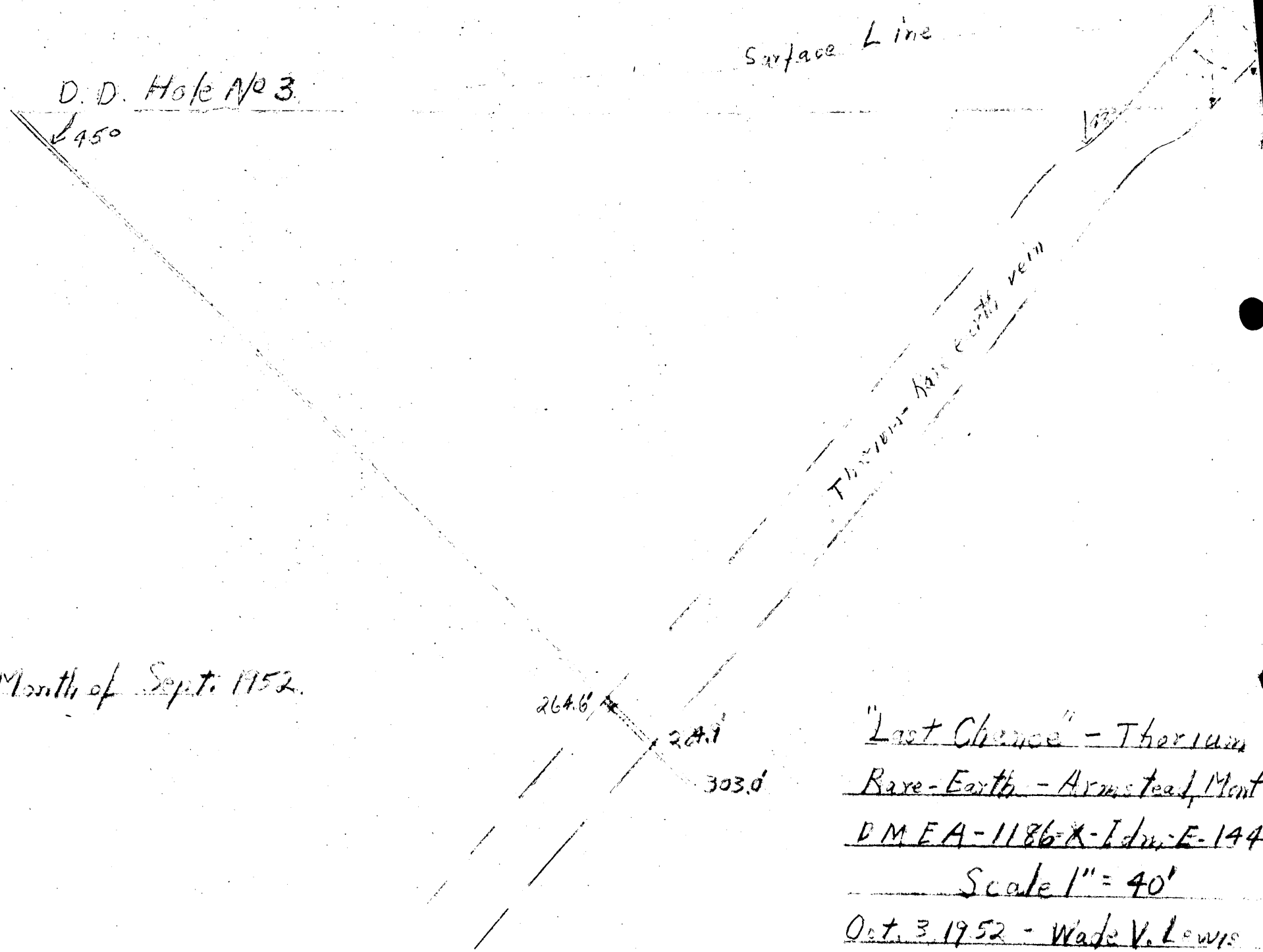
BY GUSTAF CARLSON

PAID

OCT 4 1952

Elkhorn Mining Co.

By Ck 2723



Month of Sept. 1952.

"Last Chance" - Thorium
Rare-Earth - Armstead, Mont
DMEA-1186-X-Idn.-E-144
Scale 1" = 40'
Oct. 3 1952 - Wade V. Lewis
Elkhorn Mining Company

October 3rd, 1952

Mr. John S. McNabb
Geologist
United States Bureau of Mines
971-A West Silver Street
Butte, Montana

Dear Mr. McNabb:

Herewith attached is report of September 1952, diamond drill operations at the Last Chance, Armstead, Montana, thorium rare earth property, four originals and four copies herewith attached.

Also attached herewith are copies of sketch map showing diamond drilling accomplished and completion of hole No. 3, reaching a depth of 303 feet; such hole having been drilled on a 45° angle and directed North 40° East, based on the sketch map. The vein was intercepted at approximately 264 feet and the dip of the vein is 45°. In view of this finding as regarding the vein dip, it appears that it may be unnecessary to return to diamond drill hole No. 1 for further drilling. We have now started on diamond drill hole No. 4.

Last night I returned from Armstead and brought with me core box containing mineralized material from 264.6 feet to 301.0 feet, latter part of such section being sandstone from 279 to 301. There was no core recovery from 279.0 feet to 284.6 feet, although the interval of no core recovery may have been ore, since the first 3" of the section 284.6 to 285.6 shows some mineralization. The core box for diamond drill hole No. 3 is being retained here at the Boulder Bank Building for the present time. Samples will be prepared and forwarded to Lindsay Chemical Company, West Chicago, Illinois for analysis. Inspection of the core indicates that the richest material was obtained from 264.6 feet to 267.5. All of the core showed mild radioactivity, and it is presumed that any commercial results may be with reference to rare earth materials only.

Yours very truly,

ELKHORN MINING COMPANY

Wade V. Lewis

WADE V. LEWIS, President

WVL/O
Encls.

Standard Form No. 1034a—Revised
Form prescribed by
Comptroller General, U. S.
September 7, 1950
(Gen. Reg. No. 51, Supp. No. 11)

Washington

PUBLIC VOUCHER FOR PURCHASES AND SERVICES OTHER THAN PERSONAL

D. O. Vou. No. .....

Bu. Vou. No. IMA-431

U. S. Interior, Mines
(Department, bureau, or establishment)

Voucher prepared at Albany, Oregon 10/16/52
(Give place and date)

THE UNITED STATES, Dr., Payee's Account No. Idm-E 144

To Elkhorn Mining Company,
(Payee)

Boulder, Montana
(Address) (City) (State)

PAID BY

(For use of Paying Office)

No. and Date of Order	Date of Delivery or Service	ARTICLES OR SERVICES (Enter description, item number of contract or Federal supply schedule, and other information deemed necessary) Discount Terms net	QUANTITY	UNIT PRICE Cost	UNIT PRICE Per	AMOUNT Dollars	AMOUNT Cts.
	August 1952	As per attached certified form MF-104 dated September 24, 1952				1,413	90
PAYMENT: Complete ☐ Partial ☐ Final ☐		Use continuation sheet(s) if necessary					

Shipped from to Weight Government B/L No. Total 1,413 90

(Payee must NOT use this space)

Differences .....

Account verified; correct for 1,413 90

(Signature or initials) .....

Contract No. Idm-E 144 Date Req. No. Date Invoice Rec'd.

1,413.90

MEMORANDUM

ACCOUNTING CLASSIFICATION (For completion by Administrative Office)

Appropriation, limitation, or project symbol	Appropriation title	Limit'n. or Proj't. Amount	Appropriation Amount
14X4401	Revolving Fund, Defense Production Act, Interior	1,413.90	1,413.90

Allotment symbol	Amount	Obligations liquidated	COST ACCOUNT Symbol	COST ACCOUNT Amount	OBJECTIVE CLASSIFICATION Symbol	OBJECTIVE CLASSIFICATION Amount

Paid by { Check No. ..... dated ....., 19....., for $..... } on Treasurer of the United States in favor of payee named above.
{ Cash, $....., on ....., 19.....

16—22900a-2

OCT 2 - 1952

METHOD OF OR ABSENCE OF ADVERTISING

METHOD OF ADVERTISING

1. Advertising in newspapers Yes ☐ No ☐.
2. (*a*) Advertising by circular letters sent to ..... dealers.
   (*b*) And by notices posted in public places Yes ☐ No ☐.

   (If notices were not posted in addition to advertising by circular letters sent to dealers, explanation of such omission must be made below.)

ABSENCE OF ADVERTISING

3. Without advertising, under an exigency of the service which existed prior to the order and would not admit of the delay incident to advertising.
4. Without advertising in accordance with .....
5. Without advertising, it being impracticable to secure competition because of .....

.....

.....

.....

.....

(Here state in detail the nature of the exigency or circumstances under which the securing of competition was impracticable under 3 and 4)

NOTE.—The above form "Method of or Absence of Advertising" is to be used when purchases are made or services secured under proper authority without written agreement in any form. In case of a written agreement (formal contract, proposal, and acceptance, or less formal agreement) Standard Form No. 1036—Revised should be used for abstracting the method of or absence of advertising and award of contract. (See General Regulations No. 51, as amended.)

U. S. GOVERNMENT PRINTING OFFICE : 1950 O—75805

16—22000a-2

Form M-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.3.
Approval expires 6-30-53.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of August, 1952 Docket No. DMEA 1186X Contract No. 144

Operator's Name Elkhorn Mining Company Minerals Thorium

Address Boulder, Montana Rare Earth

Contract Amount, $ 10,215.00 Government Participation: 90% Amount, $ 9,193.50

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	1571.00	00.00	1571.00	1571.00	—0—	1571.00
Bulldozing	00.00	840.00	840.00	—0—	840.00	840.00
Crosscutting						
Drifting						
(2) Labor and Supervision:						
Labor						
Supervision	00.00	00.00	00.00	—0—	—0—	—0—
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	00.00	9.15	9.15	—0—	9.15	9.15
Payroll Taxes						
Liability Insurance						
Transportation	00.00	4.96	4.96	—0—	4.96	4.96
(8) Contingencies (specify):						
TOTALS	1571.00	854.11	2425.11	1571.00	854.11	2425.11

I certify that the above bill is correct and just and that payment therefor has not been received.

Date Sept. 24, 52 *Payee ELKHORN MINING COMPANY

Per [signature] Title President

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—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.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$1413.90

Signature [signature] (Authorized Certifying Officer)

Date 10-13-52 Vou. No. (See other side)

OCT 2 - 1952

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. IdmE 144 in accordance with the terms of the contract.

Signature John S. McNabb Jr. Title Mining Engineer Date 9-25-52

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature ..... Title ..... Date .....

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

GPO 83-38476

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151
Approval expires 6-30-53.

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of August 1952 Docket No. DMEA 1186-X Contract No. IDM-E 144
Operator's Name ELKHORN MINING COMPANY Minerals Thorium
Address Boulder, Montana Rare Earth

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT	
							Units	Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Ft.	1571.00	239	1571.00	239	6.57	1350	6.75 Max
Churn								
Auger								
Stripping								
Trenching (Dozier)	Cut	00.00	0	840.00	6 cuts	140.00	6	140.00
~~Test Pits~~ Sampling etc		00.00	0	9.15	0	9.15		
Roads and Trails								
Transportation		00.00	0	4.96				
TOTAL DISTRIBUTED COSTS		1571.00	239	2425.11				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS								

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

Date Sept. 24, '52 Operator ELKHORN MINING COMPANY

Per [signature] Title President

REMARKS:

→ NOTE.—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.

(Instructions on reverse)

(For Government use only)

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 83-38475

September 7, 1952

Mr. John S. McNabb, Geologist
U. S. Bureau of Mines
971-A West Silver Street
Butte, Montana

Dear Mr. McNabb:

Report is herewith submitted on Form #MF-104, together with sketch map showing diamond drilling accomplished on the Last Chance thorium-rare earth claims located in Beaverhead County, Montana, such work having been performed during the month of August, 1952.

Diamond drill hole #1 was directed to the south 34° east 239 feet. Orebody was encountered at approximately 224.0 feet and ore continued to approximately 231.2 feet. First part of drill hole was entirely white sandstone until ore, represented by a siliceous gangue, was encountered. Core box containing vein material penetrated, is at this time being expressed from Armstead, Montana to company office at Boulder, Montana. It is understood that an additional 7.8 feet of red sandstone was penetrated from the 231.2-foot point to bottom of hole at 239.0 feet. Recovery on this distance of diamond drilling was entirely sludge sample according to diamond driller, Mr. Gust Carlson. Prior to property examination by undersigned on September 4, 1952, it is understood that geologists Armstrong, Sharp and Cavender, of the U. S. Geological Survey, now quartered at Salmon, Idaho, secured this sludge which should be available for chemical tests through the Lindsay Light & Chemical Company, of West Chicago, or at other laboratories. It will be appreciated if this sludge is returned to the custody of this company at such time as the foregoing geologists have finished with their own tests.

Original provisions as contained in DMEA contract provided for 220 feet of drill hole for diamond drill hole #1. Hole was continued to 239-foot level by reason of the fact that no ore was encountered until 224 feet. Enclosed sketch map indicates that ore, exposed at surface by open-cut approximately 100 feet long, shows the surface dip of the orebody at approximately 55°. Four readings were taken carefully at outcrop to determine an average dip of the orebody. Although between seven and eight feet of mildly radioactive ore containing rare earth materials was encountered as above indicated, it appears that diamond drill hole #1 will not have encountered main orebody unless drilled beyond the 239-foot point. Diamond drill hole #3 is now under way and it is recommended that such drill hole, directed north 42° east for 270 feet, be deepened to assure penetration of main orebody.

No overhead expense is charged to the project for August, 1952 and the only expense shown on attached MF-104 report is for diamond drilling.

Addendum agreement is requested at this time permitting extension of drill holes, even at the expense of eliminating one of the drill holes provided for, in order to obtain maximum results in exploration of the property.

Respectfully submitted,
ELKHORN MINING COMPANY

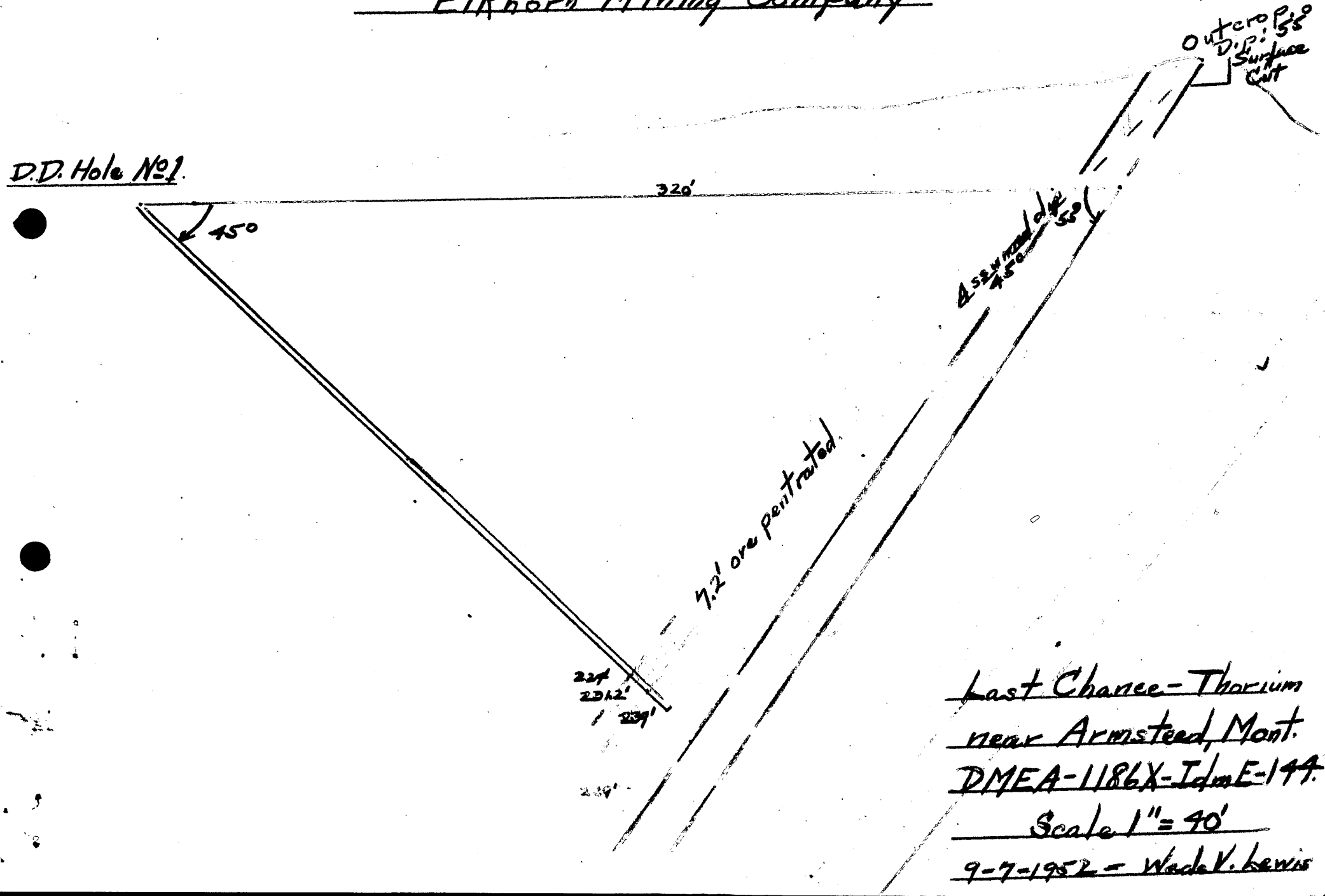
Wade V. Lewis

WADE V. LEWIS, President

WVL:hl Enc.

August, 1952

Elkhorn Mining Company



Last Chance - Thorium

near Armstead, Mont.

DMEA-1186X-IdmE-144.

Scale 1" = 40'

9-7-1952 - Wade V. Lewis

STATEMENT OF DIAMOND DRILLING

DMEA: 1186-X LAST CHANCE

URANIUM, BEAVERHEAD COUNTY, MONTANA

GUST & GUSTAF CARLSON

Box 278, Helena, Montana

31 Aug. '52

ELKHORN MINING CO.
Boulder, Montana

Diamond Drill Hole No. 1, drilling NX surface bit & casing bx, 0-26' @ $6.75	$175.50
D.D.H. #1, drilling bx core & casing with AX, 26' to 70' @ $6.75	297.00
D.D.H. #1, drilling AX core from 70 to 239' (bottom) @ $6.50	1,098.50
TOTAL	$1,571.00

Gust & Gustaf Carlson

By Gustaf Carlson

Standard Form No. 1034a—Revised
Form prescribed by
Comptroller General, U. S.
September 7, 1950
(Gen. Reg. No. 51, Supp. No. 11)

PUBLIC VOUCHER FOR PURCHASES AND SERVICES OTHER THAN PERSONAL

D. O. Vou. No. .....

Bu. Vou. No. [illegible]-57

U. S. Department of the Interior, Bureau of Mines
(Department, bureau, or establishment)

Voucher prepared at Albany, Oregon 12/7/51
(Give place and date)

THE UNITED STATES, Dr., Payee's Account No. [illegible]

To Elkhorn Mining Company
(Payee)

Boulder Bank Building, Boulder, Montana
(Address) (City) (State)

PAID BY

(For use of Paying Office)

No. and Date of Order	Date of Delivery or Service	ARTICLES OR SERVICES (Enter description, item number of contract or Federal supply schedule, and other information deemed necessary) Discount Terms	QUANTITY	UNIT PRICE Cost	UNIT PRICE Per	AMOUNT Dollars	AMOUNT Cts.
	October 1951	For attached certified form [illegible] dated November 1st, 1951				708	70
PAYMENT: Complete ☐ Partial ☐ Final ☐		Use continuation sheet(s) if necessary					

Shipped from to Weight Government B/L No. Total 708 70

(Payee must NOT use this space)

Differences .....

Account verified; correct for 708 70

(Signature or initials) .....

Contract No. [illegible] Date 9/21/51 Req. No. Date Invoice Rec'd.

MEMORANDUM

ACCOUNTING CLASSIFICATION (For completion by Administrative Office)

Appropriation, limitation, or project symbol	Appropriation title	Limit'n. or Proj't. Amount	Appropriation Amount
1-NU-01	Revolving Fund, Safety Education Act, Interior	708.70	708.70

Allotment symbol	Amount	Obligations liquidated	COST ACCOUNT Symbol	COST ACCOUNT Amount	OBJECTIVE CLASSIFICATION Symbol	OBJECTIVE CLASSIFICATION Amount

Paid by { Check No. ..... dated ....., 19....., for $..... } on Treasurer of the United States in favor of payee named above.
{ Cash, $....., on ....., 19.....

16—22900a-2

METHOD OF OR ABSENCE OF ADVERTISING

METHOD OF ADVERTISING

1. Advertising in newspapers Yes ☐ No ☐.
2. (*a*) Advertising by circular letters sent to ..... dealers.
   (*b*) And by notices posted in public places Yes ☐ No ☐.

   (If notices were not posted in addition to advertising by circular letters sent to dealers, explanation of such omission must be made below.)

ABSENCE OF ADVERTISING

3. Without advertising, under an exigency of the service which existed prior to the order and would not admit of the delay incident to advertising.
4. Without advertising in accordance with .....
5. Without advertising, it being impracticable to secure competition because of .....

.....

.....

.....

.....

(Here state in detail the nature of the exigency or circumstances under which the securing of competition was impracticable under 3 and 4)

NOTE.—The above form "Method of or Absence of Advertising" is to be used when purchases are made or services secured under proper authority without written agreement in any form. In case of a written agreement (formal contract, proposal, and acceptance, or less formal agreement) Standard Form No. 1036—Revised should be used for abstracting the method of or absence of advertising and award of contract. (See General Regulations No. 51, as amended.)

U. S. GOVERNMENT PRINTING OFFICE : 1950 O—75805

16—22000a-2

MF-104
(August 1951)

Budget Bureau No. 42-R1036.2.
Approval Expires 6-30-52.

EXTRA COPY

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Contract No. Idm-E 144

Name of Operator Elkhorn Mining Company
Docket No. DMA 1186X
Total Contract Amount $ 10,215.00
Government Participation: 90 % Amount, $ 9,193.50
Distribution of Expenditures for Month of October, 1951

STRATEGIC AND CRITICAL MINERAL EXPLORATION PROGRAM
OPERATOR'S MONTHLY PROGRESS REPORT

Operators are to submit monthly reports to the designated field representative of the Defense Minerals Administration. Reports are to be submitted in quadruplicate prior to the 15th day of the month following the reporting period.

Narrative.—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered is to be furnished.

Maps.—Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

Cost Accounts.—All applicable parts of this form are to be filled in. This report will form the basis for payments of the Government's participating share of expenses. Audits of accounts may be made from time to time.

CERTIFICATION

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

Elkhorn Mining Co.
(Name of Company)

By Wade V. Lewis
(Signature of Authorized Official)

November 1, 1951
(Date)

President
(Title)

NOTE.—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.

16--64068-3

MONTHLY SUMMARY COST STATEMENT

List as Shown on Exhibits Attached to Contract

Item	Monthly Total	Totals Previously Reported	Totals to Date	For Government Use Only		
				Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
1. Fixtures and Improvements:						
(*a*) Facilities						
(*b*) Buildings						
(*c*) Fixtures						
2. Operating Equipment:						
(*a*) Purchased[1]						
(*b*) Rented[2]						
(*c*) Furnished by operator						
3. Rehabilitation and Repairs:						
(*a*) Facilities						
(*b*) Buildings						
(*c*) Installations						

November 1st, 1951.

Idm-E 144.
Last Chance Thorium, Uranium,
Rare Earths Group: DMA:1186X.
Beaverhead County, Montana.

Mr. M. E. Volin, Chief,
Mining Division,
U. S. Bureau of Mines,
1205 North Division,
Spokane, Washington.

Dear Mr. Volin:

During month of October, 1951 dozier excavation and cut work as provided for under Exploration Contract was completed under per hour work represented by 84 hours of work at $10 per hour, man and machine. Dozier cuts averaged about 14 feet wide, average depth about 6 feet, lengths up to 150 feet, total lengths exceeding 700 feet. Cuts as depicted on USGS map, part of DMA:1186X contract were completed. Survey was completed on all cut and diamond drill sites and specifications marked on stakes on the ground. Drill sites were leveled by dozier.

New highly radioative ores were exposed in cuts "G" and "H", being the two most northwesterly cuts on the Last Chance claim. Cut "H" disclosed about 12 feet of radioactive ore material. Chemical work has not yet been done on samples taken from these cuts. Cut work in general on the Last Chance claim shows or indicates ore continuity along a considerable distance in strike.

Diamond Drilling contract was let to Boyle Bros. of Salt Lake City, Utah, but recent snows following completion of dozier work have prevented starting of the drilling which may have to be postponed until spring.

Respectfully submitted,

Elkhorn Mining Company,

Walter V. Lewis, Pres.

U. S. BUREAU OF MINES
RECEIVED
NOV 23 1951
ALBANY, OREGON

Last Chance: Thorium, etc. Armstead, Mont.
DMA:1186X; Idm-E 144

Oct. 25, 1951.

(copy)

Received of Elkhorn Mining Company check No. 1584 in amount of Eight hundred forty dollars ($840.00) in full payment for 84.00 hours of* desier work at $10.00 per hour, work being performed on the Last Chance group of thorium- rare earths property (DMA:1186X) in Beaverhead County, Montana. Work performed Oct. 10th to October 24th, both, incl.

(Signed) R. A. Wellborn
R. A. Wellborn.

* All work performed under contract per exploration contract. No withholding tax, unemployment ins., or social security.

Elkhorn Mining Company,
Wade V. Lewis
Wade V. Lewis, Pres.

U. S. BUREAU OF MINES
RECEIVED
NOV 23 1951
ALBUQUERQUE

U. S. BUREAU OF MINES
RECEIVED
NOV 23 1951
ALBANY, OREGON

MONTHLY SUMMARY COST STATEMENT—Continued

Item	Monthly Total	Totals Previously Reported	Totals to Date	For Government Use Only: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(d) Fixtures						
4. Labor[3] Sampling & Survey	9.15	..	9.15			
5. Supervision	(none charged)..					
6. Supplies						
(a) Timber						
(b) Explosives						
(c) Repair Parts						
(d) Other						
7. Power						
8. Transportation	4.96	..	4.96			
9. Insurance						
(a) Fire						
(b) Public Liability						
(c) Workmen's Compensation						
10. Contract Work	840.00	..	840.00			
11. Other (specify)						
Total	854.11	..	854.11			
Deletions						
Adjusted totals						
Totals previously reported			none			
Totals to date			854.11			

[1] Enter amount paid during month toward total purchase price.
[2] Payments for rental of equipment or prorated depreciation on equipment owned by contractor.
[3] Submit copy of the Social Security form filed under the Old Age Insurance system showing complete wage and salary data or furnish copy of payroll sheet giving same data.

NOTE.—Indicate that portion of supervisory, office, and engineering salaries that is chargeable to this project.

