11/7/55/[illegible]

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

RECEIVED NOV 4 1955

November 1, 1955

224 Post Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Joint Report of Examination, DMEA Docket 3954, (Thorium), Gunnar Minerals, Inc., Fremont County, Colorado

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

The examiners found no evidence to indicate that significant amounts of thorium would be discovered as a result of the proposed exploration.

We concur in their recommendation that the application be denied.

W. H. Trevor

By J. W. Townsend
J. W. Townsend

E. M. Hawkins
E. M. Hawkins

Enclosures

11-9-55

IN REPLY REFER TO:

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

DMEA
Date Rec'd
RECEIVED
OCT 31 1955
NOV - 4 1955

October 28, 1955

TRANSMITTED
NOV 1 - 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: John F. Shaw
E. N. Harshman

Subject: DMEA Docket 3894 (Thorium), Cunac Minerals, Inc., Cunac Minerals property, Fremont County, Colorado

Enclosed are the original and nine copies of an examination report by Carl Belser, U. S. Bureau of Mines, and J. E. O'Rourke, U. S. Geological Survey, in which denial of the subject application for exploration assistance is recommended.

At the time of the examination, O'Rourke tentative concluded that exploration of a part of the property was justified, and his portion of the draft of the report contained recommendations for limited exploration. These recommendations were based on a reported ThO_2 content of about 1 percent in the vein material; they were considered by him as tentative pending results of analyses on samples taken during the examination. He returned to school before the results of the analyses were received and firm conclusions reached.

The samples were analyzed chemically in the Salt Lake City laboratory of the U. S. Bureau of Mines and checked radiometrically in the Denver laboratories of the U. S. Geological Survey. Based on the results of these analyses, the Bureau of Mines member of the examining team revised the report to recommend denial of the application for exploration assistance.

Mr. E. L. Newcomb of the AEC has examined the property and, although noting small isolated masses of high grade material, he concludes that the average thorium content of the veins is low. He believes that the application for exploration assistance should be denied at least until data are obtained by the applicant indicating the presence of significant amounts of material that might now or in the future be considered as ore.

11-9-55

The application was briefly discussed with Maurice Brock, U. S. Geological Survey, who is mapping in the Wet Mountain area and has briefly examined the Cunac property. He inferred that the property was not one of major significance.

We concur with the recommendation that the subject application for exploration assistance be denied.

John F. Shaw
Supervising Mining Engineer

E. N. Harshman
Member, Field Team

Enclosures (10)

ENHarshman:arh

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

TRANSMITTED
NOV 1 - 1955

DMEA 3894

Cunac Minerals, Inc.

Cunac Properties

Fremont County, Colorado

Thorium

Joint Engineering and Geologic Report

by

J. E. O'Rourke, Geologist
Geological Survey

Carl Belser, Mining Engineer
Bureau of Mines

October 1955

11-9-55

CONTENTS

	Page
Introduction and summary.	1
Acknowledgments	2
Location, topography, and climate	2
History and production.	3
Ownership and extent.	4
Present status.	15
Exploration and development.	15
Mining and milling equipment and other facilities. . .	15
Geology	15
Samples and ore reserves.	20
Applicant's estimated cost of project	21
Conclusions and recommendations	22

ILLUSTRATIONS

Figure	Follows page
1. Location map, Cunac properties, Cunac Minerals, Inc., Fremont County, Colorado. DMMA 3894	2
2. Plan map, Grape Creek and Serpent prospect, Cunac properties, Cunac Minerals, Inc., Fremont County, Colorado, DMMA 3894.	16

DMEA 3894
CUNAC MINERALS, INC.
CUNAC PROPERTIES
FREMONT COUNTY, COLORADO

INTRODUCTION AND SUMMARY

Cunac Minerals, Inc., R. H. Bliss, president, 1701 Franklin Street, Canon City, Colorado, on June 26, 1955, applied for aid from the Defense Minerals Exploration Administration to explore for thorium ore on a property consisting of 204 unpatented claims in secs. 10, 11, 12, 13, 14, 15, 16, 21, 22, 23, and 24, T. 20 S., R. 70 W., and secs. 7, 8, 17, and 18, T. 20 S., R. 71 W., 6th P. M., Fremont County, Colorado. Development consists of location shafts, a short incline, several cuts, and an old caved shaft that is said to be 130 feet deep.

An examining team visited the property on August 31, 1955. The applicant proposed exploration by 6,000 feet of diamond drilling, 200 hours of bulldozing, and 300 feet of crosscutting at a total estimated cost of $48,225.30.

The country rocks are predominantly Precambrian granitic gneisses, and the thorium-bearing veins seem to be genetically related to a Precambrian syenite. Thirty-eight shear zone and vein deposits have been mapped by the applicant on the Cunac property.

The Grape Creek prospect was worked many years ago, and the shear zone is 40 feet wide and can be followed for 950 feet. The Pink Lady, Lazy-Y, Serpent Loon Haunt, Gigi, Sherry, and Bob Cat are veins 5 or more feet wide that can traced from 100 to 1,000 feet.

The thorium is present as thorite or closely related minerals and is usually associated with hematite and limonite. Most of the veins have a northwest strike and a dip to the southeast.

The examining team, as a result of this examination, does not believe that the grade of the thorium mineralization is high enough to warrant Government participation and recommend that the application be denied.

ACKNOWLEDGMENTS

R. H. Bliss, president, and H. C. Bishop, superintendent of operations, Cunac Minerals, Inc., accompanied the examining team during the examination.

The Atomic Energy Commission was consulted before starting the examination. John F. Able of the Bureau of Mines also accompanied the examining team.

LOCATION, TOPOGRAPHY, AND CLIMATE

The Cunac claims are located in secs. 10, 11, 12, 13, 14, 15, 16, 21, 22, 23, and 24, T. 20 S., R. 70 W., and secs. 7, 8, 17, and 18, T. 20 S., R. 71 W., 6th P. M., Fremont County, Colorado.

The area covers a steep, rugged, terrain extending westerly from Grape Creek into the Copper Gulch water shed and ranging in altitude from a low of about 6,000 feet to a high of about 8,000 feet. The claims are on the northeast slope of the Wet Mountains; the annual rainfall is about 18 inches. Winters are not too severe to permit year around operation.

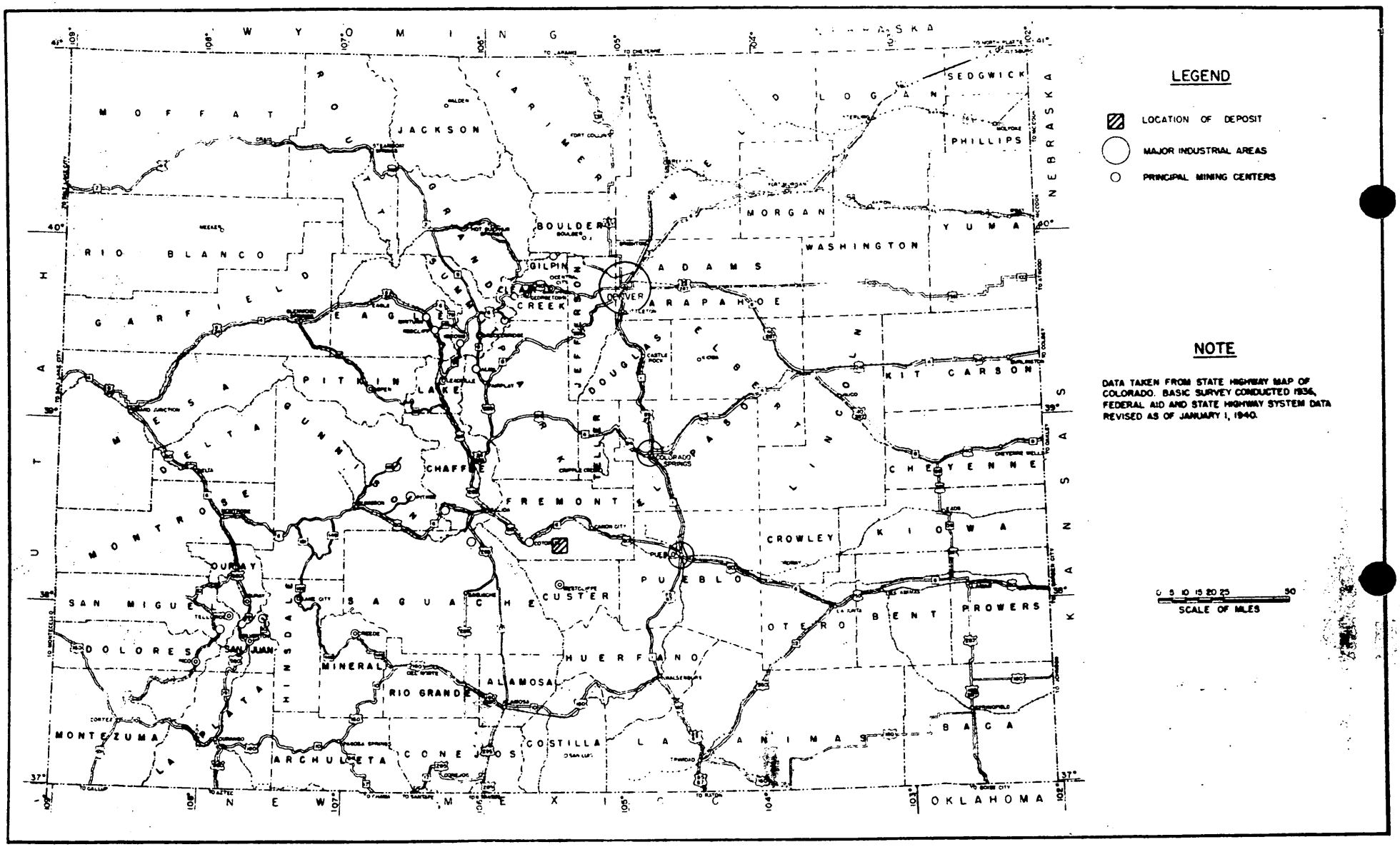


FIGURE 1 - LOCATION MAP, CUNAC PROPERTIES, CUNAC MINERALS, INC., FREMONT COUNTY, COLO. DMEA 3894

A fair 7-mile road connects the main workings on the property with the Copper Gulch road from which point Texas Creek is 14 miles, and, by Copper Gulch, Canon City is 30 miles.

Pine, spruce, and fir timber abound on the property.

Water, for drilling purposes, can be obtained from Grape Creek and from nearby springs. The nearest railroad is the Denver and Rio Grande Western at Texas Creek. Supplies and labor can be obtained at Canon City.

HISTORY AND PRODUCTION

Thorium was first recognized in the Fremont-Custer County area in 1950 when members of a U. S. G. S. field party found thorite in a vein deposit on the Haputa ranch, 5 miles northeast of Rosita, Colorado. Thorium ore in the region west of Grape Creek is not known to have been discovered until about 1953 when H. C. Bishop began to extensively prospect the area.

A small pilot plant on the west side of Pueblo was obtained by Cunac Minerals, Inc. Metallurgical processes for upgrading thorium ores are being studied. No production of thorium minerals has been made from the area. R. M. Bliss stated that the Lindsay Chemical Company will buy 2,000 tons of ore or concentrate a year at a price of $1.10 per pound of contained ThO_2 in 10 percent material and $1.58 per pound of contained ThO_2 in 20 percent material. Bliss believes the Lindsay market will reach 20,000 tons a year with the development of new uses for thorium.

OWNERSHIP AND EXTENT

A total of 204 claims are recorded in the office of the County Clerk and Recorder of Fremont County as follows:

Claim	Book	Page	Date discovered	Date filed
Bystander	338	184	6/2/54	6/3/54
Mark	"	185	"	"
Reject	"	185	"	"
Curt	"	186	"	"
Doll	"	186	"	"
Cynthia	"	187	"	"
Hambone No. 1	"	187	"	"
Hambone No. 2	"	188	"	"
Margaret	"	204	6/13/54	6/14/54
Vulture	"	234	6/18/54	6/19/54
Grisley	"	234	"	"
Raggedwood	"	235	"	"
Kodiak	"	236	"	"
Sturgeon	"	236	"	"
Dogfly	"	237	"	"
Gunner	"	238	"	"
Caribou	"	238	"	"
Winchester	"	253	6/21/54	6/22/54
Stormy	"	254	6/21/54	"
Hazel	"	255	6/20/54	"

Claim	Book	Page	Date discovered	Date filed
Turtle	338	326	7/31/54	7/12/54
Bobcat	"	323	7/5/54	7/12/54
Frank	"	325	6/28/54	7/12/54
Notch	"	369	7/25/54	7/29/54
Gunflint	"	368	7/28/54	"
Jib	"	369	7/27/54	"
Brenda	"	367	7/17/54	"
Thurston	"	367	7/16/54	"
Spruce	"	366	"	"
Chinese	"	365	"	"
Maggie	"	365	7/25/54	"
Marie	"	391	7/29/54	7/31/54
Root	"	386	7/29/54	"
Oak	"	384	7/30/54	"
Bill	"	383	"	"
Tiddy	"	383	"	"
Bobolink	"	423	8/8/54	8/13/54
Jackal	"	423	"	"
Jiggs	"	418	"	"
Widow	"	418	8/9/54	"
Wishiner	"	416	"	"
Last one	"	416	"	"
Bean	"	538	9/4/54	10/7/54
Carbine	"	539	"	"

Claim	Book	Page	Date discovered	Date filed
Willow	338	539	9/4/54	10/7/54
Zeke	"	540	"	"
Blade	"	540	"	"
Joan	"	541	"	"
Boot	"	564	9/6/54	"
Spur	"	565	"	"
Gem	"	565	"	"
Hickory	"	566	"	"
Squaw	"	566	"	"
Horn	"	567	9/6/54	"
Moose	"	567	"	"
Birch	"	568	"	"
Elk	"	536	9/11/54	"
Eagle	"	536	"	"
Hawk	"	537	"	"
Crow	"	537	"	"
Arrow	"	541	"	"
Bow	"	542	"	"
Fox	"	542	"	"
Tongue	"	535	9/12/54	"
Lizzard	"	535	"	"
Chime	"	555	9/21/54	"
Whale	"	557	"	"
Point	"	562	"	"

Claim	Book	Page	Date discovered	Date filed
Stump	338	561	9/22/54	10/7/54
Tagish	"	561	"	"
Rudy	"	551	9/23/54	"
Giant	"	551	"	"
Bear	"	538	9/25/54	"
Iowa	"	543	"	"
Leaf	"	562	"	"
Cup	"	543	9/26/54	"
Loot	"	539	"	"
Canuck	"	560	"	"
Alley	"	552	9/27/54	"
Moat	"	544	9/28/54	"
Marmont	"	560	9/29/54	"
Opal	"	563	"	"
Top	"	664	"	"
Taos	"	563	10/1/54	"
Freeze	"	558	"	"
Whip	"	559	"	"
Wagon	"	558	10/4/54	"
Thor	"	557	10/5/54	"
Snake	342	5	11/1/54	11/3/54
Yankee	338	597	10/22/54	10/28/54
Setter	"	603	10/17/54	"
Spitz	"	603	10/17/54	"

Claim	Book	Page	Date discovered	Date filed
Spaniel	338	602	10/16/54	10/28/54
Terrier	"	602	10/16/54	"
Scotty	"	601	"	"
Hound	"	600	"	"
Poodle	"	601	"	"
Husky	"	600	"	"
Collie	"	599	"	"
Bull	"	599	"	"
String	"	598	10/9/54	"
Boxer	"	598	10/16/54	"
Gloria	"	384	7/29/54	7/31/54
Rainey	"	386	"	"
Leon Haunt	"	385	"	"
Bend	"	385	"	"
Hermit	"	424	8/8/54	8/13/54
Ruth	"	183	5/31/54	6/1/54
Dinosaur	"	235	6/16/54	6/19/54
Woodchuck	"	239	"	"
Redgut	"	253	6/21/54	6/22/54
Sherwood	"	254	6/20/54	"
Dotty	"	255	6/19/54	"
Floyd	"	366	6/16/54	7/29/54
Linklatter	"	237	6/18/54	6/19/54
Amatrine	"	153	5/2/54	5/15/54

Claim	Book	Page	Date discovered	Date filed
Columbine	338	170	5/20/54	5/22/54
West Hole	"	155	5/7/54	5/15/54
Kotan	"	121	4/26/54	4/27/54
High Noon	"	99	4/13/54	4/14/54
Gigi	"	100	"	4/14/54
Sherry	"	102	4/15/54	4/15/54
Pay Day	"	102	"	4/15/54
Speakeasy	"	100	4/12/54	4/14/54
Lazy-Y	"	91	4/2/54	4/12/54
Rusty Saddle	"	91	4/4/54	4/12/54
Cerann	"	185	5/31/54	6/1/54
Pink Lady	"	118	4/23/54	4/24/54
Feather	342	72	11/11/54	11/15/54
Maple	"	72	"	"
Clipper	"	71	11/14/54	"
Bone	"	73	11/11/54	"
Irene	"	73	"	"
Kathy	"	74	"	"
Luke	"	74	"	"
Pothole	338	368	4/28/54	7/29/54
Midnight	"	142	4/29/54	5/8/54
Serpent	"	141	"	"
Aspen	"	141	4/6/54	"
Wabagoon	"	169q	5/20/54	5/22/54

Claim	Book	Page	Date discovered	Date filed
Frenchie	338	167	5/20/54	5/22/54
Capri	"	170	5/17/54	5/22/54
Clyde	"	166	3/18/54	5/22/54
Mary Ann	"	154	5/21/54	"
Countless	"	166	5/17/54	"
Sterie	"	165	"	"
Lazy-4 U	"	154	5/21/54	"
Wayne	"	168	5/18/54	"
Cecelia	"	171	5/23/54	5/24/54
Mulik	"	179	5/31/54	6/1/54
Harvey	"	233	6/13/54	6/19/54
Twosome	"	233	"	"
Hogleg	"	224	"	"
Bluefrost	"	264	6/25/54	6/26/54
Bannock	"	316	7/5/54	7/12/54
Burro	"	316	"	"
Kapetickamack	"	327	7/3/54	"
Elaine	"	326	"	"
Toe	"	545	9/21/54	10/7/54
Discus	"	547	9/25/54	10/7/54
Goat	343	361	2/5/55	2/21/55
Ox	"	360	1/30/55	2/21/55
Bit	"	359	"	"
Mouse	"	358	12/17/54	"

Claim	Book	Page	Date discovered	Date filed
Pinch	343	357	12/17/54	2/21/55
Lucky	"	356	12/5/54	"
Hook	"	355	1/16/55	"
Verde	"	354	12/12/54	"
Linda	"	352	12/21/54	"
Sinker	"	362	1/23/55	"
Line	"	363	1/16/55	"
Joan	338	541	9/4/54	10/7/54
Shot	"	546	9/25/54	"
Jade	"	548	"	"
Toad	"	549	"	"
Toklat	"	550	"	"
Mattock	"	547	"	"
Pancho	"	544	"	"
Trap	"	549	"	"
Mizzoo	"	554	"	"
Maux	"	552	"	"
Bird	"	553	"	"
Foot	"	545	"	"
Eye	"	548	"	"
Spike	"	555	"	"
Bead	"	550	"	"
Heel	"	554	"	"
Dutch	346	317	3/22/55	4/29/55

Claim	Book	Page	Date discovered	Date filed
Crab	346	316	3/22/55	4/29/55
Twig	"	315	"	"
Tooth	"	314	"	"
Otter	"	313	"	"
Mink	"	312	"	"
Whisker	"	311	3/19/55	"
Jack	"	310	"	"
Jeep	"	309	"	"
Rock	"	308	"	"
Teton	"	307	4/23/55	"
Cub	"	306	4/15/55	"
Hub	"	305	"	"
Bub	"	304	"	"
		Amended Filings		
Bean	346	295		4/29/55
Carbine	"	296		"
Willow	"	298		"
Zeke	"	301		"
Blade	"	302		"
Gunflint	"	300		"
Jib	"	303		"
Boot	"	394		"
Canuck	"	397		"
Gloria	342	36		11/10/54

Claim	Book	Page	Date filed
Rainey	342	38	11/10/54
Loon Haunt	"	37	"
Bend	"	37	"
Hermit	"	36	"
Ruth	"	35	"
Dinosaur	"	34	"
Woodchuck	"	41	
Redgut	"	40	"
Sherwood	"	40	"
Dotty	"	39	"
Floyd	"	50	"
Linklatter	"	27	"
Amatrine	"	42	"
Columbine	"	27	"
	338	169	5/22/54
West Hole	342	28	11/10/54
Kotan	"	28	"
High Noon	"	29	"
Gigi	"	29	"
Sherry	"	30	"
Pay Day	"	30	"
Speakeasy	"	31	"
Lazy-Y	"	31	"
Rusty Saddle	"	32	"
Coranna	"	33	"

Claim	Book	Page	Date filed
Pink Lady	342 346	32 299	11/10/54 4/29/55
Pothole	342	39	11/10/54
Midnight	344	414	3/18/55
Serpent	"	401	"
Aspen	"	415	"
Wabagoon	"	421	"
Frenchie	"	420	"
Capri	"	410	"
Clyde	"	416	"
Mary Ann	"	413	"
Countless	"	411	"
Stevie	"	418	"
Lazy-4 U	"	412	"
Wayne	"	417	"
Cecelia	342 344	33 383	11/10/54 3/18/55
Mulick	344	419	3/18/55
Harvey	342 344	34 386	11/10/54 3/18/55
Twosome	342 344	35 385	11/10/54 3/18/55
Hogleg	342 344	41 384	11/10/54 3/18/55
Bluefrost	344	387	3/18/55
Bannock	344	388	3/18/55
Burro	"	389	"
Kapstickamack	"	391	"

Claims appear to be properly located and recorded.

PRESENT STATUS

Exploration and development

Each of the 204 claims has a discovery hole, the Lazy-Y claim has a 55-foot inclined shaft, surface cuts are on the Pink Lady, Lazy-Y, and Serpent claims. The Grape Creek claim has been developed by a 130-foot shaft and a 50-foot shaft, both sunk by prior operators.

Mining and milling equipment and other facilities

Mining equipment consists of a compressor, drill, and hand tools. There are a number of access roads to the various claims and workings. The company has a small boarding house and a small bunkhouse on the property near Grape Creek.

GEOLOGY

The Wet Mountain thorium district was discovered by the U. S. G. S. in 1950. The area is described in USGS Circular 290, 1953, and Trace Elements Investigations Report 354, 1954.

The deposits are along veins and shear zones, most of which are less than 5 feet wide and are traceable for distances of 100 to 1,000 feet. Quartz, barite, and iron carbonate are the principal gangue minerals. They may occur together or alone, and a vein in which one of them predominates may grade laterally into a vein comprised mostly of another.

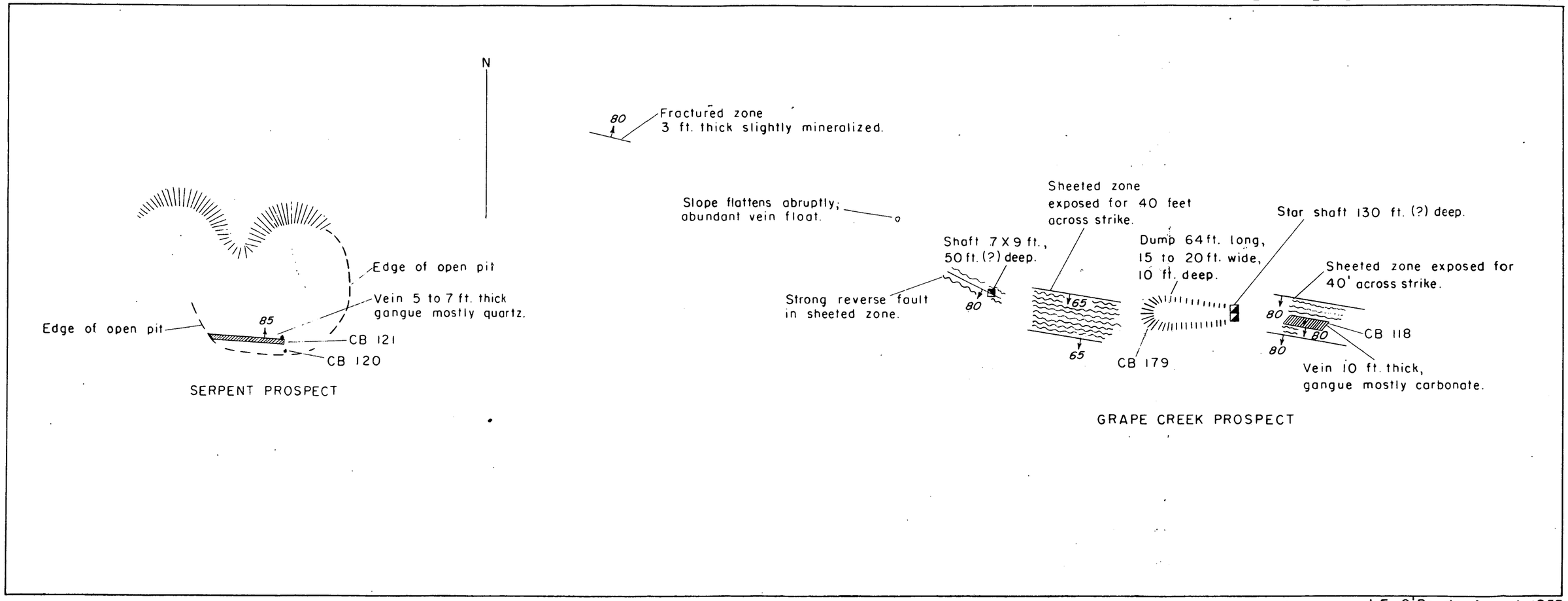
The thorium is present as thorite or a closely related mineral. It is usually intimately associated with hematite and limonite. Its distribution in the veins is erratic. Few, if any, of the deposits average more than 1 percent ThO_2, and most of them run less than 0.5 percent. Parts of a deposit may be richer, but only selected samples assay more than 2 percent ThO_2.

The country rocks are predominantly Precambrian gneisses, and the thorium-bearing veins seem to be genetically related to a Precambrian syenite.

Thirty-eight shear zone and vein deposits are reported to have been mapped on the Cunac property by Minerals Exploration Research Company. Nine of the deposits, which the applicants consider to be the largest, richest, and most accessible, were inspected during the present examination. They were found to be generally similar to the prospects described in other parts of the Wet Mountains, although some of them may be larger than the average for the district.

A brief description of the nine prospects examined follows:

Grape Creek prospect.--The largest and best exposed deposit that was seen is located on the Grape Creek and Buddy claims (see fig. 2). It was explored many years ago as a silver prospect. The "Star" shaft, said to be 130 feet deep, and another shaft, thbught to be about 50 feet deep, were sunk on a strong sheeted zone that is over 40 feet wide and can be followed for 330 feet. The sheeted zone strikes N. 60°-80° W. and dips 80° SW. It contains numerous veins composed of calcite, iron carbonate, hematite, quartz, and small amounts of



J. E. O'Rourke, August 1955

FIG. 2-PLAN MAP, GRAPE CREEK AND SERPENT PROSPECT, CUNAC PROPERTIES, FREMONT COUNTY, COLORADO

100 0 100 Feet

galena. The veins are as much as 3 feet wide. A channel sample (CB 105) was cut across several closely spaced veins in the gully immediately east of the Star shaft. The sample, cut across 9.9 feet, assayed 0.31 percent ThO_2. The old mine dump is 64 feet long, about 10 feet deep, and has an average width of about 17 feet. A grab sample by Lindsay ran 0.2 percent ThO_2. A Bureau of Mines grab sample (CB 104) ran 0.31 percent ThO_2. A strong reverse fault in which the walls stand a foot apart is exposed in the westernmost shaft. The sheeted zone is not exposed to the west of this point, but abundant vein float indicates that it continues in this direction for at least 250 feet.

Lazy-Y claim.--Two prospects, which the applicant calls "the Lazy-Y cliff" and "the Lazy-Y shaft" were examined on this claim. The inclined shaft is now flooded. The applicants state that it is 35 feet long and that they extracted about 150 tons of rock that averaged between 2 percent and 3 percent ThO_2. A Lindsay sample taken in the shaft contained 2.1 percent ThO_2. The shaft followed a vertical shear zone that strikes N. 80° W. The shear zone averages about 3 feet thick but is exposed for only 20 feet along strike. The fractures are filled with limonite derived from ferruginous carbonate.

The "Lazy-Y cliff" is roughly 500 feet east of the shaft. It is an open cut about 88 feet long and 15 feet deep in the side of a hill. A vein, with a uniform thickness of 5 to 6 feet, is exposed continuously for 100 feet. It strikes N. 80° W. and dips 85° SW. It is

nearly solid iron carbonate that has weathered to limonite in places. The vein walls are highly sheared, intensely altered granitic gneiss. An 8-foot channel sample by Lindsay averaged 0.4 percent ThO_2. A USBM 6-foot channel sample (CB 108) across the vein ran 0.01 ThO_2.

Serpent claim.--A vein 4 to 7 feet thick has been exposed for 71 feet by a cut 15 feet deep in the side of a hill. The vein strikes N. 85° W. and dips 80° NE. It is composed of fine-grained quartz and earthy iron-oxides, and probably represents a silicified zone in the highly altered and sheared granitic gneiss that surrounds it. Lenses of red hematite in the country rock are radioactive. It is said that about 35 tons of this material was shipped to Pueblo. A channel sample (CB 106) 6.5 feet long of the soft altered rock ran 0.13 percent ThO_2 (USBM) and a channel cut 5 feet long (CB 107) across the quartz vein averaged 0.01 percent ThO_2.

Pink Lady claim.--This claim includes two prospect pits, one 20 feet below the other on the side of a hill. The lower pit is about 15 feet long and follows a shear zone 5 feet thick that strikes N. 30° E. and dips steeply to the NW. The upper pit, about 10 feet long, follows a shear zone about 3 feet thick that strikes N. 30° E. and dips 65° SE. A USBM channel sample 2 feet long (CB 103) across the upper shear zone assayed 0.01 percent ThO_2. Many of the fractures contain lenses of iron carbonate several feet long and 1 or 2 feet thick. A selected sample by Lindsay averaged 2.0 percent. The talus cover is heavy, and the shear zones are exposed for only about 25 feet

of their length. A grab of pieces from an ore pile near the pits (CB 102) assayed 0.13 percent ThO_2.

Leon Haunt claim.--A vein composed of quartz, barite, siderite, and limonite 8 to 10 feet wide, striking N. 80° E. and dipping 80° SW outcrops discontinuously for about 30 feet. The country rock is highly altered and sheared granitic gneiss. The applicants believe that the same vein can be traced for 300 feet to the SE. No samples were taken from this outcrop.

Gigi claim.--A vein, 4 feet thick, composed of coarsely crystalline iron carbonate with subsidiary amounts of barite and hematite, strikes N. 30° E. and dips 85° NW. It is exposed in a prospect pit 10 feet long and 6 feet deep. A mineralized shear zone striking N. 20° W. and dipping 75° SW intersects the vein but does not displace it. Radioactivity was low and no samples were taken.

Sherry claim.--The claim includes two small prospect pits. No. 1 Pit is on a heavily mineralized fractured zone 3 feet thick that strikes N. 40° W. and dips vertically. The country rock is silicified granitic gneiss. No. 2 Pit exposed numerous veins and stringers of iron carbonate that strike N. 30° E. and dip 60° NW. The largest vein averages about 1 foot thick. No samples were taken here.

Bobcat claim.--The Bobcat claim is on a hill that the applicants call "the dome." They believe it to be highly mineralized. Several small, poorly exposed, slightly mineralized shear zones were seen, but none of them are impressive. No samples were taken.

SAMPLES AND ORE RESERVES

Ten samples were taken and shipped to Salt Lake City for analysis. Because these samples ran much lower than expected, they were checked radiometrically in the USGS laboratory in Denver. The samples follow:

Sample No.	ThO_2 (percent)	$eThO_2$* (percent)	Width (feet)	Location
CB-102	0.13	0.000	Grab	Pink Lady ore pile at mine.
CB-103	0.01	0.005	2.0	Pink Lady vein - channel.
CB-104	0.31	0.230	Grab	West end Grape Creek shaft dump.
CB-105	0.31	0.210	9.9	Channel 100 ft. east of Grape Creek shaft.
CB-106	0.13	0.105	6.5	Channel on Serpent.
CB-107	0.01	0.040	5.0	Channel across quartz at Serpent.
CB-108	0.01	0.025	6.0	Channel across Lazy-Y vein.
CB-109	1.40	1.350	Grab	Serpent ore in plant.
CB-110	0.31	0.230	Grab	Lazy-Y ore in plant.
CB-111	2.23	1.935	Grab	Concentrates in plant.

* $eThO_2$ calculated from eU by subtracting the chemical U and multiplying by a factor of 5.

None of the mine samples, taken from the best looking exposures, even approached ore in grade. The plant concentrate would have to contain 10 percent ThO_2 to be marketable.

Under existing conditions, there are no known thorium ore reserves on the property at this time.

The AEC examined the property and also found the veins to be wide but to contain very little ThO_2.

APPLICANT'S ESTIMATED COST OF PROJECT

The application requested aid in core drilling 6,000 feet and 300 feet of drifting and crosscutting as follows:

Independent contracts		
Core drilling 6,000 feet at $4.59/ft.	$27,540.00	
Bulldozing 200 hrs. at $14/hr.	2,800.00	
Supervision ($600)	600.00	
Drifting and crosscutting 300 ft at $29.29/ft.	8,787.00	
Total independent contracts		$39,727.00
Labor and supervision		
Labor and geologists		
Cook - 3 months at $300.00	900.00	
Field party (surveying and expenses)	2,272.50	
Total labor and supervision		3,172.50
Operating materials and supplies		
None.		
Operating equipment		
2 jeeps at $27.78 each for 3 months	166.68	
Mileage, 75 miles/day for 90 days at 8 cents a mile	540.00	
Total operating equipment		706.68

Rehabilitation and repairs

None.

New buildings, improvements, etc.

None.

Miscellaneous

Payroll taxes, etc., 6.11 percent of $900.00	$ 55.00	
Meals to cook, 60 days at $3/day	180.00	
Total miscellaneous		$ 235.00

Contingencies

10 percent	4,384.12	
Total estimated cost		$48,225.30
Government participation, 75 percent, or		$36,168.98

CONCLUSIONS AND RECOMMENDATIONS

The examining team believes that there is no evidence to indicate that significant thorium ore deposits will be discovered by the proposed exploration, and denial of the application for exploration assistance is recommended.

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

DMEA
Date Rec'd.
JUL 8 1955
BUREAU OF MINES
Denver, Colorado

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

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

RECEIVED
JUL 11 1955

Not to be filled in by applicant

Docket No. 3894
Metal or Mineral Thorium
Date Received 7-11-55
Estimated Cost $ 43,225.30
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: Cunac Minerals, Inc., c/o R. H. Bliss, 1701 Franklin Street, Canon City, Colorado, a corporation incorporated in the State of 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 A corporation incorporated in the State of Colorado.

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

(*d*) If a partnership, add to the above statement the names and addresses of all partners. not applicable.

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 Group of adjoining unpatented mining claims in Secs. 24, 10,11,12,13,14,15,16,21,22,23,T 20 S, R 70 W; and Secs. 7,8,17,18,T 20 S, R71W, Fremont Co., Colo. Specifically Aspen, Serpent, Kotan, Pink Lady, Lazy Y, Columbine, High Noon, Gigi, Speakeasy, Sherry, Pay Day, Corann, Bobcat, Margaret, and Rusty Saddle Claims.

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

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Owners of 204 unpatented claims.

(*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 none

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

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. (Attached sheets)

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

(*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. See attached Preliminary Economic Evaluation, and other reports.

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

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

(Attached Sheets)

16—66551-1

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

(*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)? Yes

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

[X] Money [X] 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 June 24th, 1955

Qunac Minerals, Inc.
(Applicant)

By Robert H. Bliss

Robert H. Bliss, President

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

1. Name of Applicant

(c) President: R. N. Bliss, 1701 Franklin St., Canon City, Colorado

Treasurer: Jack Womack, Crowley, Colorado

Secretary: J. L. Hutchison, 629 Polk Street, Pueblo, Colorado

Directors:

R. N. Bliss, 1701 Franklin Street, Canon City, Colorado
T. J. Sardy, Aspen, Colorado
Frank Willoughby, Aspen, Colorado
Fred Gliddon, Aspen, Colorado
Ivan Ashley, Rye, Colorado
Ed Anderson, 624 W. Grant, Pueblo, Colorado
Oscar Yarbrough, Yarbrough Lumber Company, Grand Junction, Colo.

3. Applicant's Property Rights

(f) See attached list of claims recorded in Fremont County Court House, Canon City, Colorado.

4. Physical Description

(a) There are approximately thirty five miles of accessible jeep road and approximately eleven miles of access truck road centering through the entire group of claims. Of the smaller group to be explored the accessibility in most cases is excellent.

As to present mining and exploration on the entire group, we have sunk roughly 300 discovery holes varying from five to fifteen feet in depth, a good portion of these having been sunk in sequence on the veins. We are now mining on two of the claims, the Columbine and the Lazy Y, and plan to open up the Pink Lady and the Serpent. This operation consists of drag line, bulldozer, and tunnel work. On the principal mining spot we are down thirty five feet on an incline and have taken approximately 250 tons of ore from this location. The ore being mined runs between 2% and 3% thorium. The mining is being contracted by Cunac to a responsible individual and Cunac is furnishing two men, one compressor and some accessory equipment.

The mined ore is being trucked 85 miles to Pueblo, Colorado, where it is being upgraded in the company's pilot plant. This upgrading operation was worked out and developed under our own auspices during the past year and is designed specifically for the concentrating of thorite ore. The approximate cost of the pilot plant is in excess of $10,000. The upgraded ore is now being accumulated for shipment to Lindsay Chemical Company of West Chicago. At the time of this application a larger upgrading unit has been proposed for location in Canon City which will be a saving of some 45 trucking miles.

(b) We are mining approximately ten tons a day, but insufficient work has been completed to make accurate ore reserve estimates. An important factor is that on the entire group of claims each discovery cut has revealed ore-grade

mineralization. On some claims two or three prospect holes have been sunk. As to further information on possible ore grades, refer to AEC radiometric analyses and Lindsay Company Assays.

(c) Refer to attached Preliminary Economic Evaluation of the Cumac Thorium property by Sigurd K. Herness of Minerals Exploration Research Corporation, Golden, Colorado. The general geologic features of the property are described in that report.

The geologic map accompanying that report is a reconnaissance map, showing mostly the principal veins. To our knowledge detailed geological mapping has never been done. The reason for wishing to explore is to determine the vein widths and grades at depth on those claims which now appear to have the best potential. Geological mapping is necessary to locate bulldozer cuts and drill holes in the best possible places to derive the maximum subsurface data.

(d) The group of claims is located approximately twenty two miles from Parkdale, Colorado, located on U. S. 50 with D. and R. G. W. rail facilities. A county road leads to within eight miles of the property. From that point our own access road leads to the center of the claim group and also to our Grape Creek camp.

Living supplies can be had at Parkdale; mining supplies at Canon City. Driving distance to Canon City is approximately one hour. Nearest residence point for any large body of employees would be Parkdale, Colorado, 22 miles away.

(e) We have available four men on our property and an unlimited pool of experienced miners in Canon City. On the property at present we have sufficient material for handling a limited exploration and development program. On a going mining operation all materials and supplies would be available in Canon City. The closest power line is approximately four miles from Grape Creek. Water on the property consists of approximately ten small mountain springs only, the water from Grape Creek having been appropriated for irrigation uses in the Canon City area.

5. <u>The Exploration Project</u>

(b) <u>Geological-Geophysical Investigations</u>: A preliminary evaluation of the property has been completed by Minerals Exploration Research Corporation. However, for a property of this magnitude, a more extensive geological-geophysical exploration program is necessary before an intelligent program of trenching, drilling, and underground exploration can be outlined.

Plane tabling and geological mapping on a semi-detailed scale of 1" = 200' will first be executed on the 15 claims to delineate the extent of the mineralized area and determine vein continuity and ore shoot localization. Plane tabling of culture and engineering control is estimated to take 7 days and geological mapping using the plane-table data should take 6 days. Soon after the start of geological mapping, grid scintillometer surveys will be run on a 50 foot grid for detailing areas of suspected vein projections. A time of 3 days is estimated. Working geological maps and

geophysical overlay maps will be prepared to facilitate exploration planning.

Bulldozer Operations:

Bulldozer cuts will first be made on the soil-covered projections of those veins which appear to be strongly mineralized from the preliminary evaluation. These would be the northeast-trending veins on the Fay Day, Gigi, and Pink Lady claims and the northwest veins on the Kotan, Serpent, Rusty Saddle, High Noon, and Robert claims. Part of this work can start immediately and part will be determined by the detailed geological-geophysical results. A total of 160 hours of bulldozing is estimated to be sufficient to expose the major veins and permit a better utilization of the drill footage. The geological data from these cuts will be integrated with the previous data.

Diamond Core Drilling:

Diamond core drilling will be located according to the results of all the above work. In general holes will be laid out to pierce the veins from 75' - 100' along dip below the surface and also at 200' below. The lengths of these holes will vary according to the dip of the veins and will average from 90' - 100' and 200' - 250' respectively. The dip angle of these holes will depend on the vein dips, but in general will be drilled at about a 60° angle. The spacing of holes along vein strike will be 100 feet. In addition to assays all holes should be radiometrically probed to determine the equilibrium factor and thereby reduce the number of assays necessary. A total of 5000' of core drilling is estimated to be necessary. Approximately 40 hours of bulldozing will probably be necessary to provide drilling sites and access roads.

Drifting or Crosscutting:

An incline is now being sunk on the vein which strikes across the Columbine and Lazy Y claims. If this development continues to look favorable, a drift will be driven from the bottom of this incline. About half the total estimated footage of 300' will be completed on the Columbine-Lazy Y vein and the other half on the vein which shows greatest promise from the drilling. In view of the limited underground development allotted to this program, all work will be confined to drifting. However a small amount of cross-cutting may be necessary in the event of a faulted vein. No shaft sinking is contemplated.=

(d) The Minerals Exploration Research Corporation, Golden, Colorado has been and will be engaged by the company to plan and execute all geological and geophysical investigations and to supervise the location of all bulldozing and core drilling operations. This firm is composed of people with extensive mining experience in both the operating and exploration phases. The personal, educational, and professional history of the company principals is enclosed with the application.

Supervision of the actual mining on the property will be carried out under the direction of Charles Selinge of Canon City, Colorado. Selinge's background consists of being owner-operator of the large Chandler Coal Company operation out of Canon City which in the past has employed up to 700 men underground. Selinge has also contract mined uranium in the Gateway area of Colorado and has done extensive tunnel and shaft uranium exploration

work for Al Ward and Associates out of Dayton, Ohio. We refer you to Gordon Babble Company, Grand Junction, for an estimate of Selingo's capabilities. In Selingo's employ are a number of experienced hard rock miners out of Cripple Creek, Colorado. In respect to our own two men on the property, both have spent there working lives with heavy equipment as mechanics and in operation of drag lines, bulldozers, shovels and heavy air equipment.

6. **Estimate of Costs**

(a) **Independent Contractor:**

Diamond Core Drilling - 6000 feet

6000 feet	$4.00*/ft.	
Hauling of water	.25/ft.	
Supervision $1800 / 6000 =	.30/ft.	
150 Core boxes @ $1.50 $225 / 6000 =	.04/ft.	
	$4.59/ft. x 6000 =	$27,540.00

* This rate is an approximate estimate by Boyles Brothers Drilling Company of Salt Lake City. Bulldozing of drill sites and roads would be extra and 40 hours is allowed under Bulldozing Operations.

Bulldozing Operations - 200 hours

200 hrs.	$14/hr.	
Supervision $600 / 200 hrs. =	3/hr.	
	$17/hr. x 200 =	$ 3,400.00

Drifting and Cross-cutting - 300 feet.

300 feet	$18*/ft. of advance	
2 Miners helpers $1888 / 300 =	6.29/ft.	
Supervision $1200 / 300 -	4.00/ft.	
Compressor $300 / 300 -	1.00/ft.	
	$29.29/ft. x 300 =	8,787.00
		$39,727.00

* This rate has been negotiated with Charles Selingo of Canon City, Colo., with Cumac to furnish a compressor and 2 miners helpers.

(b) **Labor, Supervision, Consultants**

Labor:

2 Miners Helpers	
120 man da. @ $12/da.	$ 1,440.00
Meals, 120 man da. @ $3.00	360.00
Payroll taxes 6.111% x $1440.	88.00
(Included under Drifting and Cross-cutting)	$ 1,888.00

Labor: (Cont.)

1 Cook 3 mos. @ $300.00	$ 900.00	
Meals, 60 man da. @ $3.00	[illegible]	
		$ 1,080.00

A cook with mess facilities will be provided as the area is quite inaccessible and all personnel must stay on the property. However, actual food costs will be prorated to and paid by each contractor in proportion to number of men and days, except for the two miners helpers.

Preliminary Geological Investigations:

Plane table crew (2 men)	7 days @	$ 75.00	$ 525.00
Senior Geologist	6 days @	100.00	600.00
Junior Geologist	6 days @	50.00	300.00
Travel Time from Golden	@	1/2 time	112.50
Field Expense for the above	30 man da. @	5.00	150.00
Transportation for the above	500 mi. @	0.12	60.00
Scintillometer Survey (Expenses included in this rate)	3 days @	75.00	225.00
Map Preparation and Expenses		EST.	300.00
			$ 2,272.50

Project Supervision:

This estimate is based on the necessary services of a geologist-engineer for 3 months. He would supervise location of all bulldozer cuts, drill holes, and exploration drifts, log cores, probe holes radiometrically, map drift advance survey drill holes and drifts, keep reports for government, and handle the necessary accounting. A senior geologist-engineer will be furnished by Minerals Exploration Research Corp. to be project supervisor at the rate of $1000.00 per month for 3 months plus expenses.

Senior geologist-engineer	@ $1000/mo.	3,000.00
Field expenses	90 man da. @ $4.00	360.00
Transportation	400 mi. @ $0.12	48.00
(Transportation on the job to be furnished by the Operator and is included under Operating Equipment- 2 Jeeps.)		
Map preparation Est.		200.00
		$ 3,608.00*

*The amount for project supervision has been prorated to the exploration phases in the following proportions: Drilling 1/2, Bulldozing 1/6, Drifting 1/3.

(c) Operating Materials and Supplies

None: All will be furnished by the contractors.

(d) Operating Equipment

The following equipment will be furnished by the Operator at the listed suggested use-allowance:

1 Compressor 105 cfm
$100/mo. for 3 mo. = $300.00 (Added under drifting and cross-cutting)

2 Jeeps
Assume a depreciation of 3 years
and an estimated present value of $1000. each.
$\frac{\$1000}{36}$ = $27.78/mo. x 3 mo. x 2 jeeps = $166.68 for 2 jeeps, 3 months.

Mileage @ $0.08/mi. 75 mi/day for 90 days = 540.00 $ 706.68

(e) Rehabilitation and Repairs

None:

(f) New Buildings, Improvements, Installations

None:

(g) Miscellaneous

1. Analytical Work - All analyses will be made at no cost by Lindsay. Chemical Company.
2. Payroll Taxes 6.111% x 2340.00 = 143.00
(Taxes for miners helpers under Drifting Costs)
$900 x 6.111% = $55.00 $ 55.00

Sub Total $43841.18

(h) Contingencies 10% of above Total 4,384.12

Grand Total of Loan [redacted]

7. (b) The following is the breakdown on the share of costs by the Operator.

Use of Equipment

1 Compressor	$ 300.00	
2 Jeeps	706.68	
		$ 1006.68

Labor

2 Miners Helpers	$1888.00	
1 Cook	1135.00	
		$ 3023.00

Money $8026.65

25% of Grand Total $12056.33

LINDSAY CHEMICAL COMPANY
West Chicago, Illinois

ORE PROSPECTING REPORT

To: HEK

From: GFT

cc:

Date: Oct. 15, 1954

Prospect:

Cunac Minerals, Inc.
Robt. H. Bliss
1701 Franklin St.
Canon City, Colo. Ph.--1157-W

Robert Bliss whose home is at the above address is a fellow about 35 years of age and is a salesman for the Gelotex Company in southern Colorado and northern New Mexico. He is on the road most of the time during the week and spends weekends on the property. Other men in the company whom I met at Bliss' home on September 24 were Frank Rhoads who is a former teacher of Chemistry at the Pueblo Junior College and is at present in the contracting business, Ivan Ashley who is a Geologist formerly from Alamosa, Colorado and has staked some claims for them over near Monticello, Utah as well as some of those in this area, and Harvey Bishop who is a former employee of the Ordnance Depot in Pueblo now living at a trailer court in Canon and as of the 1st of October is living at the camp on the property.

These last three men accompanied me to the property in a Jeep belonging to the company. The property is best reached by going South of Canon City 16 miles on the Oak Creek road to an old ranch house on the West side of this road; turn West and go 3 miles to the Cunac camp on Grape Creek where they have several tents and a cook shack. The property is only accessible to narrow Jeep due to the narrow road between some of the large boulders and the canyon wall. Charles and Edward Inglebrecht are staying at the camp doing prospecting and discovery.

On the first visit, they were supposed to have staked about 140 claims and since have staked many more, making possibly 200 in all. The work for discovery has been done on a few of them but on most they have only a 4 or 5 ft. hole. They have been trying to do the work using an old gasoline hammer and hand steel but have gone about as far as possible with these methods and will be forced to get an air compressor in the near future. They plan on getting a dozen in the near future to improve the roads to some of the various claims. About half of the claims can be reached at present by Jeep roads, others by walking distances of not more than a half mile. Most of the new claims added since the map of August, 1954 are on the south and west and are all tied in as a group.

The major rock formations in this area, typical of the Westcliffe occurrences seen thus far, are Pre-Cambrian granites, gneisses, schists, and quartsites profusely injected in many places. There are many pegmatites from stringer size up to several feet in thickness. The main fracture zones seem to be in an east-west direction with usually up to 15° variance to the north or south. There are other fractures where Thorite mineralization occurs at about N 50° W and N 50°E. Dips are generally from 75° to 80° with a few flat-lying at 45° or less.

Barite occurs in most of these Thorium-bearing zones along with the iron-bearing minerals hematite, limonite, and magnetite in some of them.

The better claims as regards width of vein and radioactivity occur in the eastern part of the property and the most work was done on a few of these, although dozens of others were examined and sampled briefly. Transportation is the hindering factor to a more complete examination in the short time available. About ten of the samples taken were discarded after being checked radiometrically and compared with others. These should be reported as having the same Thorium content as the one on which sheet they appear.

The best of the claims seen are the Grape Creek, Pink Lady, Lazy Y, and Serpent. The general amount of RA in the area of the Grape Creek is much higher than most places. The Grape Creek is one of a group of three claims on which Cunac has a leasing arrangement with Orin Wagner of Canon City. It is an old Silver property having been last worked 50-60 years ago. Parts of the old hoist and boiler are still there and some rails and pipe. There are two shafts about 75 ft. apart and dumps on them which contain about 375 yds. of material which shows good RA throughout. The lower shaft is probably about 60 ft. to water level. There is another shaft on this vein about 500 ft. to the west which also contains this same type of rock very high in Barite. These dumps would contain at least 500-700 tons of material similar to samples 549130 and 549145.

At the present time it is necessary to walk about .5 miles to get to the outcrop on the Pink Lady which was sampled. They propose to put a road to this claim from Hambone Gulch as soon as they are able to get a dozer in to the camp. This particular outcrop is at least 30 ft. wide and parts of it are covered by overburden, but at nearly every point checked with the scintillator the RA is higher than at most other claims on this property. There are probably 10,000 tons of material at this outcrop which could be obtained with relatively cheap surface mining with much more available adjacent to it, altho it is doubtful if the width of 30 ft. would continue for any great distance. This should be fairly well represented by Sample 549146. The sample taken previously, No. 549132, was more or less salted by one of the men along and will not be representative of anything other than the 15 in. high grade part of the vein in the discovery hole.

The Serpent lies on the strike of the Grape Creek vein and shows good mineralization on an 8 ft. face in the discovery shaft.

The Lazy Y lies along the Jeep road and the vein outcrops in several places in this canyon showing varying degrees of RA. That on the middle of the 3.5 ft. vein in the discovery hole is the highest seen in RA on the property, 13 MR/HR. An 8 ft. channel sample was taken at one of the outcrops in the canyon 500 ft. east of the discovery hole. Here the RA is comparatively good, .3 to 2.5 M/H across the vein. There are several thousands of tons of this type of material easily obtainable at this outcrop.

Many of the other claims seen show high RA, also, and are probably capable of producing substantial tonnage. These were taken as the best because of the tonnage readily available and the ease with which they can be reached after a road is put from the Oak Creek grade to the camp on Grape Creek. This is going to entail building about 2.5 miles of road down Bear Gulch which will require from 5 days to 2 weeks for a road good enough to handle large trucks. After that, many weeks could be used in building roads to the various claims, depending upon the number desired and the quality of surface.

There is considerable water in Grape Creek most of the year but it is very doubtful if any of it would be available for milling. This is the outlet from LeWeese Reservoir near Westcliffe to the Arkansas River and is a privately owned irrigation project of some group of farmers down the river from Canon City. It seems very likely that all the ore would have to be hauled for milling into Canon City, a distance of about 20 miles.

This is without a doubt the best concentration of potential Thorium ore seen on any one group of claims and is capable of producing a large amount of tonnage. I have told these boys that we are not too much interested in the Rare Earth content at present, and then only on a total oxide basis rather than for any value based on a particular element. (As usual, they have ideas of something worth thousands of dollar per pound!) Also, that we are interested in getting a Thorium concentrate of 10% minimum but can only offer about $1.00 per lb. of contained ThO_2 at present.

They appear to be pretty long on ambition and short on ready cash. I don't know if they are selling stock, but imagine that Bliss is putting in some cash to maintain the camp and do the discovery work, and Rhoads may be also, but it is doubtful if any of the others whom I have met are donating anything other than work.

Rhoads indicated a willingness to work out a deal with us whereby they mill the stuff up to a 10% conc. of ThO_2 plus whatever REO would be contained on some sort of an arrangement whereby they

would be allowed to compensate for one shipment on the next in the event the grade fell below requirements, we making them an offer of the best possible price for both Thorium and Rare Earths.

I doubt if they realize that a mill of any sort at all will cost at least 50 thousand, plus road building and much mining equipment, trucks, etc. I don't know what they have in mind but believe that we should, if possible, go along with them on a deal to buy any concentrates which they may be able to produce in the future.

G. F. Tom

- COPY -

LINDSAY CHEMICAL COMPANY
West Chicago, Illinois

To: HEK

From: GFT

cc:

Date: Dec. 10, 12, 1956

ORE PROSPECTING REPORT

Prospect:

Cunac Minerals, Inc.
Robert H. Bliss
1701 Franklin Street
Canon City, Colorado

On this latest visit to the Cunac property, I drove in using a company Jeep. The road down Bear Gulch is ice covered but still easily passable, sometimes chains being needed, especially in coming out. I was out the first day with Harvey Bishop who is living at the property and along with Chas. Inglebretsen and Lloyd Stover is doing the discovery work on this group of claims. At the present time they have staked out over 200 claims, most of which contain outcrops of Thorium-bearing rock.

On Saturday, Bob Bliss came down to the property with Ed Anderson, a retired building contractor of Pueblo, and Chas. Denton, a road contractor from Raton, N.M., both members of the corporation. Present plans include Denton's mining and hauling of the ore when operations are begun.

Ed Anderson has been investigating the possibility of securing the mill at Parkdale for the processing of these Thorium-bearing materials. He says that it is owned by the International Chemical Company and that there is a Govt. lien against it for a considerable amount, also that the original cost was over $1 million and that it could be secured for $300,000. I have understood previously that some of the equipment has been moved and sold. There is a 100-ton crusher, leaching tanks, concrete storage tanks, a railroad siding, water rights, and better than 250 acres of ground. The ball or rod mill has been taken away and I do not know if there were float cells or tables in the original flowsheet, or not. They think that they could get a Govt. Production loan to refit the mill as required for Thorium concentration. I could not enlighten them as to cost as I don't know what type of equipment would be required for separation, but it surely would not be a gravity separation, entirely, due to great slime losses in this type material.

They spoke of a 500 ton per day operation but evidently have little conception of the huge amount of mining and milling equipment which this would require. They also seem to think that there will be considerable strip or surface mining but actually most of the mining will be underground. In some instances there is a possibility of trenching some of these more vertical veins but due to their narrow width this would not be very satisfactory and would not be practicable for large tonnage or great depth.

The northwestern part of the property along Pine Gulch is about 20 miles from Parkdale with a good road most of the way which is maintained by the County. This would be the ideal route to follow in trucking the ore from this property. Parkdale would also be ideally situated in respect to Westcliffe, being about 40 miles from there. It is approximately 60 miles from Colorado Springs and located on the D & R G W RR. and the Arkansas River.

Bliss and Anderson have told me that they believe that with a price of $1.50 per lb. for a 15% ThO_2 concentrate they can make out, figuring a 2% average for the ore which they would mine. Denton says that he will mine, load, and haul it to Parkdale or Canon City for $15 per ton. This figure is dependent upon our working out the metallurgical problems of initial separation and recommending equipment adapted to the upgrading of this material. I have told Bob that they should figure on a 1% ore for any great tonnage, although 2% could be selectively mined from a few places. Most of the samples they have taken have been selected ones, while the ones I have submitted have been taken across the veins, generally at a mineable width. These latter ones show about .6% ThO_2, average.

G. F. Tom

NAME	DISCOVERY DATE	FILED	BOOK	PAGE
1. Bystander	June 2, 1954	June 3, 1954	338	184
2. Mark	" 2, "	" 3, "	"	185
3. Reject	" 2, "	" 3, "	"	185
4. Curt	" 2, "	" 3, "	"	186
5. Doll	" 2, "	" 3, "	"	186
6. Cynthia	" 2, "	" 3, "	"	187
7. Hambone #1	" 2, "	" 3, "	"	187
8. Hambone #2	" 2, "	" 3, "	"	188
9. Margret	" 13, "	" 14, "	"	204
10. Vulture	" 18, "	" 19, "	"	234
11. Grisley	" 18, "	" 19, "	"	234
12. Raggedwood	" 18, "	" 19, "	"	235
13. Kodiak	" 18, "	" 19, "	"	235
14. Sturgeon	" 18, "	" 19, "	"	236
15. Dogfly	" 18, "	" 19, "	"	237
16. Gunner	" 18, "	" 19, "	"	233
17. Caribou	" 18, "	" 19, "	"	233
18. Winchester	" 21, "	" 22, "	"	253
19. Stormy	" 21, "	" 22, "	"	254
20. Hazel	" 20, "	" 22, "	"	255
21. Turtle	July 3, "	July 12, "	"	326
22. Bobcat	" 5, "	" 12, "	"	325
23. Frank	June 28, "	" 12, "	"	325
24. Notch	July 25, "	" 29, "	"	369
*25. Gunflint	" 28, "	" 29, "	"	368
*26. Jib	" 27, "	" 29, "	"	369
27. Brenda	" 17, "	" 29, "	"	367
28. Thurston	" 16, "	" 29, "	"	367
29. Spruce	" 16, "	" 29, "	"	366
30. Chinee	" 16, "	" 29, "	"	365
31. Maggie	" 25, "	" 29, "	"	365
32. Marie	" 29, "	" 31, "	"	391
33. Boot	" 29, "	" 31, "	"	386
34. Oak	" 30, "	" 31, "	"	384
35. Bill	" 30, "	" 31, "	"	383
36. Teddy	" 30, "	" 31, "	"	383
37. Bobolink	Aug. 5, "	Aug. 13, "	"	423
38. Jackal	" 8, "	" 13, "	"	423
39. Jigge	" 8, "	" 13, "	"	418
40. Widow	" 9, "	" 13, "	"	418
41. Wishiner	" 9, "	" 13, "	"	416
42. Last One	" 9, "	" 13, "	"	416
* 43. Bean	Sept. 4, "	Oct. 7, "	"	538
*44. Carbine	" 4, "	" 7, "	"	539
*45. Willow	" 4, "	" 7, "	"	539
*46. Zeke	" 4, "	" 7, "	"	540
*47. Blade	" 4, "	" 7, "	"	540
*48. Joan	" 4, "	" 7, "	"	541
*49. Boot	" 6, "	" 7, "	"	564
50. Spur	" 6, "	" 7, "	"	565
51. Gem	" 6, "	" 7, "	"	565
52. Hickory	" 6, "	" 7, "	"	566
53. Squaw	" 5, "	" 7, "	"	566

* See sheet marked "Amended"

	NAME	DISCOVERY DATE	FILED	BOOK	PAGE
54.	Horn	Sept. 6, 1954	Oct. 7, 1954	338	567
55.	Moose	" 6, "	" 7, "	"	567
56.	Birch	" 6, "	" 7, "	"	568
57.	Elk	" 11, "	" 7, "	"	536
58.	Eagle	" 11, "	" 7, "	"	536
59.	Hawk	" 11, "	" 7, "	"	537
60.	Crow	" 11, "	" 7, "	"	537
61.	Arrow	" 11, "	" 7, "	"	541
62.	Bow	" 11, "	" 7, "	"	542
63.	Fox	" 11, "	" 7, "	"	542
64.	Tongue	" 12, "	" 7, "	"	535
65.	Lizzard	" 12, "	" 7, "	"	535
66.	Chime	" 21, "	" 7, "	"	555
67.	Whale	" 21, "	" 7, "	"	557
68.	Point	" 21, "	" 7, "	"	562
69.	Stump	" 22, "	" 7, "	"	561
70.	Tagish	" 22, "	" 7, "	"	561
71.	Rudy	" 23, "	" 7, "	"	551
72.	Giant	" 23, "	" 7, "	"	561
73.	Bear	" 25, "	" 7, "	"	538
74.	Iowa	" 25, "	" 7, "	"	543
75.	Leaf	" 25, "	" 7, "	"	562
76.	Cup	" 26, "	" 7, "	"	543
77.	Loot	" 26, "	" 7, "	"	559
*78.	Canuck	" 26, "	" 7, "	"	560
79.	Alley	" 27, "	" 7, "	"	562
80.	Moat	" 28, "	" 7, "	"	544
81.	Marmont	" 29, "	" 7, "	"	560
82.	Opal	" 29, "	" 7, "	"	563
83.	Top	" 29, "	" 7, "	"	564
84.	Taos	Oct. 1, "	" 7, "	"	563
85.	Freeze	" 1, "	" 7, "	"	558
86.	Whip	" 1, "	" 7, "	"	559
87.	Wagon	" 4, "	" 7, "	"	559
88.	Thor	" 5, "	" 7, "	"	557
89.	Snake	Nov. 1, "	Nov. 3, "	342	3
90.	Yankee	Oct. 22, "	Oct. 28, "	338	597
91.	Setter	" 17, "	" 28, "	"	603
92.	Spitz	" 17, "	" 28, "	"	603
93.	Spaniel	" 16, "	" 28, "	"	602
94.	Terrier	" 16, "	" 28, "	"	602
95.	Scotty	" 16, "	" 28, "	"	601
96.	Poodle	" 16, "	" 28, "	"	601
97.	Hound	" 16, "	" 28, "	"	600
98.	Husky	" 16, "	" 28, "	"	600
99.	Collie	" 16, "	" 28, "	"	599
100.	Bull	" 16, "	" 28, "	"	599
101.	String	" 9, "	" 28, "	"	598
102.	Boxer	" 16, "	" 28, "	"	598

	NAME	DISCOVERY DATE	FILED	BOOK	PAGE
103.	Gloria	July 29, 1954	July 31, 1954	338	334
104.	Rainey	" 29, "	" 31, "	"	336
105.	Loonnaunt	" 29, "	" 31, "	"	335
106.	Bend	" 29, "	" 31, "	"	335
107.	Hermit	Aug. 8,	Aug. 13,		424
108.	Bath	May 31,	June 1,	"	183
109.	Dinosaur	June 18, "	June 19, "	"	235
110.	Woodchuck	" 18,	" 19, "		238
111.	Redgut	" 21, "	" 22, "		253
112.	Sherwood	" 20, "	" 22, "	"	254
113.	Dotty	" 19, "	" 22, "	"	255
114.	Floyd	July 16, "	July 29, "		366
115.	Linklater	June 18,	June 19,	"	237
116.	Amatrine	May 2,	May 15, "		153
117.	Columbine	" 20,	" 22,		170
118.	West Hole	" 7,	" 15, "		153
119.	Rotan	April 26, "	April 27,	"	121
120.	High Noon	" 13, "	" 14,		99
121.	Gigi	" 13, "	" 14,	"	100
122.	Sherry	" 15,	" 15,	"	102
123.	Pay Day	" 15, "	" 15,	"	102
124.	Speakeasy	" 12, "	" 14,		100
125.	Lazy-Y	" 2, "	" 12, "		91
126.	Rusty Saddle	" 4, "	" 12, "		91
127.	Jorann	May 31,	June 1,		183
128.	Pink Lady	April 23, "	April 24,	"	115
129.	Feather	Nov. 11,	Nov. 15,	342	72
130.	Maple	" 11, "	" 15, "		72
131.	Clipper	" 14, "	" 15, "		71
132.	Bone	" 11, "	" 15, "		73
133.	Irene	" 11, "	" 15, "		73
134.	Katy	" 11, "	" 15, "	"	74
135.	Lake	" 11, "	" 15, "		74
136.	Pothole	July 28, "	July 29, "	338	368
137.	Midnight	April 29, "	May 8, "	"	142
138.	Serpent	" 29, "	" 8,	"	141
139.	Aspen	" 6, "	" 8,		141
140.	Wabagoon	" 20, "	" 22,	"	169
141.	Frenchie	" 20, "	" 22, "	"	167
142.	Capri	" 17, "	" 22, "		170
143.	Clyde	" 18, "	" 22,		166
144.	Mary Ann	" 21,	" 22,	"	154
145.	Countless	" 17,	" 22, "		166
146.	Stevie	" 17,	" 22, "		165
147.	Lazy-4U	" 21, "	" 22,		154
148.	Wayne	" 18, "	" 22, "		168
149.	Cecelia	" 23,	" 24, "		171
150.	Mulik	May 31,	June 1,	"	179
151.	Harvey	" 13, "	" 19, "	"	233
152.	Twosome	" 13, "	" 19,	"	233
153.	Hogleg	" 13, "	" 19, "	"	224
154.	Bluefrost	" 25, "	" 26,		234

NAME	DISCOVERY DATE	FILED	BOOK	PAGE	
155. Bannock	July 5, 1954	July 12, 1954	333	316	
156. Burro	" 5, "	" 12, "	"	316	
157. Kapstickamack	" 5, "	" 12, "	"	327	
158. Elaine	" 5, "	" 12, "	"	326	
159. Toe	Sept. 25, "	Oct. 7, "	"	345	
160. Discus	" 25, "	" 7, "	"	347	
161. Goat	Feb. 5, 1955	Feb. 21, 1955	343	361	
162. Ox	Jan. 30, "	" 21, "	"	360	
163. Bit	" 30, "	" 21, "	"	359	
164. Mouse	Dec. 17, "	" 21, "	"	358	
165. Pinch	" 17, "	" 21, "	"	357	
166. Lucky	" 5, "	" 21, "	"	356	
167. Hook	Jan. 16, "	" 21, "	"	355	
168. Verda	Dec. 12, "	" 21, "	"	354	
169. Linda	" 21, "	" 21, "	"	352	
170. Sinker	Jan. 23, "	" 21, "	"	362	
171. Line	" 16, "	" 21, "	"	363	
172. Joan	Sep. 4, 1954	Oct. 7, 1954	333	541	See 48
173. Snot	" 25, "	" 7, "	"	546	
174. Jade	" 25, "	" 7, "	"	548	
175. Toad	" 25, "	" 7, "	"	549	
176. Toklat	" 25, "	" 7, "	"	550	
177. Mattock	" 25, "	" 7, "	"	547	
178. Pancho	" 25, "	" 7, "	"	544	
179. Trap	" 25, "	" 7, "	"	549	
180. Mizzou	" 25, "	" 7, "	"	554	
181. Maux	" 25, "	" 7, "	"	552	
182. Bird	" 25, "	" 7, "	"	553	
183. Foot	" 25, "	" 7, "	"	545	
184. Eye	" 25, "	" 7, "	"	548	
185. Spike	" 25, "	" 7, "	"	555	
186. Bead	" 25, "	" 7, "	"	550	
187. Heel	" 25, "	" 7, "	"	554	
188. Dutch	March 22, 1955	April 29, 1955	346	317	
189. Crab	" 22, "	" 29, "	"	316	
190. Twig	" 22, "	" 29, "	"	315	
191. Tooth	" 22, "	" 29, "	"	314	
192. Otter	" 22, "	" 29, "	"	313	
193. Mink	" 22, "	" 29, "	"	312	
194. Whisker	" 19, "	" 29, "	"	311	
195. Jack	" 19, "	" 29, "	"	310	
196. Jeep	" 19, "	" 29, "	"	309	
197. Rock	" 19, "	" 29, "	"	308	
198. Teton	" 23, "	" 29, "	"	307	
199. Cub	April 15, "	" 29, "	"	306	
200. Hub	" 15, "	" 29, "	"	305	
201. Bub	" 15, "	" 29, "	"	304	

AMENDED FILINGS

NAME	AMENDED	BOOK	PAGE	AMENDED	BOOK	PAGE
43. Bean	April 29, 1955	346	295			
44. Carbine	" 29, "	"	296			
45. Willow	" 29, "	"	298			
46. Zeke	" 29, "	"	301			
47. Blade	" 29, "	"	302			
25. Gunflint	" 29, "	"	300			
26. Jib	" 29, "		303			
49. Boot	" 29, "		294			
78. Canuck	" 29, "	"	297			
103. Gloria	Nov. 10, 1954	342	36			
104. Rainey	" 10, "	"	38			
105. Loonhaunt	" 10, "	"	37			
106. Bend	" 10, "	"	37			
107. Hermit	" 10, "	"	36			
108. Ruth	" 10, "	"	35			
109. Dinosaur	" 10, "	"	34			
110. Woodchuck	" 10, "		41			
111. Redgut	" 10, "	"	40			
112. Sherwood	" 10, "	"	40			
113. Dotty	" 10, "	"	39			
114. Floyd	" 10, "	"	50			
115. Linklater	" 10, "	"	27			
116. Amatrine	" 10, "	"	42			
117. Columbine	" 10, "	"	27	May 22,'54	338	169
118. West Hole	" 10, "	"	28			
119. Kotan	" 10, "	"	2			
120. High Noon	" 10, "	"	29			
121. Gigi	" 10, "	"	29			
122. Sherry	" 10, "	"	30			
123. Pay Day	" 10, "	"	30			
124. Speakeasy	" 10, "	"	31			
125. Lazy-Y	" 10, "	"	31			
126. Rusty Saddle	" 10, "	"	32			
127. Corann	" 10, "	"	33			
128. Pink Lady	" 10, "	"	32			
136. Pothole	" 10, "	"	39	April 29,'55	346	299
137. Midnight	March 18, 1955	344	414			
138. Serpent	" 18, "	"	401			
139. Aspen	" 18, "	"	415			
140. Wabagoon	" 18, "	"	421			
141. Frenchie	" 18, "	"	420			
142. Capri	" 18, "	"	410			
143. Clyde	" 18, "	"	416			
144. Mary Ann	" 18, "	"	413			
145. Countless	" 18, "	"	411			
146. Stevie	" 18, "	"	413			
147. Lazy-4U	" 18, "	"	412			
148. Wayne	" 18, "		417			
149. Cecelia	Nov. 10, 1954	342	33	Mar. 18,'55	344	383
150. Mulick	March 18, 1955	344	419			
151. Harvey	Nov. 10, 1954	342	34	Mar. 18,'55	344	386
152. Twosome	" 10, "	"	35	" "	"	385

AMENDED FILINGS

	NAME	AMENDED	BOOK	PAGE	AMENDED	BOOK	PAGE
153.	Hogleg	Nov. 10, 1954	342	41	Mar.18,'55	344	384
154.	Blue Frost	March 18, 1955	344	387			
155.	Bannock	" 18, "	"	388			
156.	Burrow	" 18, "	"	389			
157.	Kapstickamack	" 18, "	"	391			

COPY COPY COPY

CUNAC SAMPLES ANALYZED BY LINDSAY CHEMICAL CO.

Lindsay Analysis Number	Date Received	Submitted by	Mark	%ThO_2	[illegible]
547115	7/14/54	Cunac	#1	2.2	3.1
547116	7/19/54	Cunac	#2	2.4	4.0
547117	7/20/54	Cunac	Pink Lady type rock in Mtn.	5.7	1.9
547118	7/20/54	Cunac	Lazy-Y 6 ft.	3.3	1.2
547119	7/20/54	Cunac	Grape Creek - 4 ft. side	2.3	0.5
547120	7/20/54	Cunac	Sherry #2 - 5 ft.	0.6	0.4
547121	7/20/54	Cunac	Gigi, 3 ft.	nil	7.0
547122	7/20/54	Cunac	Corann - 6 ft.	nil	nil
547123	7/20/54	Cunac	Frenchie - 3 ft.	1.4	0.2
547124	7/20/54	Cunac	Harvey - 4 ft.	0.4	2.5
547125	7/20/54	Cunac	Sherry #1 - 6 ft.	0.7	3.0
547126	7/20/54	Cunac	Lazy - 4U - 9 ft.	1.7	2.1
547127	7/20/54	Cunac	Rusty Saddle - 5 ft.	1.1	3.5
547128	7/20/54	Cunac	Kotan - 5 ft.	1.1	1.3
547129	7/20/54	Cunac	Margaret - 6 ft.	1.7	21.4
547130	7/20/54	Cunac	Pink Lady side of cliff	1.6	0.7
547131	7/20/54	Cunac	Grape Creek - 40 ft. depth	0.9	1.2
547132	7/20/54	Cunac	Serpent - 6 ft.	1.6	0.4
547133	7/20/54	Cunac	Blue Hill	nil	nil
549130	9/24/54	Lindsay	Grape Creek	1.2	2.7
549131	9/24/54	Lindsay	Serpent - 8 ft.	0.6	0.1
549132	9/24/54	Lindsay	Pink Lady (high grade)	2.0	0.7
549133	9/24/54	Lindsay	Amatrine - 7 ft.	0.3	1.0
549134	9/24/54	Lindsay	Sherry #2 Hole - 3.5 ft.	0.5	0.2
549135	9/24/54	Lindsay	Sherry Discovery Hole - 4 ft.	0.6	1.7
549136	9/24/54	Lindsay	Margaret - 1.5 ft.	1.2	13.3
549137	9/24/54	Lindsay	Rusty Saddle - 1 ft.	0.5	3.6
549138	9/24/54	Lindsay	Lazy Y - 8 ft.	2.1	0.8
549139	10/20/54	Lindsay	Gigi Dump - 6 ft.	0.5	6.9
549144	10/20/54	Lindsay	Grape Creek Discovery	0.5	0.7
549145	10/20/54	Lindsay	Grape Creek Dump	0.2	0.3
549146	10/20/54	Lindsay	Pink Lady - 30 ft.	0.1	0.4
549147	10/20/54	Lindsay	Stevie Discovery - 3.5 ft.	0.1	1.8
549148	10/20/54	Lindsay	Elaine - 5 ft.	0.1	1.0
549149	10/20/54	Lindsay	Frenchie Black Rock (float)	3.8	0.4
549150	10/20/54	Lindsay	Thurston Discovery - 2 ft.	0.3	7.1
549151	10/20/54	Lindsay	Maggie Discovery - 2.5 ft.	0.5	2.9
549152	10/20/54	Lindsay	Hermit Discovery - 2 ft.	0.08	0.8
549153	10/20/54	Lindsay	Lazy Y Cliff - 8 ft.	0.4	0.9
547202	11/24/54	Cunac	Dome Sample	7.4	0.2
549182	12/23/54	Lindsay	Bob Cat Discovery - 1.5 ft.	0.2	0.1
549183	12/23/54	Lindsay	Chime - 4 ft.	0.2	0.1
549184	12/23/54	Lindsay	Yellow Hill - 15 inches	0.7	1.0
549185	12/23/54	Lindsay	Irene - 1.5 ft.	0.4	1.4
549186	12/23/54	Lindsay	Capri - 4 ft.	nil	0.

Preliminary Economic Evaluation

of

THE CUNAC THORIUM PROPERTY

in

Fremont County, Colorado

Minerals Exploration Research Corporation

Sigurd K. Herness

Preliminary Economic Evaluation of THE CUNAC THORIUM PROPERTY in Fremont County, Colorado

10. LOCATION

The Cunac thorium property is approximately fifteen miles southwest of Canon City, Colorado, on the northwest-trending axis of the Wet Mountains.

20. GEOLOGY

21. REGIONAL SETTING: The property is on the northwest-trending metallogenic axis which is coincident with the Wet Mountain axis. Many areas of noteworthy thorium mineralization occur on this axis to the southeast of the Cunac properties, and have been described in United States Geological Survey Circular 290. Silver, lead, zinc, and gold mineralizations on this metallogenic trend are at Querida, Rosita, Ilse, and many other Wet Mountain localities. The Wet Mountain country rocks are pre-Cambrian phanerites, pegmatites, and gneisses varying in composition from granitic to basix. Most of the rocks, however, are granites, granite pegmatites and granite and pegmatite gneisses.

22. LOCAL GEOLOGY

22.1 PETROLOGY:

22.11 Pre-Cambrian Rocks: Most of the rocks are granite and granite gneiss. Many pegmatite bodies occur either as schlieren masses and extension fracture dikes, and occasional pre-Cambrian basic dikes were observed.

22.12 Tertiary Rocks and Effects: The vein material consists of siderite, specularite, limonite, quartz, and occasional barite. Assays show appreciable thorium and cerium. Previous operations were directed to development of gold and silver. Hydrothermal sericitic alteration-bleaching is evident along veins.

23. SPACE RELATIONSHIPS

23.1 AREAL GEOLOGY: No distribution pattern of the pre-Cambrian rock facies was discernable in the limited examination time available to the writer.

The Tertiary vein mineralization is elliptical in shape with the major axis trending northeast.

23.2 STRUCTURAL GEOLOGY: The pre-Cambrian foliation strikes roughly east-west and dips 30 to 50° north. Pegmatite and basic dikes are normal to the gneissic foliation.

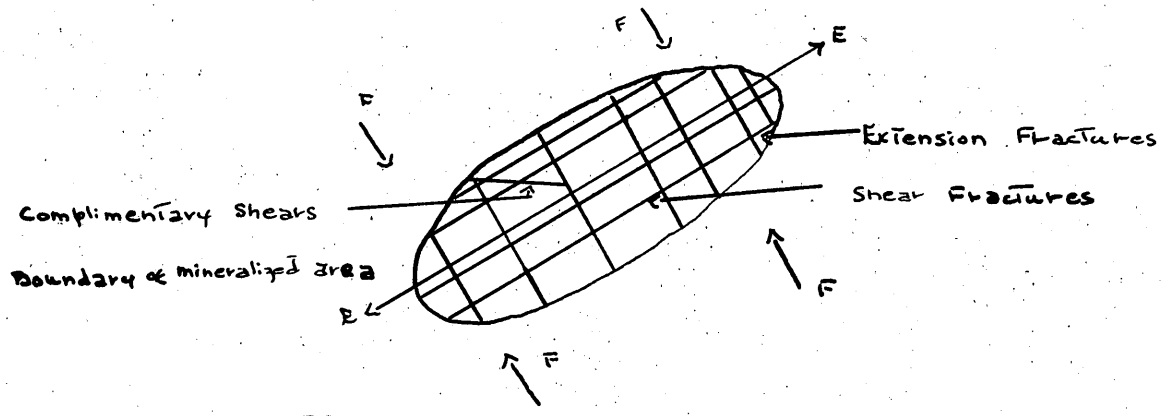
23.2 (Cont.)

Two major and one minor vein systems are evident. One major system strikes northwest (in a direction normal to mineralized area maximum elongation) and dips from 60° to 90° southwest. A second system strikes northeast (in a direction parallel to maximum elongation) and dips 30° to 45° northwest. A minor system strikes east-west and dips 30° south.

24. TIME RELATIONSHIPS: The country rocks of the area are pre-Cambrian in age.

The mineralization is of Tertiary Age as evidenced by the moderate to low vein mineralization intensity, well developed sericitic wall rock alteration, and independence of pre-Cambrian foliation structure. The well-developed extension fracture veins are likewise indicative of Tertiary Age.

25. ORE GENESIS: The vein fractures are the result of compressive tectonism. The northwest-trending system is extension fractures normal to maximum elongation, whereas the northeast system is shears parallel to maximum elongation and normal to direction of compressive forces. Minor east-west veins represent complimentary 45° oblique shear fractures.



30. ECONOMIC EVALUATION

There is little doubt that the ore shoots are of substantial size and that this is a major thorium-cerium mineralization.

31. Radioactivity as evidenced by readings on nucleometers and geiger counters indicates that the thorium oxide content at numerous places is several per cent.

32. Analyses for uranium, thorium and cerium were made available to the writer and are listed below:

Claim	% ThO_2	% U_3O_8	%Ce
Fools Delight		0.26	
Lazy I	0.42		
Pink Lady	7.33		
Margaret	1.49		17.40

Analysis of samples cut at the time of the examination have not been completed at this writing.

33. The Tertiary Hydrothermal Origin of the deposits is a further favorable criteria of major potential.

34. Structural Relationships are a favorable criteria of magnitude potential. The fact that the veins fall into definite systems as typified by major vein districts in the western states is indicative of major potential. In all major Tertiary vein districts, the elongation of the mineralized area is normal to the direction of compression, and the major extension, minor shear, and subsidiary oblique fractures are readily identified. The major economic metallization is expected on northwest-trending extension fractures, although important production may be developed on the northeast-trending shears.

35. Hydrothermal Alteration of sericitic type is extensive along the veins and is a favorable criteria of extensive hydrothermal activity.

40. MARKETABILITY

41. THORIUM: The AEC at the present time has no program for buying ores rich in thorium. They are interested but will pay for only the uranium in an ore with thorium and the rare earths. Several companies will buy the concentrate. They are listed below. The price ranges from $250 to $750 per ton running 50% rare earths or over. These companies prefer 60% or over; however, ores with a thorium content of [illegible] or [illegible] may find a market. A concentrator at the property would probably be necessary after sufficient reserves are developed. The present sale is on a contract market.

Lindsay Chemical Co.
258 Ann Street
West Chicago, Ill.

General Cerium Co.
Edgewater, N. J.

Rare Earths, Inc.
Box 4[illegible]
Pompton Plains, N. J.

Cerium Metals Co.
Niagara Falls, N. Y.

Maywood Chemical Co.
100 West Hunter Ave.
Maywood, N. J.

New Process Metals Co.
Newark, N. J.

Foote Mineral Co.
18 West Chelton Ave.
Philadelphia, 44, Pa.

The Dickerson Co., Inc.
Fifth & Chestnut Streets
Philadelphia 6, Pa.

There seems little doubt that Thorium will undoubtedly be increasingly in demand for chemicals, alloys, and atomic energy.

42. CERIUM: Recent discovery of large bastnaesite deposits at Mountain Pass, California, has caused a present oversupply of cerium and other rare earth metals. However, much research is being done on new uses for cerium, especially in alloys. The abundant supply of cerium will undoubtedly facilitate its use in many new industries where formerly the supply was too limited.

50. CONCLUSIONS

The property appears to be one of favorable potential expectancy. In view of limited development, however, no tonnage or grade estimates are in order at this time. The property merits development on the basis of reserve expectancy and market outlook.

60. RECOMMENDATIONS

Investigations should precede exploration expenditures in order that systematic low cost ore development may proceed.

61. GEOLOGICAL INVESTIGATIONS: Semidetail geological mapping on a scale of 1" = 200' should be undertaken. In order to delineate boundaries of the mineralized area, correlate veins laterally, determine most favorable host rocks, and delineate ore shoots.

62. GEOPHYSICAL INVESTIGATIONS:

62.1 Magnetic Surveys should be executed to delineate mineralized area boundaries, vein continuity, and ore shoot localization.

62.2 Scintillometer Surveys should be executed to lend corroborative evidence of the relationships and correlations determined as a result of geological and magnetic investigations. An airborne survey should be checked by ground scintillometer observation. An isoradiation map should then be prepared.

63. DEVELOPMENT: Diamond drilling should follow execution of the above recommendations, and no mining operation should be attempted before completion of development drilling. It is believed that systematic drilling executed on the basis of the geological and geophysical investigations will develop substantial reserves at relatively small cost.

Respectfully submitted,
MINERAL INVESTIGATION RESEARCH
Sigurd A. Hermess

APPENDIX

Atomic Energy Commission
Denver, Colorado

DEB:RCD

September 1, 1954

Cunac Minerals, Inc.
1701 Franklin Avenue
Canon City, Colorado

Attn: Robert H. Bliss

Dear Mr. Bliss:

We are enclosing the results of 33 samples from Fremont County, Colorado which you submitted to us for analysis.

The AEC is not purchasing monazite at the present time, however, if the Th mineral is not monazite it may be that a concentrate or end product could be produced which would be acceptable to the AEC. We would be interested in investigating any deposits of thorite or some similar mineral containing several million tons of ore carrying plus 8 percent Th.

We would be interested in hearing from you regarding further development of your properties, and if we can be of further service to you, please do not hesitate to contact us.

Very truly yours,

Raymond C. Derzay, Acting Chief
Colorado District

Encl: as mentioned

- COPY -

Field Number:	Location:	Description:	$\%U_3O_8$:	$\%U_3O_8$:	$\%ThO_2$:
F-11246	Grape Creek	Dump	0.15	0.001	0.74
F-11249	Stevie	2' depth	0.06	0.001	0.29
F-11250	Gigi	3' depth	0.03	-	-
F-12544	Highmoon	0' depth	0.03	-	-
F-12545	Jorann	5' depth	0.04	-	-
F-12546	Serpent	0' depth	0.06	0.001	3.19
[illegible]	Daisy	0' depth	0.02	0.001	0.33
F-12548	Grape Creek	Side of hill	0.90	0.001	4.33
F-12549	Rotan	Hole No. 2	0.11	0.001	0.54
F-12550	Anatrine	4' depth	0.02	-	-
F-12608	Lazy 4-9	4' depth	0.50	0.002	2.50
F-12609	Pink Lady #2	5' depth	0.01	0.001	2.96
F-12610	Speakeasy	5' depth	0.02	-	-
F-12611	Pink Lady #1	5' depth	0.13	0.001	0.74
F-12666	Lazy Y	7' depth	0.30	0.001	1.42
F-12687	Lazy R-U	Surface	0.04	0.001	3.08
F-12688	Rusty Saddle	5' depth	0.14	0.001	0.68
F-12689	Cherry #1	7' depth	0.23	0.002	0.96
F-12690	Rotan #1	1' depth	0.03	-	-
F-12691	New Mexico	Surf. Hill #2	0.21	0.030	1.23
F-12692	Frenchie	3' depth	0.74	0.001	2.62
F-12693	New Mexico	14' depth	0.[illegible]	0.027	2.20
F-12694	Sherry #2	4' depth	0.11	0.001	0.54
F-12695	Anatrine	9' depth	0.20	0.012	0.27
F-12696	Test hole	5' depth	0.02	-	-
F-12697	Cecilia	Surface	0.40	0.027	1.39
F-12698	Super	7' depth	0.05	0.001	0.24
F-12699	Frenchie	Rock	0.30	0.001	1.42
F-12700	Lazy Y #2	-	0.57	0.002	2.73
F-19923	Pay Day #2	9' depth	0.04	-	-
F-19924	Pay Day #1	3' depth	0.12	0.002	0.63
F-19926	Bell #2	-	0.033	-	-
F-19927	Bell #1	-	0.24	0.006	1.12

The term eU3O8 is equivalent uranium oxide as determined radiometrically; shipments of uranium ores are paid for the U3O8 content which is a chemical analysis; eU3O8 is equivalent U3O8 as determined by the difference in radiometric and chemical uranium content multiplied by a factor.

PERSONNEL

MINERALS EXPLORATION RESEARCH CORPORATION
CONSULTANTS AND CONTRACTORS IN MINERAL EXPLORATION, EVALUATION DEVELOPMENT AND EXPLOITATION
MAIN OFFICE 2120 FORD STREET COLDEN, COLORADO PHONE 937
DISTRICT OFFICE URANIUM CENTER GRAND JUNCTION, COLORADO PHONE 241

PERSONNEL

"There is no substitute for ingenuity and personal judgement, especially in a vocation which--is fully as much of an art as a technology."
Hugh Exton McKinstry, "Mining Geology"

Geologist-geophysicists are the persons who can properly utilize effective techniques, procedures, and principles in the search for ore deposits. For example, a certain geophysical technique may be effective in delineating one type of deposit and still be ineffective in the discovery of other types. Geophysicists who have no knowledge of mining geology are just as incapable of making decisions concerning the most effective geophysical technique as the geologist who has no geophysical background. Geologist-geophysicists or geologist-geochemists are needed to make intelligent decisions. The MERCO technological group is composed of such men. There are still no "magic wands" available to the mining industry in its search for ore deposits. This conclusion implies that exploration can be most effectively conducted by personnel who individually and collectively possess a broad technological and scientific background in geology, geophysics, and geochemistry.

Teamwork involving many skills are essential to effective exploration, and the final conclusions are only as valid as the data on which they are based. Data in time is only as valid as the training ability and skill of each worker. For example, it is impossible to produce a good scintillation isorad map even with the best aircraft, instrumentation, and technologists but without highly skilled and experienced pilots. The MERCO organization has been assembled with this viewpoint in mind, and each person on the staff has been retained on the basis of specific superior qualifications.

The following resume's of personnel illustrated the varied background of the MERCO personnel as industrial, and research geologists. The group possesses extensive experience in regional large scale exploration as well as detailed operating geology and geophysics.

PERSONNEL

Sigurd Kermit Herness - Geologist-Geophysicist

Age: 44

Education

University of Minnesota School of Mines, Engineer of Mines (Mining Geology) 1936.

Colorado School of Mines 1948-1954, Completed doctorate studies 1954. Mining geology major, geophysics, minor; Thesis: "Applied Mineral Exploration";
Part I, "Genesis of Hypogene Ore Deposits", Part II, "Geological and Geophysical Representation and Interpretation", Part III, Geophysical and Geochemical Procedures".

Company Affiliations

Southern Pacific Railroad	Exploration consultant and Director of personnel training		1954-1955
Kennecott Copper Corp.	Exploration Research	Consultant	1952-1954
Kennecott Copper Corp.	Director of Geol. Personnel training	Consultant	1952-1953
Moulden Mining Co.	Argenta, Montana	Consultant	1951-1953
John Hopkin Smith	Aspen, Colorado	Consultant	1951-1953
Quick Way Shovel Co.	Denver, Colorado	Consultant	1952
U. S. Lead Corp.	Denver, Colorado	Consultant	1952
Colorado School of Mines	Golden, Colorado	Instructor	1948-1954
Mont. Bureau of Mines and Geology		Consultant	1948-1954
Montana School of Mines	Butte, Montana	Instructor	1947
Jardine Mining Co.	Jardine, Montana	Consultant	1946-1947
Denver Development Co.	Montana	Consultant	1944-1947
Anaconda Copper Mining Co.	Butte, Montana	Geologist	1939-1946
Middle Fork Mining Co. (International Minerals and Metals Co.)	Mother Lode, Calif. and	Geologist Engineer	1938-1939
Gilt Edge Mines,	Deadwood, So. Dakota	Engineer	1938
Anaconda Min. and Milling Co.	Deadwood, So. Dakota	Geologist	1936-1937

Experience

Applied or Operating Geology and Engineering:

An ore finding record in the Butte district, measured in terms of ore discovered per foot in development, has been surpassed by no other Anaconda Copper Mining Co. geologist. As a consultant at the Jardine, Montana, tungsten-gold property, complex geology controlling ore localization was solved. Other consulting assignments in the western states have contributed extensive experience involving varied geology. Regional exploration was the main field of activity during 1952-1954 as a consultant to the Kennecott Copper Corporation.

Research:

Geological mapping and representation research has been executed during the past twelve years. A text covering this subject was

prepared and was used as a basis for mining geology instruction at the Colorado School of Mines. (The complete text will be published in 1955 under the title "Applied Mining Geology".) A partial release of this text has been published in "Subsurface Geologic Methods", a symposium of papers by foremost geologists of the world. This symposium is used as a text at more than 30 universities and colleges. Ore genesis and localization research has been conducted during the past fifteen years while engaged as an industrial mining geologist, consultant, and teacher. The fields of research include: genetic or source control and ore localization criteria; flow structure as a guide to ore localization (this research led to a 300 percent ore-finding efficiency increase in the Butte district); time-source control and metallogenic zonation; hydrothermal alteration as related to ore localization; metal ion transport in ore deposition; a host-rock favorability series; physical criteria for ore-favorable host-rock recognition; structural controls as ore localization criteria; the western states tecto-metallogenic fabric; a systematic procedure for long-range regional survey of the western states was conducted for the Kennecott Copper Corporation; magnetic anomalies as a guide to tecto-metallogenic trends and pattern; structure as a regional metallogenic fabric criterion; hot springs as a metallogenic fabric criterion; metallization maps of the western states; relationship of helium to uranium deposits (in collaboration with Gerald Gould).

Teaching:

At the Colorado School of Mines, all courses pertaining to mining geology were taught. The mining geology course reorganization and field training has been recognized as the major contribution to the rapid growth of the mining geology option.

Consulting:

The duties and experience as a consultant have covered all mineral exploration phases. Geological and geophysical procedures have been utilized from provincial and regional investigations to detailed examinations and evaluations. Conducted geological and geophysical investigations and recommended all drill holes which led to discovery of Los Ocho uranium deposit, Gunnison, Colorado.

Publications

Published:

"Representation in Mining Geology" published in "Subsurface Geologic Methods", 1951.

"Airphoto Criteria of Ore Localization in the Corbin-Wickes Mining District, Montana", coauthor with William S. Levings, Photogrammetric Engineering, June, 1953.

"Mining Geology Training Program", Mines Magazine, July, 1953.

"Aerial Color Photography in Mineral Exploration", Uranium Information Digest, January, 1955.

"Magnetic Anomalies A Guide To Non-Magnetic Ore Localization", Mining World, June, 1955.

Manuscript Completed

"Geology and Ore Deposits of the Corbin-Wickes District, Montana", Montana Bureau of Mines and Geology.

Manuscript Nearly Completed

"Magma and Ore Solution Mobilization and Orogeny"
"Ore Solution Channelization"
"A Time-Source Channelization"
"A New Concept of Host Rock Favorability"
"An Ionic Theory of Ore Metal Transport"
"Tecto-Metallogenic Framework of the Western States"
"Mining Geology Representation"

Charles E. Melbye - Geologist-Geophysicist

Age: 28

Education

University of Minnesota, 1946-1948
Colorado School of Mines, 1948-1950; Geological Engineer 1950 expect to receive doctoral degree 1955; mining geology major and geophysics minor. Thesis: "Geology of Southwestern Colorado".

Company Affiliations

Southern Pacific Railroad	San Francisco, Calif.	Consultant	1954-1955
Kennecott Copper Corp.		Consultant	1952-1954
Armstrong Minerals Corp.	Washington, D. C.	Consultant	1952-1953
Kanarado Min. and Dev. Co.,	Ohio City, Colorado	Consultant	1952
Warm Spring Talc Mines	Shoshone, Calif.	Consultant	1950-1951
Telluride Mines, Inc.,	Telluride,	Geologist and Engineer	1951
Anaconda Copper Corp.		Geologist and Engineer	1950-1951
Southern Calif.Minerals Co.,	Shoshone, Calif.	Consultant	1950-1951
State of Colorado		Consultant	1950

Experience

Applied or Operating Geology and Engineering:
Experienced in all technical duties and phases pertaining to development and exploitation of ore deposits, including: Ore deposits sampling calculation and systematic assay recording; ore reserve calculation; geological mapping and interpretation; diamond drill core logging; surface and underground surveying; calculation, and map preparation; mill engineering and underground construction; claim litigation services.

Research:
Conducted or assisted in ore localization research as follows: Magnetic surveys, structure contouring and metallization studies to determine Western States tecto-metallogenic trends; fixed carbon-coal ratios as related to Colorado structural trends; relationship between geothermal gradients and structural trends; correlation of radioactivity index and relative host-rock favorability.

Teaching:
Instruction at the Colorado School of Mines in mineralography, economic geology, mining geology methods, field geology and

mineralogy. Instruction in mining geology field methods and geophysical techniques for the Kennecott Copper Corporation.

Consulting:
Regional magnetic investigations; solution of operating geological problems; geological and engineering system installations; exploration-examination for new orebodies; claim litigation services; pegmatite deposits evaluation; foundation geology investigations.

Publications
"The Economic Geology of the New Metals", Mines Magazine, Feb. 1953.
"Practical Geology as an Aid to the Small Miner", Mines Magazine, Feb.1954.
"A Manual of Geoelectric Procedures", Southern Pacific Railroad.
"A Manual of Geogravimetric Procedures", Southern Pacific Railroad.
"Geological Mapping" Uranium Information Digest, May, 1955.

Gerald E. Gould - Geologist-Geochemist

Age: 31

Education
Colorado School of Mines, 1941-1944, 1946-1947; Engineer of Mines (Mining Geology) 1947; expect to receive doctoral degree in 1955, major in mining geology and minor in geochemistry; Thesis: "Hydrothermal Alteration as Related to Ore Localization at Climax, Colorado."

Company Affiliations

Colorado School of Mines		Instructor 1952-1954
Kennecott Copper Corp.		Consultant 1952-1954
New Park Mining Co.,	Park City, Utah	Geologist and Engineer 1947-1951

Experience
Applied or Operating Geology and Engineering:
Active in all technical phases of ore exploration, development, and exploitation including: Executing geochemical and geophysical surveys; sampling of underground workings; calculation and systematic assay representation; ore reserve calculation; surface and underground geological mapping; diamond drill core logging; surface and underground surveying; calculation, and map preparation; cost accounting system installation.

Research:
Conducted research pertaining to ore genesis and localization as follows: Geochemical and geobotanical procedures in ore exploration, (sampling, analysis, and interpretation); spectrographic research to determine elements suitable for regional geochemical exploration; relationship of helium occurrences to major geological structures and uranium mineralization; X-ray diffraction and petrographic identification of hydrothermal alteration minerals.

Teaching:
Instruction at the Colorado School of Mines in crystallography, mineralogy, petrology and economic geology. Instruction in geochemical techniques for the Kennecott Copper Corporation trainees.

Consulting:
Regional magnetic investigations; advised Kennecott Copper Corporation on installation of geochemical laboratory. Prepared manual of Geochemical Procedures for Southern Pacific Railroad.

Stuart S. Merwin - Geologist-Geophysicist

Age: 32

Education
Colorado School of Mines, Geological Engineer 1952. Graduate studies 1953-1954, major in mining geology and minor in mining.

Company Affiliations

Kennecott Copper Corp.	Geologist	1953-1954
The New Jersey Zinc Co.	Geologist and Geophysicist	1952-1953
U. S. Lead Corporation	Consultant	1951-1952
Potash Company of America	Engineer	1949-1950

Experience
Applied or Operating Geology and Engineering:
Performed all technical duties pertaining to ore deposit development and exploration, including; regional and detailed geologic mapping; diamond drill core logging; ore reserve calculation; supervision of geochemical surveys; execution and interpretation of geophysical surveys (applied potential and magnetics); office and field supervision of technical exploration phases; surface and underground surveying, including all calculation and map preparation; acquisition of leases for exploration; miner.

Research:
Executed ore finding research as follows: Magnetic surveys; structural contouring and metallization investigations to determine Western States tecto-metallogenic trends; correlation of structural symetry and uranium localization.

Teaching:
Instruction in field mapping and geophysical techniques for Kennecott Copper Corporation.

Consulting:
Engineering consultant U. S. Lead Corporation.

Publications:
"The Use of the Magnetometer in Uranium Exploration", Uranium Information Digest.

Fred C. Hohne - Uranium Geologist

Age: 32

Education
Colorado School of Mines, Geological Engineer 1950.

Company Affiliations

Kerr-McGee Oil Industries Inc. (Navajo Uranium Division, Cove, Ariz.)		Mine Supt.	1952-1954
Dulaney Mining Co.	Grand Junction, Colo.	Geologist	1951-1952
Telluride Mines, Inc.	Telluride, Colo.	Geologist	1950-1951

Experience

Applied or Operating Geology and Engineering:
Experienced in all technical phases and duties pertaining to exploitation and development of ore deposits, specializing in uranium.

Publications

"Drilling and Evaluation of Uranium Ore-Bodies", Uranium Information Digest
"Underground Long Hole Exploration Programs", " " "
"Radiometric Assaying of Uranium Ores in Place", " " "
"How To Get Into the Uranium Business", " " "
(Uranium Information Digest published by Uranium Ore Producers' Assoc., Grand Junction, Colorado)

Franklin W. Baumgartner - Petroleum Geologist

Age: 27

Education

Clark University, A. B. 1950;
Colorado School of Mines, Graduate studies, 1951-1953.

Company Affiliations

F. W. Baumgartner, Oil Co.		Geologist	1 year
Colorado School of Mines		Instructor	2 years
Anschutz Drilling Co.		Geologist	2 years
Ray Campbell	Greeley, Colorado	Consultant	
Howard Glenn,	Fort Morgan, Colorado	Consultant	

Experience

Applied or Operating Geology and Engineering:
All phases of geology associated with the discovery, evaluation, and production of petroleum. Drilled first well in the Adena Field, Denver Basin.

Research:
Application of regional magnetics to the discovery of economic accumulations of petroleum.

Teaching:
Instruction at Colorado School of Mines in mineralogy and crystallography.

Consulting:
Evaluation of potential petroleum producing areas.

George M. Meshko

Age: 30

Company Affiliations

Frontier Airlines	Denver, Colorado	Co-Pilot	1951-1955

John Curry Flight School Denver, Colorado Dusting Pilot 1950
Colo. Aircraft Sales and Service, Alamosa, Colo.
Charter Pilot, Flight Instructor 1949-1950
Vest Aircraft Co. Denver, Colorado Ferry Pilot 1948-1949

Experience
Extensive airplane mechanic and flight engineer, training and experience; active in aviation both flight and engineering from 1942-1955.
CAA ground Instructor since 1949, 2 years flight instructing; served with 8th Air Force on B-17, 1943-1944, European theater of operations.

Ratings Held:
Airline transport pilot
Airplane multi-engine land Douglas DC-3
Commercial privileges airplane-single and multi-engine land
Flight instructor - Airplane
CAA Ground Instructor:
Civil Air Regulations
Meteorology
Navigation
Radio Navigation
Aircraft Engine Mechanic
Total Flight Time - 6000 hours.
4000 hours DC-3 - Balance of time crop spraying, Flight Instructing, Aerial Photography, Scintillation Surveys, Ferry Pilot.
Equipment flown-
DC-3, AT-6, BT-18, Beech D 18, Stagger Wing Beech, B-17's
Wide and varied experience on light aircraft.

Bradley J. Hurd, Jr. - Pilot

Age: 30

Education:
University of Wisconsin, 1946-1948.
University of Denver, 1948-1950, Bacheolor of Science-Business Administration.

Company Affiliations:
Frontier Airlines Co-Pilot 1951-1955
Montgomery Ward Asst.Mercandiser 1950
U. S. Army Air Force 1943-1945

Experience:
Flight: Airline transport pilot
Airplane multi-engine land - Douglas DC-3
Commercial Privileges Airplane S. and M. Eng. Land.
Consolidated PBY Land and Sea.
Total Flight Time - 6000 hours.
4000 hours DC-3, balance of time, crop spraying, scintillation surveys in light aircraft, time in B-26, AT-6, P-40, P-38, Beech D-18;

Business:
Asst. Merchandiser for Montgomery Ward mail order. Various sales and accounting jobs during college.

Harold Blakely - Uranium Geologist

Age: 30

Education:
Colorado School of Mines, Geological Engineer 1951

Company Affiliations
Experienced in following phases of mineral exploration development and exploitation; surface and underground geological mapping, supervision of exploration drilling programs, supervision of airborne radioactivity surveys.

Employed Senior Personnel

Karl Lambertson - Mining Engineer

Age: 31

Education:
Colorado School of Mines 1942-1944, 1947-1949 Engineer of Mines 1949.

Company Affiliations:

Livingston Mining Co., and Edgemont, So. Dakota	Dove Creek, Colo.	Engineer and Foreman 1951-1954
Star Mine,	Taylor Park, Colo.	Engineer and 1949-1951

Experience:
All engineering activities connected with the exploration, development and exploitation of mineral deposits including; surface and underground surveying, calculation and plotting of maps; surface and underground plant design and construction; planning and execution of diamond and wagon-drill exploration program; supervision of mining operations; supervision of research program to develop method of in-place leaching of low-grade uranium ores.

William Brown - Geologist

Age: 28

Education:
Lawrence College: Appleton, Wisconsin; B. S. (Geology Major) 1949
Colorado School of Mines, graduate studies 1951-1953

Company Affiliations:

Kennecott Copper Corp.	Computer
Molybdenum Corp. of America	Geological Assistant
Minerals Exploration Research Corp.	Geologist

Experience:
Regional and detailed geologic mapping, mine mapping, surveying, ore sampling, diamond drill core logging, magnetic survey calculations, ore reserve calculations, regional magnetic and structural contour research, radiometric surveys.

Surname Copy

700

Murphy
Ellis
Geehan
Nelson
Selfridge

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

Cunac Minerals, Inc.
c/o R. H. Bliss
1701 Franklin Street
Canon City, Colorado

NOV - 8 1955

Re: Docket No. DMEA-3894 (Thorium, Uranium, Rare Earths)
Cunac Minerals Property
Fremont County, Colorado

Gentlemen:

Reference is made to your application for Government aid in an exploration project on the above-named property.

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 thorium 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 that, under these circumstances, your application for exploration assistance is denied. However, this denial is made without prejudice to your property. If future work on the property reveals evidence which could materially alter this opinion, be assured we will be pleased to consider a new application.

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

Sincerely yours,

Frank E. Johnson

ACTING Administrator

FMMurphy/izm 11-17-55

cc to: Admr.'s Reading File
Operating Committee
Docket
Code 700
Mr. Murphy
DMEA Field Team, Region III (2)

Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA

700
Murphy
Ellis
Nelson

November 17, 1955

Summary of Proposed Project

Object: Denial of application for exploration aid.

Docket No.: DMEA-3894

Commodity: Uranium

Applicant: Cunac Minerals, Inc.
c/o R. H. Bliss, President
1701 Franklin Street
Canon City, