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

RECEIVED
SEP 26 1955

224 New Customhouse
Denver 2, Colorado

September 21, 1955

Memorandum

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

From: Field Team, Region III

Subject: Joint Report of Examination, DMEA Docket 3725 (Thorium-uranium-rare earths-lead) Phillip M. Kleck and Associates, Hardin claims group, Custer County, Colorado.

Enclosed are the original and three copies of a joint report by W. D. McMillan, U. S. Bureau of Mines and J. E. O'Rourke, U. S. Geological Survey, covering their examination of the subject application.

Also included is a memorandum of transmittal and comment by E. N. Harshman and John F. Shaw.

The examining team concludes that the deposit is too small and low grade to contain appreciable reserves of thorium, uranium, rare earths and lead and they therefore recommend that the application be denied.

We concur with this recommendation.

As requested in your letter of July 20, 1955, we are returning herewith the following documents:

1. Four reports of analyses covering seven samples.
2. Letter, dated July 5, 1955 from the applicant, in answer to your letters of April 8th and June 24th.

W. M. Traver

W. M. Traver

E. N. Harshman

E. N. Harshman

Enclosures

7/15/55 gla

DMEA
Date Rec'd.
SEP 21 1955
BUREAU OF MINES
Denver, Colorado

RECEIVED
JUL 15 1955

Rye, Colorado
July 5, 1955

Defense Minerals Exploration Administration
Washington 25, D.C.

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SEP 26 1955

Re: Docket No. D.M.E.A.-3725
(Thorium, Lead, Uranium & Rare Earths)
Hardin Group
Custer County, Colorado

DMEA
Date Rec'd.
JUL 22 1955
BUREAU OF MINES
Denver, Colorado

Dear Sir:

(1) Enclosed is the additional information you requested. The enclosed map shows the exact location of the Hardin Group of claims. The additional page and book number for the recording of each of the additional claims are herewith submitted. This group of claims are all surveyed and tied the U.S. General Land Office Survey (1931), Section corners intersections of sections No. 24, 25 and 30, Township No. 23 South, Range No. 69 and 70 West. The inclined shaft is 750 ft. South from section corner. The range line 69 and 70 split Hardin No. 1, 2, 4 and 17 in half.

This is the additional required recording

Acc. Mar 1-59

data:

Claim No.	Recorded Date.	Certificate No.	Book No.	Page
Hardin #2	April 30, 1955	86603	121	268
Hardin #3	April 30, 1955	86604	121	270
Hardin #4	April 30, 1955	86605	121	272
Hardin #6	April 30, 1955	86606	121	274
Hardin #7	April 30, 1955	86607	121	276
Hardin #8	April 30, 1955	86608	121	278
Hardin #9	April 30, 1955	86609	121	280
Hardin #11	April 30, 1955	86610	121	282
Hardin #12	April 30, 1955	86611	121	284
Hardin #13	April 30, 1955	86612	121	286
Hardin #14	April 30, 1955	86613	121	288
Hardin #15	April 30, 1955	86614	121	290
Hardin #16	April 30, 1955	86615	121	292
Hardin #17	April 30, 1955	86616	121	294
Hardin #18	April 30, 1955	86617	121	296
Hardin #19	April 30, 1955	86618	121	298
Hardin #20	April 30, 1955	86619	121	300
Hardin #21	April 30, 1955	86620	121	302
Hardin #22	April 30, 1955	86621	121	304
Hardin #23	April 30, 1955	86622	121	306
8/7/55 Hardin #24	April 30, 1955	86623	121	308
8/7/55 Hardin #25	April 30, 1955	86624	121	310

All claims filed and recorded in

22 + 1 = 23 total

the County of Custer and State of Colorado.

No. 10 Hardin claim lies to the Northeast of this group $\frac{3}{8}$ mile. No. 10 Hardin claim will not be included in this agreement. No. 5 claim has been omitted and replaced by No. 25 as determined by map.

2. (a)

The spectrographic analysis of sample A from the Hardin No. 1 Claim was taken from the inclined shaft. It is a representative channel sample across the vein near surface in shaft.

(b)

Bureau of Mines analyses of samples Nos. Up-3112-2 (A) and (B) are not from the Hardin group. They are from the Aspen group of claims (group of six) located two miles north of Hardin group, Township No. 23 South, Range No. 69 West, Sections twelve and thirteen.

(c) Bureau of Mines radiometric analysis of Samples No. 1 and 2 were from the Hardin No. 1 claim from the prospect

pit or bulldozer cut across the vein. One prospect pit close to the inclined shaft, the other prospect pit at east end of No. 1 Hardin Claim. These were selected samples by instrument.

(d)

Atomic Energy Commission chemical and radiometric analyses of the two surface samples were from the Hardin No. 1 claim, taken from the bulldozer trench or prospect pit. These were taken as a representative channel sample across the vein.

Sincerely
Philip M. Klock
Box 22
Rye, Colo.

DMEA
Date Rec'd.
JUL 22 1955
BUREAU OF MINES
Denver, Colorado

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SEP 26 1955

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 15 1955

Mining Division
Region IV

224 New Customhouse
Denver 2, Colorado

November 30, 1954

DMEA
Date Rec'd.
RECEIVED
JUL 22 1955 SEP 26 1955
BUREAU OF MINES
Denver, Colorado

Mr. P. M. Klock
Box 22
Rye, Colorado

Dear Mr. Klock:

This will acknowledge your postal card and the sample which you requested be identified.

The material comprising your sample was tested for radioactivity and No. 1 sample was estimated to contain approximately 2% U_3O_8e. No. 2 sample was estimated to contain about 1.75% U_3O_8e.

Very truly yours,

W H King

W. H. King
Chief, Mining Division

Hardin #1 bulldozer cuts
selected samples

A. H. HOLLAND, PRES.-TREAS. EDMUND E. PHILLIPS, VICE-PRES.—GEN. MGR. M. E. HOLLAND, SECRETARY

OUR MOTTO:—WHAT THERE IS IN IT, NO MORE, NO LESS.

THE COLORADO ASSAYING COMPANY

(Incorporated)

ASSAYERS AND CHEMISTS

2013 WELTON STREET

COMPLETE ANALYSIS ON ANY ORE [redacted]: $25.00

THIS ANALYSIS WILL DETECT AND REPORT EVERY ELEMENT OR METAL THAT MAY BE PRESENT IN THE ORE, TOGETHER WITH THE PERCENTAGE AND VALUE OF EACH. IT IS THE MOST SATISFACTORY ANALYSIS TO APPLY ON ALL UNKNOWN ORES, WHOSE GENERAL APPEARANCE INDICATES PROBABLE VALUES

QUALITATIVE ANALYSIS $5.00

THIS ANALYSIS WILL DETECT AND REPORT THE ABSENCE OR PRESENCE OF THE FOLLOWING 23 METALS: LEAD, SILVER, MERCURY, GOLD, BISMUTH, ARSENIC, ANTIMONY, COPPER, CADMIUM, TIN, ALUMINUM, MANGANESE, COBALT, ZINC, CHROMIUM, STRONTIUM, IRON, NICKEL, BARIUM, CALCIUM, MAGNESIUM, TUNGSTEN AND MOLYBDENUM.

DENVER 1, COLO., June 7, 1954.

Report on Spectrographic Analysis submitted by Mr. Chas. Akin, Wetmore, Colorado.

* *

DMEA
Date Rec'd.
JUL 22 1955
BUREAU OF MINES
Denver, Colorado

"Sample A" Hardin #1

ELEMENTS PRESENT	APPROXIMATE PERCENTAGES
Silicon	major
Aluminum	5.-10.
Iron	5.-10.
Calcium	1.-5.
Barium	1.-5.
Magnesium	1.-3.
Sodium	1.-5.
Potassium	.5-2.
Manganese	.2-.5
Titanium	.5-1.
Thorium	.2-.5
Cerium	.05-.2
Gadolinium	.01-.05
Lanthanum	.01-.05
Neodymium	.01-.05
Praseodymium	.01-.05
Samarium	.01-.05
Yttrium	.01-.05
Other Rare Earths	traces
Chromium	.001-.01
Cobalt	trace
Copper	.001-.01
Lead	.001-.01
Nickel	.001-.01
Vanadium	.001-.01
Zirconium	.01-.05
Uranium	trace

Gold trace Silver trace

Sample

From Inclined Shaft Channel sample near surface

REMARKS: This sample consists chiefly of pale pink Feldspars (sodium potassium aluminum silicate), hard clear Quartz (silica) and gray-green Andesite (complex aluminum silicate with iron, magnesium, calcium, etc.).
The brown mineral is Limonite (hydrous iron oxide).
The heavy white mineral is Barite (barium sulphate).
The Rare Earths and Thorium are more or less disseminated throughout the sample, rather than occuring in a high grade mineral.

Respectfully submitted,

THE COLORADO ASSAYING COMPANY

Edmund Phillips

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Colorado Mineral Industries
RECEIVED
MAR 15 1955

1600 East 1st South
Salt Lake City 1, Utah

12/10/54

DMEA
Date Rec'd.
JUL 22 1975
BUREAU OF MINES
Denver, Colorado

P. M. Klock
P. O. Box 22
Rye, Colorado

RADIOACTIVE SAMPLE REPORT

Sample Reference No.: UP-3112-2

Name and Location of Property:

-

Nature and Analysis of Sample: Two pulp samples.

A - 5.16% ThO_2 equivalent
B - 4.44% " "

A qualitative chemical test for uranium was negative. A gas collection test indicates that the radioactivity is due entirely to thorium.

We suggest you contact the U. S. Atomic Energy Commission at Grand Junction, Colorado for information and literature concerning the future of thorium.

Remarks:

Sample from same area but not from Hardin Group. From Aspen Group 2 miles North of Hardin Group.

(Examined by H. C. Meeves, Petrographer)

Signed Heber E. Peterson
Heber E. Peterson, Chief
Chemical & Physical Analysis Branch

Form No. Met IV-1
(June 1953)

Please return this analysis.

UNITED STATES
ATOMIC ENERGY COMMISSION
GRAND JUNCTION OPERATIONS OFFICE
GRAND JUNCTION, COLORADO

IN REPLY REFER TO: MD:JNW

CR-MD-179-A & B

DMI
Date R d.
JUL 22 55
BUREAU OF MINES
Denver, Colorado

June 7, 1954

This is a surface analysis from the Hardin #1 claim
This shows the uranium content from the surface has been leached away leaving the more stable thorium.
From bulldozer cuts.
Channel samples.

Mr. Richard Hardin
Rye
Colorado

Re: CRE SAMPLES

Dear Mr. Hardin:

We have received the following assays on the samples of ore which you submitted to this office for determination of the uranium content. Following is the laboratory analysis:

Sample No.	U_3O_8	U_3O_8e*
CR-MD-179-A	0.001%	0.04%
CR-MD-179-B	0.005%	0.04%

*The amount of U_3O_8 as indicated on our radiation detection instruments. The variance between the equivalent uranium content (U_3O_8e) as determined radiometrically and the chemical analysis (U_3O_8) would indicate the specimen is out of equilibrium. Ores are purchased and paid for on the basis of the chemical analysis.

Very truly yours,

Charles A. Rasor, Chief
Development Branch
Mining Division

IN REPLY REFER TO:
DMEA
Date Rec'd.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Defense Minerals Exploration Administration
Denver Federal Center
Denver, Colorado

RECEIVED
SEP 26 1955

SEP 14 1955
BUREAU OF MINES
Denver, Colorado

September 14, 1955

TRANSMITTED
SEP 21 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: E. N. Harshman
John F. Shaw

Subject: DMEA Docket 3725 (Thorium-uranium-rare earths-lead)
Klock, Hardin, Akin, and Dekker, Hardin claim group,
Custer County, Colorado

Enclosed are the original and nine copies of a joint examination report by W. D. McMillan, U. S. Bureau of Mines, and J. E. O'Rourke, U. S. Geological Survey, covering their examination of the subject property.

The applicants propose to explore the Hardin claim group by 14 diamond drill holes at an estimated cost of $18,170.00.

The property was examined on August 10, 1955. The examiners conclude that the proposed exploration will not result in the discovery of significant amounts of thorium, uranium, rare earth, or lead ore, and they recommend denial of the application for exploration assistance.

We concur with this recommendation.

E. N. Harshman
E. N. Harshman
Member, Field Team

John F. Shaw
John F. Shaw
Supervising Mining Engineer

Enclosures (10)

ENHarshman:arh

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

RECEIVED
SEP 26 1955

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

DMEA Docket 3725
Klock, Ewalin, Alix, and Dehner
Marble Chain Group
Gunnison Mining District
Custer County, Colorado

Thorium-yttrium-rare earths-lead

Joint Engineering and Geologic Report

by

W. D. McMillan
U. S. Bureau of Mines

J. E. O'Rourke
U. S. Geological Survey

September 13, 1955

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ILLUSTRATIONS

Figure	Follows Page
1. Location map, Hardin Claim Group, Klock, Hardin, Akin, and Dekker, Ophir Mining District, Custer County, Colo.	2
2. Claim map, Hardin claim group, Phillip Klock & Associates, Custer County, Colorado	2
3. Proposed Exploration, Phillip Klock & Associates, Hardin No. 1 claim, Custer County, Colorado	3

DMEA DOCKET 3725
KLOCK, HARDIN, AKIN, AND DEKKAR
HARDIN CLAIM GROUP
OPHIR MINING DISTRICT
CUSTER COUNTY, COLORADO

RECEIVED
SEP 26 1955

Joint Engineering and Geologic Report

by

W. D. McMillan and J. E. O'Rourke

INTRODUCTION

Philip Klock, Richard Hardin, Charles Akin, and Ralph Dekkar applied for Defense Minerals Exploration Administration assistance in exploration for thorium, uranium, rare earths, and lead on the 24 claims in the Hardin group. Their proposal was for 14 diamond core drill holes of which 10 were inclined holes to cut a shear zone and four were vertical holes on outcrops. The estimated total cost was $18,170.00. The locations, inclination, and depths of the holes were not presented.

The property was examined on August 10, 1955, by a DMEA Region III examining team consisting of W. D. McMillan and John F. Albee of the Bureau of Mines and J. E. O'Rourke of the Geological Survey, and Alberto Maurique, Point IV trainee. They were accompanied by Charles Akin and Ralph Dekkar, two of the applicants.

The principal prospects are on the Hardin No. 1 claim where a two-compartment inclined shaft was sunk in the early part of the century and two bulldozer cuts were made by the applicants.

The formations on the claims are Precambrian granite gneiss traversed in places by fault shear zones.

Scintillometer investigations and sampling indicate that the deposit is too low grade to merit exploration with Government assistance.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The Burdin Claim Group consists of 24 claims located in sections 19 and 30, T. 23 S., R. 69 W., and sections 24 and 25, T. 23 S., R. 69 W., N.M.P.M. The claims are the Burdin 0, 1, 2, 3, 4, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, and 25 and contain approximately 480 acres, as shown in Figures 1 and 2. They cover a west trending ridge and a northeast ravine on a tributary of Ophir Creek, with a mean elevation of 10,000 feet and a relief of 1,000 feet. Two northwest ravines cut across the western claims, but the northeastern claims are on a gently sloping plateau, with a mean elevation of 10,250 feet.

The claims are reached by driving northwest from Rye on Colorado State Highway 165 for 20 miles to Fairview, thence westerly for 2 miles on a surfaced road, and thence 3 miles southwest on a steep truck trail to the claims (see figure 1).

There is a heavy cover of pine. The claims are in the Wet Mountains, with heavy rainfall during the summer months, and heavy snowfall during the winter months. Four-wheel-drive equipment is required to reach the claims during most of the year.

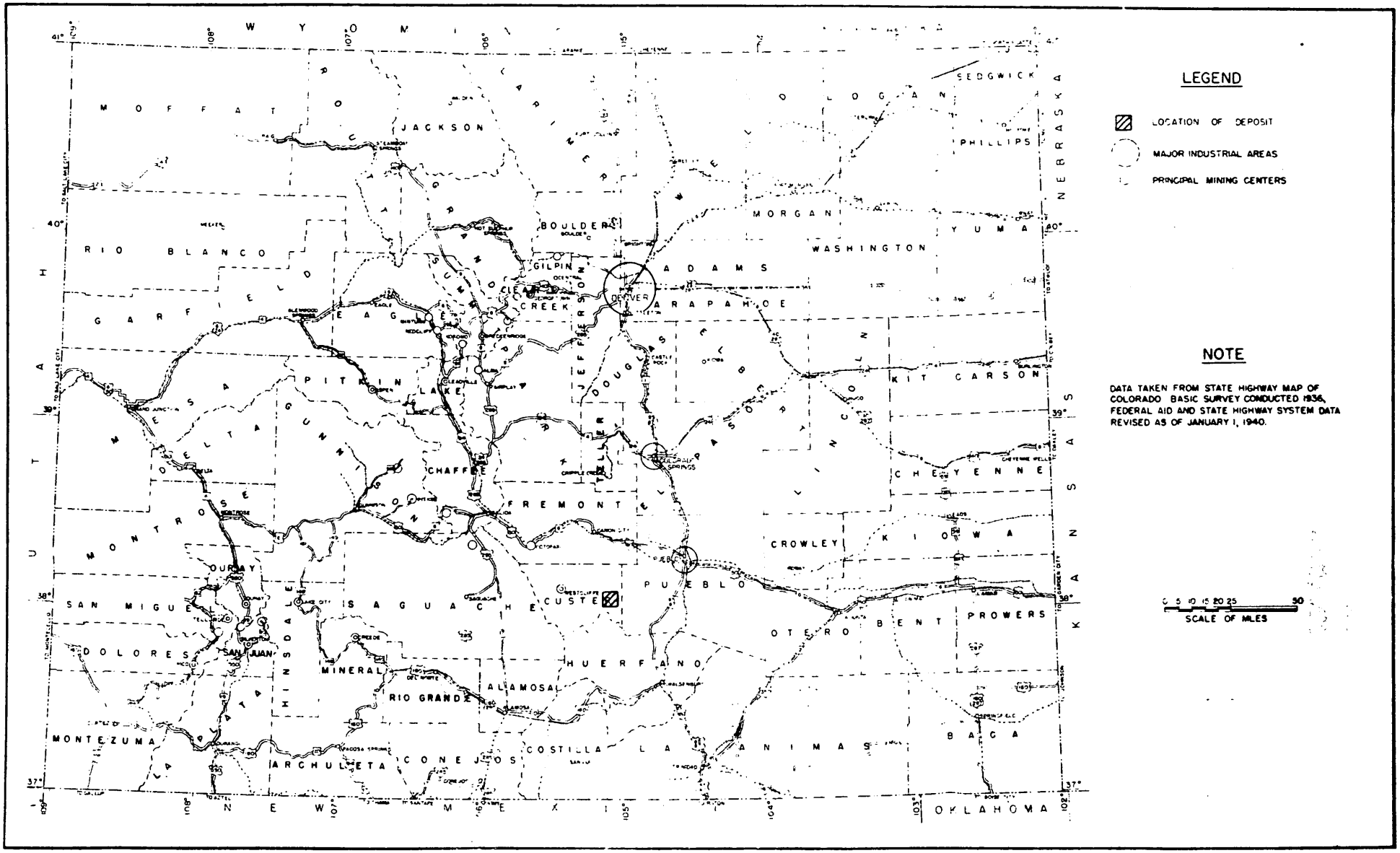

FIGURE 1 - LOCATION MAP, HARDIN CLAIM GROUP, KLOCK, HARDIN, AKIN, AND DEKKAR, OPHIR MINING DISTRICT, CUSTER COUNTY, COLO. DMEA 3725

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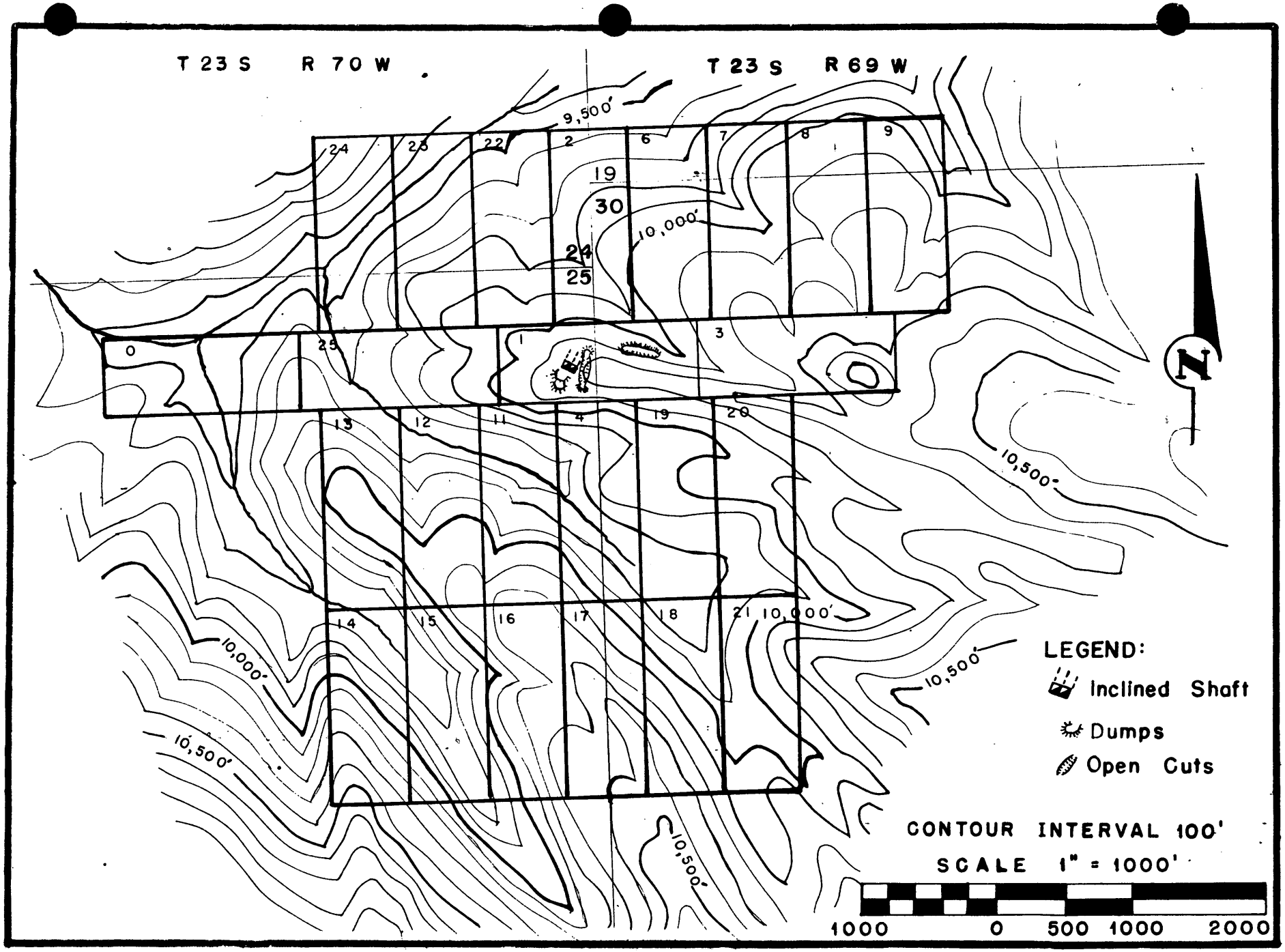

FIGURE NO. 2 - CLAIM MAP, HARDIN CLAIM GROUP, PHILLIP KLOCK & ASSOCIATES, CUSTER COUNTY, COLORADO, D.M.E.A. - 3725

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SEP 26 1955

The nearest market for ores is at Grand Junction, Colorado. The ore would be hauled by truck to Canon City, 31 miles, and thence by rail for 289 miles.

LABOR AND LIVING CONDITIONS

Common labor can be obtained from Westcliffe and Silver Cliff, 28 miles west, and Rye, 25 miles east. There are accommodations at these towns. There has not been any mining operations in the area for many years; miners would have to be brought from outside.

OWNERSHIP, HISTORY, AND PRODUCTION

The Hardin No. 1 claim, subject of this application, was located by the applicants on April 10, 1955, and was recorded on April 30, 1955, Certificate No. 86603, according to a check at the Custer County Recorder's office at Westcliffe.

The applicant made two bulldozer cuts on the Hardin No. 1 claim during June and July 1955, as shown on figure 3.

GEOLOGY AND DESCRIPTION OF THE DEPOSIT

The thorium deposits of the Wet Mountains were investigated by the U. S. Geological Survey in the years 1952-1954 (Trace Elements Investigations Report 354, Christman, R. A., and others, 1954). Most of them are located near the McKinley Mountain area, about 16 miles northwest of the Hardin prospect. The deposits are veins and shear zones in Precambrian metamorphic rocks. The thorium-bearing mineral

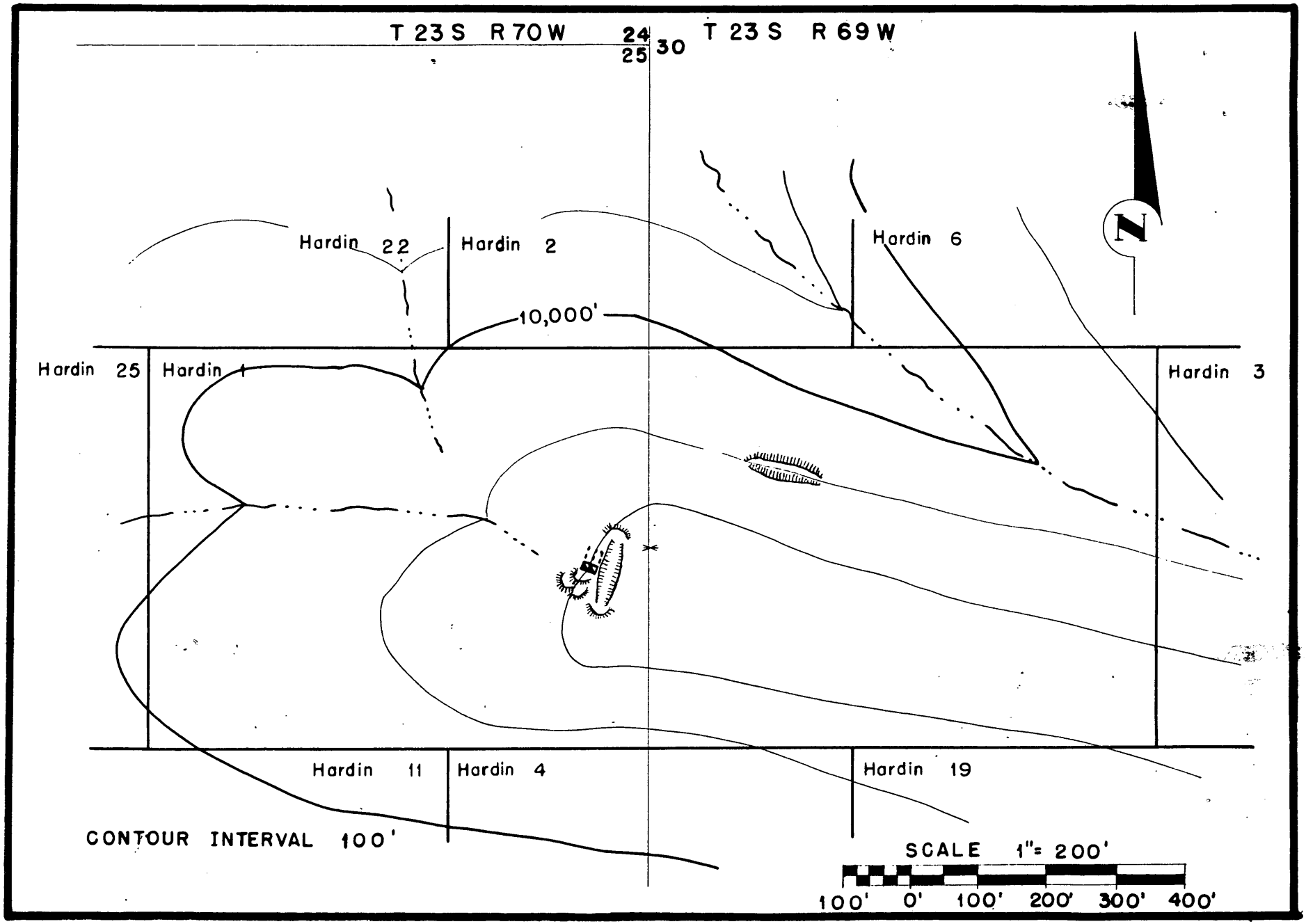

FIGURE NO. 3 - PROPOSED EXPLORATION, PHILLIP KLOCK & ASSOCIATES, HARDIN NO.1 CLAIM, CUSTER COUNTY, COLORADO, D.M.E.A. 3725

RECEIVED
SEP 26 1955

is not visible but is thought to be a variety of thorite. It is closely associated with red and yellow iron oxides in a gangue of quartz and barite. Few veins average more than 1 percent ThO_2, and the concentration of thorium within a vein is erratic. Christman, et al., point out that the size, grade, and distribution of concentrations of thorium to be expected along any given vein cannot be predicted in advance of prospecting.

The Hardin prospect is on a shear zone 3 to 4 feet thick that strikes N. 80° W., and dips 55° NE. The shear zone is exposed for about 40 feet down dip on both sides of an inclined shaft which is about 20 feet wide. This structure does not outcrop anywhere in the vicinity, and a bulldozed cut 4 feet deep 20 feet southeast of the shaft did not uncover it. No vein is visible, but float on the dump contains barite, quartz, iron oxides, and minute amounts of fine-grained sulfides. The country rock is highly jointed granitic gneiss with numerous patches of pegmatite. The overburden is deep over all of the area. Scintillometer traverses revealed an anomaly over the ground along the projected course of the shear zone, but the anomaly is broad and low, and it is doubtful whether this method would be of practical use in laying out trenches. Two prospect pits on the claims exposed only poorly mineralized granitic gneiss. The pits do not follow any discernible structure, and the rock extracted from them is only weakly radioactive.

Thus the shear zone that the applicant wishes to explore is exposed only in the shaft and would be difficult to locate on the surface

because of the heavy overburden. It is fairly thick (3 to 4 feet), but not heavily mineralized. This is shown by the lack of vein material and by the low grade of the following samples.

SAMPLES AND ANALYSES

DMEA Docket 3725 - Hardin No. 1 Claim

No.		eU_3O_8 1/ (percent)	U_3O_8 2/ (percent)	ThO_2 (percent)	Rare Earths (percent)
H-1	West side of shaft at 12 feet.	0.07	0.009	0.25	0.1
H-2	Bottom of north open cut at 5 feet.	0.04	0.006	0.16	0.1
H-3	East side of shaft at 15 feet.	0.04	0.100	0.14	0.1

1/ Equivalent radiometric.

2/ Chemical.

A spectrographic analysis of these samples showed barium, titanium, zirconium, vanadium, thorium, columbium, manganese, and iron, with traces of zinc, lead, chromium, and rare earth minerals.

MINABLE RESERVES

None

PRESENT STATUS

Exploration and Development

In the early part of the century a two-compartment inclined shaft was sunk on the Hardin No. 1 claim for gold, lead, silver, and copper.

The portal of this shaft has caved and it is only accessible for 15 feet. The dump indicates that the shaft has a depth of about 75 feet. According to Charles Akin who was there as a young boy, there was no production from the shaft.

During June and July 1955 the applicants made two bulldozer cuts on the claim. The location of these and the shaft are shown on figure 3.

MINING EQUIPMENT AND OTHER FACILITIES

None.

CONCLUSIONS AND RECOMMENDATIONS

The deposit is too small and too low in thorium, uranium, rare earths, and lead content to be considered for Government exploration assistance at this time or in the foreseeable future. It is recommended that the application be denied.

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Admin.
RECEIVED
MAR 15 1955

Land

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

Not to be filled in by applicant

Docket No. 3725
Metal or Mineral Thorium, Lead, & Uranium
Date Received 3-15-55
Estimated Cost $18,170
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: Philip M. Klock, Richard Hardin------Rye, Colorado
Charley Akin, Ralph Decker----------Westmore, Colorado

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

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

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract 25 mineral lode claims, unpatented.
Hardin No. 1 Lode recorded in book 106, page 352, Custer County, Colo.
Other claims in process of development.

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

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise By right of discovery. Held by Colorado Mining Laws on Federal land.

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

(*e*) If you own the land, describe any liens or encumbrances on it

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

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

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades. None

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

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

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

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore Thorium, Lead, Uranium and Rare Earths.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

☐ Money ☒ Use of equipment owned by you ☒ Other

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated March 7, 1955

Philip M. Klock
(Applicant)

By Philip M. Klock

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

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

Estimate of Cost

(6) The inquiry concerning the pro rate part the applicant would share in the proposed project is this;

It is proposed, rather the approach of the applicant toward the project is, that in lieu of monies advanced by them, that they furnish such necessary labor and equipment to build roads, move machinery, provide water and whatever manual item necessary to carry on the project. The D.M.E.A. as their contributions, would provide the core drilling machine and all necessary accessories attendent to practical core drilling and such repairs as might from time to time become needed. The selection of such machinery would lie with the province of D.M.E.A. with perhaps the help or suggestions of the applicant. The size of such machinery with it's attended cost would depend on the depth of the maximum depth of the core holes. This proposed that the average depth be 600 feet depending on the individual coring and such depth can be made by machines costing approximately $5500.00 for the machine only. Drill rods for 800 feet and such equipment as is required for proper drilling, fuel, oil, repairs, two water tanks on skids, gasoline drums, hand tools, core box, lumber, freight and tax, $2650.00

	$5500.00
	$2650.00
Total	$8150.00

(a) Independent Contract. None

(b) Labor

Operator $3.00 per hour

4 (a) Physical description

The accompanying map marked Hardin Group, 25 claims exploration operations which have been conducted upon the claims include inclined partly caved shaft on shear zone on No. 1 claim. This is old workings Spectrographic analysis marked (sample a) taken from shaft. Highly radioactive. Two cross cut bulldozer trenches across shear zone Hardin No. 1 claim, new workings show same analysis as that in shaft. Old workings at east end of Hardin No. 1 claim, ten foot deep timbered shaft shows highly radioactive. Prospect cut, ten foot face on claim No. 25 on shear zone, approximately same analysis, moderately radioactive. Tunnel on No. 6 claim with driftings, approximately 200 feet in length, porphyretic, old workings. Prospect pit, caved, old workings show Rhyolite No. 19 claim. Prospect pit, caved, old workings shows volcanic glass, rhyolite, siliceous hematite, contact zone, some radioactivity No. 16 claim.

Accessability of mine workings for examination purposes are easily accessible by good mountain road as shown on accompanying map, township No. 23, Range No. 69 East. Ophir Creek Road.

4 (b)

No past or current production in this locality. Milling facilities are expected in the not too distant future in the Canon City area, clipping attached. Please return this clipping.

Colorado Minerals Administration
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MAR 15 1955

4. (c)

The area under proposed study is of Tertiary volcanic rocks bordered on contact zones by Pre-Cambrian metamorphic rocks. These are granite schist gneiss and hornblende. The volcanic rocks are basalt andesite rhyolite flows and tuffs.

The mineralization includes siliceous and specular hematite and limonite (Hydrous iron oxide). Thorium, Barium, Calcium, Copper, Lead, Nickel, Manganese and Rare Earths. The surfacing as well as the altered texture of rocks indicate the hydrothermal action of underground waters carrying min ralization upward and depositing it in upper zones of formation. The associations of Hematite, Limonite, Calcite and Barite indicate a guide to further exploration. Barite and Calcite as gangue minerals is often associated with lead, copper and silver minerals. The magnesium or dolomite a carbonate has been associated with uranium as well as the above mentioned minerals. The contacts of vein matter with schist and gneiss all indicate that there may be a primary source of the ores of uranium underneath along with thorium at or near the surface, with the likelihood of lead and possibly a content of copper and nickel as associated minerals. All of which can be determined possibly through test holes. The spectrographic analysis accompanying shows more clearly the various minerals with the amounts, as the natural associations in the mineral family. A guide to the radioactivity and mineralization through out the area along the contact zones is the broken metamorphosed quartzite as a vein filler. Also are deep red hematite-stained jasper and pyrite associated with the felsic rock.

MAR 15 1966
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Science Library

4. (e)

Labor locally available.

Materials and supplies available at Pueblo, 55 miles. Water supply adjacent and on the Hardin claim group. D 8 catipillar bulldozer and truck locally available adjacent to Hardin group of claims at saw mill, owned and operated by Richard Hardin, partnership member of exploration project. R.E.A. power line serving sawmill, located on map, adjacent to proposed exploration area.

5 (a)

Thorium, Uranium, Lead and Rare Earths.

5 (b)

It is proposed to drill 14 or less test holes, 10 on the shear zone, 4 on nearby outcroppins. The 10 on the shearzone to be drilled at an approximate angle of from 25 degrees to 45 degrees and to varying depths, depending on findings.

The four on nearby outcroppings to be drilled vertically and also to varying depths, depanding on findings. The greatest depth on any one hole not to exceed 800 feet.

After drilling a number of holes it might be thought necessary or practicable to vary the spacing as well as depth.

Upon constructing roads new radioactive showings may appear and additional holes later drilled.

5 (c)

The workwill start immediately upon arrival of drilling equipment, weather permitting. A six month drilling period is estimated on the basis of completing exploration program.

Department of Mines
Bureau Minerals Administration
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MAR 15 1955

John Jones of Rye, Colorado will operate the core drilling machine and assist in the reporting on the geology of formations found. For one and a half years Jones core drilled in the Canon City area for the Colorado Fuel and Iron Company of Pueblo, Colo. For one year he was connected with the firm of Sprague and Henwood of Scranton, Penna., manufacturers and contractors of core drilling machines and coring. This firm was employed at various times by the Atomic Energy Commission to do prospect work on the Colorado Plateau.

The supervision will be carried on by the four partners of the Group who have a total of more than 25 years of mining experience.

Department of the Interior
Bureau of Mines
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MAR 15 1955

Con't

(b) Helper $2.00 per hour

Six months operation for Operator and Helper $4800.00

Extra labor for clearing road routes, $2.00 per hour for 20 days. $320.00

Total $5120.00

(c) Gasoline----------$400.00

Oil and Filter for Motor------$90.00

Oil for Hydraulic Feed---------$10.00

Total------$500.00

(d) Bulldozer @ $12.50 per hour for 12 days----------$1200.00

Trucking and Freighting----------$1500.00

Total----------$2700.00

(e) None

(f) New Tool Shed 8'x12' , wood frame and skid mounted $500.00

(g) Estimate only ---------- $200.00

(h) Estimate only ----------$1000.00

Total--------$ 10,020.00

(A) Yes

(B) By performing and supplying all necessary labor to carry out the exploration project.

By the use of equipment owned by the operator.

By constructing a suitable tool shed for the purpose of storing necessary drilling accessories and fuel to carry out the exploration project.

Table 8

Chemical Analysis-- Shinkolobwe Uraninite

Black Lustrous Type

By F. J. Rodden

Elements:

SiO_2	0.47
CO_2	0.29
CaO	0.58
Rare Earth Oxides	0.15
MgO	0.15
Fe_2O_3	0.15
MoO_3	0.31
MnO	0013
H_2O (500)C.	1.34
UO_2	47.5
UO_3	40.8
PbO	7.63

Spectographic Notes

Traces of the following:

Ag, Al, CO, CR, Cu, Mn, Ti, Sr, Bi, Br.

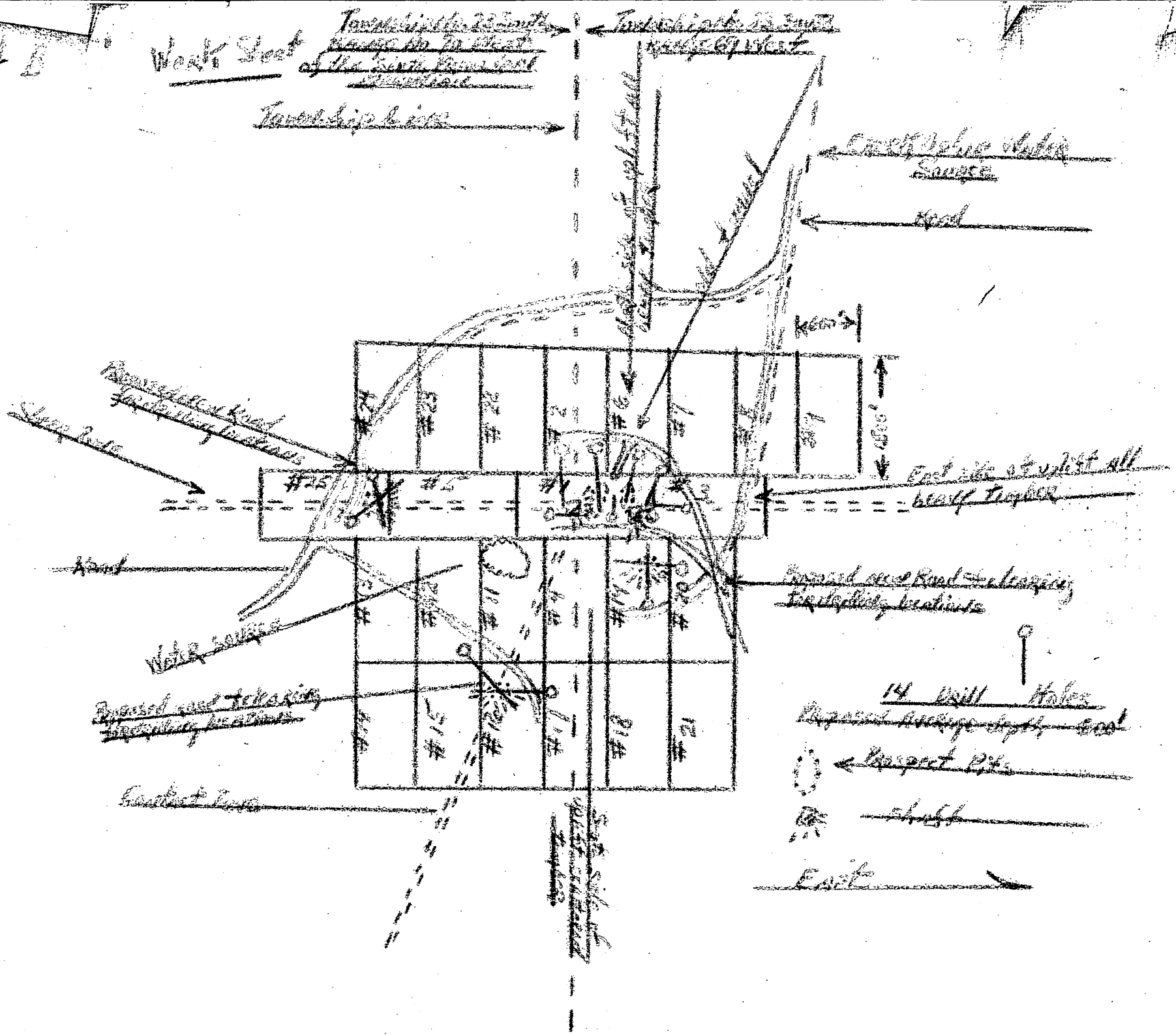
Thorium Content

Th 5.1x10.5 Gm
Th/gm. sample

Note the similarity of this analysis relative to the spectrographic analysis from the Hardin No. 1 claim. This analysis is taken from Minerlogical Studies of Uraninite and Uraninite-bearing Deposits by Paul F. Kerr. The mineral associations are predominent in this comparison.

Sheet 1

Work Sheet



PHIL KLOCK

GENERAL CONTRACTOR

PHONE 31F21 - BOX 22

RYE, COLORADO

RECEIVED
DEC 29 1955

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

224 New Customhouse
Denver 2, Colorado

December 27, 1955

Memorandum

To: Chairman, Operating Committee, DMEA

From: Acting Executive Officer, DMEA Field Team, Region III

Subject: Docket No. DMEA 3925 (Uranium), Jeff S. Briggs, et al., Navajo and Big Emma Claims, Fremont County, Colorado

Enclosed are the original and three copies of a joint memorandum in reply to your letter of December 8, 1955 on the subject docket.

We believe that thorough sampling of this deposit would not in any way change our recommendation of denial of the application. However, we are willing to again visit the deposit in company with the applicant and select 5 representative samples at locations chosen by him, and these samples to be chemically analyzed for U308.

J. W. Townsend

Enclosures

IN REPLY REFER TO:
DMEA
Date Rec'd.

DEC 23 1955

BUREAU OF MINES
Denver, Colorado

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Defense Minerals Exploration Administration
Denver Federal Center
Denver, Colorado

December 23, 1955

RECEIVED
DEC 29 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: John F. Shaw
E. N. Harshman

Subject: DMEA Docket 3925 (uranium), Jeff S. Briggs, et al., Navajo and Big Emma claims, Freemont County, Colorado

In an attempt to clarify the situation arising from the repeated objections made by Mr. Briggs to Senator Allott regarding the DMEA action on the Briggs application for exploration assistance the following facts have been obtained from the field examiners:

1 Mr. Briggs was present at the time of the examination and was specifically requested to show the examiners all locations on his property that showed anomolus radioactivity. He took the examiners to four locations including the spot from which the two samples (assays of which accompanied the application) were said to have been taken. It is therefore assumed that the examiners saw everything that the applicant could show them.

2 The highest reading on the geiger counter was noted at the location from which the controversial samples were taken. The reading was 1.2 Mr/hr indicating an equivalent uranium content of about 0.10 percent. The examiners do not doubt that very selected hand picked samples of uraniferous magnetite containing as much as 0.63 percent U_3O_8, might be found in the deposit. However, they are certain that such high grade material would constitute an insignificant part of the deposit.

3 The recommendation for denial was based as much on the small size of the magnetite concentrations as it was on the low grade of this material, and on the fact that there is no geologic reason to assume that exploration would lead to the discovery of larger or higher grade deposits.

4 The applicant, who lives in Denver, has made no effort to contact the field examiners or the Field Team. Discussions between the applicant and the Denver DMEA staff would certainly have clarified a number of issues regarding DMEA action on the Briggs application.

We feel that we were in error in not taking samples of the Briggs deposit for chemical assay, although we are certain that the results of such sampling would only confirm the recommendation for denial of the application for exploration assistance. The field examiners have been reminded that assay data on samples taken by them at the time of the field examination are an essential part of any report, particularly if denial is to be recommended.

Although we feel that sampling at the Briggs deposit will do little to reconcile the applicant's opinion that he has been treated unjustly by DMEA, we are most willing to again visit the deposit, in company with Mr. Briggs, and to select representative samples at locations chosen by him, the samples to be chemically analysed for U_3O_8.

John F. Shaw
Supervising Mining Engineer

E. N. Harshman
Member, Field Team

Surname copy

700

Ching
Ellis
Nelson
Gehan
Selfridge

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

Mr. Philip M. Klock and Associates
Box 22
Rye, Colorado

OCT 10 1955

Re: Docket No. DMEA-3725
(Thorium, lead, uranium,
rare earths)
Hardin Group
Custer County, Colorado

Gentlemen:

Your application for aid in an exploration project and other information available to us in Washington concerning your above-named property have been reviewed.

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

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

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

In accordance with your request, we are returning the following material which you submitted with your application:

1. Two area maps
2. Four clippings
3. DMEA Order-1 Amended
4. Original letter, dated January 20, 1955, from W. M. Traver addressed to Mr. Philip M. Klock.
5. 3-page mimeographed sheets, entitled "Acker Core Drills".

Sincerely yours,

Frank E. Johnson

Acting Administrator

MChing/gla 10-7-55
cc to: Admr.'s Reading File
Operating Committee
Docket
Messrs. Frank D. Lamb, Rm. 3641
THKiilsgaard, Rm. 5224
Enclosures
Code 700
Mr. Ching
DMEA Field Team, Region III (2)

R.C.G.

Docket copy

700

Ching
Ellis
Nelson

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

October 7, 1955

Summary of Proposed Project

Object: Denial of application for an exploration project.

Docket No.: DMEA-3725

Commodity: Thorium, lead, uranium, rare earths.

Applicant: Philip M. Klock and associates
Box 22
Rye, Colorado

Property: The Hardin Group of claims consisting of 24 contiguous lode mining claims situated in sections 19, 24, 25, and 30, T. 23 S., R. 69 W., N.M.P.M., Custer County, Colorado. Applicant is the owner.

Date of Application: March 7, 1955

Amount of Application: $18,170.00

Work Proposed: 14 core drill holes with average depth of 600 feet, 10 holes to be inclined to test a shear zone in granite gneiss and 4 holes to be drilled vertically on nearby outcrops.

Estimated Cost:

Labor	$ 5,120.00	
Equipment	8,150.00	
Bulldozing and trucking	2,700.00	
Other items	2,200.00	
Total		$18,170.00
Government participation @ 75%		$13,627.50

Field Team Report: September 13, 1955
W. D. McMillan, USBM
J. E. O'Rourke, USGS

The Hardin prospect is on a sheer zone 3 to 4 feet thick which is exposed on both sides of an old inclined

shaft. The structure does not outcrop elsewhere in the vicinity and was not exposed by two nearby bulldozer cuts. The country rock is granite gneiss. Overburden is deep over the whole area. Scintillometer traverses revealed a broad, low anomaly of no particular significance. The exposed shear zone is weakly mineralized. Three samples, one from the west side of the shaft, one from the north open cut, and one from the east side of the shaft, assayed 0.009, 0.006, and 0.100% U_3O_8, 0.25, 0.16 and 0.14% ThO_2, and 0.1, 0.1 and 0.1% rare earths, respectively. It is concluded that the deposit is too small and too low in thorium, uranium, rare earths, and lead to be considered for Government exploration assistance. It is recommended that the application be denied.

Commodity Group Comments:

Geological Survey - N. E. Nelson - September 29, 1955

The sample from the north open cut indicates that thorium-bearing material occurs well into the hanging wall of the shaft sheer zone and 100 feet higher. Perhaps the thorium zone is wider than taken or there are other thorium-bearing structures as hinted by the broad, low anomaly indicated by the scintillometer traverses. The diamond drilling proposed by the Applicants would tend, at least, to locate the shear zone or zones. The grade of the material sampled supports the conclusion of the examiners that the deposit is too low grade to be considered for Government exploration. That the deposit is too small is not so well proven. I concur with the recommendation that the application be denied.

Bureau of Mines - John E. Crawford - October 3, 1955.

Reviewed the report of examination and discussed with the AEC representative. Concurs in the Field Team recommendation that the application be denied.

Rare and Miscellaneous Metals Division -
Michael Ching - October 7, 1955

A well-defined exposure of the prospective ore-bearing structure in the old shaft failed to reveal material of economic grade. Dump material, two prospect pits and two bulldozer cuts show only poorly mineralized material. There is nothing to encourage the belief that drilling will expose material of higher grade.

Conclusions and Recommendations:

The chances of finding a worthwhile ore body by the proposed exploration are not good. It is recommended that the application be denied.

Ernest Wm. Ellis

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

10/6/55 gla

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

RECEIVED
OCT 4 1955

October 3, 1955

Memorandum

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

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

Subject: Joint Report of Examination, DMEA 3725 (Thorium-uranium-rare earths-lead) Phillip M. Klock and Associates, Hardin claim group, Custer County, Colorado

I have reviewed the joint report of examination of the Field Team, Phillip M. Klock and Associates, DMEA Docket 3725, and I have discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

The applicants, Klock, Hardin, Akin, and Dekkar, applied for DMEA aid to explore for thorium, uranium, rare earths, and lead on their group of claims located in the Ophir mining district, Custer County, Colo. They proposed to diamond core drill 14 holes at a total estimated cost of $18,700.

An examination by the DMEA field team revealed that the deposit is too small and too low in mineralization content to be considered for Government exploration assistance and consequently they recommend that the application be denied.

We concur in the recommendation that the application be denied.

John E Crawford
John E. Crawford

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

October 3, 1955

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BUREAU OF MINES
WASHINGTON 25, D. C.

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John E. Crawford

9/30/55 gla

IN REPLY REFER TO:

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

RECEIVED
SEP 30 1955

September 29, 1955

Re: DMEA 3725
Phillip Klock & Associates
Hardin Group
Custer County, Colorado
$18,170 - Thorium, Uranium, Lead

Memorandum

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

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

Subject: Review of Field Team report.

The application requested assistance on a $18,170 work program to consist of diamond drilling a radioactive zone in granite gneiss.

Work done consists of an old and partially filled shaft open for about 40 feet but possibly 75 feet deep, two bulldozer trenches put down by the applicants and two prospect pits. A shear zone shows for 40 feet in the incline shaft, is 3 to 4 feet thick and two samples (widths taken not given but assumed at 3-4 feet) show from 0.14 to 0.25% ThO_2, .009 to 0.10% U_3O_8 and 0.10% rare earths. A sample from the north open cut assayed 0.16% ThO_2, 0.006% U_3O_8 and 0.10% rare earths. (Width sampled not given and the north cut is not so marked on the map.) The excessive depth of overburden apparently prevented other exposures of bedrock being made.

If the north cut is the cut shown 300 feet northeast of the shaft on fig. No. 3, thorium-bearing material occurs well into the hanging wall of the shaft shear zone and 100 feet higher. Perhaps the thorium zone is wider than taken or there are other thorium-bearing structures as hinted by the broad, low anomaly indicated by the scintillometer traverses. The diamond drilling proposed by the applicants would tend, at least, to locate the shear zone or zones.

The grade of the material sampled supports the conclusion of the examiners that, "the deposit is . . . too low in thorium, uranium, rare earths, and lead content to be considered for Government exploration . . ." That the deposit is too small is not so well proven.

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

N. E. Nelson

N. E. Nelson

IN REPLY REFER TO:

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

September 29, 1955

Re: DMEA 3725
Phillip Klosk & Associates
Hardin Group
Custer County, Colorado
$18,170 - Thorium, Uranium, Lead

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

N. E. Nelson

N. E. Nelson

NENelson:iml
G-9/29/55

cc: Director's reading, 4212
Branch reading, 4212
NMRA (3)✓
Docket file
F. B. Lamb, 3649

IN REPLY REFER TO:

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

September 29, 1955

Re: DMEA 3725
Phillip Klock & Associates
Mardin Group
Custer County, Colorado
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NENelson:iml
G-9/29/55

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Branch reading, 4212
BMRA (3)
Docket file
F. D. Lamb, 3649

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DEPARTMENT OF THE INTERIOR
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WASHINGTON 25, D. C.

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SEP 1955

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Subject: Review of Field Team report.

The application requested assistance on a $18,170 work program to consist of diamond drilling a radioactive zone in granite gneiss.

Work done consists of an old and partially filled shaft open for about 40 feet but possibly 75 feet deep, two bulldozer trenches put down by the applicants and two prospect pits. A shear zone shows for 40 feet in the incline shaft, is 3 to 4 feet thick and two samples (widths taken not given but assumed at 3-4 feet) show from 0.14 to 0.25% ThO_2, .009 to 0.10% U_3O_8 and 0.10% rare earths. A sample from the north open cut assayed 0.16% ThO_2, 0.006% U_3O_8 and 0.10% rare earths. (Width sampled not given and the north cut is not so marked on the map.) The excessive depth of overburden apparently prevented other exposures of bedrock being made.

If the north cut is the cut shown 300 feet northeast of the shaft on fig. No. 3, thorium-bearing material occurs well into the hanging wall of the shaft shear zone and 100 feet higher. Perhaps the thorium zone is wider than taken or there are other thorium-bearing structures as hinted by the broad, low anomaly indicated by the scintillometer traverses. The diamond drilling proposed by the applicants would tend, at least, to locate the shear zone or zones.

The grade of the material sampled supports the conclusion of the examiners that, "the deposit is . . . too low in thorium, uranium, rare earths, and lead content to be considered for Government exploration . . ." That the deposit is too small is not so well proven.

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

M. E. Nelson

M. E. Nelson

MENelson:iml
G-9/29/55

cc: Director's reading, 4212
Branch reading, 4212
BMHA (3)
Docket file
F. D. Lamb, 3649

10/3/55 gla

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED
SEP 26 1955

224 New Customhouse
Denver 2, Colorado

September 21, 1955

Memorandum

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

From: Field Team, Region III

Subject: Joint Report of Examination, DMEA Docket 3725 (Thorium-uranium-rare earths-lead) Phillip M. Klock and Associates, Hardin claim group, Custer County, Colorado.

Enclosed are the original and three copies of a joint report by W. D. McMillan, U. S. Bureau of Mines and J. E. O'Rourke, U. S. Geological Survey, covering their examination of the subject application.

Also included is a memorandum of transmittal and comment by E. N. Harshman and John F. Shaw.

The examining team concludes that the deposit is too small and low grade to contain appreciable reserves of thorium, uranium, rare earths and lead and they therefore recommend that the application be denied.

We concur with this recommendation.

As requested in your letter of July 20, 1955, we are returning herewith the following documents:

1. Four reports of analyses covering seven samples.
2. Letter, dated July 5, 1955 from the applicant, in answer to your letters of April 8th and June 24th.

W. M. Traver

Reviewed by
DMEA OPERATING COMMITTEE
9-30-55
(date)

E. N. Harshman

Enclosures

IN REPLY REFER TO:
DMEA
Date Rec'd.
SEP 15 1955
BUREAU OF MINES
Denver, Colorado

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Defense Minerals Exploration Administration
Denver Federal Center
Denver, Colorado

September 14, 1955

RECEIVED
SEP 26 1955

TRANSMITTED
SEP 21 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: E. N. Harshman
John F. Shaw

Subject: DMEA Docket 3725 (Thorium-uranium-rare earths-lead)
Klock, Hardin, Akin, and Dekkar, Hardin claim group,
Custer County, Colorado

Enclosed are the original and nine copies of a joint examination report by W. D. McMillan, U. S. Bureau of Mines, and J. E. O'Rourke, U. S. Geological Survey, covering their examination of the subject property.

The applicants propose to explore the Hardin claim group by 14 diamond drill holes at an estimated cost of $18,170.00.

The property was examined on August 10, 1955. The examiners conclude that the proposed exploration will not result in the discovery of significant amounts of thorium, uranium, rare earth, or lead ore, and they recommend denial of the application for exploration assistance.

We concur with this recommendation.

E. N. Harshman
E. N. Harshman
Member, Field Team

John F. Shaw
John F. Shaw
Supervising Mining Engineer

Enclosures (10)

ENHarshman:arh

9-30-55

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

RECEIVED
SEP 26 1955

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

DMEA Docket 3725
Klock, Hardin, Akin, and Dekkar
Hardin Claim Group
Ophir Mining District
Custer County, Colorado

Thorium-uranium-rare earths-lead

Joint Engineering and Geologic Report

by

W. D. McMillan
U. S. Bureau of Mines

J. E. O'Rourke
U. S. Geological Survey

Reviewed by
DMEA OPERATING COMMITTEE
9-30-55
(date)

September 13, 1955

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ILLUSTRATIONS

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DMEA DOCKET 3725
KLOCK, HARDIN, AKIN, AND DEKKAR
HARDIN CLAIM GROUP
OPHIR MINING DISTRICT
CUSTER COUNTY, COLORADO

RECEIVED
SEP 26 1955

Joint Engineering and Geologic Report

by

W. D. McMillan and J. E. O'Rourke

INTRODUCTION

Philip Klock, Richard Hardin, Charles Akin, and Ralph Dekkar applied for Defense Minerals Exploration Administration assistance in exploration for thorium, uranium, rare earths, and lead on the 24 claims in the Hardin group. Their proposal was for 14 diamond core drill holes of which 10 were inclined holes to cut a shear zone and four were vertical holes on outcrops. The estimated total cost was $18,170.00. The locations, inclination, and depths of the holes were not presented.

The property was examined on August 10, 1955, by a DMEA Region III examining team consisting of W. D. McMillan and John F. Albee of the Bureau of Mines and J. E. O'Rourke of the Geological Survey, and Alberto Manrique, Point IV trainee. They were accompanied by Charles Akin and Ralph Dekkar, two of the applicants.

The principal prospects are on the Hardin No. 1 claim where a two-compartment inclined shaft was sunk in the early part of the century and two bulldozer cuts were made by the applicants.

The formations on the claims are Precambrian granite gneiss traversed in places by fault shear zones.

Scintillometer investigations and sampling indicate that the deposit is too low grade to merit exploration with Government assistance.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The Hardin Claim Group consists of 24 claims located in sections 19 and 30, T. 23 S., R. 69 W., and sections 24 and 25, T. 23 S., R. 69 W., N.M.P.M. The claims are the Hardin 0, 1, 2, 3, 4, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, and 25 and contain approximately 480 acres, as shown in Figures 1 and 2. They cover a west trending ridge and a northeast ravine on a tributary of Ophir Creek, with a mean elevation of 10,000 feet and a relief of 1,000 feet. Two northwest ravines cut across the western claims, but the northeastern claims are on a gently sloping plateau, with a mean elevation of 10,250 feet.

The claims are reached by driving northwest from Rye on Colorado State Highway 165 for 20 miles to Fairview, thence westerly for 2 miles on a surfaced road, and thence 3 miles southwest on a steep truck trail to the claims (see figure 1).

There is a heavy cover of pine. The claims are in the Wet Mountains, with heavy rainfall during the summer months, and heavy snowfall during the winter months. Four-wheel-drive equipment is required to reach the claims during most of the year.

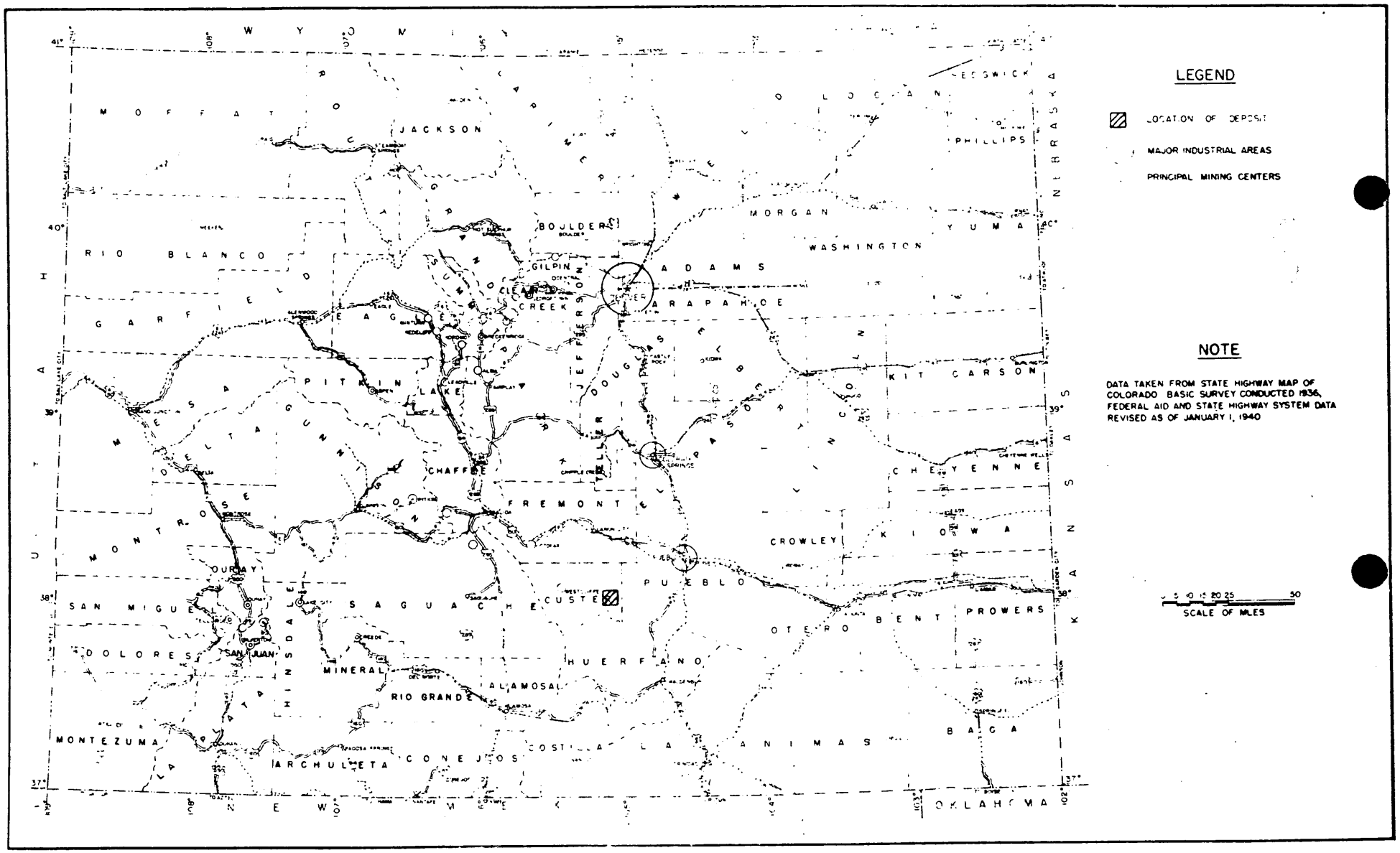

FIGURE 1 - LOCATION MAP, HARDIN CLAIM GROUP, KLOCK, HARDIN, AKIN, AND DEKKAR, OPHIR MINING DISTRICT, CUSTER COUNTY, COLO. DMEA 3725

RECEIVED
1955

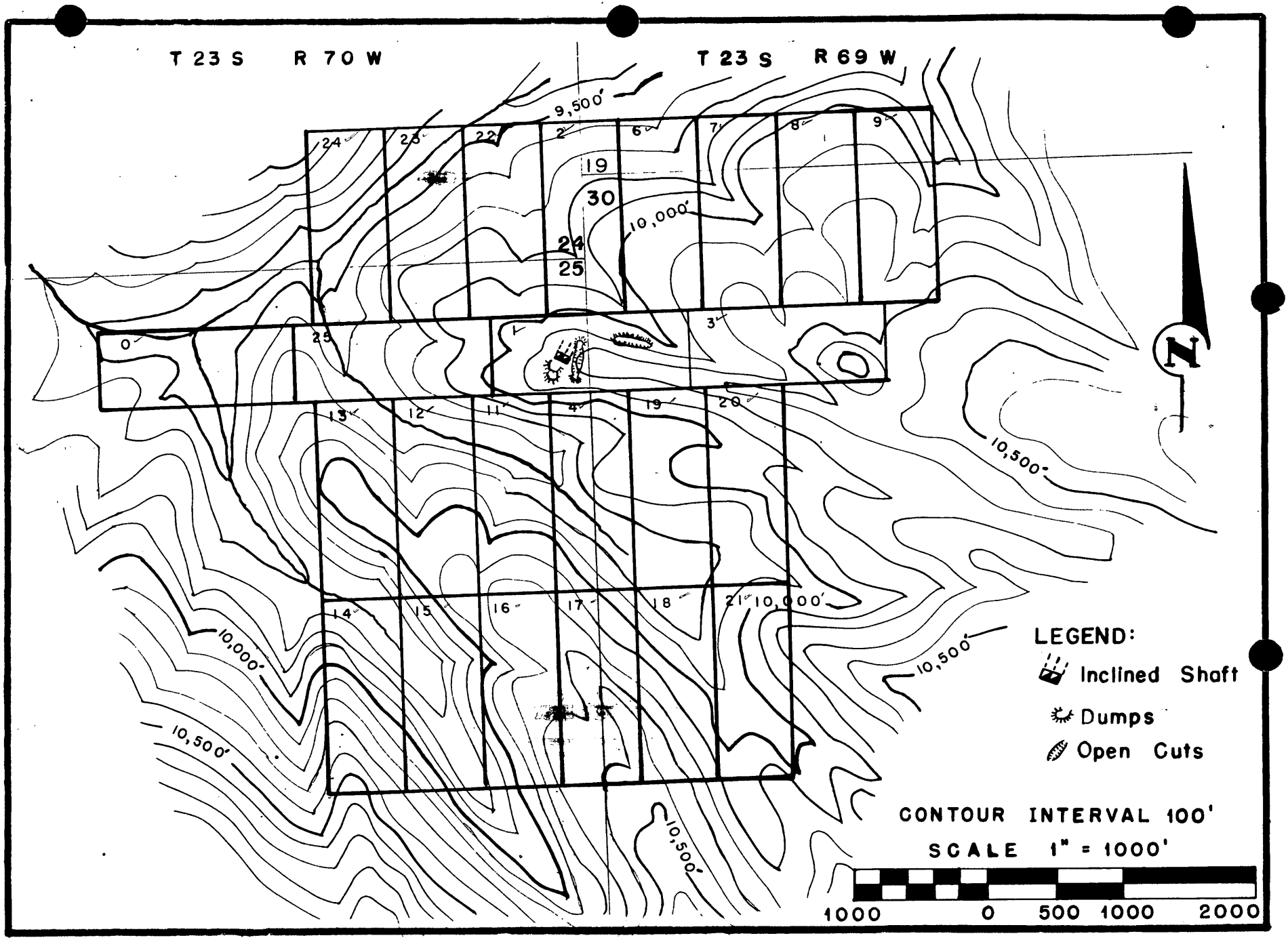

FIGURE NO. 2 - CLAIM MAP, HARDIN CLAIM GROUP, PHILLIP KLOCK & ASSOCIATES, CUSTER COUNTY, COLORADO, D.M.E.A. - 3725

RECEIVED
SEP 26

The nearest market for ores is at Grand Junction, Colorado. The ore would be hauled by truck to Canon City, 31 miles, and thence by rail for 289 miles.

LABOR AND LIVING CONDITIONS

Common labor can be obtained from Westcliffe and Silver Cliff, 28 miles west, and Rye, 25 miles east. There are accommodations at these towns. There has not been any mining operations in the area for many years; miners would have to be brought from outside.

OWNERSHIP, HISTORY, AND PRODUCTION

The Hardin No. 1 claim, subject of this application, was located by the applicants on April 10, 1955, and was recorded on April 30, 1955, Certificate No. 86603, according to a check at the Custer County Recorder's office at Westcliffe.

The applicant made two bulldozer cuts on the Hardin No. 1 claim during June and July 1955, as shown on figure 3.

GEOLOGY AND DESCRIPTION OF THE DEPOSIT

The thorium deposits of the Wet Mountains were investigated by the U. S. Geological Survey in the years 1952-1954 (Trace Elements Investigations Report 354, Christman, R. A., and others, 1954). Most of them are located near the McKinley Mountain area, about 16 miles northwest of the Hardin prospect. The deposits are veins and shear zones in Precambrian metamorphic rocks. The thorium-bearing mineral

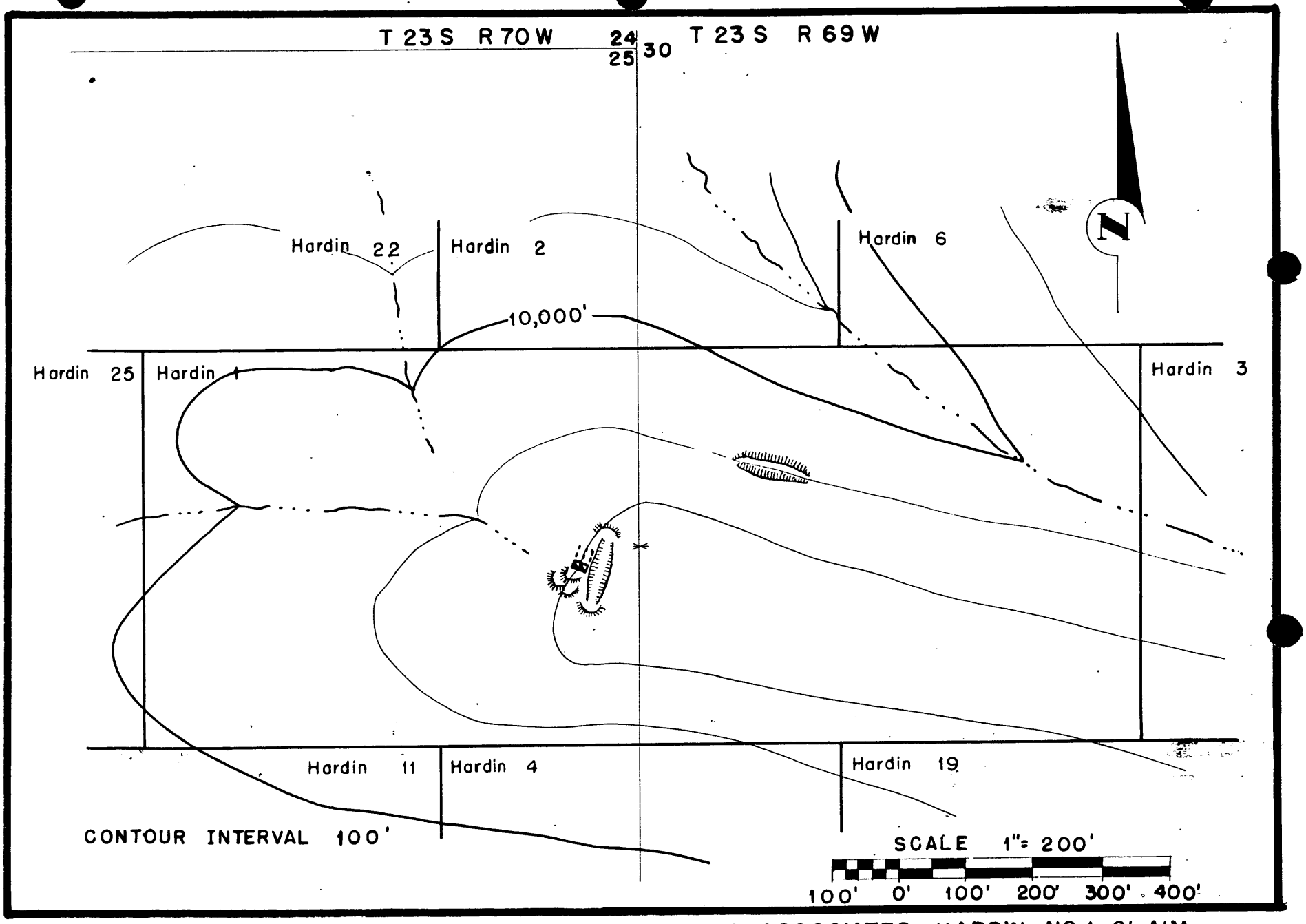

FIGURE NO. 3 - PROPOSED EXPLORATION, PHILLIP KLOCK & ASSOCIATES, HARDIN NO.1 CLAIM, CUSTER COUNTY, COLORADO, D.M.E.A. 3725

RECEIVED
SEP 26 1955

is not visible but is thought to be a variety of thorite. It is closely associated with red and yellow iron oxides in a gangue of quartz and barite. Few veins average more than 1 percent ThO_2, and the concentration of thorium within a vein is erratic. Christman, et al., point out that the size, grade, and distribution of concentrations of thorium to be expected along any given vein cannot be predicted in advance of prospecting.

The Hardin prospect is on a shear zone 3 to 4 feet thick that strikes N. 80° W., and dips 55° NE. The shear zone is exposed for about 40 feet down dip on both sides of an inclined shaft which is about 20 feet wide. This structure does not outcrop anywhere in the vicinity, and a bulldozed cut 4 feet deep 20 feet southeast of the shaft did not uncover it. No vein is visible, but float on the dump contains barite, quartz, iron oxides, and minute amounts of fine-grained sulfides. The country rock is highly jointed granitic gneiss with numerous patches of pegmatite. The overburden is deep over all of the area. Scintillometer traverses revealed an anomaly over the ground along the projected course of the shear zone, but the anomaly is broad and low, and it is doubtful whether this method would be of practical use in laying out trenches. Two prospect pits on the claims exposed only poorly mineralized granitic gneiss. The pits do not follow any discernible structure, and the rock extracted from them is only weakly radioactive.

Thus the shear zone that the applicant wishes to explore is exposed only in the shaft and would be difficult to locate on the surface

because of the heavy overburden. It is fairly thick (3 to 4 feet), but not heavily mineralized. This is shown by the lack of vein material and by the low grade of the following samples.

SAMPLES AND ANALYSES

DMEA Docket 3725 - Hardin No. 1 Claim

No.		eU_3O_8 1/ (percent)	U_3O_8 2/ (percent)	ThO_2 (percent)	Rare Earths (percent)
H-1	West side of shaft at 12 feet.	0.07	0.009	0.25	0.1
H-2	Bottom of north open cut at 5 feet.	0.04	0.006	0.16	0.1
H-3	East side of shaft at 15 feet.	0.04	0.100	0.14	0.1

1/ Equivalent radiometric.

2/ Chemical.

A spectrographic analysis of these samples showed barium, titanium, zirconium, vanadium, thorium, columbium, manganese, and iron, with traces of zinc, lead, chromium, and rare earth minerals.

MINABLE RESERVES

None

PRESENT STATUS

Exploration and Development

In the early part of the century a two-compartment inclined shaft was sunk on the Hardin No. 1 claim for gold, lead, silver, and copper.

The portal of this shaft has caved and it is only accessible for 15 feet. The dump indicates that the shaft has a depth of about 75 feet. According to Charles Akin who was there as a young boy, there was no production from the shaft.

During June and July 1955 the applicants made two bulldozer cuts on the claim. The location of these and the shaft are shown on figure 3.

MINING EQUIPMENT AND OTHER FACILITIES

None.

CONCLUSIONS AND RECOMMENDATIONS

The deposit is too small and too low in thorium, uranium, rare earths, and lead content to be considered for Government exploration assistance at this time or in the foreseeable future. It is recommended that the application be denied.

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

RECEIVED
AUG - 1 1955

224 New Customhouse
Denver 2, Colorado

July 25, 1955

Memorandum

To: J. F. Shaw (w/brochure)
E. N. Harshman

From: Field Team, Region III

Subject: Docket DMEA-3725 (Thorium, Lead, Uranium, Rare Earths), Phillip M. Klock and Associates, Hardin group, Custer County, Colorado

Enclosed is the subject application in the amount of $118,170.00. A field examination and suitable report are required.

Enclosed are the following documents:

1. A copy of the letter from the Chairman of the Operating Committee, dated July 20, 1955.

2. Four reports of analysis covering seven samples.

3. Letter, dated July 5, 1955, from the applicant in answer to the Washington office letters of April 8 and June 24, 1955. It includes supplemental data on the property and on the above mentioned reports of analysis.

4. A copy of a memorandum, dated July 18, 1955, by N. E. Nelson of the Thorium-Uranium Commodity Committee.

When the above documents have served their purpose in the field, please return the reports of analysis and letter of July 5, 1955 to this office as only a single copy of each was submitted by the applicant.

W. M. TRAVER,

W. M. Traver

E. N. Harshman

E. N. Harshman

nclosures

ow
ubject
hron
Sec.Op.Comm. (2)

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

RECEIVED
AUG - 1 1955

224 New Customhouse
Denver 2, Colorado

July 25, 1955

Memorandum

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E. N. Harshman

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4. A copy of a memorandum, dated July 18, 1955, by N. E. Nelson of the Thorium-Uranium Commodity Committee.

When the above documents have served their purpose in the field, please return the reports of analysis and letter of July 5, 1955 to this office as only a single copy of each was submitted by the applicant.

W. M. TRAVER,

W. M. Traver

Enclosures

HMC:pw

E. N. Harshman

E. N. Harshman

cc: Subject
Chron
Sec.Op.Comm. (2)

Surname 700

Ching
Ellis
Kiesgaard
Gehan
Martin
Johnson

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

JUL 20 1955

Mr. Philip M. Klock and Associates
Box 22
Rye, Colorado

Re: Docket No. DMEA-3725
(Thorium, lead, uranium, rare earths)
Hardin Group
Custer County, Colorado

Gentlemen:

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

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

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

Sincerely yours,

C. O. Mittendorf

Administrator

MChing:am
7-19-55
cc to: Admr. Reading File
Docket
Code 700
Mr. Ching
DMEA Field Team, Region III(2)

R.C.S.

Surname 700

Ching
Ellis
Crawford
Martin
Johnson

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

JUL 20 1955

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

Re: Docket No. DMEA-3725
(Thorium, lead, uranium, rare earths)
Philip M. Kleck and Associates
Hardin Group
Custer County, Colorado

Dear Mr. Traver:

The subject application is being referred to you for investigation, a field examination if warranted, and recommendation. A copy of the application was forwarded to you on March 17, 1955.

Enclosed are the following documents:

1. Four reports of analyses covering 7 samples.

2. Letter, dated July 5, 1955, from the Applicant, in answer to our letters of April 8, and June 24. It includes supplemental data on the property and on the above-mentioned reports of analyses.

3. Two copies of a memorandum, dated July 18, by N. E. Nelson of the thorium-uranium commodity committee.

When the above documents have served their purpose in the field please return the reports of analyses and letter of July 5, to this office as only a single copy of each was submitted by the Applicant.

Sincerely yours,

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

Enclosures

APPROVED:

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

Thor H. Kiilsgaard (WB)
Member, Geological Survey

Code 700
Mr. Ching

Messrs. J.E.Crawford,Rm.3641
T.H.Kiilsgaard,Rm.5222
J.O.Hosted,Rm.3210,GSA

cc to: Admr. Reading File
Operating Committee
Docket

MChing:am
7-19-55

R.C.y.

IN REPLY REFER TO:

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

July 18, 1955

Re: DMEA 3725
Klock and Associates
Hardin Claims
Custer Co., Colo.
$18,170 - Thorium-
Lead-Uranium

Memorandum

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

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

Subject: Review of reply to "request for information"

The samples submitted by the applicant in justification of the application tend to support the assertion that thorium is present on the Hardin No. 1 claim.

The spectographic analysis of the sample submitted by Charles Akin, and the two samples submitted to the Bureau of Mines and reported November 30, 1954, show thorium present. The statements concerning the Bureau of Mines samples are conflicting. In one case they were selected by instrument, in another they were cut across the vein. The values, 2% U_3O_8 equivalent and 1.75% U_3O_8e suggest they were selected since no other values reported approach them.

Two samples submitted to the Bureau of Mines are only slightly relevant, since we do not know if the associations are similar at the Hardin No. 1 and a place 2 miles north, on the Aspen claims. The 2 samples to the AEC, reported June 7, 1954, give little support to the application as the U_3O_8e is only 0.04%.

Probably there is thorium present and a touch of uranium. That the general associations suggest there will be lead and more uranium at depth is not too evident. Probably the applicants are not qualified to take the representative samples necessary for evaluating this application. It is suggested that the Field Team make an examination, but in case the examiners can make, with the information at hand, a reasonably conclusive recommendation of denial, such will be accepted.

N. E. Nelson

N. E. Nelson

IN REPLY REFER TO:

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

July 18, 1955

Re: DMEA 3725
Klock and Associates
Hardin Claims
Custer Co., Colo.
$18,170 - Thorium-
Lead-Uranium

Memorandum

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

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

Subject: Review of reply to "request for information"

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N. E. Nelson

N. E. Nelson

NENelson:iml
G-7/18/55

cc: Director's reading, 4212
Branch reading, 4212
DMEA (3); Docket file; F. Lamb, 3649

700

Surname copy

Ching
Ellis
Mitchell

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

JUN 24 1955

Mr. Philip M.Klock and Associates
Box 22
Rye, Colorado

Re: Docket No. DMEA-3725
(Thorium, lead, uranium, rare earths)
Hardin Group
Custer County, Colorado

Dear Mr. Klock:

Your attention is directed to our letter of April 8, 1955, which outlined information required to enable us to further process your above-docketed application.

Inasmuch as we have received no reply, we assume that you no longer desire to proceed with the application. We wish to cooperate with you in the matter of allowing ample time, but if the needed data has not been received within thirty days from the date of this letter, we will then consider the docket closed.

Sincerely yours,

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

MChing/gla
6-23-55
cc to: Admr.'s Reading File
Docket
Messrs. Frank D. Lamb, Rm. 3649
T. H. Kiilsgaard, Rm. 5224
J. O. Hosted, Rm. 3210, GSA
Code 700
Mr. Ching
DMEA Field Team, Region III (2)

R.C.G.

Surname copy

Ching
Ellis
Mitchell

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

APR - 8 1955

Mr. Philip M. Klock and Associates
Box 22
Rye, Colorado

Re: Docket No. DMA-3725
(Thorium, lead, uranium, rare earths)
Hardin Group
Custer County, Colorado

Dear Mr. Klock:

We have reviewed your application for aid in exploring the subject property and find the information submitted inadequate for further processing.

1. You have not given a legal description of the land upon which you wish to explore. The section number as well as township and range should be given. You listed the book and page number for the unpatented Hardin No. 1 claim only. These recording data must be given for each recorded claim in the group of which you claim ownership. You state there are 25 claims in the group, but your sketch shows only 21.

2. You submitted four reports of analyses covering seven samples, but we are unable to evaluate their significance from the accompanying descriptions. Please clarify the following:

(a) Spectrographic analysis of Sample A from the Hardin No. 1 claim. On the certificate it is marked "Surface sample", while under "Physical Description" it is described as taken from the inclined shaft. Please describe the type of sample; i.e., whether a representative channel sample across the vein, a grab sample of loose material, or a selected specimen.

(b) Bureau of Mines analyses of Sample Nos. UP-3112-2 (A) and (B). We note that the samples are from the same area, but not from the Hardin Group. Please describe the location from which these samples were taken, the distance from your claims, and the type of sample.

(c) Bureau of Mines radiometric analyses of Samples Nos. 1 and 2, described as from "prospect pit." Which pit were the samples from and how were the samples taken?

R.C.S.

(d) Atomic Energy Commission chemical and radiometric analyses of two surface samples from the Hardin No. 1 claims. Please describe the location from which these samples were taken and the manner in which they were taken.

We note that you made two crosscut bulldozer trenches across the shear zone on the Hardin No. 1 claim. You state that samples showed the same analysis as the sample from the shaft. Please submit any such analyses which you may have together with a full description of the location and manner in which the samples were taken. If you have not thoroughly sampled these crosscut trenches it is suggested that you take representative channel samples along them and have them analyzed by a commercial assaying firm.

We shall hold your application in abeyance until you furnish the above-described supplemental information.

Sincerely yours,

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

MChing/gla
4-7-55
cc to: Admr.'s Reading File
Docket
Messrs. Frank D. Lamb, Rm. 3649
T. H. Kiilsgaard, Rm. 5224
J. O. Hosted, Rm. 3210, GSA
Code 700
Mr. Ching
DMEA Field Team, Region III (2)

3/25/55 gla

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

March 24, 1955

Memorandum

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

From: Bureau of Mines Member
Uranium Commodity Committee

Subject: DMEA Docket 3725, Messrs. Klock, Hardin, Akin and Decker, Hardin No. 1 Lode, Custer County, Colorado

I have reviewed the attached application of Messrs. Klock, Hardin, Akin and Decker, DMEA Docket 3725. Joseph O. Hosted, Washington representative of the Atomic Energy Commission, and Frank D. Lamb, Committee Member for Rare Earths, have also reviewed the application.

We find the application provides insufficient information to allow a thorough evaluation of the property and the proposed exploration program. The sketch maps are confusing, and spectrographic analyses mentioned in the application are not attached.

The applicants should be required to submit more comprehensive evidence in behalf of their request for assistance.

John E. Crawford
John E. Crawford

Attachment

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

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

March 24, 1955

Memorandum

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

From: Bureau of Mines Member
Uranium Commodity Committee

Subject: DMEA Docket 3725, Messrs. Klock, Hardin, Akin and Decker, Hardin No. 1 Lode, Custer County, Colorado

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J. B. Crawford (2)

3/25/55 gla

IN REPLY REFER TO:

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

Defense Minerals Exploration Administration
Received
MAR 24 1955

March 23, 1955

Re: DMEA-3725
Klock & Associates
(Hardin Claims)
Custer Co., Colo.
$18,170
Thorium-Lead-Uranium

Memorandum

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

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

Subject: Review of application

The operator has proposed to drill 14 holes to test a prominent shear zone for possible thorium-lead-uranium mineralization.

Trenching by the operator across the shear zone is reported to have disclosed radioactive material. However, there is nothing in the application which indicates whether significant amounts of radioactivity are present.

We do not have any information on these claims in our files. There are known thorium-bearing fissures in Custer County, but this property is not close to any known occurrences.

Further information will be required before a field examination can be justified. I recommend the operator be requested to send sample assay data from the trenches along the shear zone.

E. L. Newcomb
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GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

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E. L. Newcomb

ELNewcomb:hlm
G-3/23/55

Copy to: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
H. D. Keiser, 3647 Interior

IN REPLY REFER TO:

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

March 23, 1955

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(Hardin Claims)
Custer Co., Colo.
$18,170
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WASHINGTON 25, D. C.

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ELNewcomb:hlm
G-3/23/55

Copy to: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
E. D. Keiser, 3647 Interior

March 17, 1955
Subject: DMEA 3725
Re: Exploration Assistance
Hardin Group

Philip M. Klock and Associates
Box 22
Rye, Colorado

Gentlemen:

The receipt of your application dated March 7, 1955 for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA 3725 and referred to the Rare and Miscellaneous Metals Division.

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

Sincerely yours,

Robert E. Adams, Chief
Operations Control and
Statistics Division

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

Defense Minerals Administration
RECEIVED
MAR 15 1955

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

Not to be filled in by applicant

Docket No. 3725
Metal or Mineral Thorium, Lead, & Uranium
Date Received 3-15-55
Estimated Cost $18,170
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: Philip Klock and associates mining partnership
Philip Klock, Richard Hardin, Rye, Colorado
Charley Akin, Ralph Decker, Wetmore, Colorado

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

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

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract 25 Mineral Lode Claims, unpatented
Hardin No. 1 Lode recorded in Book 106, page 352, Custer County, Colorado
Other claims in process of development

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

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise By right of discovery. Held by Colorado Mining laws on federal land.

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

(*e*) If you own the land, describe any liens or encumbrances on it

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

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

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades. None

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

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

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

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore Thorium, Lead, Uranium and Rare Earths.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

☐ Money ☒ Use of equipment owned by you ☒ Other

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated March 7, 1955

Philip M. Klock (Applicant)

By Philip M Klock

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

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

4 (a) Physical Description

The accompanying map marked Hardin Group, 25 claims exploration operations which have been conducted upon the claims include inclined partly caved shaft on shear zone on No. 1 claim. This is old workings. Spectrographic analysis marked (sample a) taken from shaft. Highly radioactive. Two cross cut bulldozer trenches across shear zone Hardin No. 1 claim, new workings show same analysis as that in shaft. Old workings at east end of Hardin No. 1 claim, ten foot deep timbered shaft shows highly radioactive. Prospect cut, ten foot face on claim No. 25 on shear zone, approximately same analysis, moderately radioactive.

Tunnel on No. 6 claim with driftings, approximately 200 feet in length, porphyretic, old workings. Prospect pit, caved, old workings show Rhyolite No. 19 claim. Prospect pit, caved, old workings shows volcanic glass, rhyolite, siliceous hematite, contact zone, some radioactivity No. 16 claim.

Accessability of mine workings for examination purposes are easily accesible by good mountain road as shown on accompanying map, township No. 23, Range No. 69 West. Ophir Creek Road.

4 (b)

No past or current production in this locality. Milling facilities are expected in the not too distant future in the Canon City area, clipping attached. Please return this clipping.

DEPARTMENT OF [illegible]
Division Minerals [illegible]
RECEIVED
MAR 15 1955

4. (c)

The area under proposed study is of Tertiary volcanic rocks bordered on contact zones by Pre-Cambrian metamorphic rocks. These are granite schist gneiss and hornblende. The volcanic rocks are basalt andesite rhyolite flows and tuffs.

The mineralization includes siliceous and specular hematite and limonite (Hydrous iron oxide). Thorium, Barium, Calcium, Copper, Lead, Nickel, Manganese and Rare Earths. The surfacing as well as the altered texture of rocks indicate the hydrothermal action of underground waters carrying mineralization upward and depositing it in upper zones of formation. The associations of Hematite, Limonite, Calcite and Barite indicate a guide to further exploration. Barite and Calcite as gangue minerals is often associated with lead, copper and silver minerals. The magnesium or dolomite a carbonate has been associated with uranium as well as the above mentioned minerals. The contacts of vein matter with schist and gneiss all indicate that there may be a primary source of the ores of uranium underneath along with thorium at or near the surface, with the likelihood of lead and possibly a content of copper and nickel as associated minerals. All of which can be determined possibly through test holes. The spectrographic analysis accompanying shows more clearly the various minerals with the amounts, as the natural associations in the mineral family. A guide to the radioactivity and mineralization through out the area along the contact zones is the broken metamorphosed quartzite as a vein filler. Also are deep red hematite-stained jasper and pyrite associated with the felsic rock.

DEPARTMENT OF [illegible]
Defense Minerals Administration
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4. (e)

Labor locally available.

Materials and supplies available at Pueblo, 55 miles. Water supply adjacent and on the Hardin claim group. D 8 catipillar bulldozer and truck locally available adjacent to Hardin group of claims at saw mill, owned and operated by Richard Hardin, partnership member of exploration project. R.E.A. power line serving sawmill, located on map, adjacent to proposed exploration area.

5 (a)

Thorium, Uranium, Lead and Rare Earths.

5 (b)

It is proposed to drill 14 or less test holes, 10 on the shear zone, 4 on nearby outcroppins. The 10 on the shearzone to be drilled at an approximate angle of from 25 degrees to 45 degrees and to varying depths, depending on findings.

The four on nearby outcroppings to be drilled vertically and also to varying depths, depending on findings. The greatest depth on any one hole not to exceed 800 feet.

After drilling a number of holes it might be thought necessary or practicable to vary the spacing as well as depth.

Upon constructing roads new radioactive showings may appear and additional holes later drilled.

5 (c)

The work will start immediately upon arrival of drilling equipment, weather permitting. A six month drilling period is estimated on the basis of completing exploration program.

5 (con't)
d.

John Jones of Rye, Colorado will operate the core drilling machine and assist in the reporting on the geology of formations found. For one and a half years Jones core drilled in the Canon City area for the Colorado Fuel and Iron Company of Pueblo, Colo. For one year he was connected with the firm of Sprague and Henwood of Scranton, Penna., manufacturers and contractors of core drilling machines and coring. This firm was employed at various times by the Atomic Energy Commission to do prospect work on the Colorado Plateau.

The supervision will be carried on by the four partners of the Group who have a total of more than 25 years of mining experience.

Estimate of Cost

(6) The inquiry concerning the pro rate part the applicant would share in the proposed project is this:

It is proposed, rather the approach of the applicant toward the project is, that in lieu of monies advanced by them, that they furnish such necessary labor and equipment to build roads, move machinery, provide water and whatever manual item necessary to carry on the project. The D.M.E.A. as their contributions, would provide the core drilling machine and all necessary accessories attendant to practical core drilling and such repairs as might from time to time become needed. The selection of such machinery would lie with the province of D.M.E.A. with perhaps the help or suggestions of the applicant. The size of such machinery with it's attended cost would depend on the depth of the maximum depth of the core holes. This proposed that the average depth be 600 feet depending on the individual coring and such depth can be made by machines costing approximately $5500.00 for the machine only. Drill rods for 800 feet and such equipment as is required for proper drilling, fuel, oil, repairs, two water tanks on skids, gasoline drums, hand tools, core box, lumber, freight and tax, $2650.00

	$5500.00
	$2650.00
Total	$8150.00

(a) Independent Contract. None

(b) Labor

Operator $3.00 per hour

Con't

(b) Helper $2.00 per hour

Six months operation for Operator and Helper $4800.00

Extra labor for clearing road routes, $2.00 per hour for 20 days. $320.00

Total $5120.00

(c) Gasoline----------$400.00

Oil and Filter for Motor------$90.00

Oil for Hydraulic Feed---------$10.00

Total------$500.00

(d) Bulldozer @ $12.50 per hour for 12 days----------$1200.00

Trucking and Freighting----------$1500.00

Total----------$2700.00

(e) None

(f) New Tool Shed 8'x12', wood frame and skid mounted $500.00

(g) Estimate only ---------- $200.00

(h) Estimate only ----------$1000.00

Total--------$ 10,020.00

(A) Yes

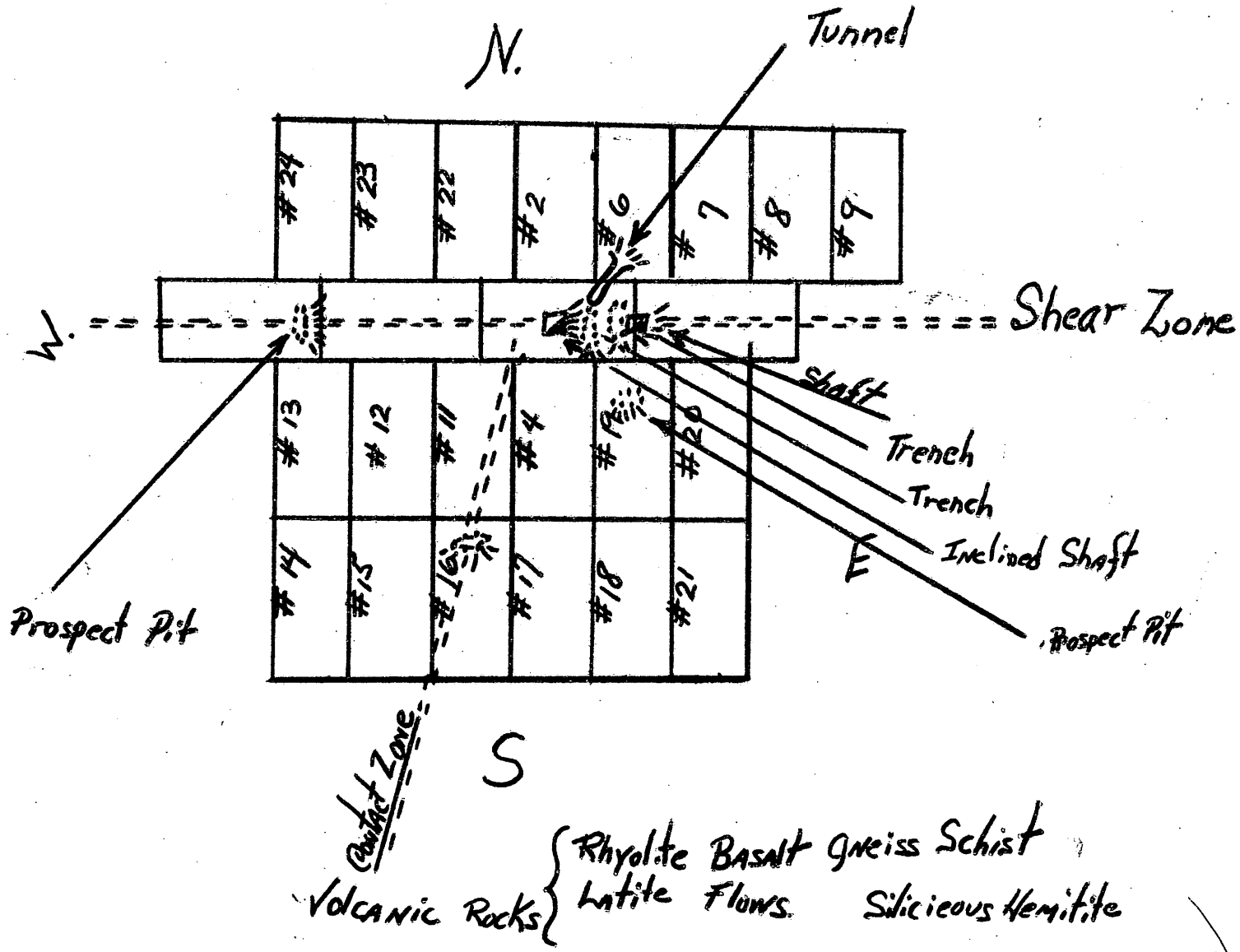
(B) By performing and supplying all necessary labor to carry out the exploration project.

By the use of equipment owned by the operator.

By constructing a suitable tool shed for the purpose of storing necessary drilling accessories and fuel to carry out the exploration project.

Sheet A.

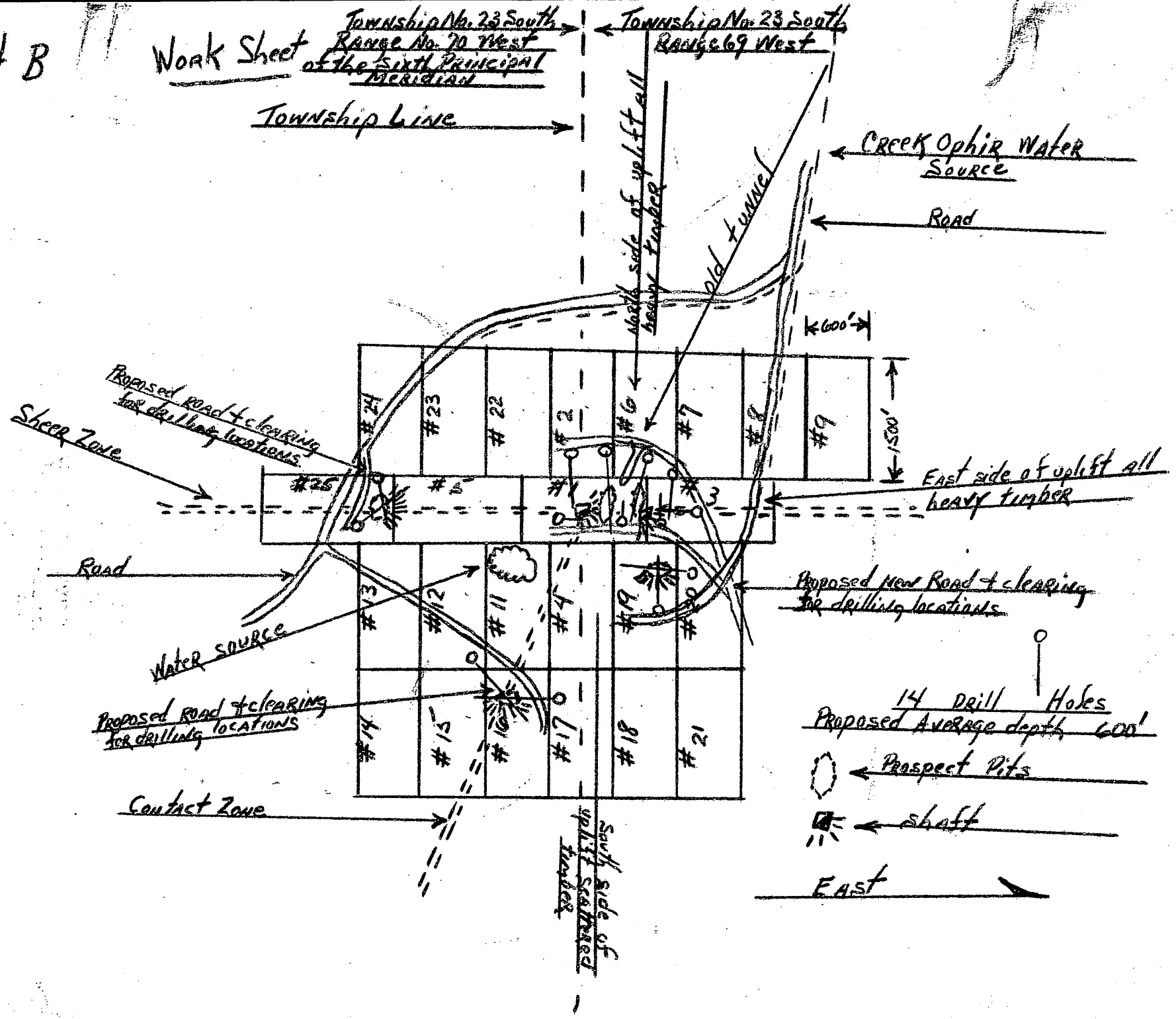
Hardin Group. 25 Claims



Volcanic Rocks { Rhyolite Basalt Gneiss Schist
Latite Flows. Silicious Hemitite

Sheet B

Work Sheet



PHIL KLOCK
GENERAL CONTRACTOR
PHONE 31F21 - BOX 22
RYE, COLORADO

Table 8

Chemical Analysis-- Shinklobue Uraninite

Black Lustrous Type

By F. J. Rodden

Elements:

SiO2	0.47
CO2	0.29
CaO	0.58
Rare Earth Oxides	0.15
MgO	0.13
Fe2O3	0.15
MoO3	0.31
NiO	0013
H2O (500)C.	1.34
UO2	47.5
UO3	40.8
PbO	7.63

Spectographic Notes

Traces of the following:

Ag, Al, CO, CR, Cu, Mn, Ti, Sr, Bi, Br.

Thorium Content

Th 5.1x10.5 Gm
Th/gm. sample

Note the similarity of this analysis relative to the spectrographic analysis from the Hardin No. 1 claim. This analysis is taken from Minerlogical Studies of Uraninite and Uraninite-bearing Deposits by Paul F. Kerr. The mineral associations are predominent in this comparison.