FOR GOVERNMENT USE ONLY

Checked by _____

Entered by _____

Approved by _____

Amount approved for payment _____

Remarks _____

EXPLORATION UNIT COST AND PROGRESS REPORT FOR MONTH OF October, 1951

(Supply Data Below Applicable Only to Your Operations)

Item	Costs					Progress [4]				
	Wages [1] and salaries	Equipment [2]	Supplies	Other [3] Trans-portation	Total	Unit	Units this month	Units previously reported	Units to date	Units authorized by contract (Exhibit A)
Drifting										
Crosscutting										
Raising										
Shafts										
Winzes										
Drill holes										
Overburden										
Rehabilitation and preparation										
Geology and geophysics										
Trenching dozier exca.	40.00				840.00	Lin. ft.	700	none	700	700
Sampling and assaying & survey	9.15			4.96	14.11	•	•	•	•	•
Roads and trails										
Test pits										
Other (specify)										
	849.15			4.96	854.11					
Totals										

[1] Prorate supervisory, engineering, and office salaries in proportion to man-shifts of direct labor.
[2] Prorate charges for equipment that is not exclusively for one type of job (such as compressors) against authorized units of work in each category.
[3] Where entries in the "Other" column (above) are more than 25 percent of the total expenditures, a breakdown of this item should be made.
[4] Specify whether feet, cubic feet, acres, miles, etc.

16—64068-3 U. S. GOVERNMENT PRINTING OFFICE

Ching
Ellis

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

Project Summary Report

By: Michael Ching September 22, 1954

1. Docket No. DMEA-1186 (Thorium)
   Contract No. Idm-E144
   Property - Last Chance Group,
   Beaverhead County, Montana

   Operator - Elkhorn Mining Company
   Boulder Bank Building
   Boulder, Montana

   Operator's property rights - Lease on 7 unpatented lode mining claims, the Last Chance, Last Chance Nos. 1,2,3, and 4, Shady Tree, and Brown Bear claims. Landlord's Subordination Agreement dated June 25, 1951.

2. Contract - dated September 14, 1951

Work authorized	Estimated Cost
400 ft. bulldozer trenching on Last Chance and Shady Tree claims	$480.00
300 ft. bulldozer trenching on Brown Bear claim	360.00
Diamond drill 5 holes totalling 1350 feet	7,425.00
Supervision, sampling, assaying	1,950.00
Total	$10,215.00
Government participation at 90 percent	9,193.50

Amendments -

An approval, dated June 25, 1952, of a subcontractor's drilling proposed by the Executive Officer, Region II, may possibly be considered as Amendment No. 1.

Amendment No. 2, dated December 9, 1952, extends the completion period from 12 to 24 months from September 14, 1951.

Work completed -

Trenching by bulldozer was begun and completed in the month of October, 1951. Two trenches were cut on the Brown Bear claim and five large and several small trenches were cut along or across the vein on the Last Chance and Shady Tree claims. The cuts averaged about 14 feet wide and 6 feet deep, and varied greatly in length. Total length of trenching exceeded 700 feet.

Diamond drilling was begun on August 1, 1952, and was recessed for the winter on October 20, 1952. The work was never resumed and the contract was terminated by mutual agreement on June 10, 1953. Three holes were drilled to depths of 239, 303 and 95 feet, respectively.

Costs were as follows:

700 feet of bulldozer trenches	$840.00
637 feet of diamond drilling	4,185.75
Sampling, analyses, transportation	14.11
Total	$5,039.86
Government participation at 90 percent	4,535.87

3. Auditor's Report of Review - Dated October 5, 1953

Total cost as billed by Operator	$5,039.86
Exceptions	-0-
Total accepted cost	$5,039.86
Government participation at 90 percent	4,535.87

4. Certification of Discovery - None

5. Comments -

The operation was not conducted efficiently by the Operator. His original application was for a project costing approximately $50,000.00, yet he was unable to finance his 10% share of a modified program costing only $10,215.00. Because of difficulties in getting a suitable drilling contractor, the drilling was not started until August 1, 1952, and only two holes were finished before the onset of winter stopped the work. In the Spring of 1953, while the Field Team agreed that the chances for making a worthwhile discovery were not good, the principal reason given by the Operator for not completing the work was a lack of funds. The delays in starting the drilling undoubtedly added to the cost of the project and thereby contributed to the Operator's lack of funds.

The geologist-examiner is convinced that diamond drill hole No. 1 was stopped before it had completely penetrated the vein and concludes that this mistake was due to inadequate supervision on the part of the Operator. Furthermore, although the vein was exposed at the surface at a number of places by bulldozing, and the contract contained provisions for sampling and assaying, the Operator failed to take surface samples along the vein. As a consequence the examiner was unable to estimate the average grade of the vein with any degree of accuracy. The only surface sampling done was by the Geological Survey during the course of an investigation that had no connection with the DMEA exploration project.

The subject project was designed to explore a thorium-bearing quartz-barite-hematite vein striking in a northwesterly direction on the Last Chance and Shady Tree claims. The vein was traced on the surface for a distance of 1300 feet and its thickness was found to range from a few inches to 35 feet. The dip varies. Two diamond drill holes cut the vein 240 and 290 feet below the surface along a 45° inclination. The southernmost 800 feet of the vein is the thickest portion and is estimated to contain 330,000 tons of 0.15% Th O_2 ore. Rare earths and uranium are not present in significant amounts. Smaller, parallel veins were found on the Last Chance and Shady Tree claims and lesser veins were also exposed on the Brown Bear claim.

The area is underlain by quartzites of the pre-Cambrian Belt series. The vein occupies a fault and was formed by replacement of the brecciated wall rock and to a lesser extent, by fissure filling. The contact of the vein with the wall rocks is rather sharp. The principal mineral of economic importance in the vein is the thorium silicate thorite. It is generally associated with the iron oxides and hydroxides that fill fractures in the vein. The most brecciated parts of the veins contain the most thorium.

Because of the low grade of the ore and the uncertainty of the market for thorite concentrates the deposit is not of economic importance at the present time. Should a demand be created for thorium ore as a source of fissionable material the deposit may warrant further investigation. A certification of discovery on this project is not warranted.

Michael Ching

Michael Ching

Audited

Certified

WORK ANALYSIS SHEET - DMEA PROJECT

Analysis as of 12-2-54
Incl. Voucher for Oct, 1952

[X] Actual Cost

[ ] Agreed Unit Costs

Elkhorn Mining Co.

Docket No. 1186

State Montana

Commodity Thorium

Idn-E No. 144

OPERATION	AUTHORIZED Units	AUTHORIZED Cost	COMPLETED Units	COMPLETED Cost	NET COST
Drifting & Crosscutting					
Raising					
Shafts					
Winzes					
Drilling D. D. (Specify)	1350	9,176.90	637	4197.50	4197.50
Surface Excavation		1,038.10		842.36	842.36
Underground Excavation					
Roads and Trails					
Operating Equipment Purchased					
Surface Rehabilitation & Repairs					
Underground Rehabilitation					
New Building, Improvements, etc.					
Other (Specify)					
Totals		10,215.00		5,039.86	5039.86

Prepared by Michael Ching

C
O
P
Y

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

Mr. Wade V. Lewis, President
Elkhorn Mining Company
Boulder Bank Building
Boulder, Montana

October 4, 1954

Re: Docket No. DMEA-1186 (Thorium)
Contract No. Idm-E144
Last Chance Group
Beaverhead County, Montana

Dear Mr. Lewis:

This is with reference to the subject Exploration Contract between you and the Government.

The final Report of Review of the contract expenditures and the final report of the Field Team have been received and accepted by this Administration. The final report of the Operator was waived by the Executive Officer, DMEA Field Team, Region II. Of the total amount of $10,215.00 approved under the contract, the sum of $5,039.86 was expended, 90 percent of which, or $4,535.87, represented the Government's share. There were no unused materials, supplies or equipment to be disposed of for the joint account of the Operator and the Government. The contract was terminated by mutual agreement after commencement but before completion of the work.

Because the results of the exploration were unfavorable, it is not our intention to make a certification of discovery or development which would create a lien against the subject property. We are, therefore, closing our books and records with respect to this project. Your attention is called, however, to Article 11 of the Contract which requires the Operator to "keep and preserve said records and accounts for at least 3 years after the completion of the project or the termination of this contract".

Your interest in the Exploration Program of the Defense Minerals Exploration Administration and your willingness to participate therein are appreciated.

Sincerely yours,

/s/ Frank E. Johnson

Acting Administrator

MChing/am/gla
9/28/54

cc to: Admr. Reading File
Operating Committee
Docket
Messrs. F. D. Lamp, Rm. 3649
T. H. Kiilsgaard, Rm. 5227
J. O. Hosted, Rm. 3210, GSA
M. Ching
Code 700
DMEA Field Team, Region II (2)

Surname copy 700

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

Ching
Ellis
Legal
Rollend

OCT 4 1954

Mr. Wade V. Lewis, President
Elkhorn Mining Company
Boulder Bank Building
Boulder, Montana

Re: Docket No. DMEA-1186 (Thorium)
Contract No. Idm-Ell4
Last Chance Group
Beaverhead County, Montana

Dear Mr. Lewis:

This is with reference to the subject Exploration Contract between you and the Government.

The final Report of Review of the contract expenditures and the final report of the Field Team have been received and accepted by this Administration. The final report of the Operator was waived by the Executive Officer, DMEA Field Team, Region II. Of the total amount of $10,215.00 approved under the contract, the sum of $5,039.86 was expended, 90 percent of which, or $4,535.87, represented the Government's share. There were no unused materials, supplies or equipment to be disposed of for the joint account of the Operator and the Government. The contract was terminated by mutual agreement after commencement but before completion of the work.

Because the results of the exploration were unfavorable, it is not our intention to make a certification of discovery or development which would create a lien against the subject property. We are, therefore, closing our books and records with respect to this project. Your attention is called, however, to Article 11 of the Contract which requires the Operator to "keep and preserve said records and accounts for at least 3 years after the completion of the project or the termination of this contract".

FROM SOLICITOR
~~OCT 0 1954~~
FOR SIGNATURE
Oct. 1, 1954

Your interest in the Exploration Program of the Defense Minerals Exploration Administration and your willingness to participate therein are appreciated.

Sincerely yours,

Frank E. Johnson

ACTING Administrator

MChing/am/gla
9-28-54
cc to: Admr. Reading File
Operating Committee
Docket
Messrs. F. D. Lamb, Rm. 3649
T. H. Kiilsgaard, Rm. 5227
J. O. Hosted, Rm. 3210, GSA
M. Ching
Code 700
DMEA Field Team, Region II (2)

R.C.G.

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

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

DATE: September 3, 1954

Defense Minerals Administration
RECEIVED
SEP 10 1954

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

SUBJECT: Field Team Report, DMEA Docket 1186X (thorium), Contract Idm-E114, Elkhorn Mining Co., contractor, Boulder Bank Bldg., Boulder, Mont.; Last Chance group claims, Secs. 20, 28 and 29, T. 10 S., R. 15 W., Beaverhead County, Montana

The Final Field Team report presents the results of exploration for thorium at the property identified above. About 330,000 tons of inferred ore with a grade of 0.15 percent ThO_2 were found by 700 feet of trenching and 637 feet of drilling in three diamond drill holes. This amount of work, which cost $5,039.86, Government's share $4,535.87, was less than the contract total. The work was terminated by mutual agreement because the contractor did not have sufficient money to complete it and because results of work done made it doubtful that a worthwhile discovery would result.

The reserves are included in about 800 feet of length of a quartz, barite, vein that contains small amounts of thorite, iron oxide compounds and a little malachite. Thorite is the principal potentially useful mineral.

The relatively low grade of the mineralized rock, the lack of a market for thorite concentrates, and the remoteness of the deposit make it very doubtful that the discovered reserves could be exploited at any price for thorium forseeable in the next ten years. For these reasons the examining members concluded that the inferred reserves, though a possible strategic resource, do not constitute a certifiable discovery.

In concur in the Field Team's conclusion.

Copy to: E. Wm. Ellis (2)

Arthur P. Butler, Jr.

8-31-45
Q. Cy.

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

August 25, 1954

Memorandum

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

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

Subject: Docket No. DMEA-1186x (thorium), Elkhorn Mining Company, Last Chance Group, Beaverhead County, Montana, Contract No. Idm-E144 (Terminated)

I have reviewed the final report prepared as a result of the completion of the exploration contract on the property identified above, and have discussed it with Joseph O. Hosted, representative of the Atomic Energy Commission.

I concur with the conclusions of the Field Team, Region II, that the work under this contract does not warrant a Certification of Discovery and Development.

John E. Crawford

John E. Crawford

7-1-54
G. Cee.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D.C.~~
So. 157 Howard Street
Spokane 4, Washington

August 13, 1954

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Re: Docket No. DMEA-1186X (thorium)
Elkhorn Mining Company
Last Chance Group
Beaverhead County, Montana
Contract No. Idm-E144 (Terminated)

Dear Mr. Selfridge:

Enclosed are four copies of the Field Team Final Report on the above-cited contract, written by Frank C. Armstrong, Geological Survey.

The Field Team concurs with Mr. Armstrong's recommendation that no Certification of Discovery or Development be issued.

By Field Team, Region II

Wing G. Agnew

Wing G. Agnew, Acting Exec. Officer
U. S. Bureau of Mines

John S. Vhay

John S. Vhay, Acting Member
U. S. Geological Survey

Enclosure

cc: USBM (2)
Armstrong

Reviewed by
DMEA OPERATING COMMITTEE
8-20-54
(date)

DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

FIELD TEAM, REGION II

FINAL REPORT

Contract Idm-E144

by

Frank C. Armstrong
Geologist
U. S. Geological Survey

ELKHORN MINING COMPANY
Boulder Bank Building
Boulder, Montana

Docket No.:	DMA-1186X
Commodity:	Thorium
Contract date:	September 14, 1951
Termination date:	June 10, 1953

LAST CHANCE GROUP
(Last Chance, Shady Tree, & Brown Bear Claims)
Secs. 20, 28, & 29, T. 10 S., R. 15 W., M.P.M.
Beaverhead County, Montana

Spokane, Washington

August 1954

Reviewed by
DMEA OPERATING COMMITTEE
8-20-54
(date)

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FINAL
F.T.RPT.

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FINAL REPORT

ELKHORN MINING COMPANY
Last Chance Group
(Last Chance, Shady Tree, & Brown Bear Claims)
Secs. 20, 28, & 29, T. 10 S., R. 15 W., M.P.M.
Beaverhead County, Montana

Contract Idm-E144

* * * *

INTRODUCTION

This report describes a project carried on by Elkhorn Mining Company of Boulder, Montana, under an exploration contract with the Defense Minerals Exploration Administration to prospect thorium-bearing quartz veins on the Last Chance, Brown Bear, and Shady Tree group of claims in Beaverhead County, Montana.

Summary

The exploration project was undertaken to prospect a thorium-bearing quartz-barite-hematite vein.

Bulldozing exposed the vein in several places, and two diamond drill holes cut it 240 and 290 feet below the surface. The vein has been traced on surface for a distance of about 1,300 feet; over this distance the thickness ranges from about 35 feet to a few inches. The southernmost 800 feet of the vein is calculated to contain 330,000 tons of inferred ore that averages about 0.15 percent ThO_2 and has a total ThO_2 content of 990,000 pounds. Rare earths and uranium are not present in sufficient quantities to consider worthwhile.

The project was terminated by mutual agreement before completion because Elkhorn Mining Company was financially unable to complete the work.

Recommendations

No Certification of Discovery or Development is recommended. The low thorium content of the vein and the inaccessibility preclude exploitation of the deposit at any price for thorium foreseeable in

the next 10 years. However, if a national emergency should develop a need, regardless of price, the Last Chance vein might merit more exploration.

LOCATION AND ACCESSIBILITY

The Last Chance, Brown Bear, and Shady Tree claims are in the N½ secs. 28 and 29, and S½ sec. 20, T. 10 S., R. 15 W., in western Beaverhead County, Montana (fig. 1). The claims are part of the unorganized Frying Pan mining district, Beaverhead County, Montana, and are just east of the McDevitt mining district in Lemhi County, Idaho. The property is about 2-3/4 miles south of the point where the Lemhi Pass road between Tendoy, Idaho, and Armstead, Montana, crosses the Continental Divide on the Idaho-Montana state line. The sheep camp road to the property from its turn off at the state line is difficult to travel and requires four-wheel drive or a compound-low gear even during the summer months. The turn-off point on the Lemhi Pass road is 30 miles west of Armstead, Montana (fig. 1), and 10 miles east of Tendoy, Idaho. The road between Tendoy and Armstead is a graded, dirt road and is open to ordinary vehicles about 6 or 7 months of the year. The Union Pacific Railroad and U. S. Highway 91 both pass through Armstead. The nearest source of mining supplies is Dillon, the county seat of Beaverhead County, 51 miles distant.

The property is at an approximate altitude of between 7,300 and 7,600 feet. Winter temperatures are cold, reaching 40 degrees below zero. Moderate snow prevails throughout a long winter, from about November to mid-May, and winds blow the snow into deep drifts that may remain until late summer. The summers are mild, and occasional showers and thunderstorms provide sufficient moisture to keep all the creeks and numerous springs flowing.

The terrain is rolling uplands typical of the high semiarid country in Montana. The north-facing slopes and shaded canyons are heavily timbered with yellow pine, lodgepole pine, douglas fir, and aspen. South-facing slopes and usually the crest of ridges are devoid of timber but are heavily covered with grasses and sparse sagebrush.

PROPERTY

The property to be explored under this contract is made up of seven contiguous, unpatented lode claims and one tunnel site claim (fig. 2) in Beaverhead County, Montana. They are recorded in the office of the County Clerk and Recorder at Dillon, Beaverhead County, Montana, and are as follows:

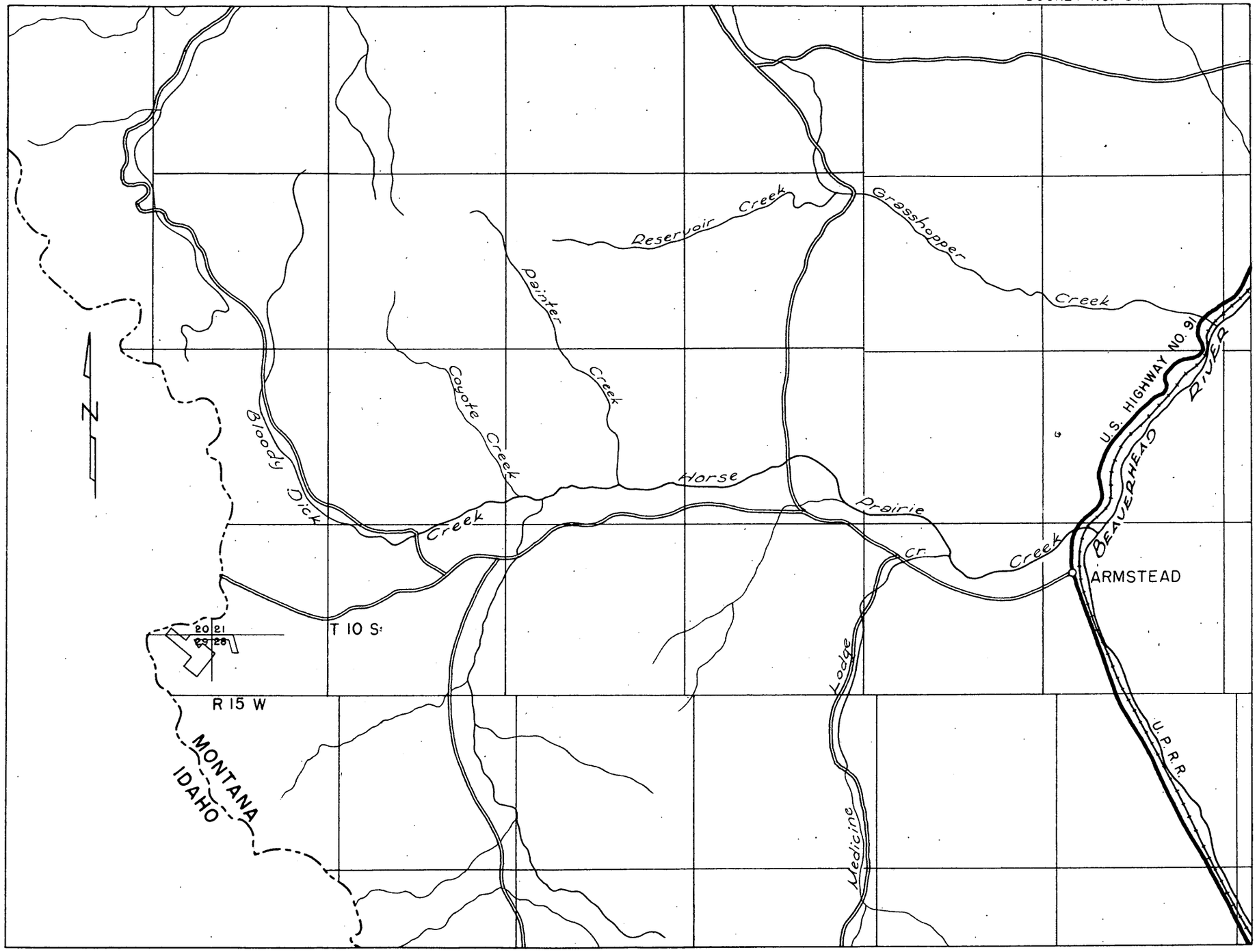

FIGURE 1, LAST CHANCE GROUP

T.10 S., R.15 W., BEAVERHEAD COUNTY, MONTANA

4 3 2 1 0 4 8 MILES

2a

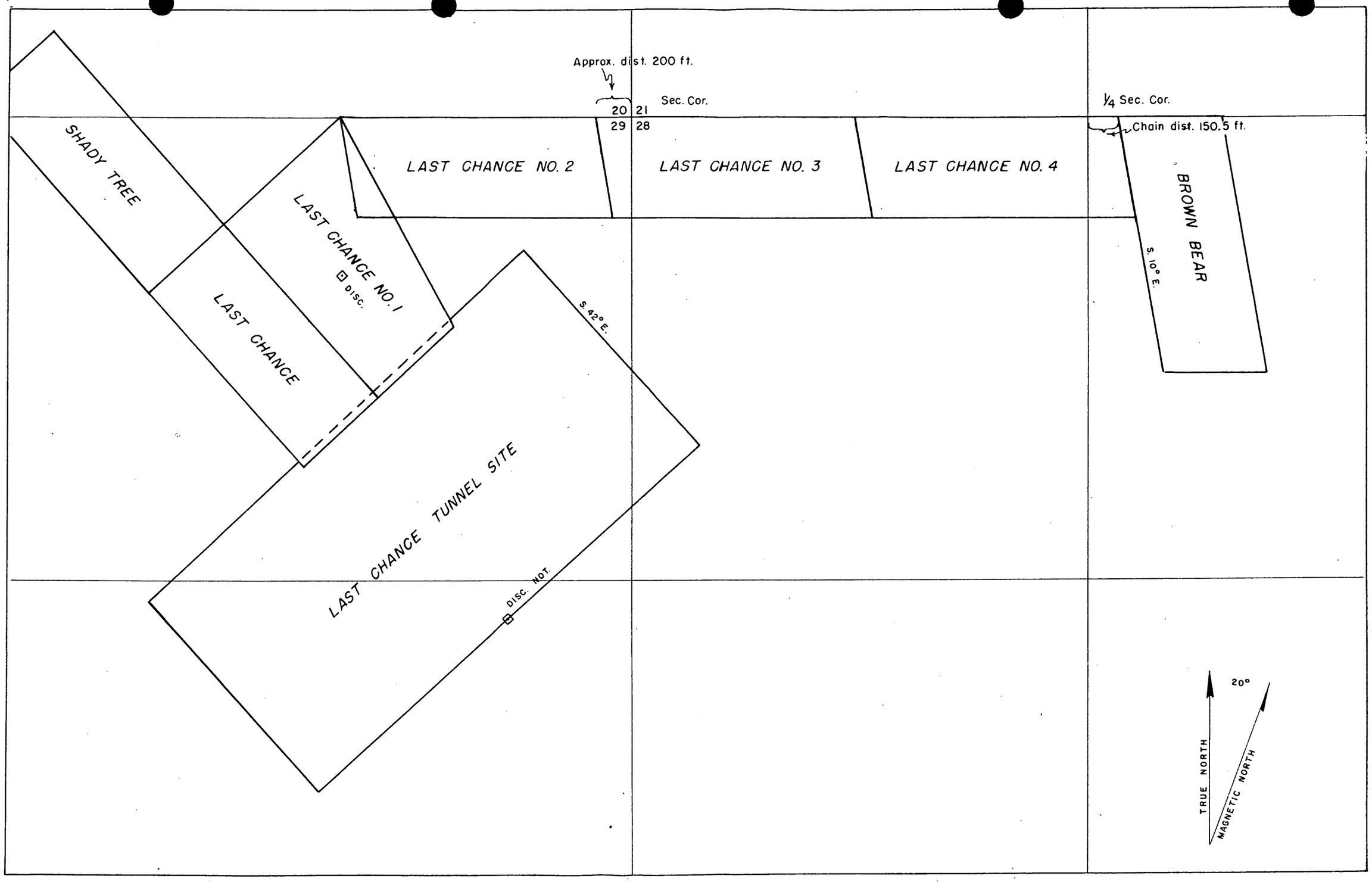

FIGURE 2, LAST CHANCE GROUP

T. 10 S., R. 15 W., BEAVERHEAD COUNTY, MONTANA

600 0 600 1200 FEET

2b

Claim Name	Book No.	Page No.
Brown Bear	108	259 et seq.
Last Chance	"	267 et seq.
Last Chance No. 1	"	
Last Chance No. 2	"	
Last Chance No. 3	"	
Last Chance No. 4	"	
Shady Tree	"	285 et seq.
Last Chance Tunnel Site	?	?

The title records of ownership have not been searched, but, as evidenced by a copy of a Mining Lease and Option with Elkhorn Mining Company, the claims are believed to be owned by R. A. Wellborn, Billy Wellborn, Ned Wellborn, Darrel Peterson, Leonard Kesel, and Dave Wellborn. The Mining Lease and Option was for a period of 5 years commencing July 25, 1950, with an option for Elkhorn Mining Company to renew it for two additional 5-year periods. Wellborn, et al., were to receive a royalty of 10 percent of the net returns from the sale of ore or concentrate from the property. The total purchase price was $100,000. The following payments, to be applied to the purchase price, were to be made:

$3,000	on or before	January 1, 1952
$5,000	do	January 1, 1953
$5,000	do	January 1, 1954
$5,000	do	January 1, 1955

These payments were to be made even if no ore from the property had been sold. It is presumed that the property has now reverted to Wellborn, et al., and, provided assessment work has been kept up, belongs to them.

There were no improvements or underground workings at the property prior to the inception of the Government exploration project contract.

GEOLOGY

Regional Geology 1/

The Beaverhead Mountains in the vicinity of Lemhi Pass are underlain by later pre-Cambrian light-to dark-gray, micaceous quartzite, dark-gray argillite, and argillaceous quartzite of the Belt series. These rocks are intricately folded, but owing largely to poor exposures,

1/ Most of the geology is taken from a report by Sharp and Cavender. See references cited.

the pattern of the folding has not been worked out. Dark-green to gray-green, medium-grained, porphyritic dikes of a dioritic composition occupy faults in the Belt rocks. The larger dikes trend northwest; many of the smaller dikes strike east, and a few strike northeast. All of them dip steeply. One dike has been traced for about 1½ miles along the strike, and another reaches a maximum thickness of 70 feet. Because the dikes weather easily, their outcrops are poor. Tertiary basalt, rhyolite, and tuff unconformably overlie the dikes and Belt rocks.

Several sets of faults cut the Belt rocks and dikes. The two most prominent strike a little west of north and a little north of west; in addition, there are numerous northwest-trending faults that are presumably part of the two major systems. A less prominent set of faults strikes east, and a few strike northeast. The major faults, judging from their traces on a map, dip steeply.

Most of the veins in the area, like the faults, trend northwest. Several veins strike east, and a few strike northeast. The veins are fissure fillings and wall-rock replacements along faults and shears and are composed dominantly of quartz with some barite, calcite, and siderite, and lesser amounts of thorite, specularite, bornite, chalcopyrite, rutile, and, at surface, the alteration products of the copper- and iron-bearing minerals.

Geology of the Last Chance and Shady Tree Claims

Figure 3 is a geologic map (Sharp and Cavender, 1954, pl. 11) of a part of the Last Chance and Shady Tree claims. The area is underlain by gently dipping quartzite, argillaceous quartzite, argillite, and quartzititic sandstone of the Belt series. Because of poor outcrops it was not possible to map separately any of the different rock types.

The vein to be explored under this contract has an average strike of about N. 40° W.; the north end strikes about N. 60° W. (fig. 3). Diamond drilling indicates that the south third of the vein dips about 45° SW.; and surface observations suggest that the north third dips 64° NE. The vein has been traced on surface about 1,300 feet. Over the southern two-thirds of this distance its average true thickness is between 10 and 15 feet, and near the south end of the exposure it attains a maximum true thickness of about 35 feet. The northern third of the vein progressively narrows and finally dies out entirely. Several smaller veins parallel to subparallel to the major vein occur in the wall rocks. The largest of these is 4 feet thick and is about midway between the ends of the major vein. It is known that the vein extends at least 290 feet down the dip, for Diamond Drill Hole No. 3 cut it at that depth.

The vein occupies a fault and has been emplaced by replacement of the brecciated wall rock and to a less extent by fissure filling. Even though replacement has played a large part in its formation, the contact of the vein with the wall rocks is sharp. The wall rocks have been intensely bleached for a distance of 3 to 5 feet from the vein, and locally they are highly silicified. Numerous silicified breccia fragments of wall rock occur in and near the margins of the vein. The vein is intensely fractured from recurrent movement along the fault after the vein's emplacement. Fracturing of the vein is most intense at points where abrupt changes in its strike occur.

The vein consists dominantly of vitreous, milky white quartz and barite. Barite is only locally abundant and in most places is much less abundant than quartz. The wide part of the vein about 500 feet from its north end, however, is dominantly barite with only sparse quartz. Barite in white, finely crystalline masses and in pink veinlets replaces some of the quartz. The quartz and barite have been intensely fractured and later quartz and barite, and specularite, goethite, lepidocrocite, hematite, and probably other iron oxides or hydroxides, have been deposited in the fractures as veinlets from less than an inch up to several inches thick. In the barite-rich part of the vein a banding parallel to the vein walls results from alternate layers of barite and dark-red, hematite-impregnated layers of barite. A little malachite was also noted in the vein. The presence of iron oxides and hydroxides in the numerous fractures and the weathering of these iron compounds color almost the entire vein red.

The only mineral of economic importance in the vein is the thorium silicate thorite ($ThO_2.SiO_2$). It is usually metamict and otherwise altered and is generally hard to identify. The U. S. Geological Survey laboratory at Washington, D. C., has identified it by X-ray diffraction patterns obtained from heated specimens. The thorite and its alteration products are dark red-brown. The presence of abundant similarly colored iron compounds in the vein makes the positive identification of thorite even more difficult in the field. Sharp and Cavender (1954) say the thorite occurs as irregular to rounded masses, and as irregular streaks and blebs smeared along fracture surfaces. Both Sharp and Cavender (1954) and Trites and Tooker (1952), however, speak also of thorite crystals throughout the vein and disseminated in quartz. Trites and Tooker (1952) also state that the thorite crystals appear to be associated with red hematite.

When the writer visited the property on September 3, 1953, he was struck with the lack of anything that looked like thorite in the unfractured quartz or barite -- or at least the quartz and barite that looked unfractured to the unaided eye. It appears that most, if not all, of the thorite occurs in fractures in the quartz or barite, and possibly is genetically associated with the specularite-hematite mineralization.

Two thin sections were prepared from radioactive vein material cut in Diamond Drill Hole No. 3. Microscopic examination of the thin sections shows the vein material to be severely crushed and finely ground up, so much so that in places the vein has the texture of a mylonite. Strain shadows in the quartz are abundant. Several generations of quartz are evident filling fractures, and locally the quartz is recrystallized. Almost without exception any mineral that might be thorite is in a healed fracture, and the great majority of material that looks like thorite is in prominent iron oxide filled fractures. The iron oxides appear to have been among the last minerals to have been deposited in the vein.

The above observations lead to the conclusion that the thorite-rich parts of the vein should be well fractured and probably should also contain numerous fractures filled with iron oxide veinlets.

Rare earths have been reported in analyses of samples from the vein, but no rare-earth minerals have been identified. The amount of rare earths reported in the analyses is such that all of it can be accounted for as substituting for thorium in the mineral thorite, and, therefore, rare-earth minerals need not be present.

Analyses show that there is very little uranium in the vein. What uranium is present could also be accommodated by substitution in the thorite.

Geology of the Brown Bear Claim

The geology of the Brown Bear claim is like that of the Last Chance and Shady Tree claims. In the northwest corner of the Brown Bear claim one bulldozer cut exposes a vein that is traceable for about 250 feet. Near its south end the vein is 1½ feet thick, and at its north end, beyond the north boundary of the Brown Bear claim, it is 3 feet thick. Its strike and dip change from N. 50° W. 49° SW. at the south end, to N. 15°-20° W. 54° SW. at the north end. A smaller vein parallel to it is also exposed in the bulldozer cut.

In the northeast corner of the Brown Bear claim four veins are exposed in one bulldozer cut. The two main veins, each paralleled for a short distance by a smaller vein, have been traced 200 to 250 feet to the southeast where they run on to the Frying Pan claim. One vein strikes N. 65° W. and dips 87° SW.; the other strikes N. 25°-30° W. and dips 25° SW. Both of the large veins are 6 to 8 inches thick.

All of the veins on the Brown Bear claim are like those on the Last Chance and Shady Tree claims. They are thorite-bearing quartz-barite-specularite-hematite veins in which the thorite is associated with the iron oxides.

THE PROJECT

A radioactive quartz-barite-hematite vein crops out on the Last Chance and Shady Tree claims. It crops out over a distance of about 500 feet and is about 35 feet thick at its thickest point. Similar but smaller veins crop out on the Shady Tree and Brown Bear claims. Samples assaying as high as 2.4 percent calculated thoria were taken from the largest of the veins. The showings on the property and the results of the first assays justified a limited exploration program for thorium.

The original loan application in the amount of $49,882 proposed: (1) sinking a 100-foot inclined shaft; (2) drifting 100 feet along the vein in both directions from the bottom of the shaft (a total of 200 feet of drifting); (3) drilling six diamond drill holes totaling approximately 2,000 feet in length; (4) construction of a camp on the property; and (5) construction of an access road. With the consent of the applicant, a less ambitious exploration program in the amount of $10,215 was substituted for the original proposal and the project as contracted was modified to:

1. Bulldoze 400 linear feet of trenches divided between the Last Chance and Shady Tree claims on projected strike of vein.

2. Bulldoze 300 linear feet of trenches on the Brown Bear claim between outcrops of vein.

3. Drill five diamond drill holes totaling approximately 1,350 feet.

The cost of the project was estimated as follows:

700 linear feet of bulldozer trenching	$ 840.00
1,350 feet of diamond drilling @ $5.50 per foot	7,425.00
Assay of surface, core, and sludge samples	750.00
Supervision and sampling	1,200.00
Total Cost	$10,215.00

The contract called for 90 percent ($9,193.50) participation by the Government.

The contract was dated September 14, 1951. From letters in the files, it appears that work did not start within 30 days of the date of the contract, but it appears likely that the bulldozing (84 hours) was completed in the fall of 1951.

It was thought in late 1951 that the diamond drilling would be done under adverse weather conditions. Accordingly, Amendment No. 1, dated October 11, 1951, was processed to allow a per shift rate for diamond drilling which included supervision during winter-like conditions and also made transportation cost allowable. The operator, however, recessed the project for the winter. Because it appeared that a diamond drill contractor could be engaged in the spring at customary prices on a footage basis, the Field Team rescinded Amendment No. 1 by letter on April 30, 1952. In the spring there was further delay in starting the drilling because of difficulty in getting a drilling contractor to do the work at what was considered a reasonable figure. In May a bid was received from Boyle Bros. Drilling Company but was not accepted because it was too high. In June Gust and Gustaf Carlson, drilling contractors of Helena, Montana, submitted an acceptable bid. Drilling did not start until August 1, 1952. Hole No. 1 was drilled to a depth of 239 feet; Hole No. 3, to 303 feet; and Hole No. 4, to 95 feet. Hole No. 4 was not completed because of the onset of winter. The project was recessed for the winter October 20, 1952. Because the project had not been completed, Amendment No. 2, dated December 9, 1952, was processed to extend the contract from 12 to 24 months, which should have been enough time to complete the work.

In the spring of 1953 the operator requested that he be permitted to terminate the project because the Elkhorn Mining Company did not have sufficient funds to complete it. The contract was terminated on June 10 by mutual agreement on the Field Team's statement of the improbability of making a worthwhile discovery. The project was terminated after a total expenditure of $5,039.86, of which $4,535.87 was disbursed by the Government to the operator.

Results of Exploration

Bulldozing on the Last Chance claim, where most of the trenching was done, exposed the vein in several places. Small bulldozer cuts on the Shady Tree and Brown Bear claims exposed a few narrow veins.

All the diamond drilling was done on the Last Chance claim. Hole No. 1 was drilled N. 43° E. at an inclination of 45 degrees and to a depth of 239 feet. A detailed geologic log of the hole showing recovery, size of hole, etc., is given in appendix A. The drill hole cut vein material at 223.5 feet. The hanging wall rocks showed strong bleaching for several feet above the vein. From 223.5 to 231 feet the core consists of brecciated, iron-stained quartz veined by specularite and other reddish iron compounds. About 60 percent of the core was recovered from that 7.5-foot interval; no sludge was saved. From 231 to 239 feet only 2 inches of core was recovered. It is vein material like that from 223.5 to 231 feet. The drillers said that they got good water return going through the vein zone, and a sandy sludge was recovered from the interval 231 to 239 feet. This sludge was examined

in Boulder, Montana. It ran the geiger counter (Nuclear, Model 2610A, Instrument & Chemical Corporation) off the most sensitive scale and is the most radioactive material recovered from Hole No. 1. It appears that Hole No. 1 did not penetrate the entire vein zone. Personnel of the Atomic Energy Commission's Butte suboffice tried to run a radiometric log of the hole but could not do so because the hole had caved.

Diamond Drill Hole No. 2 was not drilled, but Diamond Drill Hole No. 3 was drilled N. 40° E. at an inclination of 45 degrees and to a depth of 303 feet. A detailed geologic log of the hole showing recovery, size of hole, etc., is given in appendix A. In Hole No. 3 the hanging wall of the vein is silicified and strongly bleached. The hole cut vein material at 264.6 feet, and there was vein material and silicified wall rock in the core from that point to the bottom of the hole. The most radioactive part of the core, as shown by examination with a geiger counter, is from 264.6 to 269 feet. The core below 269 feet is not very radioactive. Although the hole bottomed in mineralized material, it is thought that the main vein zone extends only to 284.6 feet. Personnel of the Atomic Energy Commission's Butte suboffice ran a radiometric log (see appendix A) of the hole. This log shows the most radioactive part of the hole to be at about 280 feet and the second most radioactive part to be at about 266 feet. The reason the radioactivity was not detected in the core at 280 feet is probably because in the interval 277.6 to 284.6 feet core recovery was only 24 percent, whereas from 264.6 to 269 feet it was 100 percent. The radiometric log shows the start of another radiometric high at the bottom of the hole, and it is possible that the hole has not cut the full thickness of the vein zone.

Diamond Drill Hole No. 4 was drilled N. 50° E. at an inclination of 45 degrees and to a depth of 95 feet. A log of it appears in appendix A. The hole was discontinued for the winter but was not resumed because the project was terminated.

The diamond drill hole samples were assayed by both the Lindsay Chemical Company and by the Geological Survey. A comparison of these analyses, which in general checks quite closely, is given in table 2 of appendix A. Semiquantitative spectrographic analyses of the drill samples were also made by the Geological Survey and are listed in table 3 of appendix A, which also shows that the uranium content of all the drill samples was less than the threshold value of 0.1 percent. Table 2 confirms this conclusion.

During the course of an investigation by the Geological Survey of the several thorium deposits in the Lemhi Pass area sixteen surface samples were taken from the Last Chance claim and two from the Brown Bear claim. These samples are not properly part of the DMEA project, as the Survey's work had no connection with the DMEA project; nevertheless,

they are of value in appraising the property. The analyses of the samples are listed in table 1 of appendix A and the sample locations are plotted on figure 3.

A semiquantitative spectrographic analysis was also made by the Geological Survey of a selected radioactive sample from the southern part of the Last Chance vein. The results of the analysis are as follows:

Th	>2.0 percent	Y	0.0X percent
Nd	0.1-1.0 percent	La	0.05-0.1 percent
Ba	0.X percent	Ca	0.0X percent
Ce	0.5-1.0 percent	Sr	0.00X percent

Ore Reserves

There is not enough information available to make ore reserve estimates on the property. The surface samples taken by the Geological Survey were not taken for the purpose of estimating ore reserves but were merely for study of the occurrence of the thorium and other radioactive minerals. Consequently, these samples were not spaced at systematic intervals so that they could be used for calculating the average value of the vein but were in large degree taken in the most radioactive parts of the vein, as indicated by geiger counter and scintillameter. About all that can be said is that there are a number of small lenses in the vein that assay from 0.2 percent ThO_2 to somewhat over 2.0 percent ThO_2.

The sample data suggest a grade of from about 0.23 to about 0.43 percent ThO_2, depending on how the samples are grouped, but even that is probably much too high as it does not give enough weight to the lean stretches in the vein. The two drill holes, which are the best available samples of the vein, average only about 0.14 percent ThO_2. It is believed, therefore, that 0.15 percent is the best average figure available for the whole deposit. It may be that systematic sampling will show the grade to be higher than 0.15 percent, but until more data are available this figure will be used. Accordingly, 0.15 percent has been used in the calculations from which it is estimated that the deposit can be inferred to contain 330,000 tons of material which contains a total of 990,000 pounds of ThO_2 (3 pounds of ThO_2 per ton).

From the above discussion of the sampling it is evident that the assay data are wholly inadequate for determining the average thorium content of the vein, and only an informed guess of the grade can be made.

The reserves of rare earths have not been calculated, as they are present in such small amounts. It is doubtful that the small amount of uranium present can ever be recovered economically.

Exploitation Possibilities

In an attempt to find out the value of thorium concentrates letters were written to nine different chemical and ore buying concerns that might buy thorium. Of these, only two were in any way interested, and they estimated prices of $1.00 to $1.50 (Varlacoid Chemical Co., New York, N. Y.) and $2.50 to $5.00 (Rare Earths, Inc., Pompton Plains, N. J.) per pound of contained ThO_2 for a bagged concentrate on a 100 percent basis and f.o.b. U. S. shipping point. There is no set price for thorium and each contract is individually negotiated. The price per pound ultimately agreed upon depends upon the type of concentrate and the amount available. It is not known whether there is a market for the thorium silicate thorite.

To the writer's knowledge the Atomic Energy Commission does not buy thorium concentrates. It is reported, however, that in the winter of 1954 the Atomic Energy Commission was buying thorium-nitrate at $2.20 a pound. In September 1952 Lindsay Chemical Company, West Chicago, Illinois, sold thorium nitrate (47 percent ThO_2) for $3.00 per pound f.o.b. West Chicago. The thorium was recovered from monazite and bastnasite and these were the only ores Lindsay Chemical Company had ever processed.

In the July 29, 1954, issue of the Northern Miner (1954) the following price information is quoted for thorium: "Thorium -- Price by Dominion Magnesium, Ltd., f.o.b. Haley, Ont. Vacuum sintered pellets, 98% pure, 500 lbs. and over: $13.50 lb." Mr. Mitchell Kline of the Bureau of Mines states that prices as high as $4.50 to $11.50 per pound have been paid for thorium. It is to be noted that the above high prices are for thorium metal not for thorite concentrates.

The locations of surface samples are shown on figure 3 and their assay results in table 1 of appendix A. The assay results for the diamond drill holes are shown in table 2 of appendix A.

Not enough is known about the price of and market for thorite concentrates to determine whether or not the deposit is of economic importance.

Summary of Factual Data

The units of work completed were 700 feet of bulldozer trenches and 637 feet of diamond drilling. The average unit price for diamond drilling was $6.57, and the total cost submitted for diamond drilling was $4,185.75. The bulldozing was done for $10.00 per hour, and 84 hours of operation provided 700 feet of trench to average $1.20 per linear foot.

The total contract amount was $10,215, but only $5,039.86 was required for the work done, so with 90 percent participation $4,535.87 was disbursed by the Government to the operator.

There are no items jointly purchased under the contract, and, therefore, there are no equities in equipment to be disposed of.

Discussion of Conclusions

The working season in the Lemhi Pass area is short, and the work should be pressed to completion during August and September to avoid expense. The project could have been completed in 2 months if the operator had planned it better. The Elkhorn Mining Company had insufficient funds to carry the project through to completion. The delays in starting the drilling undoubtedly added to the cost of the project and thereby contributed to the Elkhorn Mining Company's lack of funds.

It was never satisfactorily determined just why Diamond Drill Hole No. 1 was stopped before it had gone through the vein. It appears that the drillers made the decision to stop the hole. This would seem to indicate inadequate supervision on the part of the operator. Moreover, the operator did not sample the vein, although it was well exposed at surface in several places and money was provided in the contract for sampling and assays. The lack of adequate surface samples has made it impossible to estimate the average grade of the vein with any degree of accuracy.

Most of the thorite is associated with the iron oxides and hydroxides that fill fractures in the vein. The most brecciated parts of the veins contain the most thorium.

Primarily because the indicated average grade of the vein is low -- 0.15 percent ThO_2 -- and secondarily because there appears to be no market for thorite concentrates, it is recommended that no Certification of Discovery or Development be made.

If more work is done on the property, the vein should be sampled systematically in order to determine its average ThO_2 content. If more diamond drilling is undertaken, every effort should be made to get maximum core recovery in the vein zone, and sludge samples should also be taken. The holes should be drilled deep enough to penetrate the entire vein zone.

Enclosures
Distribution:
DMEA(4)
USBM(5)
USGS(SRO)
AEC(Salt Lake)
Docket
Armstrong

REFERENCES CITED

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APPENDIX

A

CONTENTS OF APPENDIX A

Detailed log of Diamond Drill Hole No. 1, Last Chance claim, Beaverhead County, Montana.

Detailed log of Diamond Drill Hole No. 3, Last Chance claim, Beaverhead County, Montana.

Radiometric log of Diamond Drill Hole No. 3

Detailed log of Diamond Drill Hole No. 4, Last Chance claim, Beaverhead County, Montana.

Table 1.--Collected surface sample data, Last Chance and Brown Bear claims, Beaverhead County, Montana.

Table 2.--Assays of Diamond Drill Holes No. 1 and 3, Last Chance claim, Beaverhead County, Montana.

Table 3.--Semiquantitative analyses of samples from Diamond Drill Holes No. 1 and 3, Last Chance claim, Beaverhead County, Montana.

Table 1.--Collected surface sample data, Last Chance and Brown Bear claims, Beaverhead County, Montana

Sample Number	eU (percent)	U (percent)	ThO_2 (percent)	ThO_2 + RE_2O_3 (percent)	Ra (gr/gr)	Location	Remarks
Last Chance vein							
LC-B	0.008	0.001	0.05	0.06		Pit on satellite vein NW of road cut	Chip sample across 3- to 4-ft. vein
LC-E	0.021	0.001	0.06	0.05		Prominent enlargement of vein NW of road cut	Chip sample across 20-ft. vein outcrop
LC-G	0.19	0.005	0.93	1.70		First trench NW of "E" location	Chip sample across 3- to 4-ft. vein
LC-H	0.017	0.001	0.05	0.05		Second trench NW of "E" location	Chip sample across 4-ft. vein
KW-LC-1	0.059	0.001	0.31		$3x10^{-12}$	Road cut across vein	Chip samples east to west across 10-ft. vein 3 ft.
-2	0.10	0.002	0.53		$7x10^{-12}$		3 ft.
-3	0.41	0.003	2.1		$1.4x10^{-11}$		4 ft.
-5	0.36	0.002	1.8		$2.0x10^{-11}$	Outcrop, 30 ft. SE of road cut	Channel sample 8-ft. outcrop
-6	0.32	0.003	1.7		$2.5x10^{-11}$	Small pit on prominent outcrop; 210 ft. SE of road cut	Grab sample from pit
AFT-S24-50	0.10	0.003	0.6*			Small pit on prominent outcrop; 210 ft. SE of road cut	Grab sample from cherty lens

Table 1 (continued)

Sample Number	eU (Percent)	U (Percent)	ThO_2 (percent)	ThO_2 + RE_2O_3 (percent)	Ra (gr/gr)	Location	Remarks
-S25	0.43	0.005	2.1*		1.5×10^{-11}	Small pit on prominent outcrop; 210 ft. SE of road cut	Chip sample across 1-ft. of vein
-S26	0.44	0.004	2.1*			Outcrop of vein 60 ft. SE of road cut	Chip sample across 1 ft. of vein
-S32	0.15	0.002	0.73*		4×10^{-12}	Road cut across vein	Chip sample across 5 ft. of footwall side of vein
-S33	0.041	0.001	0.23*			Road cut across vein	Chip sample across 5 ft hanging wall side
-S34	0.009	0.001	0.05*			Prominent enlargement of vein NW of road cut	Chip sample across 25 ft. of vein
S-35	0.014	0.001	0.07*			SE end of vein outcrop	Chip sample across 40 ft. of vein
Brown Bear claim							
AFT-S30-50	0.017	0.001	0.09*			Outcrop of vein 150 ft. NW of NW trench	Chip sample across 3 ft. of vein
AFT-S19-50	1.25		7.0*			NE trench	Selected composite sample of 6-in. vein

* Calculated with factor of 5.6

Table 2.--Assays of diamond drill holes No. 1 and 3, Last Chance claim, Beaverhead County, Montana

Diamond Drill Hole No. 1

Footage	U. S. Geological Survey Analyses 1/				Lindsay Chemical Company Analyses	
	Equivalent U Percent	Equivalent ThO_2 Percent	U_3O_8 Percent	ThO_2 Percent	RE_2O_3 + ThO_2 Percent	ThO_2 Percent
224.0-226.4	0.069 0.068	0.26 0.26	0.001	0.37	0.5	0.3
226.4-227.1	0.013	0.049	0.001	0.05	0.07	
227.1-229.2	0.012	0.046	<0.001	0.06	N.D. 2/	N.D.
229.2-231.2	0.009	0.034	<0.001	0.05	N.D.	N.D.
231.2-239.0 3/	0.050 0.048	0.19 0.18	0.001	0.30	0.5	0.3

Diamond Drill Hole No. 3

264.6-266.2	0.035	0.13	0.001	0.12	0.4	0.4
266.2-267.5	0.039	0.15	0.001	0.15	0.3	0.2
267.5-269.0	0.019	0.072	0.001	0.07	0.2	N.D.
269.0-271.2	0.006	0.023	<0.001	<0.01	N.D.	
271.2-273.0	0.003	0.011	0.001	0.01	N.D.	
273.0-274.6	0.006	0.023	<0.001	0.01	N.D.	
274.6-275.3	0.004	0.015	<0.001	0.01	N.D.	
275.3-277.0	0.003	0.011	<0.001	0.01	N.D.	
277.0-277.6	0.007	0.027	<0.001	0.02	N.D.	
277.6-284.6	0.023	0.087	0.001	0.10	0.2	N.D.

1/ Total RE_2O_3 was not run because the spectrographic report (see Table 3) showed that they were not significantly high.
2/ Not detected.
3/ Sludge sample.

Table 3.--Semiquantitative spectrographic analyses of samples from diamond drill holes Nos. 1 and 3, Last Chance claim, Beaverhead County, Montana.

Diamond Drill Hole No. 1

Footage	Over 10%	1-10%	0.1-1.0%	0.01-0.1%	0.001-0.01%	0.0001-0.001%
224.0-226.4	Si	Fe	Al Ba Mg Th	Ce Pb Ti Mn Gd Cu Nd Sm Eu Sr	Dy Ni Y La Co Cr Sn V Zr	Yb Be Ag
226.4-227.1	Si	Al Fe K	Ba Mg	Th Na Ti Mn Cu Pb Ni Sr	Co Cr Ga Y V Zr Mo Sn	Ag Be Yb
227.1-229.2	Si	Al Fe K	Ba Mg	Na Th Ti Mn Cu Pb Sr Ni	Co Cr Y V Sn Zr Mo	Yb
229.2-231.2	Si	Fe	Al Ba	Zn Mn Cu Pb Mg Th Ti Ni Sr	Cr Y V Mo	Ag Yb
231.2-239.0	Si	Al Fe K	Ca Na Ba Mg Ti Th	Ce Nd Gd Y Cu Sr Mn Eu Sm Ni Pb	La Dy Co Cr Ga Zr V	Yb Be

Diamond Drill Hole No. 3

264.6-266.2	Si	Fe	Ba Al K Th Ca	Sm Co Pb Mn Ce Ti Sr Gd Cu Mg Ni Nd	Eu Y La Cr Yb V Mo Zr	-----
266.2-267.5	Si	Fe	Th Al Ba	Mg As Cu Ti Pb Sr Gd Mn Ni	Sm Nd Eu Co Y Cr V Yb Ga	Be
267.5-269.0	Si	Fe Al	Ba K Ca Th Mg	Na Ti Cu Mn Sr Ni	Pb Nd Cr Mo V Y Ga	-----
269.0-271.2	Si	Al K Fe	Na Mg Ca	Ba Ti Mn Ni	Sr Pb Cu Ga Cr V Zr	-----

Table 3 (continued)

Footage	Over 10%	1-10%	0.1-1.0%	0.01-0.1%	0.001-0.01%	0.0001-0.001%
271.2-273.0	Si	Al K Fe	Na Mg Ca	Ba Ti Mn Ni	Sr Cu Ga Cr V Zr	-----
273.0-274.6	Si	Al K Fe	Na Ca Ti Mg Ba	Mn Ni	Sr Co Cu Ga Cr Zr V Y	Be
274.6-275.3	Si	Al K Fe	Na Mg Ca Ti	Ba Pb Mn Cu Ni	Sr Co Ga Cr Zr V Y	Be Ag
275.3-277.0	Si	Al K Fe	Na Ca Mg Ba Ti	Pb Mn Sr Ni	Cu Ga Cr Co V Y Zr Mo	Be
277.0-277.6	Si	Al K Fe	Ca Na Ba Ti	Mg Mn Sr Ni	Co Pb Cu Ga Cr V Zr Mo	-----
277.6-284.6	Si	Al K Fe	Ba Na Ca Ti	Th Mg Mn Ce Gd Cu Sr Ni Sm	Nd Co Eu Pb Cr Ga V Y Mo Zr	-----

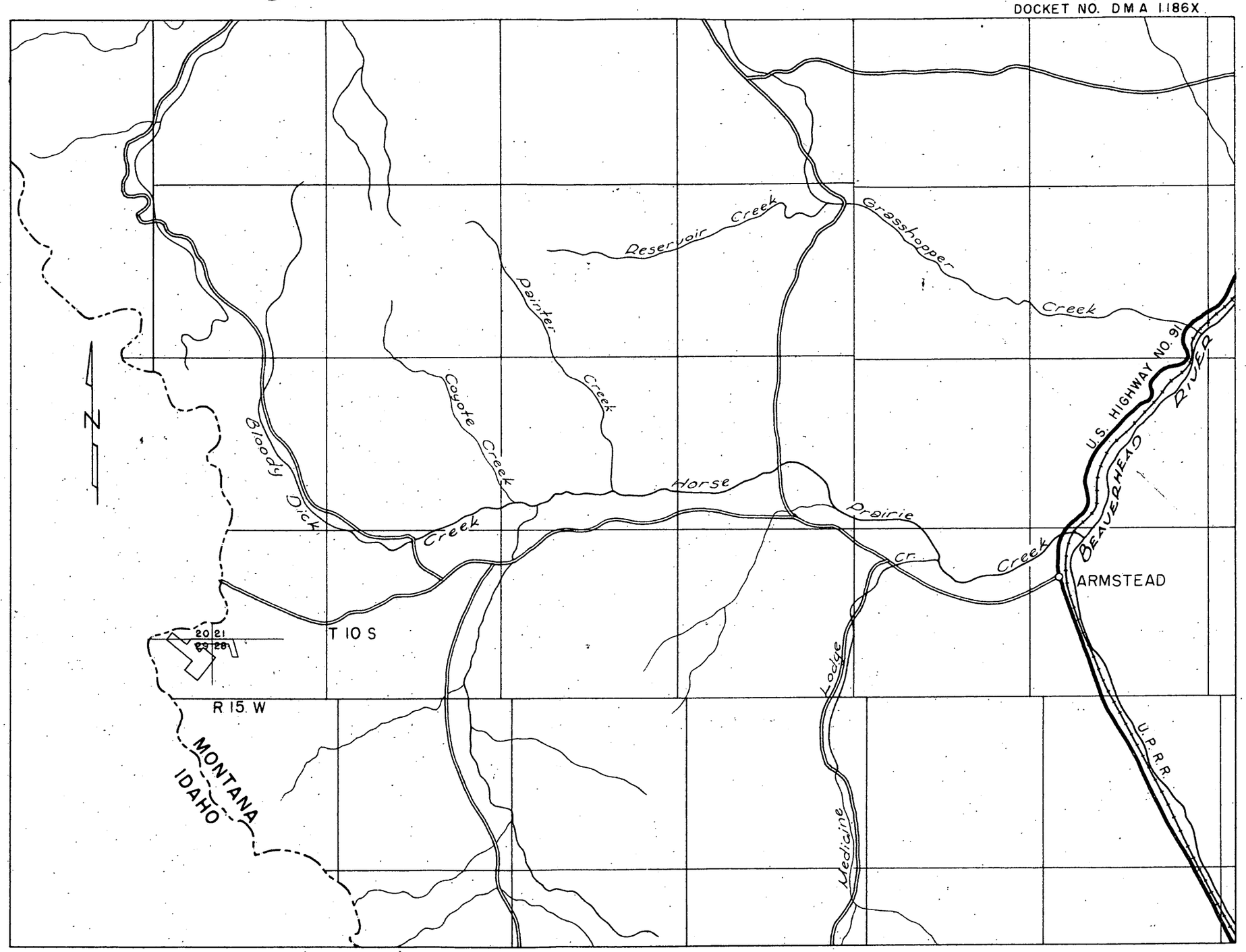


FIGURE 1, LAST CHANCE GROUP

T.10 S., R.15 W., BEAVERHEAD COUNTY, MONTANA

4 3 2 1 0 4 8 MILES

2a

Logged by Sharp and Cavender, USGS, 8-52

DRILL HOLE #1 LAST CHANCE CLAIM, BEAVERHEAD COUNTY, MONTANA - DMEA-1186X

Direction-- N 43 E at 45° inclination NE, Drillers: Carlson & Son

Depth interval		Core in feet
0 - 11	Soil, overburden	
11 - 26	Fine-gn. grey argillite. Fractures parallel to hole. Brn staining, in fractures. Bedding 60° to hole.	3.5
26 - 30	Missing. Lost core and water.	
30 - 31	Slightly schistose grey argillite. Brn gouge.	0.8
31 - 35.3	Upper 0.5' ditto. Then grey to lt. grn. fine ss. Bedding 55° to hole. Bedding shown by biotite layers. Brn stained fractures across and parallel to bedding	3.0
35.3-40.8	Ditto	3.6
40.8-45.6	Ditto. Fracs cut core at 30° to hole. More fractured at base	5.3
45.6-50.6	Upper 3'-fine ss, then grey-grn argill. ss. Fracs cemented by limonite. Minor biotite in seds. Base sandy, micaceous	5.0
50.6-52.7	Grey-grn qtz ss. Bleached, fracs stained. Darker at base	2.0
52.7-54	Lt. grey-grn qtz ss. Fracs 35° to hole. Broken.	1.0
54 - 60	Mottled grn-grey argill to ss. Broken. Fe stained fracs. ½" qtz vein at 56.6 at 30°, ½" qtzvein at 57. Darker and micaceous at base.	3.5
60 - 66	Frac. grey sandy argillite	0.1
66- 70	White qtz vein w/ chlorite & black iron, in upper part. Lower-dark grey-grn ss. Beds 75° to hole. Bottom BX core	2.5
70 - 80	No recovery	
80-90.5	Fine grained grey argill ss. Beds 70° to hole. At 85, ½" qtz vein. At 87, coarser grey-grn ss, with muscov. At 90, ½" qtz vein at 35° to hole.	10.5
90.5-100	Grn argillite. ½" qtz vein at top. Then fine grey-grn argill. Biotite bedding at 65°.(good core). At 92, qtz and limonite seam Below qtz. fine grey ss with muscovite. At 96, 1½" qtz.vein. ½" qtz veins at 96.5, 98. Bedding 55° to hole.	9.5
100-110	Fine grey-grn ss. Poor bedding. At 102, 2' broken, Fe stned. zone. Minor bleaching. Below-fine grey ss.	10.0
110-119.5	Dark grey ss. some muscov. Few fracs. Poor bedding. Fe stained fracs. Qtz vein at 114. Some 1/8" qtz seams at base	9.5

119.5-120	Fine grey argill. ss.	0.5
120-125	Grey argillite and ss, fractured. Sandy at base, Beds 55° to hole. Occasional 1/8" qtz veins	5.0
125-132	Lt grey to grey-grn micaceous fine ss. Good bedding. Fe stn fracs. Argill at base.	6.3
132-135	Grey to grey-grn micaceous ss. Thin fracs.	2.0
135-145	Broken grey to grey-grn mica ss. Hematite streaks at 138 and 140	4.0
145-150	Broken, grey to lt. grey-pinkish argill ss. Thin gouge seams. Fe stned fracs.	3.0
150-157	Pinkish grn argill. Broken, Fe stained. Occasional 1/4" vein of qtz. Mica bedding 55° to hole	2.3
157-163	Highly broken fine lt. grey argill. Clay at base	2.0
163-164.5	Rubble of fine, Fe stained, gray argillite	1.0
164.5-166.5	Rubble of grey-grn argill and vein qtz.	0.2
166.5-167.5	Ditto	0.2
167.5-172	Rubble of grey to grey-grn argill. Thin qtz veins	1.0
172-180	Lt grey-grn mica ss. Biotite bedding 50° to hole. Highly frac-Fe stained.	2.6
180-190	Lt grey-grn mica ss. Broken	0.7
190-191	Lt grey argill. Highly fractured	0.9
191-192.5	Whiteish mottled, highly fractured argill. Fe in fracs	2.0
192.5-193.5	Ditto. Contorted bedding	1.0
193.5-204	White fine ss.	2.0
204-214	White-buff, Fe stned, fine ss. 1/8" qtz veins from 209-214, mostly white. Highly broken. Thin qtz at 213.	3.0
214-216.2	Gray, Fe stained ss. 2" qtz vein	0.5
216.2-224	White-buff ss. At 223.5, qtz vein. Probably narrow contact zone of shearing. (4" qtz recovered). Silicified belt of various colors and brwn qtz.	1.25
224-226.4	Highly broken red stained qtz.	0.4
226.4-227.1	Broken grey qtz. Some red and brn qtz.	0.6
227.1-229.2	Ditto, but more highly stained. Shows evidence of faulting and cementing of rubble.	1.0

229.2-231.2	Rubble of g[illegible], brwn, red qtz.	0.8
231.2-239	Qtz vein. At 231.5 out of qtz and into soft material. No bit resistance. No core, but sludge of stained sand grains. Did not lose water in hole.	0.1
	TOTAL CORE RECOVERED	114.2

Total cored hole-- 223'
Total core recovered-- 114.2' Recovery -- 51%

Hole bottomed at 239.0 on August 31, 1952.

0 - 26 drilled NX, cased BX
26 - 70 drilled BX, cased AX
70 - 239 drilled AX

Logged by Sharp and Cavender, USGS, 9,10-52

DRILL HOLE # 3 LAST CHANCE CLAIM, BEAVERHEAD COUNTY, MONTANA

Direction--- N 40 E, 45° inclination NE Drillers: Carlson & Son

0 - 26	Overburden, soil and Belt qtzite float	
26 - 40	Lt grey to buff fine ss, Fe stained, weathered, friable, Mica bedding 35° to hole.	2.3
40 - 50.5	Upper 0.5'-ditto. Then--fine, bleached, micaceous, lightly stained ss. Zone of grey argill and fine ss. Beds are 30° to hole. Cleavage is 50° to hole.	2.0
50.5 - 61	Soft grey argillite, Fe stained fracs at base. Beds 40° to hole. Cleavage 45-50° to hole Bottom of BX	2.2
61 - 71	Weathered, lt grey, fine, friable ss. Fe stained and broken at top. Bedding 30° to hole.	1.2
71 - 81	Fine, lt grey, micaceous ss. Bedding 33° (top) and 30° (base) and 40° (middle) to hole. Graded bedding -upright	2.4
81 - 96	Ditto. Thin qtz hemtite vein at base.	0.6
96 - 97.5	Interfingered ss and argillite. Beds at 35° to hole. Cleavage in argillite is 47° to hole.	1.4
97.5-109.5	Upper part is ditto. Center is fine-bedded, micaceous ss. Base is bleached ss.	1.3
109.5-112.1	Upper 1' is fine grey, poorly bedded ss. Then 0.75' of coarser ss with bedding 40° to hole. Then 0.3' of dark grey argillite. Below is dark grey, poorly bedded coarse ss	2.7
112.1-117.7	Fine grey ss with reddish tinge due to hematite. Bedding 35° to hole. At 113.3', 1/4" qtz seam, crosses bedding at 30° uphole (rotated). Associated 2" frac zone. At 114.7, 1/4" qtz-hematite vein, dips uphole to bedding, 45° to hole. Ss stained red for 6" across veinlet. Staining trends downhole 35°--if vertical, then bedding would be N 30 W, 40 NE. Ss highly fractured, more micaceous at base.	5.3
117.7-119.9	Ss as above. Fracs normal to hole. At base, rubble zone of fault seam, highly Fe stained, probably where core was lost	1.3
119.9-121.2	Ss as above. Fractured	1.0
121.2-129.7	Same as above. Darker, more micaceous at center. Near top, 2--1/4" qtz veins and a 1" shear zone recemented with Fe_2O_3. Shears near normal to hole. Veins as previously stated. Less fracs in lower 3', bleached along fracs.	4.1
129.7-136	Ss, coarse at top and base. bedding at top 50° to hole. In center, bleaching along fracs. Hematite filled fracs about 134.5', 20° dip uphole from the normal to the hole. Beds 30° to hole.	4.7

136 - 145.2	Very fine [illegible] coarse grey ss. Thin qtz vein [illegible] 137'. Beds 30° to hole	4.4
145.2-149.3	Ditto, with some very fine, some very coarse, micaceous ss. 2--1/8" altered hematite seams along bedding at base. Cleavage, rotated 45° from bedding, is 40° to hole (steeper than bedding.	3.4
149.3-157.5	Grey fine bedded ss. Bedding at 30°. Fracs uphole at 40° and red stained for 1/2".	2.3
157.5 - 160	Ditto. 1/2" qtz vein at top, dipping uphole at 30°, contains specularite	2.5
160 - 169.5	Grey ss. Fracs cemented with Fe oxides. 1/2" qtz, hematite, chlorite vein at 163.8', dipping as before. Another vein at 165.3'. Bedding 27° to hole	6.2
169.5-179.5	Ditto. More fracs near top.	3.6
179.5-186.4	Ditto. Mica bedding distinct at top, 25° to hole. Fracs run downhole.	2.8
186.4-199.7	Ss. Bedding ppor. 1/8" qtz vein at top. Pinkish cast for 1' below. Core is rubble at base. Qtz veinlet at base	3.4
199.7 - 200	Ditto. Cleavage is uphole 40° from hole.	0.3
200 - 210	Fine to coarse, highly broken ss. Upper part cemented by Fe oxides.	1.8
210 - 215	Ss of lt. grey color, with mica bedding 30° to hole. Highly broken core.	1.5
215 - 222.1	Lt grey to grey argill ss and qtzose ss. Fracs every 3", cutting uphole 20° to normal. At 219.5', 2 or 3 small qtz veins, dip uphole. Small fault offsets veins	7.3
222.1 -222.8	Ditto. Highly broken, rubble. Evidence of small qtz vein	0.6
222.8 - 229.6	Coarser grained, bedded ss with grey argillite. Broken.	1.0
229.6 -239.6	Argillaceous ss, light grey, bleached, mottled, irreg. bedding. Two small qtz veins. Cleav is 40° to hole, bedding is 20° to hole.	2.0
239.6 -249.6	Fine grey ss, bleached at base. Center zone is buff to pink silicified Belt. One or two (2) qtz veinlets.	1.4
249.6 -253.5	Bleached white ss, friable, highly broken. Upperpart probably in fault zone.	3.9
253.5 -253.8	Ditto	0.3
253.8 - 255	Ditto, less broken. 1/4" qtz-hematite vein, altered to porous limonite.	1.0
255 - 264.6	Ditto at top. Bedding 35 to hle. Silicification in lower foot. Interbed of 4" of bleached ss, then qtz vein of pink, white. Red hematite staining.	1.9

264.6 - 266.2	Qtz vein at top. Core shows highly broken qtz vein recemented with specularite and limonite. Brown to red to grey, mottled and highly "veined". Breccia structure appears downhole, 40° to the hole.	1.8
266.2 - 267.5	Ditto. Very rubbly at top. Heavy red iron stain. Bottom is more quartzose.	1.3
267.5 - 269	White vuggy qtz and specularite with red splotches. Base has pieces of unreplaced Belt, further down alters to white- brown soft sand.	1.5
269 - 271.2	Zone of semi-qtz vein. Much bleaching, much replaced Belt. Qtz is 60° to hole. Vugs trend at small angle to the hole and follow center of qtz trend.	2.2
271.2 - 273	Ditto. Much red Fe staining.	2.0
273 - 274.6	Ditto, with base mostly rubble of Belt ss.	1.2
274.6 - 275.3	Mostly rubble ss and qtz "pebbles".	0.8
275.3 - 277	White glassy qtz and relic ss. Specularite in vugs in qtz. Hema. veinlets cut the core at various angles	0.5
277 - 277.6	Qtz vein rubble, highly broken. Shear zone at top cemented with red Fe oxide	0.5
277.6 - 284.6	Qtz vein, specularite rich. Less relic Belt than above. Vuggy, mottled color. Rubbly at base. Out of hard rock at 279'. No core below 279. Probably soft ss.	1.7
284.6 - 285.6	Qtz vein as above (4"). Rest of core is grey-grn, lite, argillite, highly veined with brown limonite stained fracs	0.9
285.6 - 294.5	At top is 5" of qtz vein, similar to that above--vuggy, contains specularite. Some unreplaced Belt. Below is bleached lite grey, semi-silicified, and friable ss. Limonite stained fractures.	1.8
294.5 - 298.5	Same white, bleached, friable ss, limonite veined. 3/4" qtz veinlet near top.	2.1
298.5 - 301	Bleached Belt ss, with limonite veining. Poorer core.	2.5
301 - 303	Bleached white, friable Belt, cut and partially replaced by silica, red to white.	2.0
	TOTAL CORE RECOVERED	106.9

Total hole cored / - 277'
Total core recovered - 106.9 Recovery— 39%

BX casing - 0-26; AX casing - 26-61; drilled AX- 61-303

Hole bottomed at 303' on or about Sept. 29, 1952.

U. S. ATOMIC ENERGY COMMISSION
Radiometric DDH log

Date: 10-2-52

Property: Chance Last

State: Montana

Dist.: Beaverhead

DDH #5

Location:

Strike: N 40° E

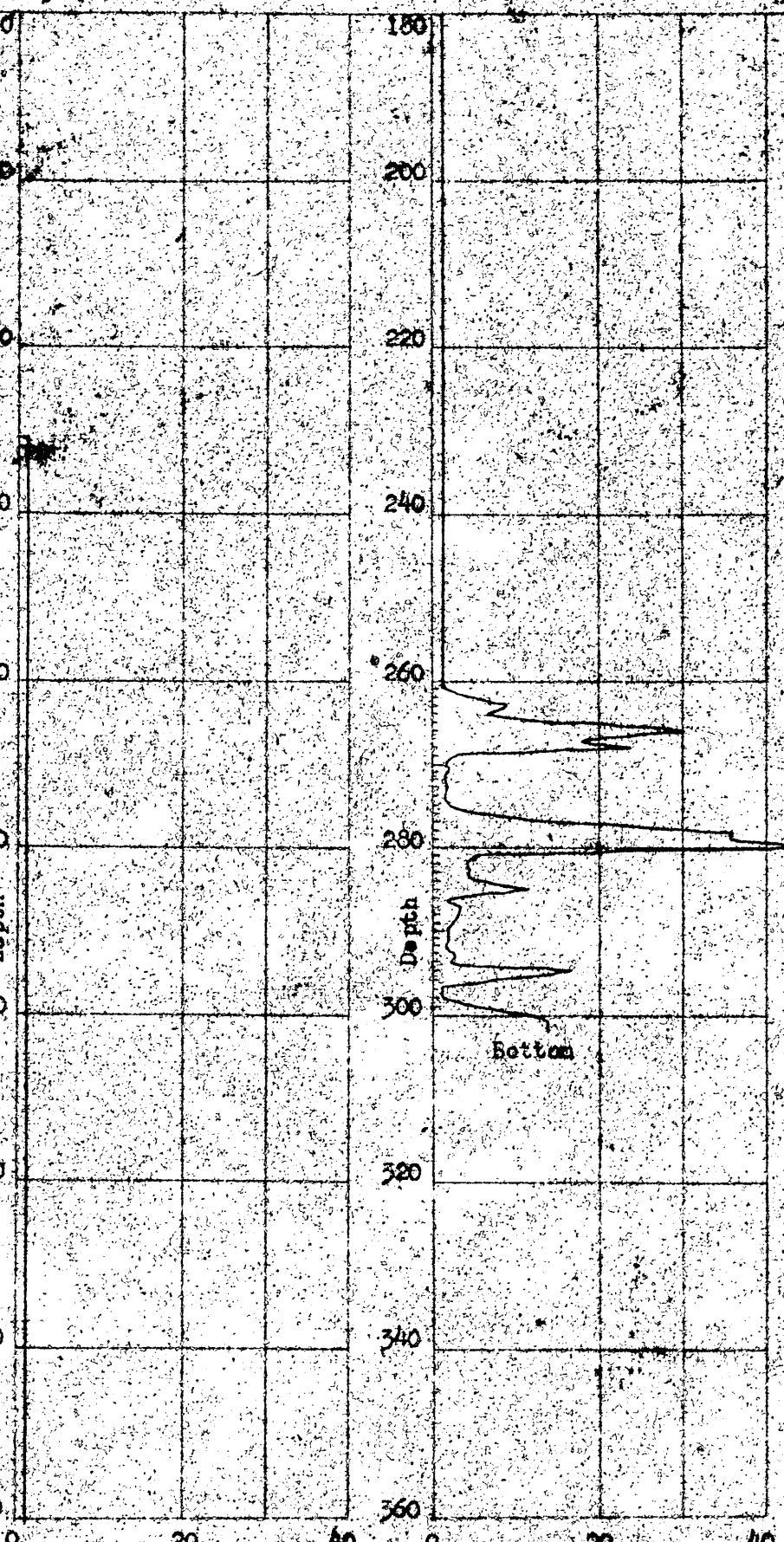
Dip: 44° NE

Depth: 302'

Log by: Jarrard Hetland

Driller: Carlson

Remarks: Armored cable probe Nestor 301
was used - Hole was 8" cased to 51.0'.
No cave was encountered - Rate of descent
5' intervals to 262' - 2' intervals 262' - 302'
at 1 interval per 20 seconds.



Logged by Sharp[illegible]d Cavender, USGS, 10-20-52

DRILL HOLE #4 - LAST CHANCE CLAIM, BEAVERHEAD COUNTY, MONTANA.

Direction— N 50° E, inclination 45° NE

Drillers: Carlson & Son

0 - 26 Soil and overburden

26 - 95 Soft, fine grained gr-white bleached ss

Lost water at 54', never recovered circulation. Pressure lost again at 95'.

BX casing 0-26; AX casing 26 - 60.

Drilling discontinued for the winter at depth of 95'. Tobe resumed in spring of 1953.

Surname 700

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

Ching
Ellis
Selfridge
Fleitman
Whitenbarg

Mr. A. L. Weissenborn
Executive Officer
DMEA Field Team, Region II
South 157 Howard Street
Spokane 4, Washington

JUL 12 1954

Re: Docket No. DMEA-1186 (Thorium)
Contract No. Idm-Elhh
Elkhorn Mining Company
Last Chance Group
Beaverhead County, Montana

Dear Mr. Weissenborn:

Please refer to our letters of December 21, 1953, and March 11, 1954, and your letter of March 16, 1954, regarding the Field Team's final report on the subject project.

You estimated that the report would be ready for mailing by the end of March, but we have no record of having received it. It will be appreciated if you will look into this matter again.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee (JHS)

APPROVED:

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

Philip W. Guild
Member, Geological Survey (JHS)

MChing/am
7-9-54
cc to: Admin. Reading File
Operating Committee
Docket
Messrs. A.P.Butler,Jr. Rm.3212,GSA
J.O.Hosted,Rm.3210,GSA
H.D.Keiser,Rm.3641
Mr. Ching
Code 700

R.C.G.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D.C.~~
So. 157 Howard Street
Spokane 4, Washington

March 16, 1954

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Re: Docket No. DMEA-1186 (Thorium)
Elkhorn Mining Company
Last Chance Group
Beaverhead County, Montana
Contract No. Idm-E144

Dear Mr. Selfridge:

In reply to your letter of March 11, we estimate that the Last Chance report will be ready for mailing in about two weeks time.

Very truly yours,

A. E. Weissenborn

A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region II

cc: USBM (2)
Armstrong

Surname
Docket copy

700

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

Ching
Ellis
Selfridge
Johnson

MAR 11 1954

Mr. A. E. Weissenborn
Executive Officer
DMEA Field Team, Region II
South 157 Howard Street
Spokane 1, Washington

Re: Docket No. DMEA-1186 (Thorium)
Contract No. Idm-E1h4
Elkhorn Mining Company
Last Chance Group
Beaverhead County, Montana

Dear Mr. Weissenborn:

Please refer to our letter of December 21, 1953, in which we requested advice as to when we may expect to receive the Field Team's final report on the captioned project.

We would appreciate receiving such report at your earliest convenience so that our books and records on this old project may be closed.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

APPROVED:

J. H. Hedges

Member, Bureau of Mines

D. M. Larrabee

Member, Geological Survey

MChing/gla
3-8-54
cc to: Adm. Reading File
Operating Committee
Docket
Messrs. H.D.Keiser, Rm. 3641
A.P.Butler, Jr. Rm. 3212, GSA
M.Ching
Code 700
DMEA Field Team, Region II

R.C.J. 3-11-54

FILE COPY
SURNAME:

Ching
Ellis
Selfridge
HEJonson

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

DEC 21 1953

Mr. [illegible] Heissenborn
Executive Officer
[illegible] Field Team, Region II
[illegible] 127 Howard Street
Spokane [illegible], Washington

Re: Docket No. [illegible]-1136 (Thorium)
Contract No. [illegible]
Elkhorn Mining Company
Last Chance Group
Deerlodge County, Montana

Dear Mr. Heissenborn:

The captioned contract was terminated by mutual consent on June 10, 1953, you have waived Operator's final engineering report, and final Report of Review has been made by the Audit Division.

Please advise us as to when we may expect to receive the Field Team's final report which will enable us to close our books and records with respect to this project.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee (GHB)

[illegible]:

J. H. Hedges (GHB)
Director, Bureau of Mines

T. P. Thayer (GHB)
Director, Geological Survey

HChing/db
12-18-53
cc to: Adm. Reading File
Operating Committee
Docket
Messrs: H.D.Keiser, Rm.3641
A.P.Butler, Jr., Rm.3212, GSA
Ellis
Ching

R.C.G.
12-21-53

FILE COPY
SURNAME:

Talbert

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

OCT 23 1953

Mr. Robert M. Hull
DMEA Auditor
1201 North Division Street
Spokane 2, Washington

Re: Elkhorn Mining Company
Idm-E144, DMA-1186X

Dear Mr. Hull:

Receipt is acknowledged of your letter dated October 21, 1953, transmitting Report of Review covering the above-cited project.

The revised Report of Review is acceptable and may be distributed in the normal manner.

Sincerely yours,

(Signed) E. D. Talbert

E. D. Talbert, Acting Chief
Contract Administration
and Audit Division

WBwwwies/wb
October 23, 1953

Copy to: Docket
Admr. Reading File
Mr. Chambers

R.C. 10-23-53

xxxxxxxxxxxxxxxxxx
1201 N. Division St.
Spokane 2, Washington
October 21, 1953

Mr. Jay L. Chambers, Chief
Contract Administration and Audit Division
Defense Minerals Exploration Administration
Department of the Interior
Washington 25, D. C.

Dear Mr. Chambers:

Receipt is acknowledged of your letter of October 13, 1953, and there are enclosed 3 copies of the Report of Review pertaining to Contract Idm-E144, Docket No. DMA-1186X, Elkhorn Mining Company. Your assumption is correct inasmuch as part of the costs were incurred prior to the date when documentary support was required.

Normal distribution has been effected on the report covering Contract Idm-E426, Docket No. DMEA 2607, Idaho Beryllium and Mica Corporation.

With reference to your letter of September 21, 1953 addressed to all auditors, the copy marked for me was enclosed in a letter addressed to Mr. C. A. Turner and, as Mr. Turner was not in Spokane, the letter was not opened and I did not receive the information until October 20th.

Sincerely,

Robert M. Hull
Auditor

Enclosures as above

FILE COPY
SURNAME:
MDS
Talbert
Chandler

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

OCT 13 1953 AIR MAIL

Mr. Robert M. Hall
DMEA Auditor
1201 North Division Street
Spokane 2, Washington

Re: Idm-E144, DMEA-1186I
Elkhorn Mining Company
and
Idm-E426, DMEA-2607
Idaho Beryllium & Mica Corp.

Dear Mr. Hall:

Receipt is acknowledged of the three copies of the Reports of Review for each of the referenced projects, which were transmitted by your letter of October 7, 1953.

The Report covering Idm-E426 is acceptable and normal distribution may be effected. The Report covering Idm-E144, however, is returned herewith for revision of the reason (b), which indicates that a large portion of the work was on an "agreed unit cost" basis. This was not the case.

This is an old form contract on an actual cost basis. Apparently the costs referred to in your reason (b) were the actual costs incurred under an approved sub-contract. Therefore, the following reason appears to be applicable:

(b) a major portion ($4,185.75) of the costs covered diamond drilling at rates specified in an approved sub-contract and a further portion ($840.00) covered bulldozing at hourly rates prevailing in the area.

It is noted that you have omitted the following reason which is generally applicable to actual cost contracts: "the monthly reports were supported by documentary proof of the costs incurred under the contract." I assume this omission was intentional since part of the costs were incurred prior to the date when documentary support was required. Is my assumption correct?

R.C.H.
10-13-53

In a letter dated September 21, 1953 addressed to all auditors I requested that the initial paragraph of all Audit Certificates, Audit Reports and Reports of Review include a statement as to the county and state in which the property is located and the "common" name of the property. Please include it in the revision of the Report for Idm-E144 and in all future Reports and Certificates.

Sincerely yours,

(Signed) J. L. Chambers

Jay L. Chambers, Chief
Contract Administration
and Audit Division

Enclosure

~~XXXXXXXXXXX~~
EDTalbert/wb
October 13, 1953

Copy to: Docket
Admr. Reading File
Mr. Chambers

R. M. E. A.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D.C.~~
1201 North Division St.
Spokane 2, Washington
October 7, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
OCT - 9 1953

AIR MAIL

Mr. Jay L. Chambers, Chief,
Contract Administration and Audit Division,
Defense Minerals Exploration Administration,
Department of the Interior,
Washington 25, D. C.

Dear Mr. Chambers:

Submitted herewith are three copies each of Reports of Review pertaining to

Stu for Reversion

Elkhorn Mining Company, Docket No. DMA-1186X, Contract No. Idm-E144

OK

Idaho Beryllium and Mica Corporation, Docket No. DMEA-2607, Contract No. Idm-E426

10/13/53

Sincerely yours,

Robert M. Hull

Robert M. Hull
Auditor

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D.C.~~
So. 157 Howard Street
Spokane 4, Washington

October 5, 1953

Mr. R. J. Hindman
Certifying Officer, DMEA
1201 North Division
Spokane, Washington

Re: Docket No. DMEA-1186 (Thorium)
Elkhorn Mining Company
Last Chance Group
Beaverhead County, Montana
Contract No. Idm-E144

Dear Mr. Hindman:

This is to inform you that work under the subject contract has been terminated by mutual agreement before completion of the project. The Operator, in a letter to the Executive Officer dated September 10, 1953, states that copies of the final report have been submitted and that all prior reports have been sent in. His final report was merely the final Form MF-104; however, it is assumed that no further bills will be submitted and the final MF-104 is, therefore, considered as acceptable. The final engineering report has not been received but is hereby waived inasmuch as it is believed that such a report would not contain any information of particular value to the Government.

As the final MF-104 is considered as acceptable and as the final report is hereby waived, it is recommended that the Operator's final invoices be accepted for vouchering and payment, and that the contract be closed as quickly as possible.

Sincerely yours,

A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region II

cc: USBM (2)
DMEA (2)
Con. Adm. & Aud. Div.
R. Hull, Auditor
Armstrong

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D. C.~~
So. 157 Howard Street
Spokane 4, Washington

September 18, 1953

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Re: Docket No. DMA-1186X (Thorium)
Elkhorn Mining Company
Last Chance Group
Beaverhead County, Montana
Contract No. Idm-E144

Dear Mr. Selfridge:

Enclosed are the Government, Docket and Division copies of a termination agreement permitting the termination of the subject contract on the Last Chance Group by mutual consent.

Distribution of the agreement is being made in the usual manner.

Sincerely yours,

A. E. Weissenborn

A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region II

Enclosures
cc: USBM(2)
Becraft

DMEA-1186

9/23/53

~~Mr. Ellis~~
~~Mr. Ching~~ hwc
Division Contract file

Termination notice recd.

(Operator's) and Field
Team's final reports not
recd. - see cc of FT's
letter to Operator August
31, 1953, in file.

gla

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

1201 N. Division St.
Spokane 2, Washington
August 31, 1953

Mr. Fergus C. Fay, Office Manager
Elkhorn Mining Company
Boulder Bank Building
Boulder, Montana

Subject: Docket No. DMEA 1186 (thorium)
Last Chance Property
Beaverhead County, Montana
Contract Idm-X144

Dear Mr. Fay:

This is in reply to your letter of August 26, regarding disposition of drill cores from the last holes drilled under the subject contract and inquiring about payment on the final bill from the drilling contractor.

The Bureau of Mines would like to have the core for permanent storage in the Albany core library. If you will advise us its location, we will arrange to have it picked up.

In regard to payment of the final bill from the driller, if the drilling was performed under the terms of the contract the cost may be charged to the project and the Government's share will be payable upon submission of properly prepared voucher and report form MF-104.

As indicated in Mr. Weissenborn's letter of June 16, however, before final settlement can be made you must submit a final report of the project describing work done, costs, and results obtained.

In this connection it is noted that we have not yet received from you the termination agreements sent on June 16, 1953, for your execution. It is requested that all copies of that agreement be signed by an authorized official of your company, the copy marked "Operator's Copy" retained for your files, and the remaining copies returned to Mr. Weissenborn at your earliest convenience.

By Field Team, Region II

M. M. Volin, Member
U. S. Bureau of Mines

A. E. Weissenborn, Exec. Officer
U. S. Geological Survey

cc: DMEA, Wash. (2) USGS (2)
USGS (2)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D.C.~~
No. 157 Howard Street
Spokane 4, Washington

June 16, 1953

Elkhorn Mining Company
Boulder Bank Building
Boulder, Montana

Re: Docket No. DMA-1186X (Thorium)
Elkhorn Mining Company
Last Chance Group
Beaverhead County, Montana
Contract No. Idm-E144

Gentlemen:

Enclosed is a termination agreement permitting the termination of the contract on the Last Chance Group by mutual consent. Please retain the copy marked "Operator's Copy" for your files and return the other signed copies to this office.

Please note that before final settlement of the contract can be made, we must have a report from you describing the exploration work done under the contract and the results obtained.

Sincerely yours

A. D. Weissenborn
Executive Officer, DMEA
Field Team, Region II

cc: DMEA (2)
USBM (2)
Becraft

FILE COPY
SURNAME:
Docket
Ellis
Crane
Butler
Chamber
Johnson

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

JUN 11 1953

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

George C. Selfridge

[illegible]

[illegible]

[illegible]

J. H. Hedges

[illegible]

A. R. Kinkel, Jr.

[illegible]

Ellis/jh
6/5/53
cc. to: [illegible] Reading File
Operating Committee
Docket
Resume. [illegible] Weiser Rm. 3641
A. [illegible] Butler Rm. 3206
Ellis
DMA Field Team, Region II (2)

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

June 3, 1953

Memorandum

To: Mr. E. W. Ellis

From: Chief Counsel

Subject: Last Chance Mining Company - Docket No. 1186

Reference is made to the letter from the Field Team of Region II, dated May 19, 1953, to the Chairman of the Operating Committee, enclosing a letter dated April 23, 1953, from the Operator to Mr. Weissenborn and forwarded to us with routing slip dated May 29, 1953. If the Operator desires to cancel the contract merely because it has insufficient funds to develop the property that is no excuse for its failure to carry out the terms of the contract. Nevertheless suit on account of the breach would be of little benefit to the Government if the Operator was financially irresponsible. However, if the Operator desires to discontinue because it feels that there is no prospect of a worthwhile discovery, the contract may by agreement be cancelled on that basis. Since the Field Team raises no objection to Termination, it apparently concurs in the opinion that there is no probability of making a worthwhile discovery. It is therefore suggested that form #18262-1 "Termination of Exploration Project Contract by Agreement After Commencement but Before Completion of the Work", be signed and the project terminated.

for Albert E. Kane
J. L. Hofflund
Chief Counsel

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D.C.~~
So. 157 Howard Street
Spokane 4, Washington

May 19, 1953

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Re: Docket No. DMEA-1186X (Thorium)
Last Chance Property
Beaverhead County, Montana
Contract Idm-E144

Dear Mr. Selfridge:

Enclosed is a copy of a letter received from Mr. J. Q. A. Price, President of the Elkhorn Mining Company, requesting a termination of the subject contract. It will be noted that the company does not believe that they have sufficient funds to continue the contract or to adequately develop the property.

The Field Team does not have any objections to terminating the contract and recommends that approval be granted by the Operating Committee to negotiate the termination agreement.

By DMEA Field Team, Region II

M. E. Volin, Acting Exec. Officer
(U. S. Bureau of Mines)

Thor H. Kiilsgaard, Acting Member
(U. S. Geological Survey)

DEPARTMENT OF THE INTERIOR
Central Mineral Information
RECEIVED
MAY 25 1953

Enclosure
cc: USBM (2)
Becraft
Armstrong

4/28/53 gla

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D.C.~~
So. 157 Howard Street
Spokane 4, Washington

April 24, 1953

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

DEPARTMENT OF THE INTERIOR
Minerals Administration
RECEIVED
APR 27 1953

Re: Docket No. DMEA-1186 (Thorium)
Elkhorn Mining Company
Last Chance Group
Beaverhead County, Montana
Contract No. Idm-E144

Dear Mr. Mittendorf:

This is in reply to your letter concerning shipment of radioactive ore which is believed was delivered by Wellborn to S. M. Leonard and F. L. McIntosh at the so-called "Uranium Center of Spokane".

There was some notice of this in the local papers, and it is my impression that the ore was seized by the Food and Drug people if I am not mistaken.

Treatment of arthritis by radioactivity found in some of the uranium mines and prospects in the Boulder area has developed into quite an industry in northern Montana, and "uranium and arthritis clinics" have grown up like mushrooms around a good many of the prospects. It has been rather interesting to us that several tunnels which had been geiger-countered rather carefully before the arthritis boom started and which were found to have no indications of radioactivity, have suddenly become highly radioactive when retested. Although we cannot establish this definitely, one cannot help but speculate that some of these properties may have been enriched in uranium by something else than the normal geologic processes.

One of the later refinements is instead of bringing the arthritis sufferer to the Boulder area, to bring the ore to the sufferer, thus saving him an arduous and painful journey.

We do not know definitely from where the ore came that Mr. Leonard and Mr. McIntosh had as we have never taken the trouble to

examine it. We doubt seriously, however, that it came from the Last Chance group largely because the area has been completely inaccessible since about November. However, it is reported that the W. Wilson mine near Clancey, Montana, has sold its slightly radioactive waste dump for a very substantial price rumored to be around a hundred dollars a ton, and it is also reported that the Lone Eagle property has sold some ore. We suspect that the material at the "Uranium Center of Spokane" may have come from one of these properties. I do know that the ore has been advertised as being guaranteed not to have sufficient radioactivity as to be dangerous (which is doubtless one of the true statements in the advertisement). As a matter of interest to you, one of the improvements over establishing AEC "Spokane Uranium Center" is to sell five-pound bags of crushed radioactive rock which the arthritis patient puts in his bed, thus permitting home treatment.

Most of the people in Montana, as far as I know, have been very cautious in making claims as to the effectiveness of the uranium in the treatment of arthritis and have merely stated that many people have said that they have been helped by exposure to the mine air or other activity. They have many testimonials to this effect. I may say that although I am naturally skeptical of the results, it certainly would be very difficult to prove that someone had not been helped by exposure to the radiation in the mine. It would appear, however, in the case of the "Uranium Center of Spokane" the people involved were sufficiently indiscreet in their advertising so as to give the Government cause to step in.

Should a representative of the FBI call at the office in regard to this matter, we will be glad to give him this and other suitable information which we have accumulated as a result of the studies which the Geological Survey is making in the Boulder batholith area.

Very truly yours,

A E Weissenborn

A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region II

cc: USBM(2)
Armstrong

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D.C.~~
So. 157 Howard Street
Spokane 4, Washington

April 21, 1953

Mr. L. D. Jarrard
U. S. Atomic Energy Commission
P. O. Box 1984
Butte, Montana

Re: Docket No. DMEA-1186X (Thorium)
Last Chance Property
Beaverhead County, Montana
Contract Idm-E144

Dear Mr. Jarrard:

Enclosed please find a copy of 15 analyses of diamond drill cores from drill holes Nos. 1 and 3 on the above-captioned property. These are semi-quantitative spectrographic analyses run by the Survey's Trace Elements laboratory in Washington, D. C. You will note that five of the samples contain between 0.1 and 1.0 percent and four of them between 0.01 and 0.1 percent thorium. The sensitivity for uranium in the method used is 0.1 percent. Because uranium is not reported I assume that all the samples contained less than 0.1 percent uranium.

Copies of these results have been sent to the U. S. Bureau of Mines at Spokane, Washington, to the Elkhorn Mining Company, the Operator, at Boulder, Montana, and to the DMEA Operating Committee at Washington, D. C.

Sincerely yours,

Frank C. Armstrong
For: A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region II

Enclosure
cc: USBM (2)
DMEA (2)
J. C. Olson
W. N. Sharp
F. C. Armstrong

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Report No. TWS-1174 For Frank Armstrong Date April 8, 1953

Requested by letter of November 7, 1952

Lot No. 1685
Spec. Lab. No. 698
Plate No. III-959, 962

Samples from Last Chance Property, Beaverhead County, Montana, Docket No. DMEA-1186X, Contract Idm-E144, Thorium

Location of Samples: Diamond Drill Hole No. 1

Sample No.	Lab. No.	Over 10%	1-10%	0.1-1.0%	0.01-0.1%	0.001-0.01%	0.0001-0.001%	Footages
LCDDH1-1	101831	Si	Fe	Al Ba Mg Th	Ce Pb Ti Mn Gd Cu Nd Sm Eu Sr	Dy Ni Y La Co Cr Sn V Zr	Yb Be Ag	224.0'-226.4'
2	101832	Si	Al Fe K	Ba Mg	Th Na Ti Mn Cu Pb Ni Sr	Co Cr Ga Y V Zr Mo Sn	Ag Be Yb	226.4'-227.1'
3	101833	Si	Al Fe K	Ba Mg	Na Th Ti Mn Cu Pb Sr Ni	Co Cr Y V Sn Zr Mo	Yb	227.1'-229.2'
4	101834	Si	Fe	Al Ba	Zn Mn Cu Pb Mg Th Ti Ni Sr	Cr Y V Mo	Ag Yb	229.2'-231.2'
5	101835	Si	Al Fe K	Ca Na Ba Mg Ti Th	Ce Nd Gd Y Cu Sr Mn Eu Sm Ni Pb	La Dy Co Cr Ga Zr V	Yb Be	233.0'-239.0'

Location of Samples: Diamond Drill Hole No. 3

LCDDH3-1	101836	Si	Fe	Ba Al K Th Ca	Mn Ce Ti Sr Gd Cu Mg Ni Nd Sm Co Pb	Eu Y La Cr Yb V Mo Zr	----	264.6'-266.2'

Continued on next page

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Report No. TWS-1174 For Frank Armstrong Date April 8, 1953

Lot No. 1685 (page 2)
Spec. Lab. No. 696
Plate No. III-955, 962

Location of Samples: Diamond Drill Hole No. 3

Sample No.	Lab. No.	Over 10%	1-10%	0.1-1.0%	0.01-0.1%	0.001-0.01%	0.0001-0.001%	Footages
LCDDH3-2	101837	Si	Fe	Th Al Ba	Mg As Cu Ti Pb Sr Gd Mn Ni	Sm Nd Eu Co Y Cr V Yb Ga	Be	266.2'-267.5'
3	101838	Si	Fe Al	Ba K Ca Th Mg	Na Ti Cu Mn Sr Ni	Pb Nd Cr Mo V Y Ga	----	267.5'-269.0'
4	101839	Si	Al K Fe	Na Mg Ca	Ba Ti Mn Ni	Sr Pb Cu Ga Cr V Zr	----	269.0'-271.2'
5	101840	Si	Al K Fe	Na Mg Ca	Ba Ti Mn Ni	Sr Cu Ga Cr V Zr	----	271.2'-273.0'
6	101841	Si	Al K Fe	Na Ca Ti Mg Ba	Mn Ni	Sr Co Cu Ga Cr Zr V Y	Be	273.0'-274.6'
7	101842	Si	Al K Fe	Na Mg Ca Ti	Ba Pb Mn Cu Ni	Sr Co Ga Cr Zr V Y	Be Ag	274.6'-275.3'
8	101843	Si	Al K Fe	Na Ca Mg Ba Ti	Pb Mn Sr Ni	Cu Ga Cr Co V Y Zr Mo	Be	275.3'-277.0'
9	101844	Si	Al K Fe	Ca Na Ba Ti	Mg Mn Sr Ni	Co Pb Cu Ga Cr V Zr Mo	----	277.0-277.6'

Continued on next page

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Report No. RWS-1174 For Frank Armstrong Date April 8, 1953

Lot No. 1685 (page 3)
Spec. Lab. No. 698
Plate No. III-955, 962

Location of Sample: Diamond Drill Hole No. 3

Sample No.	Lab. No.	Over 10%	1-10%	0.1-1.0%	0.01-0.1%	0.001-0.01%	0.0001-0.001%	Footages
LCDDH3-10	101845	Si	Al K Fe	Ba Na Ca Ti	Th Mg Mn Co Gd Cu Sr Ni Sm	Nd Co Eu Pb Cr Ga V Y Mo Zr	----	277.6-284.6'

A 00790

Spectrographic Methods for AEC (Washington)
Charles Annell and Joseph Haffty
C.R.W.

Geochemistry and Petrology Branch
Sample Control

bm

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D.C.~~
So. 157 Howard Street
Spokane 4, Washington

April 21, 1953

Mr. Wade V. Lewis, President
Elkhorn Mining Company
Boulder Bank Building
Boulder, Montana

Re: Docket No. DMEA-1186X (Thorium)
Last Chance Property
Beaverhead County, Montana
Contract Idm-E144

Dear Mr. Lewis:

Enclosed please find a copy of 15 analyses of diamond drill cores from drill holes Nos. 1 and 3 on the above-captioned property. These are semi-quantitative spectrographic analyses run by the Survey's Trace Elements laboratory in Washington, D. C. You will note that five of the samples contain between 0.1 and 1.0 percent and four of them between 0.01 and 0.1 percent thorium. The sensitivity for uranium in the method used is 0.1 percent. Because uranium is not reported I assume that all the samples contained less than 0.1 percent uranium.

Sincerely yours,

Frank C. Armstrong
For: A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region II

Enclosures

cc: USBM (2)
DMEA (2)
L. D. Jarrard
J. C. Olson
W. N. Sharp
F. C. Armstrong

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

[redacted]

No. 157 Howard Street
Spokane 4, Washington

April 21, 1953

Mr. [illegible] J. Jarrard
[illegible] Atomic Energy Commission
P. O. Box 1[illegible]
Butte, Montana

Department of the Interior
Business Information
RECEIVED
[illegible] 28 1953

Re: Docket No. [illegible]-110[illegible] (Thorium)
East Tenmile Property
Beaverhead County, Montana
Contract Ida-[illegible]

Dear Mr. Jarrard:

Enclosed please find a copy of 1[illegible] analyses of diamond drill cores from drill holes Nos. 1 and 3 on the above-captioned property. These are semi-quantitative spectrographic analyses run by the Survey's Trace Elements Laboratory in Washington, D. C. You will note that five of the samples contain between 0.1 and 1.0 percent and four of them between 0.01 and 0.1 percent thorium. The sensitivity for uranium in the method used is 0.1 percent. Because uranium is not reported I assume that all the samples contained less than 0.1 percent uranium.

Copies of these results have been sent to the U. S. Bureau of Mines at Spokane, Washington, to the Silkhorn Mining Company, the Operator, at Boulder, Montana, and to the DMEA Operating Committee at Washington.

Very truly yours,

Frank [illegible] Mathron,
[illegible] Weissenborn
Executive Officer, [illegible]
Field Team, Region II

Enclosure
[illegible] (2)
[illegible] (2)
[illegible]
[illegible]
[illegible]

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Report No. TWS-1174 For Frank Armstrong Date April 8, 1953

Requested by letter of November 7, 1952

Lot No. 1635
Spec. Lab. No. 698
Plate No. III-955, 962

Samples from Last Chance Property, Beaverhead County, Montana, Docket No. DMEA-1186X, Contract Idm-E144, Thorium

Location of Samples: Diamond Drill Hole No. 1

Sample No.	Lab. No.	Over 10%	1-10%	0.1-1.0%	0.01-0.1%	0.001-0.01%	0.0001-0.001%	Footages
LCDDH1-1	101831	Si	Fe	Al Ba Mg Th	Ce Pb Ti Mn Cd Cu Nd Sm Eu Sr	Dy Ni Y La Co Cr Sn V Zr	Yb Be Ag	224.0'-226.4'
2	101832	Si	Al Fe K	Ba Mg	Th Na Ti Mn Cu Pb Ni Sr	Co Cr Ga Y V Zr Mo Sn	Ag Be Yb	226.4'-227.1'
3	101833	Si	Al Fe K	Ba Mg	Na Th Ti Mn Cu Pb Sr Ni	Co Cr Y V Sn Zr Mo	Yb	227.1-229.2'
4	101834	Si	Fe	Al Ba	Zn Mn Cu Pb Mg Th Ti Ni Sr	Cr Y V Mo	Ag Yb	229.2'-231.2'
5	101835	Si	Al Fe K	Ca Na Ba Mg Ti Th	Ce Nd Gd Y Cu Sr Mn Eu Sm Ni Pb	La Dy Co Cr Ga Zr V	Yb Be	233.0'-239.0'

Location of Samples: Diamond Drill Hole No. 3

LCDDH3-1	101836	Si	Fe	Ba Al K Th Ca	Mn Ce Ti Sr Cd Cu Mg Ni Nd Sm Co Pb	Eu Y La Cr Yb V Mo Zr	----	264.6'-266.2'

Continued on next page

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Report No. TWS-1174 For Frank Armstrong Date April 8, 1953

Lot No. 1685 (page 2)
Spec. Lab. No. 698
Plate No. III-955, 962

Location of Samples: Diamond Drill Hole No. 3

Sample No.	Lab. No.	Over 10%	1-10%	0.1-1.0%	0.01-0.1%	0.001-0.01%	0.0001-0.001%	Footages
LCDDH3-2	101837	Si	Fe	Th Al Ba	Mg As Cu Ti Pb Sr Gd Mn Ni	Sn Nd Eu Co Y Cr V Yb Ga	Be	266.2'-267.5'
3	101838	Si	Fe Al	Ba K Ca Th Mg	Na Ti Cu Mn Sr Ni	Pb Nd Cr Mo V Y Ga	----	267.5'-269.0'
4	101839	Si	Al K Fe	Na Mg Ca	Ba Ti Mn Ni	Sr Pb Cu Ga Cr V Zr	----	269.0'-271.2'
5	101840	Si	Al K Fe	Na Mg Ca	Ba Ti Mn Ni	Sr Cu Ga Cr V Zr	----	271.2'-273.0'
6	101841	Si	Al K Fe	Na Ca Ti Mg Ba	Mn Ni	Sr Co Cu Ga Cr Zr V Y	Be	273.0'-274.6'
7	101842	Si	Al K Fe	Na Mg Ca Ti	Ba Pb Mn Cu Ni	Sr Co Ga Cr Zr V Y	Be Ag	274.6'-275.3'
8	101843	Si	Al K Fe	Na Ca Mg Ba Ti	Pb Mn Sr Ni	Cu Ga Cr Co V Y Zr Mo	Be	275.3'-277.0'
9	101844	Si	Al K Fe	Ca Na Ba Ti	Mg Mn Sr Ni	Co Pb Cu Ga Cr V Zr Mo	----	277.0-277.6'

Continued on next page

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Report No. TWS-1174 For Frank Armstrong Date April 8, 1953

Lot No. 1685 (page 3)
Spec. Lab. No. 698
Plate No. III-955, 962

Location of Sample: Diamond Drill Hole No. 3

Sample No.	Lab. No.	Over 10%	1-10%	0.1-1.0%	0.01-0.1%	0.001-0.01%	0.0001-0.001%	Footages
LCDDH3-10	101845	Si	Al K Fe	Ba Na Ca Ti	Th Mg Mn Co Gd Cu Sr Ni Sm	Nd Co Eu Pb Cr Ga V Y Mo Zr	----	277.6-284.6'

A 00790

Spectrographic Methods for AEC (Washington)
Charles Arnoll and Joseph Haffty
C.R.W. CA

J. J. Rowe
Geochemistry and Petrology Branch
Sample Control

bm

FILE COPY
SURNAME:

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

BL

AIR MAIL

Mr. A. T. Weissenborn
Executive Officer
DMEA Field Team, Region II
Room 117 Howard Street
Spokane 8, Washington

April 15 1953

Re: Docket No. DMEA-1186 (Thorium)
Elkhorn Mining Company
Last Chance Group
Beaverhead County, Montana
Contract No. IDm-1144

Dear Mr. Weissenborn:

J.C. 4/14/53

We had a telephone call yesterday from a representative of the Atomic Energy Commission in which it was stated the A.E.C. had reason to believe that a shipment of ore from the captioned project was delivered in Spokane. The representative further stated that the shipment consisted of 12,275 pounds of radioactive ore and was delivered by Mr. H. A. Wellborn to the individuals, Mr. W. Leonard and Mr. J. J. McIntosh, at the so-called "Uranium Center of Spokane" and whose address is 10,117 North Pend Oreille Highway. It was furthermore stated that there were indications that the ore was in sacks and was being used for the purpose of treating arthritis patients.

It is quite likely that a member of the Federal Bureau of Investigation will make an investigation of this case for the A.E.C. We thought it advisable to give you this information. However, it is suggested you take no steps in the matter until you receive a call from a member of the F.B.I. and have given him whatever information you may have regarding the status of the project. To the best of our knowledge the project has been inactive during the winter months.

Sincerely yours,

R. D. Mittendorf

Administrator

EWEllis/gla
4-15-53
cc to: Adm. Reading File
Docket
Mr. Ellis
DMEA Field Team, Region II

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 20 1953

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration
So. 157 Howard Street
Spokane 4, Washington

April 14, 1953

Mr. Wade V. Lewis, President
Elkhorn Mining Company
Boulder Bank Building
Boulder, Montana

Re: Docket DMEA-1186 (Thorium)
Beaverhead County, Montana
Last Chance property
Contract Idm-E144

Subject: Relation of AEC geologists to DMEA exploration contracts.

Dear Mr. Lewis:

The Atomic Energy Commission has a direct and active interest in exploration for radioactive deposits including those being explored under DMEA contracts. Because of this interest, AEC geologists will probably keep in close contact with the exploration being done under your contract; and as it obviously will be to the advantage of both you and the DMEA to make full use of their experience and knowledge, we request that you extend to AEC geologists the same courtesies that you extend to engineers and geologists from the DMEA.

Geologists from the Butte Sub-Office of the Atomic Energy Commission are authorized to give general guidance to all DMEA exploration contracts involving radioactive minerals and to discuss your problems with you freely. AEC geologists, however, are not to authorize any changes in the objective of the exploration as put forth in the contract or in the manner of carrying out the work, or to approve any changes requiring an amendment to the DMEA contract. You are encouraged, however, to discuss such matters with AEC geologists; you should not put any changes into effect until your intent for such changes has been made known to the DMEA Field Team and you have been authorized in writing to make them.

By DMEA Field Team, Region II

A. E. Weissenborn

A. E. Weissenborn, Executive Officer
(U. S. Geological Survey)

M. E. Volin

M. E. Volin, Member
(U. S. Bureau of Mines)

cc: DMEA (2)
USBM (2)
AEC (2)
Docket

December 24, 1952

Memorandum

To: Hazel Perry, Operating Committee

From: Grace L. Ault, Rare and Misc. Metals Division

Subject: Clearance on Amendments

Docket No. DMEA-1186, Contract No. Idm-2144
Elkhorn Mining Company

Mr. Ellis has reviewed Amendment No. 2, dated December 9, 1952, submitted by Region II, and approves it.

Docket No. DMA-1284A, Contract No. Idm-173
Bradley Mining Company

Mr. Schmidt has reviewed Amendment No. 5, dated October 31, 1952, submitted by Region II, and approves it.

Docket No. DMA-2297, Contract No. Idm-259
Ray H. Whiting, Jr.

Mr. Knouse has reviewed Amendment No. 3, dated December 2, 1952, submitted by Region II, and approves it.

Docket No. DMA-2636, Contract No. Idm-453
Bradley Mining Company

Mr. Schmidt has reviewed Amendment No.1, dated December 15, 1952, submitted by Region II, and approves it.

Grace L. Ault

GLAult/jem
12/24/52

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D.C.~~
So. 157 Howard Street
Spokane 4, Washington

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 22 1952

December 17, 1952

Mr. Frank E. Johnson, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Re: Docket DMEA-1186 (Thorium)
Elkhorn Mining Company
Beaverhead County, Montana
Contract Idm-E144

Dear Mr. Johnson:

Attached are the original and two signed copies of Amendment No. 2 to the subject contract, with attached justification.

Copies of the amendment have been retained by the Operator and the Field Team, and by a carbon copy of this letter we are distributing the Finance Officer's copy.

Sincerely yours,

A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region II

cc
12/22

RECEIVED
JAN 7 1953
GENERAL COUNSEL
DEFENSE MINERALS
ADMINISTRATION

Enclosure

cc: Finance Officer w/encl.
USBM (2)
Armstrong

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

[redacted]
So 157 Howard Street
Spokane 4 Washington

December 15 1952

Mr. Wade V Lewis
Elkhorn Mining Company
Boulder Bank Building
Boulder Montana

Re: Docket DMEA-1186 (Thorium)
Elkhorn Mining Company Last Chance
Beaverhead County Montana
Contract Idm-5144

Dear Mr Lewis:

Thank you for your letter of December , enclosing assay results from Lindsay Chemical Company on cores from diamond drill holes No's 1 and 3 on the above captioned property.

We have not yet received the results for the duplicate samples we submitted to our Denver laboratory. When we receive them we shall be glad to send you copies of the results

In the tabulation of the results for diamond drill hole No 3 Lindsay Chemical Company has used the designation N D In analyses this designation usually means Not Determined In this instance there is room for confusion for in the tabulation of the results from diamond drill hole No 1 the designation Not detected has been used. Does the N D of hole No 3 mean Not Determined or Not detected?

For footage 226 4-227.1 in hole No. 1 under ThO_2 there are two dashes Does that mean that the sample was not run for ThO_2? Do the blank spaces under ThO_2 for hole No. 3 mean that the samples were not run for ThO_2?

In case you cannot answer these questions I am enclosing an extra copy of this letter which you can forward to Lindsay Chemical Company

Sincerely yours

Frank C Armstrong
for: A H Weissenborn
Executive Officer, DMEA
Field Rep. Region II

cc w/encls. to:
DMEA (2)
USBM (2)
Jarrard AEC Butte
Turlow, AEC Salt Lake City
J C. Olson
W. N. Sharp
Armstrong
Enclosures

COPY

Analysis of Pulps

Analysis Number 526181-90

Marked Letter 10-3-52
L. C. D. D.-Hole #3,
as below

Date Received 11-10-52

Date Reported 11-19-52

From Elkhorn Mining Company

Method Rock Analysis

Book 1303-70-75

Analysis Number	Marked	Rare Earth Oxide & ThO_2	ThO_2
526181	2-264.6-266.2	0.4%	0.4%
526182	2-266.2-267.5	0.3	0.2
526183	2-267.5-269.0	0.2	N.D.
526184	2-269.0-271.2	N.D.	
526185	2-271.2-273.0	N.D.	
526186	2-273.0-274.6	N.D.	
526187	2-274.6-275.3	N.D.	
526188	2-275.3-277.0	N.D.	
526189	2-277.0-277.6	N.D.	
526190	2-277.6-284.6	0.2	N.D.

Analyst: E. Barthell

Submitted by: H. E. Kremers

Copies:
M. W. Eichelberger
Gene Tom
Wade Lewis

Research File

ANALYSIS REPORT

Lindsay Chemical Company
West Chicago, Illinois

C O P Y

Analysis of: Pulps

Marked: Letter 10-[illegible]-[illegible]2
L.C.D.D.Hole #1, as below

From: Elkhorn Mining Company

Analysis Number: 526[illegible]-80

Date Received: 11-1[illegible]-52

Date Reported: 11-1[illegible]-52

Method: Rock analysis

Book: 1[illegible]-68-70

Analyst: E. [illegible]rthell

Submitted by:

H. [illegible] Kremers

Copies:

M. W. Eichelberger

Gene Tom

Wade Lewis

Research File

Analysis Number	Marked	Rare Earth Oxide & ThO_2	ThO_2
526176	2-224.0-226.4	0.5%	0.3%
526177	2-226.4-227.1	0.07%	--
526178	2-227.1-229.2	Not detected	
526179	2-229.2-2231.2	Not detected	
526180	2-233.0-239.0 All sludge	0.5	0.3

ANALYSIS REPORT

Lindsay Chemical Company

West Chicago, Illinois

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 23 1952

[redacted]
So. 157 Howard Street
Spokane 4, Washington

December 11, 1952

Mr. Wade V. Lewis, President
Elkhorn Mining Company
Boulder Bank Building
Boulder, Montana

Re: Docket DMEA-1186 (Thorium)
Last Chance property
Beaverhead County, Montana
Contract Idm-E144

Dear Mr. Lewis:

Enclosed herewith are several copies of Amendment No. 2 to your Exploration Project Contract Idm-E144, which has been signed by the Executive Officer, DMEA Field Team, Region II. If the terms and conditions of this amendment meet with your approval, please sign all copies, retaining that copy marked for the Operator, and return the remaining copies to this office.

Sincerely yours,

Thor H. Kiilsgaard
For: A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region II

Enclosure

cc: DMEA (2)
USBM (2)
Armstrong

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D.C.~~
So. 157 Howard Street
Spokane 4, Washington

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
OCT 30 1952

October 27, 1952

Memorandum

To: DMEA Field Team, Region II

From: Frank C. Armstrong, Geologist, USGS

Subject: Examination of Last Chance property, Beaverhead County, Montana, Docket No. DMEA-1186X, Contract Idm-E144, Thorium.

On October 14 I visited this property in company with W. N. Sharp and Wayne Cavender, U. S. Geological Survey geologists.

At the time of visit, diamond drill holes Nos. 1 and 3 had been completed and the drillers had just started Hole No. 4. Hole No. 3 cut vein material at 264.6 feet and was drilled to a total depth of 303 feet. The most radioactive part is from 264.6 to 269 feet and is brecciated quartz vein. There is more vein material below 269 feet, but it is not very radioactive. The hole bottomed in quartz, but it is thought that the main vein zone has been penetrated.

I examined the vein part of Hole No. 3 in the offices of the Elkhorn Mining Company in Boulder, Montana. Only the core 264.6 to 301 feet was seen. The rest apparently was still at the property.

Mr. Lewis, the president of the company, is going to break the core into sample lengths, and each one of these will be crushed to about ¼-inch size. He will send one quarter of the ¼-inch material to me at Spokane, and I shall send it to Denver for thorium assay.

I collected three small specimens of vein material from Hole No. 3 for mineral identification work for W. N. Sharp.

While in Boulder, I held a Geiger counter on the sludge from the last 8 feet from Hole No. 1. It ran the counter off the most sensitive scale and is the most radioactive part of Hole No. 1. This suggests that Hole No. 1 should be deepened.

At the time of the visit, bad weather had started. It is

thought that before very long the drilling will have to be discontinued until next spring because of bad weather.

Frank C. Armstrong, Geologist

cc: DMEA - Orig. & 3
USBM (2)
J. C. Olson
W. N. Sharp
Armstrong
Docket

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
OCT 27 1952

1201 N. Division St.
Spokane 2, Washington

October 13, 1952

MEMORANDUM

To: DMEA Field Team, Region II

From: John S. McNabb, Mining Engineer, Bureau of Mines

Subject: Routine Progress Report, Last Chance Thorium Property, Contract Idm-E144, Beaverhead County, Montana
Elkhorn Mining Co., Docket No. DMEA 1186 (thorium)

Diamond drilling has continued at the Last Chance Thorium property in Beaverhead County, Montana under Contract Idm-E144. Diamond drill hole No. 3, bearing N. 40° E., attitude -45° was begun on September 2, 1952 and completed on October 1, 1952. The hole bottomed at a depth of 303 feet. The vein was intersected at a depth of 264 feet and showed some radioactivity. Mr. Lewis, President of the Elkhorn Mining Co., has informed me that samples from the vein are being prepared and will be sent to Lindsay Chemical Co., West Chicago, Illinois, for analyses.

DDH No. 3 has confirmed the fact that the vein at the Last Chance property is dipping at an angle of 45°. In view of this finding it will probably not be necessary to re-enter DDH No. 1 and deepen it as was originally planned when the dip was considered to be steeper than 45°.

To date diamond drill holes No. 1 and 3 have been completed. The total footage drilled is 542 feet. Diamond drill hole No. 4 was begun on October 2, 1952.

It is extremely unlikely that the diamond drilling program will be completed during this field season. Severe winter conditions will probably set in at the Last Chance property during the next month, and will force a cessation of the drilling program.

John S. McNabb

CC: 3-Wash.
2-USGS
DMEA
M/D
JSM

JSM:kt

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
SEP 29 1952

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Because of the lack of outcrops in the area of the vein it will be necessary to core all the holes. [illegible] give some information on the structural setting of the vein. The core from some [illegible], but underlining, information of that nature, would [illegible] that all of the holes are cored.

We would like to know what arrangements you have made for sampling the core and assaying. We would also like to have all the core from the vein zone or all of it or selected parts of it sent to our laboratories in Denver for check analyses.

Because of the large amount of heat coming from the vein [illegible], we have asked Mr. Jarvis of the [illegible] office in [illegible] to get [illegible] of the holes logged radiometrically.

Sincerely yours,

[illegible] Armstrong
[illegible] W. Wilsmbern
Executive Officer, [illegible]
Field [illegible], [illegible]

cc: [illegible]
[illegible]
[illegible]
[illegible]
[illegible]

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
SEP 29 1952

So. 157 Howard Street
Spokane 4, Washington

September 15, 1952

Mr. Leonard D. Jarrard
Chief, Butte Suboffice
U. S. Atomic Energy Commission
P. O. Box 1984
Butte, Montana

Re: Docket No. DMEA-1136X, Contract No. Idm-3144, Last Chance claims, Beaverhead County, Montana, Thorium

Dear Mr. Jarrard:

At the present time there is a diamond drilling project going on the above captioned property. When I visited the property on September 3, hole No. 1 had been drilled. It penetrated about 16 feet of vein material but only 5 or 6 feet of core were recovered. From the last 8 feet only 2 inches of core were recovered. It is intended to deepen this hole at a later date.

Because of the large amount of lost core in the vein zone, we think it necessary to have the holes logged radiometrically. Can you arrange to have your office do this? You will recall that you did a similar job for us at the Free Enterprise mine. To avoid the possibility of cave blocking the holes, it probably would be best to probe the holes shortly after they are completed. A total of five holes is to be drilled. Since hole No. 1 is to be deepened, it would be better to probe it after it has been completed. Mr. Wade V. Lewis, the operator, at Boulder, Montana, or Mr. William N. Sharp of the U. S. Geological Survey at Salmon, Idaho, can keep you informed of the progress of the drilling; or we can inform you, but we shall not be as up to date on the situation as the above two gentlemen.

Hoping that you can arrange to have this done for us, I remain,

Sincerely yours,

Frank C. Armstrong
For: A. C. Weissenborn
Executive Officer, DMEA
Field Team, Region II

cc: DMEA (2)
USBM (1)
J. C. Olson W. N. Sharp
W. B. Myers W. V. Lewis

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.
So. 157 Howard Street
Spokane 4, Washington

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
OCT 1 1952

September 12, 1952

Memorandum

To: A. L. Weissenborn, Executive Officer, DMEA Field Team, Region II

From: Frank C. Armstrong, Geologist, U. S. Geological Survey

Subject: Examination of Last Chance property, Beaverhead County, Montana, Docket No. DMEA-1186X, Contract Idm-E144, Thorium.

I visited the above property on September 3, 1952, in company with William N. Sharp and Wayne Cavender, U. S. Geological Survey geologists who are mapping the area. At the property I met Mr. Carlson, Sr., and Mr. Carlson, Jr., who are doing the diamond drilling under contract for the Elkhorn Mining Company. Mr. Wade V. Lewis was expected at the property that day but he did not arrive while I was there.

The bulldozing part of the project has been completed and diamond drilling has been started.

Diamond drill hole No. 1 was completed August 31 and was drilled to a total length of 239 feet. The size of core drilled and the recovery is recorded in the attached memorandum from W. N. Sharp to John S. McNabb of the U. S. Bureau of Mines. W. N. Sharp and W. Cavender have logged the core. The first few feet penetrated argillite, the remainder of the core is quartzite and argillitic quartzite. Near the vein the rock is strongly bleached. The drill hole cut vein material at 223.5 feet. From 223.5 feet to 231 feet the core consists of brecciated, iron-stained quartz veined by specularite. About 60 percent of the core was recovered for this interval; no sludge was taken. From 231 feet to 239 feet only 2 inches of core was recovered. It is quartz similar to that recovered from the above interval. A sandy sludge was recovered for the interval 231 feet to 239 feet. The drillers said they got good water return while going through the vein zone. The hole was stopped at 239 feet, so did not penetrate the footwall of the vein.

When the property was visited the drill had already been moved

from hole No. 1 site. This hole should be deepened so that it is certain that the full width of the vein has been cut. Since the drill has already been moved from hole No. 1 it will probably be all right to drill the rest of the holes (2 through 5) and then go back and deepen hole No. 1. If encouraging results are not obtained in holes Nos. 2 through 5, then it may not be considered necessary to deepen hole No. 1. All of the holes should be drilled a minimum of 10 to 15 feet into the footwall of the vein. Subsequent holes will be.

Hole No. 3 will be the next hole drilled and core will be taken. While at the property I talked with the drillers and they will take special care to recover the core, especially in the vein zone. They will use a double, ball-bearing mounted core barrel. Sludge will be taken in all of the vein zone. The hole will be drilled several feet into the footwall.

Because of the large amount of lost core in the vein zone, the holes should be logged radiometrically. The AEC office at Butte has been requested to do this.

The vein occurs in a fault zone and consists of brecciated, iron-stained quartz and barite cut by specularite veinlets up to several inches thick but which average probably less than one inch. The quartz and barite appear to have replaced fault material and then to have been brecciated. Specularite was deposited in the fractures caused by the brecciation. The mineral of economic interest in the vein is thorite. Trites and Tooker say that thorite is distributed throughout the vein. This relationship was not evident to me from the cursory examination I made. The point is, that if the thorite is associated with the specularite mineralization, then very little thorite is present for the specularite makes up a small percentage of the total vein material.

W. N. Sharp and W. Cavender have made a detailed plane table map of the area, logged core from diamond drill hole No. 1 and will log the other holes as they are drilled. They are also mapping the surrounding area on aerial photographs. Sharp will keep the Regional Office informed of the progress of drilling and will send in a report for the month of September.

Frank C. Armstrong
Geologist

cc: DMEA(4)
USBM(2)
J.C.Olson
W.N.Sharp
Armstrong

To : John [illegible], [illegible] - [illegible], [illegible] Date: [illegible] 2, 52.

From : [illegible], [illegible] - [illegible], Idaho.

Subject: [illegible] - [illegible], [illegible], [illegible], [illegible]

[illegible] M 34 , 45

0- 26' Drilled in [illegible], cased in [illegible], flush joint.

26- 70' Drilled in [illegible]; cored; cased in [illegible], [illegible] joint.

70- 23[illegible]' Drilled in [illegible]; cored.

Total footage 237'

Total cored hole 223'

Total core recovered 1[illegible]'

Drilling started about August 2, 52.
Hole finished August 11.

cc: [illegible] (1)
[illegible] (2)
[illegible] Ison
[illegible] Mattson

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

So. 157 Howard Street
Spokane 4, Washington

September 11, 1952

Memorandum

To: A. E. Weissenborn, Executive Officer, DMEA Field Team, Region II

From: W. H. Myers, Geologist, U. S. Geological Survey

Subject: Routine Inspection, Contract Idm-E144, Last Chance claim, Elkhorn Mining Company, Beaverhead County, Montana (Thorium), Docket No. DMEA-1186.

The Last Chance thorium project was visited on August 4, 1952, in the company of J. S. McNabb of the Bureau of Mines.

The diamond drilling contract for this exploration was let to Mr. Gus Carlson, the elder of a father-son team. The younger Mr. Carlson, previous to the letting of the contract, had made commitments to attend a Reserve Training Camp. Drilling operations therefore had been delayed until a few days before the inspection visit was made. On August 4 the first hole was down only 19 feet and the drillers were having difficulty getting through what they believed to be surficial rubble. Ex casing was being used in this attempt. Inasmuch as the contract specifies that Ex hole shall be used only in an emergency and also because the condition of the ground is unknown, the writer and McNabb felt that larger size casing should be started. This suggestion was put to the drillers who demurred.

After much persuasion the drillers agreed to start with larger casing so that Ex bits could be used in the upper portion of the hole. The light weight drilling equipment being used will make it difficult or impossible to carry Ex to or near the bottom of the hole (estimated footage 220 feet).

Mr. William Sharp and Mr. Wayne Carender of the Geological Survey are engaged in geologic mapping of the district surrounding the thorium projects. They accepted the responsibility of logging the diamond drill core, an arrangement which should result in a better interpretation of the core than that made by one unfamiliar with the local rocks.

W. B. Ayers

cc: DMEA(4)
USBM(2)
USGS(SRO)
Ayers

WBM/dp

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

Butte, Montana

TO : M. E. Volin, Member, DMEA Field Team, Region II DATE: Aug. 12, 1952

FROM : John S. McNabb, Mining Engineer, Bureau of Mines

SUBJECT: Routine inspection of the Elkhorn (Last Chance) Thorium drilling program, Contract Idm-E 144, Beaverhead County, Montana. Docket No. DMEA 1186 (thorium)

A routine inspection of the Last Chance thorium property was made on August 4, 1952 in the company of Mr. Brad Meyers of the U. S. Geological Survey. At the time of our inspection diamond drilling at the project had been underway for only three days. A Mr. Gust Carlson and Son have a contract with the Elkhorn Mining Co. to do the drilling at the project. The delay in starting the drilling was caused by Mr. Carlson's son having to attend a summer training camp as a member of the active reserve of the U. S. Army.

On August 4, 1952, Hole No. 1, attitude -45°, bearing N34°E, anticipated depth 220', had reached a depth of 19 feet. At this time bedrock had not been reached and the drillers were attempting to use a 2½" standpipe with the intention of drilling AX as soon as the standpipe was on bedrock.

Since Hole No. 1 is the first diamond drill hole to be drilled in this area, and because surface indications show that the formation to be drilled is likely to be quite shattered, Mr. Meyers and myself thought it unwise to begin the hole with AX. When informed of our conclusion, Mr. Carlson and Son were quite reluctant to change their original drilling plan. However, when told that the Government would not participate in paying for the Hole if it were lost, the drillers finally agreed to use a 3½" standpipe and begin drilling with BX. We would have preferred to use NX originally but the necessary equpment was not available, and we were forced to compromise.

The contract calls for the drilling of 1350 feet of hole. The Last Chance Thorium Property is located in a high remote area, and will no doubt suffer severe snow and cold early in October. I am certain that a double shift operation is necessary if the drilling program is to be completed this year. I advised Mr. Carlson to work two shifts per day for this reason; and he said that he would take the matter under consideration.

Two representatives of the Trace Element Section of the U.S.G.S. are making a study of the area that includes the Last Chance Group, and they have promised to look in on the drilling operation each day and will inform Mr. Meyers and myself of any unusual conditions that might warrant are immediate attention.

Mr. Carlson and Son are both experienced drillers, the father having followed that occupation since 1886. They appear to be competent steady workers, but prefer to be quite independent with regards to their drilling techniques.

John S. McNabb

140

FILE COPY
SURNAME:

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

Use for use Selfridge.

JUL 25 1952

Mr. A. E. Weissenborn
Executive Officer
DMEA Field Team, Region II
South 157 Howard Street
Spokane 4, Washington

Subject: Docket No. DMEA-1186X
Elkhorn Mining Company
Approval of Subcontract
to Contract Idm-E144

Dear Mr. Weissenborn:

Reference is made (1) to your letter of July 2, 1952, relative to your approval of "a subcontract between the subject company and Gust and Gustaf Carlson for carrying out specified work under the contract terms" and (2) to the copy of the "Approval" dated June 25, 1952, wherein you refer to the "contract dated June 18, 1952", between the Operator and the said Gust and Gustaf Carlson.

From the documents transmitted, it appears that you have not approved a contract but only a proposal by the Carlsons dated June 18, 1952, with certain modifications suggested by yourself. I am, therefore, assuming that on that date the Carlsons agreed to the suggested modification, and the Operator accepted the modified proposal.

Very truly yours, cc 7/22/52

George C. Selfridge (JHB)

ACTING Chairman, Operating Committee

APPROVED:

J. H. Hedges (JHB)
For Bureau of Mines

T. P. Thayer (JHB)
For Geological Survey

AEKane/ema/ 7-24-52
cc: Mails & Files
J. D. Hofflund
A. E. Kane
F. E. Johnson
Chron.
Operating Committee

M. E. Volin, Member, DMEA Field Team, Region II July 22, 1952

John S. McNabb, Mining Engineer, Bureau of Mines

Routine inspection of the Elkhorn (Last Chance) Thorium drilling program, Contract Idm-E144, Beaverhead County, Montana
Docket No. DMEA 1186 (thorium)

This project was discussed at a meeting with Mr. Wade Lewis, Boulder, Montana. Mr. Lewis intends to resume drilling operations within a month. He had not let a contract for the drilling at the time of our discussion. Mr. Lewis thought that it might be necessary to let a contract at a flat rate of $100.00 per day, rather than on a footage basis because of the small amount of footage involved. I advised him against such a procedure, and informed him that it was doubtful if we would approve such a contract. Mr. Lewis also wants to drill the first 200 feet of each hole without core; the reason being that this distance is all sandstone and of no informative value. I advised him to make his request known to the U.S.G.S. and they will pass on it.

John S. McNabb

cc: Our Files (1)
USGS (2)
Wash. (2)

Butte, Montana
July 8, 1952

E. E. Volin, Member, DMEA Field Team, Region II

John G. McNabb, Mining Engineer, Mining Division, Region II

Interview concerning Contract Idm-E 144, Docket No. DMA 1186X, Elkhorn Mining Co., thorium, Beaverhead County, Montana.

Contract Idm-E 144 was discussed at a meeting with Mr. Wade Lewis, Elkhorn Mining Co., Boulder, Montana on July 2, 1952. At this time Mr. Lewis informed me that a sub-contract had been let to cover the diamond drilling program as outlined in the contract between the U. S. Government and the Elkhorn Mining Co.

Mr. Lewis provided me with a copy of the sub-contract, which involves the Elkhorn Mining Co. and Gust and Gustav Carlson, diamond drill contractors. The terms of the sub-contract provide that the drilling will be done on a footage basis. However, the price per foot is from one to two dollars higher than the $5.50 per foot shown in Contract Idm-E 144.

Mr. Lewis states that his company will bear any costs additional to those allowed in our contract. He did say that he would like to apply the money permitted for supervision to the actual drilling costs. No doubt this would be a suitable arrangement.

Mr. Weissenborn has been reportedly provided with a copy of the diamond drilling sub-contract and has approved all the necessary details. Mr. Lewis desired to drill the first two hundred feet of each hole with a plug bit. He reportedly discussed the matter with Mr. Weissenborn, and will have to core the first two holes drilled in their entirety, but will be permitted to do plug bit drilling thereafter at the start of the holes, should geologic data obtained from the first two holes bear out the contention that it is pointless to core the first two hundred feet of each hole.

At the time of my meeting with Mr. Lewis, the drilling contractor was just beginning to move his equipment to the Last Chance claim, the site of the drilling project, which is located near Armstead in Beaverhead County, Montana. It is my intention to visit the project in the near future.

John G. McNabb

Orig. DMEA File
cc: U.S.G.S. (2)
Washington D.C. (2) ✓
JGM

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

No. 297 Howard Street
Spokane 4, Washington

July 2, 1952

Chairman, Contracts Committee
Defense Minerals Administration
Department of the Interior
Washington 25, D. C.

Re: DMA-1110, Thorium
Contract DMI-244
Officer: Daly Company

Dear Sir:

Enclosed are three copies of an amendment to a subcontract between the Daly Company and Dart and Dodd Carbon for carrying out specified work under the contract terms.

Sincerely yours,

Evelyn Gray
For: A. H. Weisenborn
Executive Officer, DMA
Field Team, Region 11

Enclosures

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 7 - 1952

1186

MONTANA

JEFFERSON COUNTY

February 1, 1952

Elkhorn Mining Company, Idm-E144, Thorium
(Lost Chance property)

90-10 of $10,215.00

One year

The work to be done includes 700 feet of bulldozer trenches and 1,350 feet of diamond drilling.

Preliminary trenching has uncovered some radioactive zones, but as yet, the exploration cannot be evaluated.

FILE COPY
SURNAME:

410

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

NOV 15 1951

Mr. A. E. Weissenborn
Executive Officer
Region II
South 157 Howard Street
Spokane 4, Washington

Re: Docket No. DMA 1186X
Elkhorn Mining Company
Exploration Project Contract Idm-K144

Dear Mr. Weissenborn:

Regarding your conversation with Mr. Alt in this office on November 14, 1951, pertaining to the amendment of the above-referenced Exploration Project Contract, we are herewith returning the three copies of the amendment.

As you stated, this amendment will be considered withdrawn, and when the Operator is ready to commence work, which you thought would be next spring, then you would submit an amendment.

The starting time, as you know, will have to be amended, as it is now stated the contract specifies that the work shall commence thirty days from the date of the contract (September 14, 1951).

For your information we are enclosing a copy of the memorandum from the General Counsel, Mr. J. A. Hoffland.

Sincerely yours,

(signed) FRANK E. JOHNSON (for) 11/19

Acting Director
Production Expansion Division

Enclosures

J.Alt/reb
11/15/51

cc to: Admin. Reading Files
Reports and Records
PED
Mr. Alt Docket Barr

Oct. 29, 1951

Phoned Mr. Weissenborn in regard to the amendment. He will check to see if subcontract has been approved and will notify us.

Spread into the contents of the opinion of the General Council, Mr. J. L. Stifflund. It was pointed out to him that this is not a good contract.

Jacob W. Ott
Mining Engineer

11/14/51 - Drilling to started next Spring - the amendment is void. Probably will make a contract in the Spring

FILE COPY
SURNAME:
140
~~DMA-1186X~~
Guthrie

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

October 25, 1951

Memorandum

To: Director, Production Expansion Division

From: General Counsel

Subject: Elkhorn Mining Company -- Docket No. DMA-1186X

Reference is made to Amendment No. 1 to the subject contract, which was executed in the field before submission to this office, and which you have submitted to this office without covering memorandum, for comment.

Although the form of the Amendment is satisfactory, one item of the Amendment seems to this office to be bad in substance. The item referred to is:

> "1,350 feet of diamond drilling (to be contracted at $110 per shift, number of shifts not to exceed 70 shifts . . . . $7,700)."

No doubt the only reasonable construction of this provision is that after 70 shifts of drilling have been performed, the subcontract will have been completed regardless of how much less than 1,350 feet may have been drilled. Under this arrangement it may be impossible to achieve the objective of drilling 1,350 feet.

I would also point out that a contract for diamond drilling at a fixed price per shift, as the contract unit, is certainly to be avoided. Such a contract offers no inducement to the drilling contractor to make footage. He gets his price per shift regardless of the footage made. The Government should not approve such a drilling contract unless it contains detailed specifications with respect to the equipment and crew to be used and the obligations of the driller to accomplish the work. It should be made clear in such a contract whether payment is to be made for periods of breakdown and standby when the drills are not in operation.

If, as indicated by the file, this amendment is already in effect, there is not much that can be done about it, except that if the subcontract has not yet been approved, suitable provisions can be required in it for the protection of the Government.

J. L. Hofflund

J. L. Hofflund
General Counsel

N.S
R+R

G.E.

JLHofflund/ema
Copy to: Reports & Records
J. L. Hofflund
R. R. Guthrie
Chron.

Attachment

FILE COPY
SURINAME

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

Author/ema
Copy to: Records Readers
J. L. Rodland
R. W. Guthrie
Chron.

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D. C.
OCT 22 3 31 PM '51

DEPARTMENT OF THE INTERIOR
RECEIVED
OCT 23 1951
Defense Minerals Administration,
Production Expansion Division.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

So. 157 Howard Street
Spokane 4, Washington

October 19, 1951

Mr. Art

1 - contracts
1 - file

Mr. C. O. Mittendorf
Production Expansion Division
Defense Minerals Administration
Department of the Interior
Washington 25, D. C.

I-DMA-1186X

Dear Mr. Mittendorf:

Enclosed are three copies each of amendments to the following Exploration Project Contracts:

Amendment No.	1	Elkhorn Mining Company	Idm-E144 1186X
Amendments "	2---3	Key and Durand	I-DMA-E30
Amendment "	3	Elkhorn Mining Company	Idm-E115
Amendments "	2---3	Alps Mining & Milling Company	I-DMA-E17

A copy of each amendment has been sent to the Regional Finance office.

Sincerely yours,

A. E. Weissenborn KG

A. E. Weissenborn
Executive Officer, DMA
Field Team, Region II

Enclosures

FILE COPY
SURNAME:

410

Mittendorf

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

A.E.P.

Contract Service Section
General Accounting Office
4th Floor - New GAO Building
Washington 25, D. C.

Re: Docket DMA - 1186X
Elkhorn Mining Company
Exploration Project Contract Idm-E144

Gentlemen:

Enclosed for recording in your office is the original, signed copy of an Exploration Project Contract executed between the Operator named in the above reference and the Government of the United States.

Sincerely yours,

C. O. Mittendorf (JA) 10/12

C. O. Mittendorf, Director
Production Expansion Division

Enclosure

JWAlt/meb
10/5/51
cc to: Admr's Reading Files
Reports and Records
Messrs.Mittendorf/Olund
Mr. Alt
Docket

FILE COPY
SURNAME:

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

C. O. Mittendorf

C.Mitred
10/5/51
cc to: Jerry's Heading Files
Reports and Recorts
Jerry's Mittendorf/Lunng
Ir. Mit
Docket

Contract Service Section
General Accounting Office
4th Floor - New GAO Building
Washington 25, D. C.

Re: Docket DMA - 1196X
Elkhorn Mining Company
Exploration Project Contract Id-E144

Gentlemen:

Enclosed for recording in your office is the original, signed copy of an Exploration Project Contract executed between the Operator named in the above reference and the Government of the United States.

Sincerely yours,

C. O. Mittendorf

C. O. Mittendorf, Director
Production Expansion Division

Enclosure

JWAlt/meb
10/5/51
cc to: Admr's Reading Files
Reports and Records
Messrs.Mittendorf/Olund
Mr. Alt
Docket

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
So. 157 Howard Street
Spokane 4, Washington

September 28, 1951

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
OCT 4 1951

Mr. C. O. Mittendorf, Director
Production Expansion Division
Defense Minerals Administration
Department of Interior
Washington 25, D.C.

Re: Docket DMA 1186 X
Elkhorn Mining Company
Beaverhead County, Montana

Dear Mr. Mittendorf:

Attached are the original and three copies of the Exploration Project Contract for the subject property.

The contracts have been signed by the applicant. Copies have been retained by the applicant and the field office.

Sincerely yours,

A. E. Weissenborn
A. E. Weissenborn
Executive Officer, DMA
Field Team, Region II

Enclosures

cc: U.S.B.M.-Spokane

OFFICIAL FILE COPY

To	Init.	Date
400	A.E.C.	10-5-
210		

FILE COPY
SURNAME:

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

Mittendorf (for)

a.e.c.

SEP 19 1951

Mr. A. E. Weissenborn
Executive Officer
Region II
South 157 Howard Street
Spokane 8, Washington

Re: Docket No. DMA - 1186A
Elkhorn Mining Company
Exploration Project Contract Idm-E144

Dear Mr. Weissenborn:

We are enclosing the original and five copies of the above-referenced Exploration Contract signed by me, together with Exhibit "A" (2 pages), three maps and one "Landlord's Subordination Agreement".

If the terms and conditions of this contract are approved by the Operator, all six copies should be signed by a duly authorized official of the company, one copy should be given to the Operator, one copy retained by your office, and the original and three copies returned to this office. If any part of this contract does not have the approval of the Operator, the original and all copies of the contract are to be returned to this office together with the proposed changes for consideration.

Sincerely yours,

C. O. Mittendorf (J.W.) cc 9/19

C. O. Mittendorf, Director
Production Expansion Division

Enclosures

APPROVED:

Tom Lyon

Chairman, Coordinating Committee

Chase

Member, Geological Survey

Lowell B. Moon

Member, Bureau of Mines

JWAlt/meb
9/14/51
cc to: Admr's Reading Files
Reports and Records
Messrs. Mittendorf/Olund
Bourret
Alt
Docket

FILE COPY
SURINAME

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

C. O. Mittendorf

JWA:t/mcb
9/14/52
cc to: Adm'r's Reading Files
Reports and Records
Messrs. Mittendorf/O.wnd
Bourret
Alt
Dockets

330

FILE COPY
SURNAME:

Gordon

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

AUG 22 1951

Mr. Wade V. Lewis, President
Elkhorn Mining Company
Boulder Bank Building
Boulder, Montana

Dear Mr. Lewis:

This will acknowledge receipt of your most interesting letter of August 14, 1951 and express our appreciation for sending the three specimens of uranium ores from the Free Enterprise property.

We are hopeful, as I am sure you must be, that your discovery is but the precursor of a considerable production from the Free Enterprise and your other operations.

Regarding your pending dockets DMA-1348x and DMA-1186x, I understand that the latter is about in final shape and you should hear from the Production Expansion Division in the near future.

Once again our thanks and wishes for important production from your various uranium operations.

Yours very truly,

/s/ Weston Bourret BF 8/22

Weston Bourret, Chief
Minor and Rare Metals

EGordon/mh 8-21-51
cc: Adm. Read. File
Reports and Records
Lyon
Bourret
Keiser-Hosted, USGS
Field Team, II
DMA docket files

FILE COPY
SURNAME:

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

AUG 22 1951

Lordsmith 8-21-51
Mr. Dillon
Resources and Resources
Lyon
Mourer
Assistant Sec. D.C.
Field Team, II
The Codes Files

FILE COPY
SURNAME:
140
Koontz
Liebert

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

August 21, 1951

Q.E.C.

Memorandum

To: Director, Production Expansion Division

From: Acting General Counsel

Subject: Elkhorn Mining Company exploration contract -- Docket No. DMA-1186X

The contract in the subject case is approved as to form and legality subject to execution by the parties.

The contract should be dated when it is delivered to the operator.

Your file is returned herewith.

J. L. Hofflund

John G. Liebert, Acting for
J. L. Hofflund, General Counsel

Attachment

CJKoontz/ema

Copy to: Reports & Record Unit
C. J. Koontz
J. L. Hofflund
Chron.

FILE COPY
SURNAME:

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

Cc:cooney/ona

Copy to: Reports & Accounting Unit
[illegible] Coons
[illegible] Hoffman
[illegible]

DEFENSE MINERALS ADMINISTRATION

97022

PRODUCTION EXPANSION DIVISION

EXPLORATION LOANS

Name of Company and Address: Elkhorn Mining Company, Boulder-Bank Building, Boulder, Montana

Name of Mine and Location Montana, Beaverhead County

Docket No. D.M.A. 1186X Date received by P.E.D. 7-26-51

Metals or Minerals involved Thorium

Amount of Total Project: $10,215.00

Government participation, percent and amount 90%, $9,193.50

Number of subprojects in total application 2

Type of Exploration	Feet	Cost per foot	Total cost
Preparatory & Rehabilitation			
Equipment			
Shaft sinking & winzes			
Drifts and crosscuts			
Raises			
Diamond or churn drilling	1,350	$5.50	$7,425.00
Other Bulldozer-trenching	700		$840.00

Comments on Contract Assays of surface, core and dredge samples: $750.00
Supervision and sampling $1200.00

Date sent to Applicant for signature

Date returned to P.E.D.

Date sent to Legal 8-17-51

Date signed by Administrator

Additional remarks:

Interior—Duplicating Section, Washington, D. C.

Signed Jacob W. Ault.

ELKHORN MINING COMPANY Elkhorn Mining District - - Elkhorn, Montana . . . . .

PHONE 2121 . . . OFFICES: Boulder Bank Building BOULDER, MONTANA

Files

August 14th, 1951.

Mr. Weston Bourret, Chief,
Minor and Rare Metals,
Defense Minerals Administration,
U. S. Department of the Interior,
Washington 25, D. C.

Re: Uranium
DMA-1348X
DMA-1186X

Dear Mr. Bourret:

This is to acknowledge and thank you for your letter of August 10th, received here this morning. We appreciate word re the foregoing applications and that they are now with the contract division awaiting finalization. We also appreciate the volume of applications your departments must be handling. We concur with whatever initial development steps that are providdd for in contracts for DMA-1348X, DMA-1186 X, and Free Enterprise DMA-1177X, as it is our desire to spend no more of our money nor of the governments money than is necessary to prove the presence of commercial uranium orebodies.

The Free Enterprise uranium property near Boulder, Montana is disclosing first primary uraninite ore with some continuity and we are endeavoring to ship a railroad car of higher grade ore than we have heretofore shipped. For the information of your department we are forwarding to you by this mail parcel post three ore specimens, one showing autunite, one pitchblende, one uraninite from the Free Enterprise. The uraninite is the last and deepest ore mined last week. The pitchblende specimen shows a reading of 20.0 Mr/Hr on Geiger, likewise high Scintillometer count, the uraninite 5.0 Mr/Hr. The uraninite discovery was made following development work between two aplitic sills, impervious formations within the monzonite and of most importance proved the existence of primary material at greater depth. We feel that we may now more properly make selections of diamond drill holes anticipated.

Our main thought and concern at this time is relative to the weather ahead for the Forty-Niner uranium, DMA-1348X, and the Last Chance thorium-uranium-rare earths property, DMA-1186X. These two properties lie at higher elevations and snows for Montana are not too far distant. As you have undoubtedly have heard we have two seasons in Montana, July and winter. So with this in mind, if there be a chance to give consideration to contract operations such will be appreciated.

Again many thanks for the word conveyed in your letter of the 10th.

Sincerely,

Elkhorn Mining Company,

Wade V. Lewis

Wade V. Lewis, Pres.

cc Mr. Tom Lyon, Wn. D. C.

330
FILE COPY
SURNAME:

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

Gordon
Bourret

AUG 10 1951

Mr. Wade V. Lewis, President
Elkhorn Mining Company
Boulder Bank Building
Boulder, Montana

Re: Uranium
DMA-1348x
DMA-1186x

Dear Mr. Lewis:

It is a pleasure to hear that you have found high grade uraninite at the Free Enterprise, I will be interested in receiving additional information on this discovery and your ideas concerning the possibility of an important tonnage being developed.

Your applications, DMA-1348x in the approximate sum of $12,800, and DMA-1186x approximately $10,000, are now with the contract division awaiting finalization. As that division is presently faced with a great backlog of work, it may be a few weeks before the contracts are completed.

Yours very truly,

BJ 8/10

/s/ Weston Bourret

Weston Bourret, Chief
Minor and Rare Metals

EGordon/mh 8-9-51
cc: Adm. Read. File
Reports and Records
Field Team II
Bourret
DMA docket files

ELKHORN MINING COMPANY • *Elkhorn Mining District - - Elkhorn, Montana* . . . . .

PHONE 2121 . . . OFFICES: Boulder Bank Building
BOULDER, MONTANA

August 3rd, 1951.

Mr. Tom Lyon,
Director, Supply Division,
Defense Minerals Administration,
U. S. Department of the Interior,
Washington, D. C.

DMA 1348X
DMA 1186X

Dear Mr. Lyon:

I know that you will be interested to know that we have as of the last few shifts encountered high grade black primary uraninite at the Free Enterprise (DMA 1177X). Based on this discovery, not yet seen by the AEC, we feel that an intelligent selection of a first diamond drill hole may be made in deeper exploration. We hope we can get going on the outside work before the snow flies which won't be long now.

Am writing to ask as to whether there appears to be any chance of favorable loan approval re the Forty-Niner uranium (DMA 1348X) or the Last Chance uranium-thorium-rare earth application (DMA 1186X). We are wondering whether to entertain suggestions for development from outside sources and due to work committments must make decisions soon.

Thanking you kindly for reply,

Respectfully,

Wade V. Lewis
(Pres. Elkhorn Mining Co.)

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 7 1951
LANDON F. STROBEL
Executive Secretary

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

July 25, 1951

Memorandum

To: Director, Production Expansion Division

From: Director, Supply Division

Subject: Elkhorn Mining Company, Last Chance Group, Beaverhead County, Montana, Rare Earths - DMA 1186x

Under date of May 7, 1951, the Elkhorn Mining Company submitted the subject application, DMA-1186x, requesting a project totaling $49,882.00, subsequently revised to a total of $10,215.00 for agovernment participation of $9,193.50 (90%). Applicant is prepared to invest $1,021.50.

The following factors have been carefully considered and weighed in reviewing this application:

1. Criteria

(a) New sources of uranium are desired.
(b) Field team, Region II states: "We believe, therefore, that testing of at least one of the deposits is worth while". Messrs. J. O. Hosted, AEC, and H.D. Keiser, USGS, state: "Step I of the program as outlined in Exhibit "A", is recommended. It is understood that no mining equipment is to be purchased for this phase of the work".
(c,d,e,f) Labor, equipment and water for the project are available. Power will be supplied by portable equipment. A good road leads to within 3 miles of the property.
(g) Applicants are regarded as competent to direct operations.

2. The ground to be included in the project consists of the following unpatented claims: Last Chance, Shady Tree and Brown Bear, located in Sections 20, 28, and 29 T10S, R15W, M.P.M., Beaverhead County, Montana. There are no liens nor encumbrances against the property. Landlord's Subordination Agreements are attached. Lease copy is in "Files".

3. The reduced project can be completed within six operating months, not to exceed twelve calendar months, following approval of the contract. It is expected to start work within 30 days after approval.

4. The project, as reduced, consists of bulldozing a series of trenches, totaling approximately 700 feet, across the outcrops and drilling 5 diamond drill holes from 200 to 410 feet long to an estimated total of 1,350 feet of hole.

5. Estimated Costs for the project are as follows:

700 feet of trenching by bulldozer	$ 840.00
1350 feet of diamond drill hole @$5.50 per foot	7,425.00
Assaying	750.00
Supervision, sampling and overhead	1,200.00
Total cost of project	$10,215.00

Therefore, it is recommended that the Production Expansion Division negotiate a formal contract MF-200 with the applicant, which will permit him to undertake the following specific exploration, along the lines described above:

(a) Bulldoze 400 feet of trenches on Last Chance and Shady Tree claims and 300 feet of trenches on Brown Bear Claim.
(b) Diamond drill 5 holes, 200 to 410 feet long, total length 1350 ft.
(c) Log cores, sample and assay cores, sludges and surface showings.

Tom Lyon

Tom Lyon, Director
Supply Division

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
So. 157 Howard Street
Spokane 4, Washington

July 20, 1951

Mr. Tom Lyon, Chairman
Coordinating Committee
Defense Minerals Administration
Department of Interior
Washington 25, D. C.

Re: Elkhorn Mining Company
Beaverhead County, Montana
Rare Earths, DMA Docket 1186X

Dear Mr. Lyon:

Enclosed are six copies of a revised contract, six copies of Exhibits "A", "B", "C", "D", "E", and a map of the Brown Bear claim showing the location of the proposed trenches.

We have discussed the revised contract with Mr. Lewis by telephone and he states that a road has already been built and that he will furnish any structure needed during the drilling program. The estimated time schedule is part of Exhibit "A".

Very truly yours,

Verne C. Fryklund, Jr.

Verne C. Fryklund, Jr.
For: A. E. Weissenborn
Executive Officer, DMA
Field Team, Region II

Enclosures

cc: L.F.Strobel
U.S.B.M. Spokane

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 23 1951
LANDON F. STROBEL
Executive Secretary

FILE COPY
SURNAME:

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

July 9, 1951

Gene
Bourret
Johnson for LB Wm
Rove

Mr. A. E. Weissenborn, Executive Officer
Defense Minerals Administration
South 157 Howard Street
Spokane, Washington

Re: Elkhorn Mining Company
Beaverhead County, Montana
Rare Earths, DMA docket 1186x

Dear Mr. Weissenborn:

The U. S. G. S. and A. E. C. at present recommend only step one of applicant's project, with which we are in accord.

We question the necessity of spending $3,000.00 on road work and another $2,000 for a 20' x 30' building in connection with a small program of trenching and diamond drilling. Possibly a modest allowance for transporting equipment, and a somewhat smaller building, would suffice.

We would appreciate your clearing up this point with the applicant, when instructing him to submit new copies of contracts (form MF-200) together with revised exhibits A through [illegible] covering the final revised step one. The maps already submitted are satisfactory, but a sketch map indicating location of the trenching to be done on the Brown Bear Claim is required. Six copies of all the above should be submitted.

An estimated time schedule to cover the above program should also be resubmitted. We enclose one copy of form MF-200 and exhibits (less maps) for your information.

Tom Lyon

Chairman, Coordinating Committee

Enclosure

EGordon/mh
cc: Adm. Read. File
Reports & Records
Lyon
Field Team II
Bourret
Files

Approved:

[illegible]
for the Bureau

Olaf N. Rove
for the Survey

not stripped in R.R.

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

FILE COPY

ELKHORN MINING COMPANY • Elkhorn Mining District - - Elkhorn, Montana . . . . .

PHONE 2121 . . . OFFICES: Boulder Bank Building
BOULDER, MONTANA

July 9, 1951

Mr. Tom Lyon, Director
Supply Division
Defense Minerals Administration
Department of the Interior
Washington 25, D. C.

Re: DMA-1186X
Last Chance Thorium-
Uranium-Rare Earths Group

Dear Mr. Lyon:

Herewith enclosed are six multiple originals of Landlord's Subordination Agreement for the Last Chance Thorium-Uranium-Rare Earths application signed by all five co-locators. There was some delay in securing this Subordination Agreement, due to the fact that the instrument had to be reviewed by attorneys in Dillon, Montana.

All signatures contained on the Landlord's Subordination Agreement are guaranteed by the undersigned. We are sorry for the delay of the past ten days, and we trust now that our files are complete so that your Department may give the application your final consideration.

Respectfully,

ELKHORN MINING COMPANY

Wade V. Lewis, Pres.

WVL:kl
Encl. Agreements

6/5/51

Defense Minerals Administration

7-2-51

Review of Application for Exploration Assistance

Docket No. DMA-1186

Commodity Rare Earth Ores

Total Amount $43,282.00

Govt. Participation $39,953.80

1. Name and Address of Applicant Elkhorn Mining Co.,

Boulder Bank Building, Boulder, Montana

2. Location of Property Beaverhead County, Montana

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

If not, application will be rejected.

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

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

a) Good

b) Poor

c) None

d) Don't know—needs field examination

e) Is there an alternative and favorable project? See Item 16. (If so, attach an explanation)

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

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

Does the lease have sufficient time to run to cover a future

productive period?

*question numbers are those of MF-103

7. Are subordination agreements necessary?_____

a) MF-201?_____

b) MF-202_____

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

a) Available manpower_____

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

c) Accessibility (question 12)*_____

d) Water (question 13)*_____

e) Power (question 13)*_____

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

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

_____

Is a field check needed on this point?_____

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

a) Is the project adequately described?_____

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

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

_____

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

If not, what part of it is?_____

_____

_____

_____

Is this part a worthwhile exploration project?_____

d) Are the cost estimates detailed?_____

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

e) Are the cost estimates reasonable?_____

f) Should more information be requested from applicant?_____

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

11. Exhibit B (question 23-d)*

a) Is it applicable?_____

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

c) Is a field check needed?_____

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

a) Is it applicable?_____

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

c) Are rents and charges reasonable?_____

d) Is a field check needed?_____ _____

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

a) Are there sufficient data?_____

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

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

d) Are the proposed wages and salaries reasonable?_____

e) Is a field check needed?_____

14. Exhibit E (question 23-c)*

a) Is it applicable? _____

b) Sufficient data? _____

c) Reasonable? _____

d) Field check needed? _____

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

(All exploration must be completed within two years)

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

17. ~~If field examination is needed do you have any special instructions for the field examination indicated by your answers to the foregoing questions?~~ , with exception of sand and gravel & smaller binding

* Step I of the program ~~in the total amount of $15,215.00~~, as outlined in Exhibit "A", is recommended. It is understood that no mining equipment is to be purchased by the applicant for this phase of the work.

Reviewed by: J. P. Fortier, AEC
J. H. Feier, U.S.G.S.

Date 7-2-51

97692

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

AIR MAIL

July 2, 1951

Q. E. C.

Uranium
DMA 1186X

Mr. Jade F. Lewis, President
Elkhorn Mining Company
Boulder Bank Building
Boulder, Montana

Dear Mr. Lewis:

Thank you very much for your wire of June 25 advising that the Elkhorn Mining Company concurs in the modified development program worked out after consultation with the DMA field engineers. While we have not as yet received the recommendations from the DMA Spokane Office, Region II, no doubt this material will be forthcoming before long. At such time we will be pleased to give your proposal our careful study and consideration.

Yours very truly,

Tom Lyon

Tom Lyon, Director
Supply Division

not stripped in R. R.

Bourret/bf
cc: Adm. Leading File
Lyon
Strobel
Field Team II
Keiser-Hosted
Bourret
Files

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

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

So. 157 Howard Street
Spokane 4, Washington

June 22, 1951

Mr. Landon F. Strobel
Executive Secretary
Defense Minerals Administration
Department of Interior
Washington 25, D. C.

Dear Mr. Strobel:

Enclosed are four copies of reports by Mr. Trites, and six copies of Exhibits "A", "B", "C", "D", and "E", and maps of the Last Chance property of the Elkhorn Mining Company, Beaverhead County, Montana, Docket No. 1186.

Will you please forward the above to the Minor and Rare Metals Branch.

Yours very truly,

A. E. Weissenborn
Executive Officer, DMA
Field Team, Region II

Enclosures

cc: U.S.B.M.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 28 1951
LANDON F. STROBEL
Executive Secretary

Preliminary Report on the Last Chance, Shady Tree, and Brown Bear Claims, Beaverhead County, Montana,

by: Al Trites, June 1951

June 8, 1951

MEMORANDUM

To: M. R. Klepper

From: Al Trites

Subject: Proposed D.M.A. exploration for thorium, uranium, and rare earths at the Last Chance and Shady Tree claims and the Brown Bear claim, Beaverhead County, Montana.

This is in reply to your telephone conversation of June 6 with Linc Page concerning proposed D.M.A. exploration of thorium, uranium, and rare earths at the Last Chance and Shady Tree claims and the Brown Bear claim, Beaverhead County, Montana. I understand the following plans have been proposed by the Owner:

1. A 45-degree inclined shaft is to be sunk to a depth of 100 feet in the best vein showing on the Last Chance claim, and drifts, 100 feet long, are to be extended in either direction along the vein

2. Six diamond drill holes are to be drilled, three on the Last Chance claim, two on the Shady Tree claim, and one on the Brown Bear claim. These holes are to have an inclination of -45° to intersect the vein at right angles, and are to intersect the vein between 150 and 300 feet below the surface.

I am in accord with these general plans if exploration is to be undertaken, and feel that the methods to be employed are practical from the standpoint of proving the inferred reserves, indicating additional reserves, and adding to our geologic knowledge of the thorium deposits in the Lemhi Pass district.

Exploration does not seem justified on the basis of the uranium content of the deposits, ranging from 0.001 to 0.008 percent uranium. Uraniferous rock of this grade is not considered ore under the present buying conditions. Because the rare earth content of these deposits is not yet known by the Geological Survey, an exploration program can hardly be considered on a basis of rare earths.

ON-SITE RPT.

The proposed exploration may be justified, however, on thorium if (1) the grade of the deposits, approximately 0.5 percent, is considered sufficient, (2) the inferred reserves of the deposits, 85,600 and 3,300 tons, are of sufficient size, and (3) the contained thorite and alteration products are considered desirable.

I believe, however, that bulldozer trenching should be included in the exploration, especially at the Brown Bear claim where it should precede all other work because of the limited exposures for planning diamond drill hole sites, the following suggestions are offered on the basis of known geologic conditions:

A. Bulldozer trenching.

Last Chance and Shade Tree claims.

At the Last Chance and Shady Tree claims, bulldozer trenching should be undertaken to indicate whether or not there is a southeast extension of the vein to establish continuity between the two known vein segments, to prove any northwest extension of the vein across the divide on the slope above North Frying Pan Creek where radioactive float is found, and to suggest more favorable drilling sites for two or more of the holes. The following trenching sites are recommended:

1. Present bulldozer trench south of the vein. This trench should be deepened to expose the vein if it is present. If the vein is cut, additional trenches, 50 feet apart, should be made southeast of this trench. At least 100 feet of trenching is necessary here.

2. A trench should be made midway between the two vein segments to determine continuity and composition of the vein. Approximately 50 feet of trenching will be necessary for this cut.

3. At least four bulldozer trenches should be made at spacings of 100 feet across the expected trace of the vein northwest of the north segment to uncover any vein extension. Each trench will probably be 100 feet long.

Brown Bear claim.

Bulldozer trenching should precede any diamond drilling at the Brown Bear claim to establish continuity

between the two vein exposures, to indicate the most favorable part of the vein to drill on a basis of thickness and grade, and to indicate extensions of the vein beyond the present exposures. The following trenching sites are proposed:

1. Bulldozer trenches could be made at intervals of 50 feet between the two exposures to prove the vein continuous. Ten trenches, each 50 feet long, should be necessary for this.

2. Trenches could be made at 50-foot intervals southeast of the present bulldozer trench and northwest of the outcrop to determine the length of the vein. At least two 50-foot trenches will be required for this work.

B. Underground exploration.

The proposed inclined shaft on the Last Chance claim is considered a satisfactory method of obtaining additional information of the vein at depth. A site approximately 100 feet south of the bulldozer trench across the vein is proposed. The dip of the vein is believed to be about 50° SW. at this point, and the inclination of the shaft could follow this dip. Drifts from the bottom of the inclined shaft at this point would explore the vein material at depth which contains a grade of 0.4 percent at the bulldozer trench and 0.1 percent thoria at the enlarged part of the outcrop south of the shaft.

