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

JUL 30 1959

Mr. John R. Coggins, President
Agency Creek Thorium and Rare
Metals Corporation
Salmon, Idaho

Re: Docket No. OME-6026
(Thorium and Rare Earths)
Agency Creek Thorium and
Rare Metals Corporation
Cage, et al., Claims
Lemhi County, Idaho, and
Beaverhead County, Montana

Dear Mr. Coggins:

Reference is made to our letters of April 2, May 8, and June 9, 1959, relating to information needed to process your application.

We cannot hold up action on applications indefinitely; consequently, if we do not receive word from you by August 31, 1959, we will consider your application withdrawn.

Sincerely yours,

(signed) FRANK E. JOHNSON
Acting Director

FMMurphy/gla 7-30-59
cc to: Director's Reading File
Mr. Kirkemo, USGS
OME Field Team, Region I (2)
Docket
Chron

April 22, 1959
Re: OME 6026
Agency Creek Thorium
& Rare Metals Corp.
Lemhi County, Idaho
Thorium & Rare Metals
Appl. Est. $83,000
Rec'd Est. $24,315.55

Memorandum

To: F. L. Knouse, Office of Minerals Exploration

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

Subject: Review of application

Except for a change in the estimated cost of the proposed work, this skeleton application is probably meant, in effect, to re-instate DMEA 4971. No reason for the modest increase from the original estimate of $80,000 to $83,000 is given.

In an examiners' report dated June 18, 1958, work estimated to cost $24,315.55 is recommended. In a memorandum dated July 7, 1958, I concurred with the recommendation of the examiners and the Field Team. I again concur with that recommendation.

N. E. Nelson

cc: OME (3)
Director's reading
Branch reading
James Paone
Chron. file
Docket file
NENelson/mm
G-MD-4-22-59

MME Form 40
Dec. 1958

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

Budget Bureau No. 42-R1368
Approval expires Dec. 31, 1963

6026

APPLICATION FOR FINANCIAL ASSISTANCE IN MINERALS EXPLORATION

Pursuant to Public Law 85-701 (72 Stat. 700; 30 U.S.C. 641)

NAME OF APPLICANT *(Full legal name and mailing address as they should appear on contract if one is executed.)*

Agency Creek Thorium and Rare Metals Corporation
Salmon, Idaho

APPLICANT DO NOT USE THIS BLOCK

DOCKET NUMBER: 6026

DATE RECEIVED: 3/27/59

REGION: I

DIVISION CODE: 700

BUSINESS ORGANIZATION *(Check one)*

- INDIVIDUAL [ ]
- CORPORATION [X]
- PARTNERSHIP [ ]
- OTHER *(Specify)* [ ]

STATE IN WHICH FIRM IS ORGANIZED: Idaho

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

NAME	ADDRESS	TITLE
John R. Coggins	Salmon, Idaho	President
Corbin J. Moore	Salmon, Idaho	Sec-Treasurer
James Selway	Dillon, Montana	V-President

MINERAL(S) FOR WHICH YOU WISH TO EXPLORE: Thorium, uranium, rare earths

ESTIMATED COST OF PROJECT: $83,000.00

PROPERTY NAME: Agency Creek Thorium & Rare Metals, Corp.

LOCATION — COUNTY: Lemhi — STATE: Idaho

GENERAL INSTRUCTIONS

Before filling out this application, please read the *OME Regulations for Obtaining Federal Assistance in Financing Explorations for Mineral Reserves* (30 CFR Chap. III). To assure prompt action, your application must provide all applicable material and information specified on the back of this application form. Avoid unnecessary correspondence and delays by submitting complete and accurate information. *Please submit four copies of this application and all accompanying papers* except as otherwise noted. Place your name and address on each sheet. Each item of information, maps, and reports required as a part of this application is described on the back of this form. Identify each attached statement by the item number to which it applies. If an item does not apply to your application, show the item number on your statement and after it write "not applicable." Maps or sketches should be used to supplement narrative descriptions of the property location and boundaries in item 2, existing mine workings and geology in item 3, and the proposed exploration work in item 5. When this information is not too complex, all of it may be shown on one map or sketch. All documents and other attachments submitted as a part of this application, except those in item 3(g) which you mark to be returned, become the property of the Government and will not be returned to the applicant. Send true copies, *not originals*, of leases, contracts, and other documents which are an essential part of your business records. *File this application with the Office of Minerals Exploration, Department of the Interior, Washington 25, D. C., or with the nearest OME Field Office.*

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, and that he would not ordinarily undertake the proposed exploration under current conditions and circumstances at his sole expense.

March 19, 1959
DATED

John R Coggins
BY *(Signature)*

TITLE

A wilfully false statement or certification to any Department or Agency of the United States Government is a criminal offense. U. S. Code, Title 18, Sec. 1001.

INFORMATION REQUIRED WITH THIS APPLICATION

1. Financial Eligibility:

(a) Submit evidence of efforts made within 90 days preceding the filing of this application to obtain credit from your bank of account and at least one other banking institution or other private source of credit. Such evidence shall include true copies of correspondence which show: (1) date of loan request, (2) amount and terms requested, (3) proposed use of loan funds, and (4) the replies from credit sources. If the loan was offered under terms which you consider unreasonable, state why you consider them so.

(b) List names and addresses of affiliated, parent, or controlling companies or organizations and state extent and nature of their interest.

(c) State how you propose to furnish your share of the exploration [redacted] cost.

2. Applicant's Rights in Land:

(a) State your interest in the land and mineral rights, whether owner, lessee, purchaser under contract, or other. If you are not the owner, submit one true copy of the lease, contract, or other document (with address of owner) under which you control the property. Describe all liens, mortgages, or other encumbrances on the land and state book and page number and official place where recorded.

(b) State the legal description (section, township, and range; metes and bounds; patent number of claims) of the land upon which you wish to explore and all adjacent land which you own or control. Describe any part of the land or workings which should not be subject to Government royalty and liens. If the land consists of unpatented claims, state book and page number for each recorded location notice, including amended locations, and official place where recorded. State all the names by which you know the property.

(c) For all land or mineral rights encumbered or not owned, submit five copies of Lien and Subordination Agreements on MME Form 52. If the agreements cannot be obtained, state reasons and provide copies of letters of refusal.

3. Physical Description:

(a) Describe in detail and illustrate with maps or sketches all mining or exploration operations which you know have been or are being conducted upon the land. Include existing mine workings and all production facilities.

(b) State your interest, if any, in operations described in (a).

(c) State, if you know, the past and current production, supporting your statement with copies of settlement sheets, mine records, or published data if available.

(d) Describe known ore reserves, giving quantities and grades and sampling methods used. Support your statement with copies of assay certificates and assay maps if available.

(e) Describe by narrative and maps or sketches the geologic features of the property, including ore minerals, geologic formations if known, and type of deposit (vein, bedded, etc.).

(f) State your reasons for expecting to find ore, and if you have sampled the area you propose to explore, show where the samples were taken, describe sampling methods used, and provide copies of assay certificates.

(g) Send with your application at least *two* copies of all geologic or engineering reports, assay maps, or technologic information which you have, indicating whether you require their return.

4. Accessibility of Property:

(a) To aid the OME representative who may examine the property, state name and address of person who will meet him; give directions for reaching the property; and describe accessibility of property and of any mine workings.

(b) Name the shipping and supply points and state the distances to the property.

5. Exploration Work:

(a) Describe fully the proposed exploration work giving individual footages and sizes of openings *for each item of work.* Use narrative, maps, plans, and sections as necessary. Show location of the proposed work as related to geologic features such as veins, ore-bearing beds, contacts of rock formations, etc. Show also the relation of the proposed work to any existing mine workings and to *land boundaries* or to the closest identifiable corner.

(b) If an access road must be built, show the proposed location on the property map and state the length, type and construction methods proposed.

(c) If an OME contract is executed, state how soon thereafter work would be started and finished. State your anticipated average daily or monthly rate of progress for each type of work.

6. Experience:

State your operating experience and background to conduct this exploration work and also that of the person who will supervise the work.

7. Estimate of Costs:

Furnish detailed estimates of the necessary costs *for each item of the work proposed in 5(a)* under the headings listed below with a total for each heading and the estimated total cost of the work. Costs for any work to be performed by an independent contractor should be listed separately under category (a) below. Costs for any work that is not to be performed by an independent contractor should be listed under categories (b) through (g).

(a) Independent contracts. State the total cost of any proposed independent contract for all or any part of the work, and the number of units and the unit cost for each type of work, such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, or per cubic yard of material moved. Cost estimates should be supported by bids from three contractors if possible. (*Note*—If none of the work is to be contracted, write "none" after this item.)