C. Diamond drilling.

The proposed diamond drill holes could be so placed on the Last Chance and Shady Tree claims to explore the vein as shown in fig. 12, enclosed. The following table indicates the proposed drill sites shown in fig. 12:

Proposed diamond drill hole No.	Location	Approx. Altitude of collar (feet)	Bearing of hole	Inclination of hole	Calculated length to footwall of vein (feet)	Depth of vein from surface (feet)
1.	275 feet southwest of south end of south vein segment	7435	N. 34° E.	-45°	220	150
2.	545 feet southwest of south end of south vein segment	7395	N. 34° E.	-45°	410	300
3.	365 feet southwest of vein in bulldozer cut	7475	N. 40° E.	-45°	270	200
4.	190 feet southwest of vein in prospect pit	7550	N. 50° E.	-45°	200	150
5.	280 feet southwest of north vein segment	7645	N. 70° E.	-45°	250	150

Brown Bear Claim

The Brown Bear vein strikes N. 72° W. and dips 88° SW. The diamond drill holes should be located after continuity of the vein has been established by bulldozer trenching.

Sincerely yours,

Al Trites

1185x

Preliminary Report

Last Chance and Shady Tree Claims

Beaverhead County, Montana

by

A. E. Trites

1950

Location, ownership, and workings.--The contiguous Last Chance and Shady Tree claims are between North and South Frying Pan Creeks in secs. 21 and 28, T. 10 S., R. 15 W., principal meridian Montana. The two unpatented claims are owned by R. A. Wellborn of Armstead, Montana, and are under lease by the Elkhorn Mining Company of Boulder, Montana. Two bulldozer cuts, a 6-foot prospect pit, and numerous small pits have been made on the property.

Geology.--The Last Chance and Shady Tree claims are on a radioactive vein cutting fine-grained micaceous sandstone and argillite of the pre-Cambrian Belt series. Country rock outcrops are sparse in the area, as shown in fig. 11. Light gray to green micaceous sandstone crops out on a small knob northeast of the northernmost surface exposure of the vein, and has poorly-defined bedding which strikes N. 37° W. and dips 40° NE. This sandstone is cut by numerous small quartz veins from 1/16 to 1 inch wide. Sandstone beds strike N. 45° E. and dip 18° NW. in the prospect pit, where they apparently have been tilted. Jointing is well-developed in the sandstone, the two most prominent systems striking N. 50° W. and N. 80° E. and dipping 87° NE. and 83° SE., respectively.

Thorium deposits.--The radioactive vein is exposed discontinuously for approximately 800 feet on the surface, (fig. 12). A 160-foot interval of soil divides the vein exposures into two parts: a north segment, 120 feet long, and a south segment, 520 feet long. The north end of the south segment is exposed in a large prospect pit and is separated from the outcrop by about 45 feet of soil.

The south vein segment strikes generally N. 50° W. and dips 50° SW., where it is exposed in the bulldozer trench. It swings abruptly eastward at the north end and is exposed in the large prospect pit where it strikes N. 40° W. and dips 71° SW. The width of the south segment ranges from 3 feet in the prospect pit to 50 feet at the south end.

The north segment trends N. 15° E. and is lenticular in surface exposure, having a maximum width of 25 feet. These two segments are believed to be parts of the same vein, although dissimilar in trend and mineral composition. Float, similar to vein material of the south segment, was found between the north and south segments and northwest of the north outcrop on the timbered slope above North Frying Pan Creek. This float extends for several hundred feet down the slope, aligned northwest along the projected trace of the vein.

The south vein segment is composed of gray to pink quartz, barite, and thorite, cut by many veinlets of hematite and hydrous iron-oxides. Part of the vein is cellular, but no box-work structures

were noted. Small cavities are lined with bright, specular hematite crystals that are in many places partially coated with goethite. Barite occurs as crystals, less than 0.5 mm. in size. Two ages of quartz are indicated, a coarse-grained quartz cemented by a younger finer-grained quartz.

The thorite forms approximately 10 percent of some specimens, occurring as subhedral to anhedral crystals, having an average size of 0.02 mm. long and 0.005 mm. wide. The thorite is altered to hematite and goethite along basal cleavage planes.

The general mineral sequence is believed to have been quartz, barite, thorite, quartz, chalcedony, goethite, earthy hematite, specular hematite, and goethite.

A selected sample from the south outcrop, analyzed spectrographically by Tennyson Myers of the U. S. Geological Survey Trace Elements laboratory contained the following:

Yittrium group	Lanthanum group	Neodidymium group	Calcium	Barium	Strontium
0.0X	0.0X	0.X	0.0X	0.X	0.00X

The neodidymium group is the most abundant of the rare-earths. Neodidymium has not been found in thorite from the Trapper No. 1 and the Brown Bear claims, and the mineral or minerals containing it have not been determined. The very low percentage of the lanthanum group elements, including cerium, precludes the presence ofbastnaesite, cerite, and tysonite in the sample analyzed.

The vein material from the north outcrop consists of barite, quartz, and minor quantities of hematite, goethite, chalcedony, and thorite. White barite crystals, 0.5 mm. across, and quartz are cut by specular and red hematite veinlets, as much as 1.0 mm. thick. These hematite veinlets have rims of goethite and chalcedony. Chalcedony locally cements quartz fragments along the borders of hematite veinlets, and is locally cut by hematite. Goethite pseudomorphs, after a rhombohedral mineral, 1/2 to 3/4 inch across, were found on the dump of the large prospect pit. The original mineral may have been siderite or ankerite. The thorite occurs as an occasional crystal in the vein.

Most of the abnormal radioactivity is believed to be from thorite and possibly a secondary hydrate of thorium. The percent equivalent uranium, uranium, and determined and calculated thoria in samples from the Last Chance and Shady Tree claims is shown in table 1. Samples from the south outcrop contained from 0.1 to 2.4 percent thoria, calculated on the basis of the percent equivalent uranium and uranium. A 5-foot chip sample across the vein in the bulldozer trench contained 0.79 percent determined thoria, and a 15-foot chip sample across the hangingwall in the bulldozer trench is calculated to have contained 0.2 percent thoria.

The average grade of the south segment is believed to be approximately 0.5 percent thoria. The chip samples across the vein at the bulldozer trench indicate that this part of the vein contains a grade of about 0.4 percent thoria, and a chip sample across the south end of the outcrop indicates a grade of 0.1 percent thoria. Small, higher grade parts of the vein contain as much as 2.4 percent thoria, and are expected to increase the average grade to 0.5 percent thoria.

Reserves.--Thorium reserves at the Last Chance and Shady Tree claims are estimated to be in the order of 85,600 tons of rock containing 0.5 percent thoria. These reserves are contained in the south vein segment, assuming that it has a minable length of 535 feet, an average width of 20 feet, and a depth of 100 feet.

Table 1.-- Equivalent uranium, uranium, thoria, and calculated thoria, Last Chance and Shady Tree Claims, Beaverhead County, Montana.

Sample number	Location	Description	Equivalent uranium (percent)	Uranium (percent)	Thoria (determined) percent	Thoria (calculated percent)
AFT-S24-50	Small pit, southern segment.	Chip sample across cherty lens.	0.10	0.003		0.5
AFT-S25-50	Small pit, southern segment.	1-foot chip sample of vein.	0.43	0.005		2.4
AFT-S26-50	South segment below bulldozer trench.	1-foot chip sample of vein.	0.44	0.004		2.4
AFT-S32-50	Bulldozer trench.	5-foot chip sample across footwall of vein.	0.15	0.002	0.79	0.8
AFT-S33-50	Bulldozer trench.	Chip sample across hanging wall of vein.	0.041	0.001		0.2
AFT-S34-50	Northern segment.	Chip sample across vein.	0.009	.001		0.04
AFT-S35-50	South end, south segment.	Chip sample across vein.	0.014	.001		0.07

Preliminary Report on the Brown Bear Claim

Beaverhead County, Montana

by: A. E. Trites 1950

Brown Bear Claim

Location, ownership, and workings.--The Brown Bear claim is between North and South Frying Pan Creeks, about 2,000 feet southwest of their junction. It is in sec. 28, T. 10 S., R. 15 W., principal meridian Montana, in Beaverhead County, Montana. The claim was located in 1949 by R. A. Wellborn and associates of Armstead, Montana, and during the fall of 1950 was bein leased by the Elkhorn Mining Company of Boulder, Montana. One bulldozer trench has been made across the vein.

Thorium deposit.--A radioactive quartz-hermatite vein on the Brown Bear claim cuts pre-Cambrian micaceous argillite and interbedded fine-grained sandstone. The dark gray and red banded sandstone in the area between North and South Frying Pan Creeks strikes from N. 12° to 46° W., and dips from 24° to 60° NE.

The quartz-hermatite vein, which strikes N. 72° W. and dips 88° SW., is exposed in an outcrop and in the bulldozer trench, 550 feet to the southeast. It is 10 inches thick in the trench and 3 feet thick in the outcrop. The vein is tan to reddish brown in color and is composed of iron-stained fractured quartz cut by specular hematite veinlets. Small cavities in the quartz contain plates of specular hematite and hydrous iron-oxide coatings.

Miss Kiyoka Onada of the U. S. Geological Survey Laboratory examined a selected hand-picked sample from the vein and found thorite and possibly secondary thorium oxides to be the chief radioactive minerals. Spectrographic analyses on the heavy minerals did not detect the presence of any rare earth elements or uranium.

A chip sample across the Brown Bear outcrop contained 0.017 percent equivalent uranium and 0.001 percent uranium. This sample is calculated to have contained about 0.1 percent thoria. A selected sample from the bulldozer trench analyzed by Miss Onada was made up of 30 percent heavy minerals and 70 percent light minerals containing 2.9 percent and 0.54 percent equavalent uranium respectively. The bulk sample is calculated to have contained 1.25 percent equavalent uranium. Assuming that the uranium content is negligible, the sample is calculated to have contained 6.9 percent thoria.

The average grade of the vein is believed to be somewhat higher than 0.1 percent thoria and considerably less than 6.9 percent thoria. An average grade of 0.5 percent thoria is believed to be a reasonable estimate.

Reserves.--The Brown Bear vein is estimated to contain 3,300 inferred tons of rock having an average grade of 0.5 percent thoria and 0.001 percent uranium. The vein is assumed to be continuous between the two exposures, 550 feet apart; the average width is assumed to be 1.5 feet, slightly less than the average width in the exposures; and the depth is assumed to be 50 feet.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.
So. 157 Howard Street
Spokane 4, Washington

June 22, 1951

Memorandum

To: Tom Lyon, Chairman
Coordinating Committee
Defense Minerals Administration
Department of Interior
Washington 25, D.C.

From: Field Team, Region II

Subject: Last Chance, Shady Tree, and Brown Bear Claims of Elkhorn Mining Company, Beaverhead County, Montana
DMA Docket No. 1186

The above docket was referred to the Field Team with a request that the property be examined by a geologist from the Survey's Reconnaissance Unit. This property had been examined last summer by A. E. Trites of Mr. Page's unit, and a brief report was obtained, four copies of which are attached.

Trites' samples, all of which were from the surface, averaged about 0.5 percent ThO_2 and very low amounts of uranium. Rare earths were very low. Assays submitted by the applicant show much higher amounts of ThO_2 and rare earths, and some of Trites' samples assayed around 2 percent ThO_2.

There is a very extensive area in the vicinity several miles long in which similar deposits are found. Furthermore, there is a possibility that some of the Thoria and rare earths may have been removed by leaching. We believe, therefore, that testing of at least one of the deposits is worthwhile. Thurlow, the AEC geologist, is in agreement.

You will note that the first part of the project will consist of trenching and diamond drilling. Shaft sinking and drifting are dependent upon encouraging drilling results.

On the basis of Trites' report and other consideration, some changes have been made on the applicant's original proposal. These have been discussed with him by phone and have his approval.

Landlord's Subordination Agreements are lacking, but will be forwarded by the applicant.

By Field Team, Region II

A. E. Weissenborn

A. E. Weissenborn, Exec. Officer
(U. S. Geological Survey)

M. E. Volin

M. E. Volin, Member
(U. S. Bureau of Mines)

Enclosures

cc: U.S. Bur. Mines
Spokane, Wn.

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO Mr. W. Barnet DATE: 6/20/51

FROM : JO Hosted

SUBJECT: DMA-11868

We have already acted on this application.
These forms should be filed with ~~other~~ forms
MF103, covering this property

FILE COPY
SURNAME:

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

June 14, 1951

Mr. Wade V. Lewis, President
Elkhorn Mining Company
Boulder Bank Building
Boulder, Montana

Subject: DMA-1186X
Re: Exploration Loan -
Last Chance Group

My dear Mr. Lewis:

Receipt is acknowledged of your application and attachments of May 23, 1951 for an exploration loan under the Defense Production Act of 1950.

The application was assigned Docket Number DMA-1186X and referred to Mr. Weston G. Bourret, Acting Chief, Minor and Rare Metals Branch on May 18, 1951.

In any future correspondence relating to your application, kindly refer to DMA-1186X.

Sincerely yours,

LANDON F. STROBEL
jc
Landon F. Strobel
Executive Secretary

L. F. Strobel:jc
cc: Strobel
File
Bourret
Lyon

FILE COPY
SURNAME:

Bourret file
Memo in file from Kaiser to Hosted & Kline

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

Mailed 6/11/51

June 4, 1951

AIR MAIL

Mr. A. E. Weissenborn
Executive Officer, Region II
Defense Minerals Administration
South 157 Howard Street
Spokane, Washington

Re: Elkhorn Uranium
Boulder, Montana
DMA Docket No. 1186

Dear Mr. Weissenborn:

We are returning herewith two copies of application (MF-103) of the Elkhorn Mining Company for exploration assistance in the amount of $49,882.

Both the Atomic Energy Commission and Defense Minerals Administration conclude that a field examination is indicated.

The proposed exploration program includes diamond drilling, shaft sinking and drifting. After reviewing this proposal if you find there is sufficient evidence for approving a project kindly make specific recommendations regarding the drilling program and state if you believe the diamond drilling should precede shaft sinking.

In line with the procedurial instructions concerning fissionable materials please call on Lincoln Page, USGS, for expert geologic advice in the event this is required.

Very truly yours,

Tom Lyon
Chairman, Coordinating Committee

Approved:

Lowell B. Moon
For the Bureau

For the Survey

WBourret/GMcC

cc: Files
Adm. Reading File
Mr. Strobel
Mr. Lyon
Mr. Moon
Mr. Rove

cc: Mr. Hosted -
Mr. Kaiser
Mr. Bourret(2)

DMC 1186

FILE COPY
SURNAME:

Bourret.
Rove
Moon

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

June 4, 1951

Mr. Wade V. Lewis, President
Elkhorn Mining Company
Boulder Bank Building
Boulder, Montana

Re: DMA Docket No. 1186

Dear Mr. Lewis:

Your application dated May 7, 1951 for exploration funds in the amount of $49,882 has been referred to the Minor and Rare Metals Branch for review.

In order to reach a decision on your proposition additional information is required. We are therefore sending your docket to Mr. A. E. Weissenborn, Executive Officer, Region II, South 157 Howard Street, Spokane, Washington, with the request that the necessary information be supplied. Should you have any questions please contact Mr. Weissenborn direct.

Very truly yours,

Tom Lyon, Director
Supply Division

WBourret/GMcC

cc: Files
Adm. Reading File
Mr. Strobel
Mr. Lyon
Mr. Moon
Mr. Rove
Mr. Hosted-Mr. Kaiser
Mr. Bourret (2)
Field Team, Region II

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Mr. W. Bonnet DATE: May 25, 1951

FROM : J.H.D. Keiser

SUBJECT: DMA 1186 - Elkhorn Mining Company, Boulder, Montana

I recommend that the subject application be referred to the appropriate field team.

FILE COPY
SURNAME:

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

May 23, 1951

Mr. Wade V. Lewis
President
Elkhorn Mining Company
Boulder Bank Building
Boulder, Montana

Subject: DMA-1186X
Re: Exploration Loan
Last Chance Group

My Dear Mr. Lewis:

Receipt is acknowledged of your application and attachments of May, 1951 for an exploration loan under the Defense Production Act of 1950.

The application was assigned Docket Number DMA-1186X and was referred to Mr. Weston G. Bourret, Chief, Minor and Rare Metals Branch on May 18, 1951.

In any future correspondence relating to your application, kindly refer to DMA-1186X.

Sincerely yours,

LANDON F. STROBEL

Landon F. Strobel
Executive Secretary

LFSTROBEL:mab
cc: Strobel-2
Files
Bourret
Lyon

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Mr. W. Barnett

DATE: 5/22/51

FROM : Jo. Histed

SUBJECT: DMA #1186

Information received by telephone from AEC office at Spokane.
Up to 2 wks ago, shipped 4 cars to Vitro Chemical Co at Salt Lake City.

Weissenborn, Thurlow & Lewis have discussed the property.
Thurlow suggested $15,000 loan.

5/23/51. Mr. Faulkner of AEC heard that the last shipment from Elkhorn was rejected - too low grade.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

So. 157 Howard Street
Spokane 8, Washington

May 10, 1951

Memorandum

To: Landon F. Strobel

From: A. E. Weissenborn

Subject: Transmittal of Forms MF-100 and MF-103 pertaining to Last Chance property of Elkhorn Mining Company.

Enclosed are four copies each of Forms MF-100 and MF-103 pertaining to the Last Chance group of claims near Armstead, Beaverhead County, Montana, which are under lease and option to the Elkhorn Mining Company of Boulder, Montana. The applicant, Elkhorn Mining Company, is requesting Government participation to the extent of 90 percent of $49,882 in a proposed exploration project for thorium, uranium, and rare earth minerals. In an attached letter of transmittal by the applicant request is also made for serial numbers for the Last Chance operation as well as for the Free Enterprise operation concerning which copies of MF-100 were submitted to you on May 8.

The Last Chance group of claims was studied last summer by Mr. A. F. Trites, a member of the Trace Elements Reconnaissance Group of the Geological Survey in Denver. Although we do not have Mr. Trites' report, it is our impression that he considered the deposit on the Last Chance property to be the most favorable of a number of similar deposits in western Beaverhead County and that it warranted further exploration. We, therefore, suggest that before a final decision is reached this proposal be referred to Mr. Trites through Mr. L. R. Page of the Trace Elements Reconnaissance Group in Denver.

Please note that this is the second exploration proposal submitted by the Elkhorn Mining Company within the past few days. The two proposals refer to separate properties in different parts of Montana, and each should be judged on its own merits.

A. E. Weissenborn

A. E. Weissenborn
Executive Officer, DMA
Field Team, Region II

Enclosures

cc: L. R. Page
Mr. Thurlow A.T.C.
Mr. Volin U.S.B.M.

April [illegible], 1[illegible]

[illegible] Land Administration,
U. S. Department of the Interior,
Washington, D. C.

Through: R. [illegible] Eisenhorn,
Executive Officer, [illegible],
[illegible], Washington.

Gentlemen:

Herewith [illegible] are [illegible] copies, executed by the Climax Lead Mining Company, [illegible] Jefferson County, [illegible] (re Free Interprise mining property) [illegible] to R. [illegible] Eisenhorn, Executive Officer, the Bureau of Land Administration, Field Term, Region II, Portland, Oregon, [illegible].

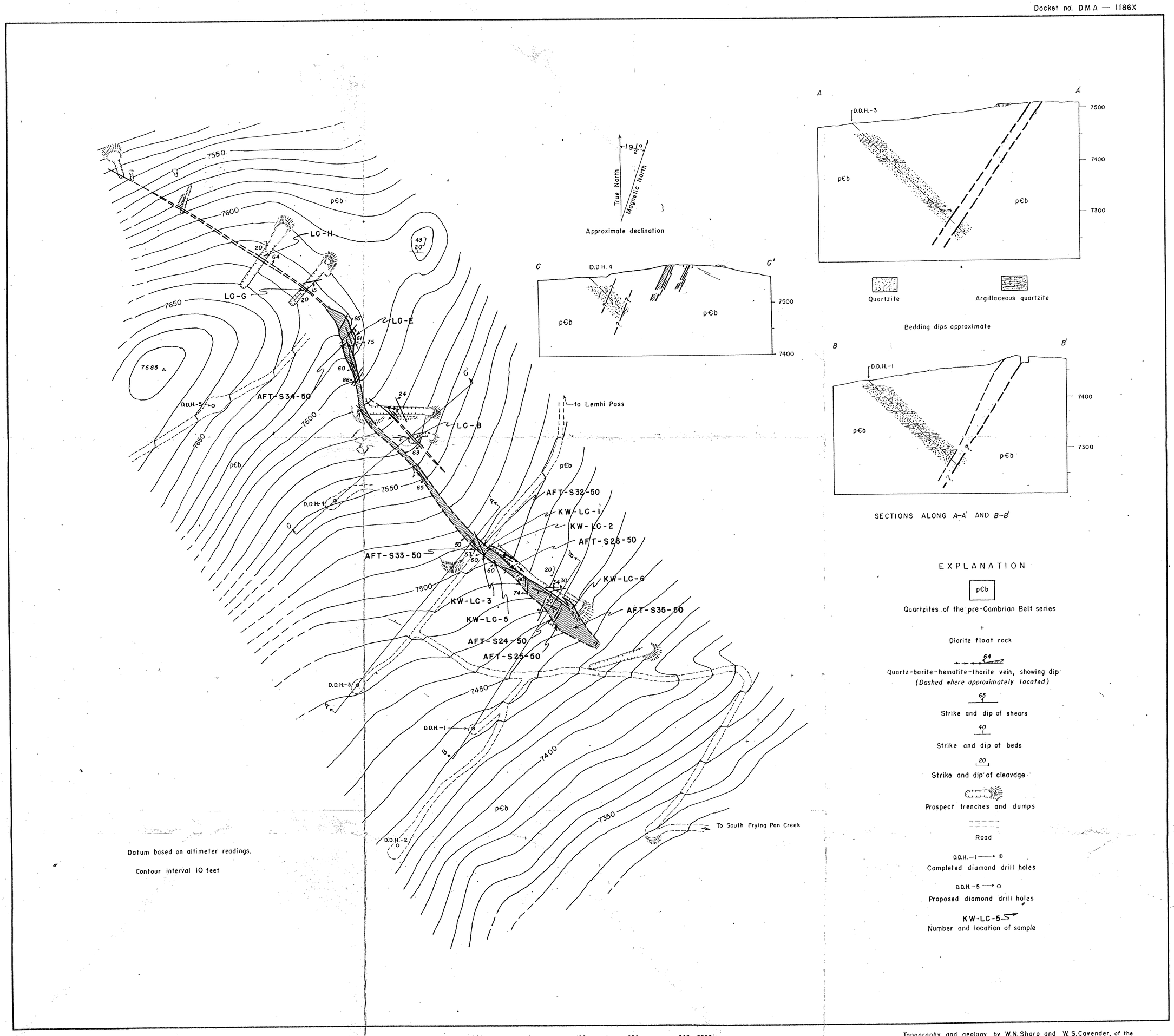
This letter is to [illegible] application at this time for certain number of numbers for operations of the Climax Lead Mining Company, with particular reference to the following properties:

1. Free Enterprise Lode Group: [illegible] Co., Oregon. (Primary producer).
2. Last Chance Lode Group: [illegible] Co., Oregon. (Thorium, uranium, rare earth group including cerium, lanthanum, [illegible] of yttrium, yttrium).
3. Climax Lode: [illegible] Co., Oregon. (Lead, zinc, silver).
4. Outlying [illegible] Executive Claims and properties in Jefferson and Deschutes Counties interested [illegible] to [illegible] operations [illegible] Red Rock, [illegible] Hood, [illegible] the Climax. (Contact the Executive Officer is.)

Respectfully submitted,

Climax Lead Mining Company,

[illegible], President.



Topography and geology by W.N. Sharp and W. S. Cavender, of the U. S. Geological Survey, August 1952, with modifications by F.C. Armstrong.

FIGURE 3—GEOLOGIC MAP OF THE LAST CHANCE VEIN, BEAVERHEAD COUNTY, MONTANA

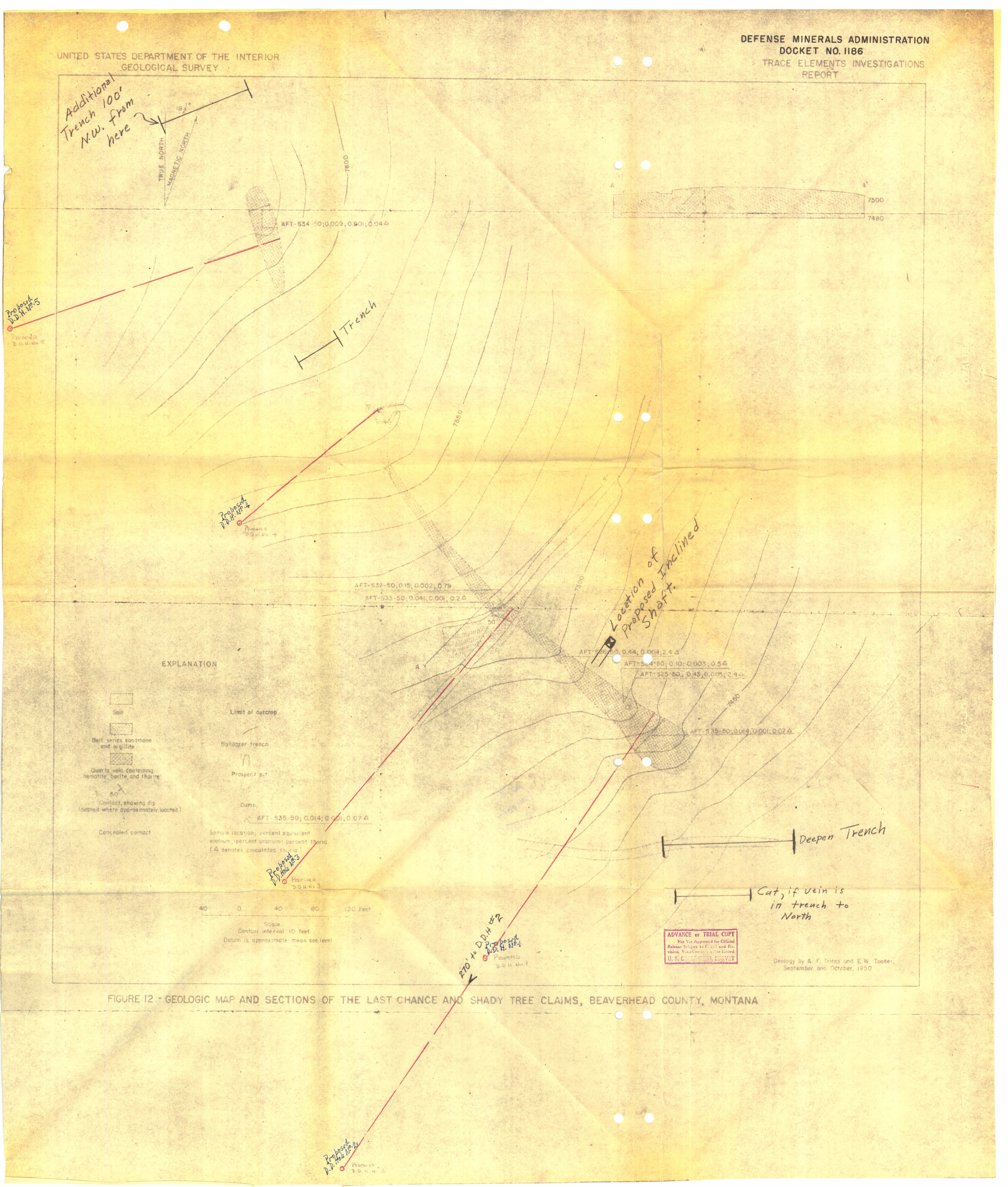


FIGURE 12 - GEOLOGIC MAP AND SECTIONS OF THE LAST CHANCE AND SHADY TREE CLAIMS, BEAVERHEAD COUNTY, MONTANA