(b) Personal services. The cost of supervision, engineering and geological services, outside consultants, and labor should be itemized by numbers and classes of employees; rates of wages, salaries or fees; and periods of employment. State whether these services are available.

(c) Operating materials and supplies. List items of material and supplies giving quantity and cost of each. Include under this heading power, water, and fuel, and units of equipment and tools costing less than $50 each.

(d) Operating equipment. List items of equipment and tools costing $50 or more per unit. Give specifications and indicate how each item is to be acquired—i.e., rented, purchased or provided by the applicant. If rented or purchased, state the estimated rental or purchase price. If furnished by the applicant, state condition and present fair market value.

(e) Initial rehabilitation and repairs. Describe the type and the cost of *initial* rehabilitation or repair of existing buildings, fixtures, installations (exclusive of mine workings), and movable operating equipment now owned by the applicant which will be used in the exploration work.

(f) New buildings, fixtures, installations. Describe each building, fixed improvement, and installation to be purchased, constructed, or installed for the exploration work, stating specifications and cost including labor, materials, and supervision.

(g) Miscellaneous. Describe the type and estimate the cost of repairs and maintenance of the operating equipment listed in 7(d). Do not repeat initial repairs listed in 7(e). Show also the costs of analytical work, accounting, workmen's compensation and employees' liability insurance, payroll taxes, and other required costs that do not fall within the previous categories. [*Note*—The Government will not contribute to costs incurred before the date of the contract, or to costs of or incident to: (1) acquiring, using, or possessing land and any existing improvements, facilities, buildings, installations, and appurtenances, or the depreciation and depletion thereof; (2) general overhead, corporate management, interest and taxes (other than payroll and sales taxes); (3) insurance (other than employees' liability insurance); and (4) damages to persons or property (other than authorized repair to or replacement of equipment or other property used in the work).]

INT.-DUP. SEC., WASH., D.C. 48740

4971

EXTRA COPY

RECEIV

DATE		CODE

So. 157 Howard Street
Spokane 4, Washington
June 23, 1958

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

Re: Docket No. DMEA-4971 (Thorium)
Agency Creek Thorium and
Rare Metals Corporation
Cago, et al., Claims
Lemhi County, Idaho, and
Beaverhead County, Montana

Dear Mr. Selfridge:

Enclosed are three copies each of memorandum reports on this property--one by D. C. Alvord, Geologist, Geological Survey, the other by E. W. Parsons, Mining Engineer, Bureau of Mines. Alvord presents a geological justification for a project and Parsons presents a cost estimate.

Quartz veins, 10 to 30 feet wide and up to 1,000 feet long occur as fillings and replacements along faults that cut quartzite and argillite beds of the Precambrian Belt series. Concentrations of thoria and rare-earth oxides along the veins range from less than 0.1 percent to as much as 22 percent, and work to date indicates rather large tonnages of rock containing 1 to 2 percent combined oxides.

Alvord concluded that the chance of making a significant discovery is excellent and recommends that a modified program be approved.

The Field Team concurs with these conclusions and recommendations.

By Field Team, Region I

Reviewed by
DMEA OPERATING COMMITTEE

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

(date)

Wing G. Agnew, Member
U. S. Bureau of Mines

Enclosures
cc: USBM(2)
USGS(SRO)
Alvord

D-2-54

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration
So. 157 Howard Street
Spokane 4, Washington

June 18, 1958

MEMORANDUM

To: DMEA Field Team, Region I

From: D. C. Alvord, Geologist, U. S. Geological Survey

Subject: Application Examination Report, Docket No. DMEA-4971 (Thorium), Agency Creek Thorium and Rare Metals Corp., Cago, et al., claims, Lemhi County, Idaho, and Beaverhead County, Montana

INTRODUCTION

An application for Government aid to explore for thorium and rare earth minerals was received on March 28, 1958, from the Agency Creek Thorium and Rare Metals Corporation of Salmon, Idaho. The company proposes to explore a prominent thorium-bearing quartz vein by dozer trenching and 700 feet of drift. Three miles of new road, widening of existing roads, buildings for employees, tool house, and an ore bin are included in the proposal. The applicant's estimated total cost of the work is $80,210, of which the Government's share would be 50 percent or $40,105.

The author examined the property on May 19, 1958, in company with Ottis Gundersen, Treasurer; Corbin J. Moore, Secretary; Charles W. McConnell, Vice-President; and G. Elmo Shoup, Stockholder. The property and most of the surrounding area was covered with 2 to 4 feet of snow, but dozer work done by the applicant during the week prior to the examination lent access to and exposure of the most favorable showings known to the applicant. About 2 hours were spent on the property, the remainder of the day being used to examine vein exposures on other properties for comparative information. Four samples of the vein were taken.

SUMMARY AND CONCLUSIONS

The property is in a district underlain principally by quartzite and argillite beds of the Precambrian Belt series. Numerous moderate to steeply dipping quartz veins occur as fillings and replacements along faults that cut the rocks of the area. Recurrent faulting has fractured the veins and quartz; iron oxides

Reviewed by
DMEA OPERATING COMMITTEE
(date)

(principally hematite), and thorite have been deposited along these fractures. Concentrations of thoria and rare-earth oxides along these veins range from less than 0.1 percent to as much as 22 percent and work to date indicates that rather large tonnages of rock containing from 1 to 2 percent combined oxides are present. The veins are wide and persistent, widths of 10 to 30 feet being the rule and the presently known horizontal and vertical persistence being measured in the thousands and near-thousand feet, respectively.

The Cago group of claims are cut by a remarkably persistent quartz-hematite vein system. Sampling indicates that this vein is potentially capable of yielding 1 to 2 percent thoria-rare-earth oxide ore in significant quantities. An exploration program to search for ore shoots along the vein by trenching and drifting would stand an excellent chance of discoverying significant reserves.

RECOMMENDATIONS

It is recommended that the application be approved. A modified program similar to the applicant's is recommended.

LOCATION AND ACCESSIBILITY

The Cago, et al., claims are in secs. 21, 22, 27, and 28, T. 19 N., R. 25 E. Boise meridian, Lemhi County, Idaho, and in secs. 19, 20, and 30, T. 10 S., R. 13 W., Montana principal meridian, Beaverhead County, Montana. They are in the McDevitt Mining District long known as a gold-copper-quartz lode area. In the past few years the McDevitt Mining District has also been referred to, in both the literature and by the local people, as the Agency Creek District or the Lemhi Pass District. The property is easily reached in an ordinary passenger car from Tendoy, Idaho, by traveling easterly 12 miles up Agency Creek over a well-graveled and graded road to Lemhi Pass, thence traveling southerly and westerly over a poorly maintained truck trail, a distance of about 4 miles to the property (fig. 1 and pl. 1). The nearest railhead is at Armstead, Montana, which can be reached from Lemhi Pass by traveling 31 miles easterly over a well-graded dirt road. The property is at altitudes ranging from about 7,300 to 8,000 feet; winter temperatures are cold, reaching 40° or more below zero. Snowfall is moderate, but steady winds blow the snow into deep drifts that may remain until late summer. Normally, with but little dozer work, the roads may be kept open from about the middle of May through November and even December.

DESCRIPTION OF THE PROPERTY

The Cago, et al., claims are located across the Continental Divide on rolling uplands typical of the high, semiarid country of Idaho and Montana; dense stands of pine, fir, and aspen cover the north-facing slopes and shaded canyons, whereas the south-facing

slopes and the crests of many of the ridges are covered with grasses and brush. Most of the drainage on the property is northward along tributaries to the South Fork of Agency Creek. The gullys and spurs cut by these streams usually have slopes ranging from 25° to 35°, but otherwise the bulk of the property is much flatter. In general, overburden is only 2 to 4 or 5 feet in depth, but at a few localities it is much deeper. Natural exposures of bedrock are rare.

HISTORY, PRODUCTION, AND DEVELOPMENT

The Cago, et al., claims were located by G. Elmo Shoup and others in the early 1950's. There has been no mineral production from the property. Development consists of a crude truck trail to the principal showing on the Cago No. 12 claim and of hand-dug discovery pits on the various claims of the property; otherwise, the property is unimproved.

PROPERTY RIGHTS

The corporation is the sole owner of the Elaine, Debra Lee, and Cago groups, which comprise a total of 26 claims, 23 of which are recorded as follows:

Claim	Book	Page
Elaine No. 1 through Elaine No. 5	7	451 through 453
Debra Lee No. 1 through Debra Lee No. 10	7	371 through 375
Cago No. 10 through Cago No. 15	7	92 through 95
Cago No. 18 and Cago No. 19	145	49 through 52

The Elaine No. 1 through 5, Debra Lee No. 1 through 10, and Cago No. 10 through 15 are recorded in the Office of the County Clerk and Recorder, Lemhi County, Salmon, Idaho; Cago No. 18 and 19 are recorded in the Office of the County Recorder, Beaverhead County, Dillon, Montana. For the purposes of a contract, only the Cago No. 10, 11, 12, 13, and 15 and the Debra Lee No. 1 and 9 would be necessary (pl. 1).

THE APPLICANT

The applicant is the Agency Creek Thorium and Rare Metals Corporation with offices in Salmon, Idaho. Its officers are:

Dr. E. A. Groggins	President	Salmon, Idaho
Clinton A. Gundersen	Director and Manager	Challis, Idaho
Charles W. McConnell	Vice-President	Salmon, Idaho
Corbin J. Moore	Secretary	do.
Ottis Gundersen	Treasurer	do.

The officers are all successful business men who have through the years engaged in various mine ventures. The Gundersen brothers are well known to the author for having made either notable successes of or judicious attempts to develop several small properties in the central Idaho region. These two man together with Mr. McConnell, who impressed the author with his practical knowledge of mining economics and geology, should be well able to supervise the proposed exploration project.

It is of interest to note that this corporation comprises the only group in the Salmon area known to the author who has had the foresight to send large samples of their ore to several testing laboratories for mineralogic and amenability studies.

It is stated in the application under item 7(b) that the corporation's share of the cost of the project will be furnished with equipment. When querried regarding this, they hastened to assure me that the corporation is able to meet their share of the cost with either money or equipment.

GEOLOGY

The presence of radioactive minerals in the Agency Creek area of the McDevitt District was first discovered by G. Elmo Shoup in 1947 while prospecting for uranium. Since that time, the area has received a fair amount of attention, both by the prospector and the geologist. The geology of the district or of some of its properties is described in the following papers:

Umpleby, J. B., 1913, Geology and ore deposits of Lemhi County, Idaho: U. S. Geol. Survey Bull. 528, p. 118-121

Trites, A. F., Jr., and Tooker, E. W., 1953, Uranium and thorium deposits of east-central Idaho, southwestern Montana: U. S. Geol. Survey Bull. 988-H (Lemhi Pass district, Idaho and Montana, p. 191-205)

Sharp, W. N., and Cavender, W. S., in preparation, The geology and thorium-bearing deposits of Lemhi Pass area, Lemhi County, Idaho, and Beaverhead County, Montana: U. S. Geol. Survey TEM 351

Armstrong, F. C., 1954, Field Team final report, Contract No. Idm-E144, Docket No. DMA-1186X, Last Chance Group, Elkhorn Mining Company

Service, A. L., and Weis, P. L., 1955, Field Team final report, Contract No. Idm-E384, Docket No. DMEA-2535, Wonder mining claims, Defense Metals, Inc.

The following brief discussion of the geology of the district is taken freely from the above-cited papers and the reader is referred to the same for further details.

The rocks underlying the McDevitt District are principally of the Belt series of Precambrian age and consist of fair to well-foliated, moderately metamorphosed sandstones and argillites. Tertiary basalts and rhyolites overlie the Precambrian rocks along Agency Creek near the summit of Lemhi Pass and south of South Frying Pan Creek. Diorite dikes occupy certain faults in the rocks. The larger dikes trend northwest, but most of the smaller dikes strike east and a few strike northeast. All the dikes dip steeply.

The Belt rocks are believed to be extensively folded, but due to poor exposures the pattern of folding is not well known. Numerous faults cut both the Belt rocks and the dikes, of which a northerly trending, a westerly trending, and a northwesterly trending set predominate. Quartz-gold-copper and quartz-hematite veins occur in these faults, chiefly along the northwest-trending set (pl. 1). In many places both the quartz-copper and quartz-hematite veins are cut by northerly to slightly west-of-north-trending steep-dipping faults, which have offset the veins into en echelon segments. The veins dip moderately to steeply both northward and southward. Thorium may be present both in the quartz-copper and quartz-hematite veins, but prospecting to date indicates that the quartz-hematite veins are younger than the quartz-copper veins and insofar as thorium is concerned, are quantitatively more significant. The quartz-hematite veins range from less than a foot to 50 feet or more in width and from a few feet to more than 1,000 feet in length. These veins are more resistent than the country rock and in places form bold outcrops. Quartz-hematite, goethite, chalcedony, thorite ($ThSiO_4$), and barite are the principal minerals in the veins, but base-metal sulfides have been noted and xenotime has been reported. Most of the radioactivity is due to thorium in the thorite. Minor thorium is also present in the fine-grained mixture of iron oxides and may occur as hydrothorite, an alteration product of thorite. Uranium is present in the veins in 20 to 100 ppm, whereas thorium is commonly present in the order of 0.1 percent to as much as 15 or 20 percent from certain selected samples. Trites and Tooker (1953, p. 193) report that the rare-earth metals yttrium, cerium, samarium, neodymium, gadolinum, and lanthanum were found by spectrographic analyses of both the heavy and light mineral fractions of samples. The persistence of the quartz-hematite veins in the district is indicated by the fact that one series of exposures extended northwesterly from the Brown Bear claim group across Frying Pan Creek, thence across the Continental Divide and down the north-facing slopes of the Divide to the Cago 12 area, a distance of around 2 miles. It is possible that these exposures are of faulted segments of one vein, but it is more likely that some of them are of separate veins occurring along a persistent zone of faulting. Declivity along this traverse is about 800 feet, which indicates that these veins have considerable persistence with depth. A crosscut has been driven southwesterly about 500 feet to the Last Chance structure. This working is presently caved; however, it is reported to cut a 20-foot wide zone of thorium-bearing quartz-hematite vein which limited exploration by drift indicates averages about 0.5 percent ThO_2. The author saw the ore near the portal of this working and the report does not appear to be out of line. On the surface this structure ranges from a few inches to at least 35 feet in width. Exploration under Contract No. Idm-E144 (Armstrong, 1954) which was done prior to the above-cited crosscut discovered 330,000 tons of inferred ore that averages 0.15 percent ThO_2, but locally much higher grade assays were obtained. According to L. D. Jarrard and

Warren R. Wagner, Geologic Consultants, subsequent development has shown that a substantial tonnage of 1 percent ore exists (personal communication). Surface trenching and underground tunneling done on the Wonder structure under Contract No. Idm-E384 (Weis and Service, 1955) disclosed 17,300 tons of indicated and inferred vein material estimated to average about 0.4 percent ThO_2.

According to the Engineering and Mining Journal (February 1958) the current price for 10 percent thoria concentrate was reported at $1 per pound of thoria content in thorite ores. Monazite prices averaged about $250 per net short ton delivered for large contract tonnages of ore containing 6 percent ThO_2 and 45 percent rare-earth oxides. Small lots of monazite sand sold at varying prices starting at $25 to $30 per standard unit of thoria content. The demand for thorium and rare-earth ores appears to be limited for in the latest Engineering and Mining Journal (April 1958) thorium and rare earths are not listed under miscellaneous metals, ores, and minerals. Presently, however, certain companies will buy on a contract basis small lots of ore or concentrates totaling from 50,000 to 100,000 pounds of thoria (ThO_2) of 20 percent or better grade at around $3 per pound of contained thoria. Thus, an average grade of about 0.5 percent thoria in the ore might be of interest if the deposit were of substantial size.

As shown on plate 1, the rocks of the Cago group of claims are cut by a quartz-hematite vein. At present, this structure is exposed by only one dozer trench (fig. 2). Although only about 200 feet of structure is exposed at this working, on a basis of what is known of the district, the author is firmly convinced that further exploration would disclose considerably more strike length. The cut on the Cago No. 12 claim (fig. 2) discloses an 8- to 12-foot quartz-hematite vein which ranges in radioactivity intensity between 0.5 and 2 MR/hr. Adjacent to the footwall of this vein, a strand of material up to a foot wide approaches a radioactivity intensity of 4 MR/hr. Three channel samples were cut along the structure over a 120-foot interval and 1 was cut selectively across the footwall zone only. The locations are shown on figure 2 and the results are tabulated below.

Assay Data

Sample No.	Width (feet)	ThO_2 %	REO %	ThO_2+REO %
AC-1	9.0	--	--	0.14
AC-2	12.0	0.82	0.60	1.42
AC-3	12.0	--	--	0.08
AC-4	0.8	13.2	9.56	22.76

Samples No. AC-1 and AC-3 were cut from the footwall side of the vein to within a few inches of the hanging-wall side across quartz-hematite vein material which, on a basis of both appearance and radioactivity, was homogenous. The applicants were enthusiastic in their conviction that the material cut into these samples would contain around 1 percent ThO_2. Where AC-2 and AC-4 were taken, the true width of the vein is 10 feet and it is made up of 9.3 feet of quartz-hematite vein material similar in appearance and radioactivity to that exposed at the localities of AC-1 and AC-3, and 0.7 foot of a strongly radioactive (2-4 MR/hr) material which appears to consist principally of hematite and goethite with minor quartz. This high-iron "lode" was exposed along the footwall for a distance of 23 feet, it pinches out northwestward away from AC-4, and it is covered to the southeast. AC-4, cut from the high-iron lode contains 13.2 percent ThO_2 and 9.36 percent rare-earth oxides (REO), and AC-2, cut across the entire width of the vein at this locality, contains 0.82 percent ThO_2 and 0.60 percent REO. Undoubtedly most of the values present in AC-2 were from the 0.7-foot wide high-grade footwall zone. The high-grade iron-quartz lode probably represents an internal fracture filling within the quartz-hematite vein and it is concentrations of such internal structures or lodes into zones of significant size and grade that constitute the potential ore shoots within the quartz-hematite vein. Intensive exploration of a significant length of such a vein would stand a rather fair chance of discovering significant tonnages or rock containing between 1 and 2 percent combined thoria and rare-earth oxides. This opinion is lent support by the fact that on the Last Chance group a modest exploration program of 700 linear feet of bulldozer trenching and 1,350 feet of diamond drilling done under Contract No. Idm-E144 in 1951-53 permitted inference of 330,000 tons of rock containing only 0.15 percent ThO_2 (Armstrong, 1954). Subsequent exposures, made by shaft, adit tunnel, and dozer trenches, have permitted extensive sampling upon which two recognized consulting geologists and engineers, L. D. Jarrard and Warren R. Wagner, have prepared reserve estimates for the Last Chance structure that greatly exceed Armstrong's both in tonnage and grade; the grade is now indicated at about 1 percent. (See separate reports by Jarrard and Wagner, Docket No. DMEA-5043 (Thorium), Sawyer Petroleum Company, Beaverhead County, Montana.) Apparently detailed exposures of the Agency Creek-Frying Pan Creek veins, such as are furnished by tunnel work, are needed to determine their potential.

APPLICANT'S PROPOSAL

"The exploration project:

"(a) Buildings for employees, tool house and shop, ore bin, 700 feet of 5 x 7 standard drift. See maps accompanying. Other work includes leveling for buildings and road work to site of operations.

"(b) Three miles of new road construction plus widening of existing roads to property. Work can be done with patrol and bulldozer.

"(c) Work to start May 1 and work can be completed in 160 days. Road work 30 days to accommodate ore trucks. Tunnel 5.5 ft. per day, or 150 days to complete work. Buildings will be erected in 30 days. Stripping and excavation 14 days.

"Estimate of costs:

Necessary buildings and ore bins	$10,500.00	
Road work	6,000.00	
Stripping and excavation	2,800.00	
Drifting by tunnel and timbering	28,500.00	
		$47,800.00
Machinery maintenance	5,500.00	
Miscellaneous tools and equipment	300.00	
Payroll taxes	810.00	
Accounting	800.00	
Fuel and supplies	800.00	
4-Wheel drive pickup	3,700.00	
		11,910.00
D-7 tractor with dozer	7,500.00	
Compressors	7,500.00	
Mucking machine	1,500.00	
Drills, hoses, bits, tanks, etc.	4,000.00	
		20,500.00
		$80,210.00

"(a) Independent contractors None.

"(b) All necessary personnel available. Salary is based on prevailing scales on a 48-hour week. No contracting. Rate of pay for miners $2 per hour less allowance for board and room. Period of employment will be until completion of work scheduled under this application.

"(c) Fuel oil, gal. 17 cents; gasoline, 37 cents; no public power available; drill bits, each $35. All these items are accounted for under 6 above. These amounts have been determined by experience.

"(d) D-7 Cat tractor with dozer, compressors, 315 cu. in. Worthington, 265 cu. in. compressor, Worthington; accessory hoses, etc. Mucking machine, drilling machines, steel, bits, etc. Rails, cars. All equipment owned by company except rails. A fair market value of this company-owned equipment is $25,000.

"(e) Buildings must be constructed, equipment in good condition and ready to start operating with no repair. All company-owned equipment to be used on this project.

"(f) Cook shack, will be combined with bunk house, 20 x 40 rough lumber frame, tar paper walls and roof, $3,500. Tool house and machine shed, 20 x 40 same as cook-bunk house, $3,500. Ore bins with 100-ton capacity, $3,500.

"(g) Usual repair and replacements common to work of this kind over the period covered, $3,500; this figure includes motor fuels, oils, lubricants. Analytical work was included in $800 accounting costs. Taxes and insurance was estimated $810.00."

DISCUSSION OF APPLICANT'S PROPOSAL

The essence of the applicant's proposal, namely, 700 feet of crosscutting and drifting, plus a small amount of dozer excavation along the structure, is a sound approach to the exploration of the target. Drilling would not be very practical for two reasons. Over much of the area the vein dips at about 45° into the steep slopes of hillsides making penetration at reasonable depths by diamond drilling costly. Furthermore, the persistence of the veins in the district is well-demonstrated. Thus, if a good ore shoot is found with surface exploration in general, the next logical step would be crosscutting to and drifting on the structure at a reasonable depth below a known ore shoot.

For the purposes of the proposed exploration, however, most of the road work, the ore bin, and most of the cost of building construction proposed by the applicant are unnecessary. The present road to the property and the vicinity of the Cago No. 12 may be traversed by ordinary passenger sedan and it is certainly adequate for exploration purposes. Some road work would be needed, however, to provide access to the portal area should a tunnel be driven. Two or three frame tents with floors would suffice both for housing for the employees and as a tool house and shop during the brief period of exploration activity. An ore bin is, of course, out of the question.

RECOMMENDED EXPLORATION

The main cut of the Cago No. 12 claim lies near the crest or nose of a north-trending spur formed by two north-flowing tributaries to the South Fork of Agency Creek (pl. 1). The width and grade of the vein as exposed in the main cut in itself constitutes a favorable target for further exploration. Additional information concerning the strike length, however, is desirable. It is at least possible that the structure will extend northwesterly and southeasterly from the main cut to the boundaries of the Cago claims, a distance of about 2,000 feet. If this were true and the vein was shown to contain other shoots at least as promising as that exposed at the main cut, then underground exposure of the vein could best be obtained by driving a drift from a selected point on the trace of the structure somewhere along the flanks of the spur down towards one of the gully bottoms. If, on the other hand, the surface expression of the structure should prove to have only a few hundred feet of strike length, then probably crosscutting down the slope from the strongest showing on the structure would be the logical approach. Therefore, a Stage I, consisting essentially of dozer cross-trenching to extend the known strike length of the vein and to search for other ore shoots is recommended. Dozer trenching on 200-foot centers northwesterly and southeasterly away from the main cut on the Cago No. 12 claim should adequately test the potential of the vein within the limits of the property. About 10 trenches, roughly 100 feet in length each, should be allowed for this work. Perhaps allowance for two more trenches should be thrown in to cover unforeseen contingencies. The over-all objective would be trenching on 200-foot centers; however, it should be permissible within the contract to place trenches as close as 100 feet from one another with prior Field Team approval. Provisions for cutting and assaying 25 samples for thorium and rareearths as a group should be made under this stage. In addition, the contract should provide that the trenching not be initiated until such time as Field Team representatives can be on the property to work out the locations of the first three or four cuts. Three frame tents, one for dwelling, one for cooking, and one for general storage and tool house, should be allowed under this stage.

With the completion of Stage I, it should be apparent whether or not the structure warrants further exploration by underground tunneling. If further work is warranted, a Stage II consisting of 500 feet of drift, or crosscut and drift should be initiated. As the ground generally stands well only about 200 feet of timbering need be provided. The location and bearing of the tunnel work would require prior approval of the Field Team. A maximum of a mile of road construction, including up to 300 feet (100 holes) of jackhammer drilling and blasting to clear rock spurs should be allowed under this stage to provide access to the portal

area of the exploratory tunnel. Supervision at $550 per month would be in order.

Enclosures
Distribution:
DMEA(3)
USEM(2)
USGS(SRO)
Docket
Alvord

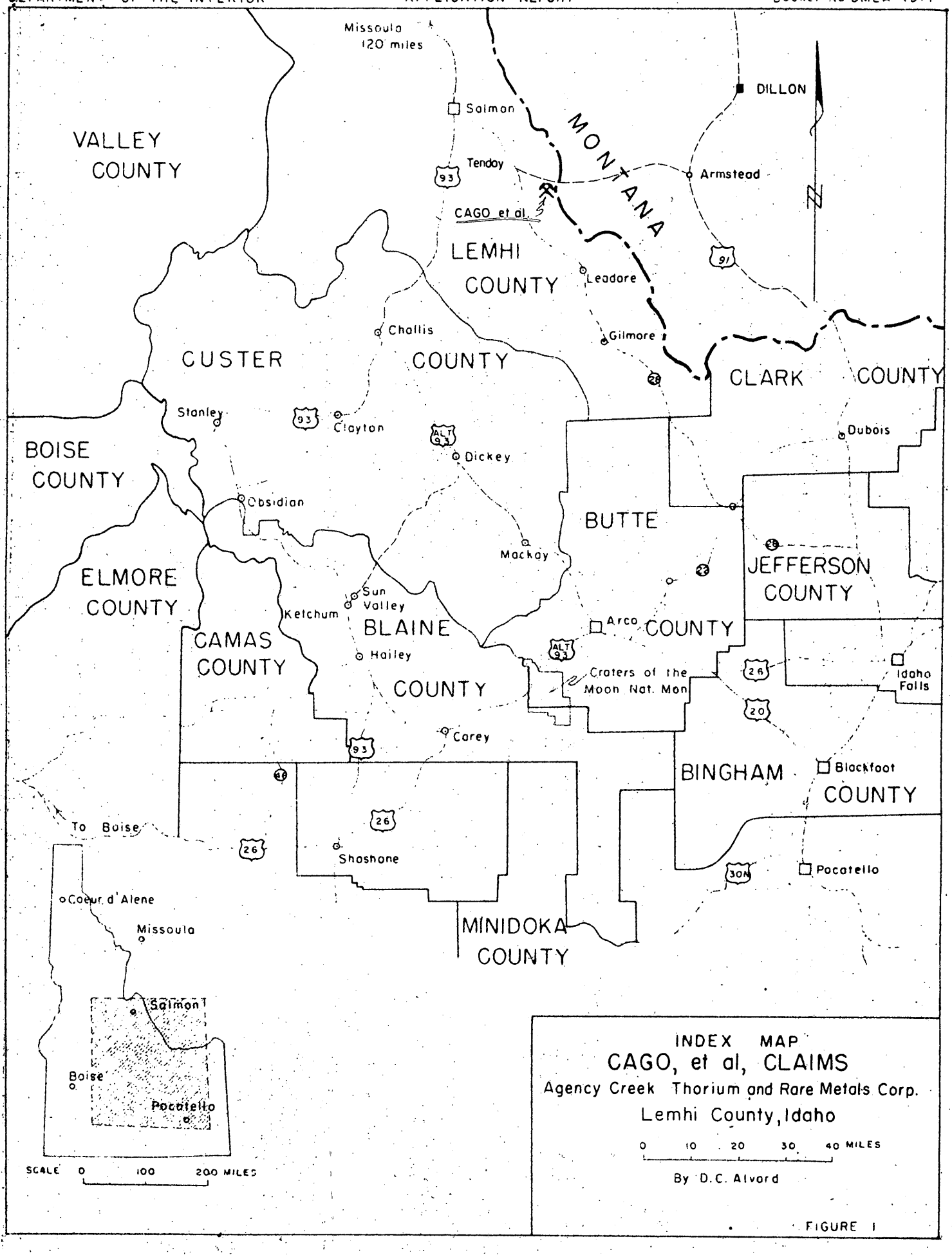
Missoula
120 miles
Salmon
DILLON
VALLEY
COUNTY
Tendoy
93
Armstead
MONTANA
CAGO et al.
LEMHI
COUNTY
91
Leadore
Challis
Gilmore
CUSTER
COUNTY
28
CLARK
COUNTY
Stanley
93
Clayton
ALT 93
Dickey
Dubois
BOISE
COUNTY
Obsidian
BUTTE
Mackay
28
JEFFERSON
COUNTY
ELMORE
COUNTY
Sun
Valley
Ketchum
BLAINE
COUNTY
Arco
CAMAS
COUNTY
Hailey
ALT 93
Craters of the
Moon Nat. Mon
26
Idaho
Falls
20
Carey
93
BINGHAM
Blackfoot
COUNTY
48
To Boise
26
26
Shoshone
30N
Pocatello
Coeur d'Alene
Missoula
MINIDOKA
COUNTY
Salmon
Boise
Pocatello
SCALE 0 100 200 MILES
INDEX MAP
CAGO, et al, CLAIMS
Agency Creek Thorium and Rare Metals Corp.
Lemhi County, Idaho
0 10 20 30 40 MILES
By D.C. Alvord

FIGURE 1

DMEA

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration
1201 North Division
Spokane 2, Washington

June 18, 1958

MEMORANDUM

To: DMEA Field Team, Region I

From: E. W. Parsons, Mining Engineer, U. S. Bureau of Mines

Subject: Cost analysis to accompany Field Examination Report, Docket No. DMEA-4971 (Thorium), Agency Creek Thorium and Rare Metals Corp., Cago, et al., claims, Lemhi County, Idaho, and Beaverhead County, Montana.

This cost analysis is to cover a project which will consist of two stages, the first stage to be bulldozer trenching, the second stage to be crosscutting and drifting.

Stage I will consist of cutting 10 bulldozer trenches at 200-foot intervals at right angles to the strike of the vein to expose the vein for mapping and sampling. A total of 120 hours of bulldozer work using a D7 or equivalent is recommended, a supervisor will direct the work and cut samples, a maximum of 30 samples will be assayed for thorium and rare-earth oxides, and provision is made for 2 days' work by a consulting engineer or geologist.

Stage II will be contingent on whether Stage I exposes structure and values that warrant underground work. In case Stage II is authorized the work will consist of driving 500 feet of crosscut and drift with necessary timber to a maximum of 300 feet; 30 hours bulldozer work on road and adit portal site; 40 sample assays for thorium and rare-earth oxides; supervision; change, compressor, warehouse shed; and consulting engineer or geologist for 4 days.

Should the Government decide to participate in this exploration the following costs are recommended:

Stage I

Bulldoze 10 trenches with D-7 dozer or equivalent (estimated 60 feet long by 6 feet deep) 120 hours at $15/hr.	$1,800.00
Supervise dozing, cut samples, travel, and other expenses - 120 hours at $3.50/hr.	420.00
Consultant engineer or geologist - 2 days at $75/day	150.00
Assays for thorium and rare-earth oxides 30 for thorium at $10 each	300.00
30 for rare-earth oxides at $15 each	450.00
TOTAL COST STAGE I	$3,120.00

Stage II

Operating equipment needed (to be furnished)

	Item	Value	Mo. Depreciation
1	365 cfm compressor	$9,940.00	$ $165.67
1	ventilating fan	296.00	4.93
1	mechanical loader	2,940.00	49.00
2	Copco drills with legs	1,080.00	18.00
3	mine cars	900.00	15.00
5	lamps with charger	325.00	5.42
1	truck	2,000.00	33.33

* * * * * * * * * *

500 feet of drifting and crosscutting - 5' x 7' in clear

Estimated daily advance - 4 feet

Estimated completion time - 125 days or 5 months

1. Independent contracts

30 hours bulldozing at $15/hr. (D7 or equivalent)		$ 450.00

2. Labor, supervision, and consultants

Labor: 3 miners x 125 days x $16/day x $1.083 overtime	$6,498.00	
Supervision: Foreman, 5 mos. at $550/mo.	2,750.00	
Consultant: Engineer-geologist - 4 days at $75/day	300.00	
		$9,548.00

3. Operating materials and supplies

Explosives

2,000 caps at $2.39/100	$ 47.80	
20,000 ft. fuse at $1.37/100	274.00	
5,000 lbs. 40% gelatine at $24.90/100 lbs.	1,245.00	
		1,566.80

Drill accessories

Steel and bits at $1.50/ft. - 500 feet of drift		750.00

Track

1,000 ft. - 16 lb. rail - 5,333 lbs. at $12/100	$639.96	
Fishplates, bolts, spikes - 15% of track	95.99	
	$735.95	
Minus 50% salvage	367.98	
334 ties at $0.35 each	116.90	
		484.88

3. Operating materials and supplies (cont'd.)

Pipe		
500 ft. 2" airline at $43.65/100	$218.25	
500 ft. 1" waterline at $21/100	105.00	
	$323.25	
Minus 50% salvage	161.63	
Pipe fittings - 20% of pipe	64.65	
		$ 226.28
Ventilation		
500 ft. 12" ventute at $1.08/ft. minus 50% salvage		270.00
Repair parts		
500 feet at $0.75/ft.		375.00
Power and fuel		
Diesel fuel 20 gal./day at $0.21/gal. - 125 days	$525.00	
Gasoline 5 gal./day at $0.35/gal. - 125 days	218.75	
Grease and oil 15% of fuel	111.56	
		855.31
(Total Category 3)		$4,528.27

4. Operating equipment - to be furnished

	Item	Mo. Deprec.	Use period	Total
1	365 cfm compressor	$165.67	5 mos.	$828.35
1	ventilation fan	4.93	5 mos.	24.65
1	mechanical loader	49.00	5 mos.	245.00
2	Copco drills with legs	18.00	5 mos.	90.00
3	mine cars	15.00	5 mos.	75.00
5	mine lamps	5.42	5 mos.	27.10
1	pickup	33.33	5 mos.	166.65

$ 1,456.75

5. Rehabilitation and repairs none

6. New buildings, etc.

Change-compressor-warehouse, complete 450.00

7. Miscellaneous

Unempl. comp., industrial ins., etc.

14.9% of payroll ($9,548.00) $1,422.65

Assaying - 40 samples at $25 each 1,000.00

2,422.65

8. Contingencies none

Cost of Stage II work, without timber $18,855.67

Minus cost of assaying and consultant 1,300.00

TOTAL COST STAGE II FOR 500 FT. DRIFT AND/OR CROSSCUT $17,555.67

Cost per foot of drifting and/or crosscutting $35.11, or say $ 35.10

TIMBERING - 300 feet or 60 sets

Estimated advance: 3 men plus foreman will frame, stand, block, and lag 4 sets per 8-hour shift, or 15 days - 0.6 month

2. Labor

3 miners x 15 days x $16 x $1.083 overtime	$779.76	
Foreman (supervisor) 0.6 mo. at $550	330.00	
	$1,109.76	
Plus 14.9% (taxes and ins.)	165.35	
		$ 1,275.11

3. Operating materials and supplies

Timber

120 posts - 8" x 8" x 7'	4,477 bf		
60 caps - 8" x 8" x 6'4"	2,024 bf		
120 girts - 5" x 6" x 4'4"	1,300 bf		
780 lagging 2" x 12" x 5'	7,800 bf		
	15,601 bf at $65/M	$1,014.07	
Plus 5% of $1,014.07 (blocks and wedges, etc.)		50.70	
			1,064.77

Cost of 60 sets of timber (5' x 7') or 300 feet $ 2,339.88

Cost per foot - $7.80

TOTAL COST OF STAGE II $21,193.55

RECAPITULATION

Estimated cost of project on Cago claims

Stage I

120 hours bulldozer trenching at $15/hr.	$1,800.00	
Supervisor - 120 hrs. at $3.50/hr.	420.00	
Consulting engineer or geologist - 2 days at $75/day	150.00	
Assaying - 30 samples at $25 each	750.00	
		$ 3,120.00

Stage II

500 feet - drift and/or crosscut at $35.10 per foot	$17,555.67	
300 feet - timbering at $7.80/ft.	2,339.88	
Consulting engineer or geologist - 4 days at $75/day	300.00	
Assaying - 40 samples at $25 each	1,000.00	
		21,195.55
TOTAL ESTIMATED COST OF PROJECT		$24,315.55

Distribution:
DMEA(3)
USGS(4)
Docket
Engineer

March 31, 1958

Re: DMEA 4971
Agency Creek Thorium & Rare Metals Corp.
Cago Lode Claims
Lemhi County, Idaho
$80,000 - Thorium, Metals, Rare Earths

Memorandum

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

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

Subject: Review of application

The applicant requests assistance in exploring, by stripping and 700 feet of drifting, an 11-foot vein. The vein is traceable for 3,000 feet.

The results of the analysis of 2 samples, presumedly taken by representatives of the Molybdenum Corporation, are given. The widths sampled are not noted. Three other samples taken by 3 engineers across 11 feet show:-

Engineer #1	1.20%	Thorium
" #2	1.34%	"
" #3	1.24%	"

Referral of the application to the Field Team is recommended.

N. E. Nelson

cc: DMEA (3)
James Paone, 3643
Director's reading
Branch reading
Chron. file
Docket file
NENelson/mm
6-MD-3-31-58

Form MF-103
Revised Oct. 1957

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1035.3
Approval expires June 30, 1958

4971

APPLICATION FOR AID IN AN EXPLORATION PROJECT

PURSUANT TO DMEA ORDER I, UNDER THE DEFENSE PRODUCTION ACT OF 1950, AS AMENDED

NAME OF APPLICANT (Full legal name and mailing address as it should appear on contract if one is executed)

Agency Creek Thorium and Rare Metals Corporation

Salmon, Idaho

APPLICANT NOT TO USE THIS BLOCK

Docket Number	4971
Date Received	3/29/58
Government Participation %	50
Region	I
Division Code	700

BUSINESS ORGANIZATION (Check one)

- Individual [ ]
- Corporation [X]
- Partnership [ ]
- Other (Specify) [ ]

State in which firm is organized

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

Name	Address	Title
Dr. E. A. Goggins,	Salmon, Idaho	President
Ottis Gundersen,	Salmon, Idaho	Treasurer
Corbin J. Moore,	Salmon, Idaho	Secretary
Charles W. McConnell,	Salmon, Idaho	Vice. Pres.

Mineral(s) for which you wish to explore
Thorium, Metals, Rare Earths

Estimated Cost of Project
$ 80,000.00

LOCATION OF PROPERTY

Name	County	State
Cago Lode Claims	Lemhi	Idaho

GENERAL INSTRUCTIONS

Before filling out this application, please read DMEA Order-I, Revised, "Government Aid in Defense Exploration Projects." To assure prompt action, your application must provide all applicable material and information specified on the back of this application form. Avoid unnecessary correspondence and delays by submitting complete and accurate information. *Please submit four copies of this application and all accompanying papers* except as otherwise noted. Place your name and address on each sheet. Each item of information, maps, and reports required as a part of this application is described on the back of this form. Identify each attached statement by the item number to which it applies. If an item does not apply to your application, show the item number on your statement and after it write "not applicable." Maps or sketches should be used to supplement narrative descriptions of the property location and boundaries in item 1, existing mine workings and geology in item 2, and the proposed exploration project in item 4. When this information is not too complex, all of it may be shown on one map or sketch. All documents and other attachments submitted as a part of this application, except those in item 2(g) which you mark to be returned, become the property of the Government and will not be returned to the applicant. Send true copies, *not originals*, of leases, contracts, and other documents which are an essential part of your business records. *File this application with the Defense Minerals Exploration Administration, Department of the Interior, Washington 25, D. C., or with the nearest DMEA Field Office.*

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.

Agency Creek Thorium and Rare Metals Corp.

March 20, 1958
Dated

Clinton A. Gundersen
BY *(Signature)*

Clinton A. Gundersen
Director and Manager
Title

A wilfully false statement or certification to any Department or Agency of the United States Government is a criminal offense. U. S. Code, Title 18, Sec. 1001.

INFORMATION REQUIRED WITH THIS APPLICATION

1. *Applicant's Property Rights:*

(a) State the legal description (section, township, and range; metes and bounds; patent number of claims) of the land upon which you wish to explore and all land adjacent to the proposed project area which you own or control. Describe any part of the project land or workings which should not be subject to Government lien for royalty payments. If the land consists of unpatented claims, state the book and page number for each recorded location notice, including amended locations, and the place where recorded (courthouse, recorder's office, county, and state).

(b) State all the names by which you know the property.

(c) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise. If you are not the owner, submit with this application one exact copy of the lease, contract, or other document (with address of owner) under which you control the property.

(d) Describe all liens, mortgages, or other encumbrances on the property.

2. *Physical Description:*

(a) Describe in detail and illustrate with maps or sketches all mining or exploration operations which you know have been or are being conducted upon the lands, including existing mine workings. Describe all production facilities.

(b) State your interest, if any, in operations stated in 2*(a)*.

(c) State, as far as you know, the past and current production, supporting your statement with copies of settlement sheets, mine records, or published data if available.

(d) Describe known ore reserves on the property giving quantities and grades and sampling methods used, supporting your statement with copies of assay certificates and assay maps if available.

(e) Describe by narrative and maps or sketches the geologic features of the property, including ore minerals, geologic formations if known, and type of deposit (vein, bedded, etc.).

(f) State your reasons for expecting to find ore, and if you have sampled the area you propose to explore, show where the samples were taken, describe sampling methods used, and provide copies of assay certificates.

(g) Send with your application at least *two* copies of all geologic or engineering reports, assay maps, or technologic information which you may have, indicating on each whether you require its return to you.

3. *Accessibility of Project:*

(a) To aid DMEA representatives who may be required to examine the property, state the name and address of the person who will meet the DMEA representative; give directions for reaching the property; and describe accessibility of the property including the mine workings.

(b) Name the shipping and supply points and places where employees reside and state the distances between them and the property.

4. *The Exploration Project:*

(a) Describe fully the proposed exploration project giving individual footages and sizes of openings *for each item of work.* Use narrative, maps, plans, and longitudinal and cross sections as necessary. Show the location of the proposed work as related to geologic features such as veins, ore-bearing beds, contacts of rock formations, etc. Show also the relation of the proposed work to any existing mine workings and to *property boundaries* or to the closest identifiable corner.

(b) If an access road to the project must be built, show the location on the property map and state the length, type, and construction methods proposed.

(c) In the event that an exploration contract with DMEA is exe- [illegible] how soon will the work start and how many months will be required to complete it? State your anticipated average daily or monthly rate of progress for each type of work.

5. *Experience:*

State your operating experience and background with relation to your ability to carry out this exploration project, and also that of the person or persons who will supervise the operations.

6. *Estimate of Costs:*

Furnish detailed estimates of the costs *for each item of the work proposed in 4(a)* under the headings listed below with a total for each heading and the estimated total cost of the project. Costs for any work to be performed by an independent contractor should be shown separately under category *(a)* below. Costs for any work that is not to be performed by an independent contractor should be given in detail under categories *(b)* through *(g)*.

(a) Independent contracts. State the cost of any proposed independent contract for the performance of all or any part of the work, expressed in units of work, such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved. Cost estimates should be supported by bids from three contractors if possible. *(Note* – If none of the work is to be contracted, write "none" after this item.)

(b) Personal services. For necessary supervision, engineering and geological services, and labor, include an itemized schedule of numbers, classes, rates of wages, salaries or fees, and periods of employment. State whether these technicians and employees are available.

(c) Operating materials and supplies. List items of material and supplies with their cost. Include under this heading power, water, and fuel, and units of equipment and tools costing less than $50 each.

(d) Operating equipment. List items of operating equipment to be used giving specifications and indicating how each item is to be acquired – i.e., rented, purchased, or provided by the applicant. If it is rented or purchased, state the estimated rental or purchase price. If it is to be furnished by the applicant, give its present fair market value.

(e) Initial rehabilitation and repairs. Describe the type and the cost of necessary *initial* rehabilitation or repair of existing buildings, fixtures, installations (exclusive of mine workings), and movable operating equipment now owned by the applicant, which will be used on the exploration project.

(f) New buildings, fixtures, installations. Describe each building, fixed improvement, and installation to be purchased, constructed, or installed for the exploration project stating specifications and cost including labor, materials and supervision.

(g) Miscellaneous. For the operating equipment listed in 6*(d)*, describe the type and estimate the cost of repairs and maintenance expected during project operations. Do not repeat initial repairs listed in 6*(e)*. Show also the costs of analytical work, accounting, workmen's compensation and employees' liability insurance, payroll taxes, and other required costs that do not fall within the previous categories.

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)* State whether you are prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation stated in Sec. 7 of DMEA Order–I, Revised.

(b) Explain to what extent you propose to furnish your share of the costs by providing money, by use of equipment owned by you, or otherwise.

* * * * *

INT.-DUP. SEC., WASH., D.C. 25960

1. Applicant's Property Rights:

(a) Elaine Group:
ElaineNo. 1 as recorded in Book 7 of Mining Claims, page 451, Office of the County Recorder, Lemhi County, Idaho
ElaineNo. 2, as recorded in Book 7 of Mining Claims, page 451-2, Office of the County Recorder, Lemhi County, Idaho
ElaineNo. 3, as recorded in Book 7 of Mining Claims, page 452, Office of the County Recorder, Lemhi County, Idaho
Elaine No. 4, as recorded in Book 7 of Mining Claims, page 452-3, Office of the County Recrder, Lemhi County, Idaho
Elaine No. 5, as recorded in Book 7 of Mining Claims, page 452, Office of the County Recorder, Lemhi County, Idaho

Cago Group:
Claims 10 through 15, as recorded in Book 7 of Mining Claims, pages 92, 93, 94, and 95, Lemhi County Recorder, Idaho.
Cago No. 18, as recorded in Book 145 of Mining Claims, page 49-50, Office of the County Recorder, Beaverhead County, Montana
Cago No. 19, as redorded in Book 145 of Mining Claims, page 51-52, Office of the County Recorder, Beaverhead County, Montana.

Debra Lee Group:
Claims 1 to 10, as recorded in Book 7 of Mining Claims, pages 371, 372, 373, 374 and 375, Lemhi County Recorder, Idaho

(b) Elaine Group, Cago Group and Debra Lee Group.

(c) Sole Owners

(d) No liens, mortgages or other encumbrances or committments.

2. Physical Description:

(a) Stripped by bulldozer on Cago No. 12 to expose vein. Production facilities include necessary tunneling and stripping equipment and road equipment. (See maps accompanying).

(b) Owners establishing mining operations.

(c) Property is largely undeveloped, the Corporation is preparing to put the mine into production.

(d) 20 feet wide, 20 feet high and 300 feet long. This amount has been exposed. Sampling was from face of exposed ore body. Copy of assay accompanies this application. No map exists.

(e) Work todate exposes vein type ores of thorite ores bearing other rare metals and earths.

(f) Ores now exposed give every indicatinn of large deposits of commercial grade thorite and accompanying rare metals and earths. Assay report gives location of claims where samples were taken.

(g) Reports of assay need not be returned. No other information is available at this time.

3. Accessibility of Project:

(a) Charles McConnell, or G. Elmo Shoup, Salmon, Idaho or Clinton A. Gundersen, Mackay, Idaho.
From Tendoy, Idaho up Agency Creek to top of Lemhi Pass, thence south to state line marker 504 thence west to state line marker 506 which is a corner marker for claims applying. Accessible by Jeep.

(b) Shipping and Supply point is Mackay, Idaho. Employees reside at site. Employees on property. Supply point and shipping center is 130 miles.

4. The Exploration Project:

(a) Buildings for employees, tool house and Shop, ore bin, 700 feet of 5 x 7 standard drift. See maps accompanying. Other work includes leveling for buildings and road work to site of operations.

(b) Three miles of new road construction plus widening of existing roads to property. Work can be done with patrol and bulldozer.

(c) Work to start May 1 and work can be completed in 160 days.
Road work 30 days to accommodate ore trucks.
Tunnel 5.5 ft. per day, or 150 days to complete work.
Buildings will be erected in 30 days.
Stripping and excavation 14 days.

5. Experience:

Manager has had 15 years profitable mining experience in all phases. Engineer is a practiaal Engineer with many years experience in this area.

6. Estimate of Costs:

Necessary Buildings and Ore Bins	$10,500.00	
Road work	6,000.00	
Stripping and Excavation	2,800.00	
Drifting by tunnel and Timbering	28,500.00	
	$ 47,800.00	
Machinery Maintenance	$ 5,500.00	
Miscellaneous Tools and Equipment	300.00	
Payroll Taxes	810.00	
Accounting	800.00	
Fuel and Supplies	800.00	
4-Wheel Drive Pickup	3,700.00	
	11,910.00	
D-7 Tractor with Dozer	7,500.00	
Compressors	7,500.00	
Mucking Machine	1,500.00	
Drills, hoses, bits, tanks, etc	4,000.00	
	$20,500.00	$80,210.00

(a) Independent Contractors (None).

(b) All necessary personnel available. Salary is based on prevailing scales on a 48 hour week. No Contracting.

6. Estimate of Costs:

(b) Continued.

Rate of pay for miners $2 per hour less allowance for board and room. Period of employment will be until completion of work scheduled under this application.

(c) Fuel Oil Gal. 17¢; Gasoline, 37¢; notpublic power available, Drill Bits, each $35. All these items are accounted for under 6 above. These amounts have been determined by experience.

(d) D-7 Cat tractor with dozer, Compressors, 315 Cu.In. Worthington, 265 Cu.In. compressor, Worthington; accessory hoses, etc. Mucking Machine, Drilling Machines, steel, bits, etc. Rails, cars. All equipment owned by company except rails. A fair market value of this company owned equipment is $25,000.

(e) Buildings must be constructed, equipment in good condition and ready to start operating with no repair. All company owned equipment to be used on this project.

(f) Cook Shack,will be combined with bunk house, 20 x 40 rough lumber frame, tar paper walls and roof.$3,500. Tool house and Machine Shed, 20 x 40 same as cook-Bunk house, $3,500. Ore bins with 100 ton capacity, $3,500.

(g) Usual repair and replacements common to work of this kind over the period covered $5,500, this figure includes motor fuels, oils, lubricants. Analytical work was included in $800 accounting costs. Taxes and insurance was estimated at $810.00.

7. (a) Yes.

(b) By use of equipment owned by the company.

Assayed MOLYBDENUM OF AMERICA, Nipton, California

SAMPLES TAKEN FROM BIG LOST VEIN CAGO NO. 12 CLAIM
AGENCY CREEK THORIUM AND RARE METALS CORPORATION

ATOMIC NO.	SAMPLE NO. 2	SAMPLE NO. 4	PRICE PER GRAM	
57 LANTHANUM	.47% 5.40 lbs	.28% 5.60 lbs	$1600.00 per #	8,300
58 CERIUM	1.55% 31.00 lbs	.96% 19.20 lbs	$3.00 per gram	1,440
59 PRASEODYMIUM	NONE	NONE		
60 NEODYMIUM	2.00% 40.00 lbs	1.44% 28.80 lbs	$60 per #	1,800
61 ILLINIUM	NONE	NONE		
62 SAMARIUM $5.00 gr	1.55% 31.00 lbs	1.54% 30.80 lbs	$31 per troy oz	1,000
63 EUROPIUM $100.00 gr	.16% 3.20 lbs	1.24% 24.80 lbs	$3000 per troy oz	
64 GADOLINUM	.54% 10.80 lbs	.35% 7.00 lbs	$180 per troy oz	
65 TERBIUM	NONE	NONE		
66 DYSPROSIUM	NONE	NONE		
67 HOLNIUM	NONE	NONE		
68 ERBIUM $100 gr	NONE	.07% 1.40 lbs	$3000 per troy oz	
69 THULIUM $275 gr	.40% 8.00 lbs	.31% 6.20 lbs	$6000 per troy oz	
70 YTTERBIUM $27 gr	.22% 4.40 lbs	.12% 2.40 lbs	$9136.80 per ton	
71 LUTECIUM $240 gr	.18% 3.60 lbs	.12% 2.40 lbs	$6000 per troy oz	
YTTRIUM	.27% 5.40 lbs	.22% 4.40 lbs	$31 per troy oz	
THORIUM	5.90% 118.00 lbs	4.53% 90.60 lbs	$3 per #	

CAGO LODE CLAIMS
McDEVITT DISTRICT
LEMHI COUNTY, IDAHO

The Cago Lode Claims - Five (5) 20 Acre Claims are owned by the Agency Creek Thorium and Rare Metals Corporation, a Idaho Corporation with offices in Salmon, Idaho.

The location of the Claims are in Section's 27-28-21, Township 19'North, Range 25' East Boise Meridian. About four (4) miles South Easterly of the Lemhi Pass and about 27 miles from t the Tendoy, Idaho Store and Post Office. The altitude at the upper point of the Claims is about 7,200 feet at the lower point the altitude is in the neighborhood of 6600 feet.

Vein is Quartz hematite and containing specular hematite supported by a gangue of coarsely crystalline quartz-quartzite and metamorphosed sandstones and argellites.the vein being of over 11 Feet Width and traced for the distance of about 2,000 Feet, the Strike of North 60' West and Dip of 55' South West, of the Cago Vein makes a tonnage production possible by the open-pit method.

The following Channel Sampleing done by three different Mining Engineers three different occasiona at the 11 foot width vein exposurer on Cago Claim No.12, gives one the average Ore richness of the Thorium content.

Engineer Sample No.1· Engineer Sample No.2. Engineer SampleNo3
1.20 Percent Thorium--1.34 Percent Thorium--1.24 Percent Th.

A Two (2) Foot Sample taken from the Foot Wall by the Molybdium Corporation of America gave 14.79 Percent Thorium and Rare Earth Minerals. The Rare Earth Minerals are of the Cerium and Yttrium Group of Rare Earths also the Ore contains Niobium (Cb-Ta).

Signed: Elmo Shoup.

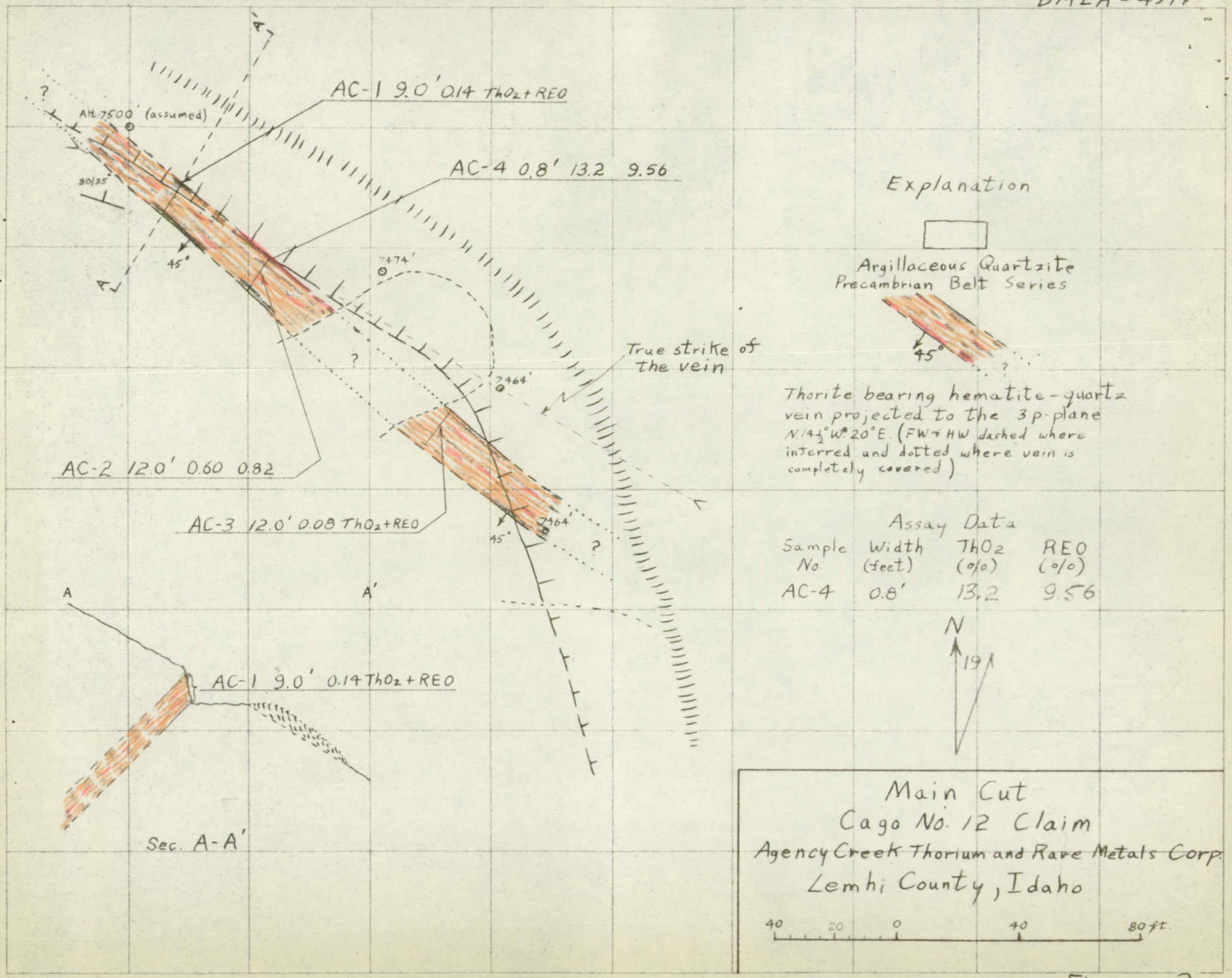

Figure 2

J. A. Gendron Co., Spokane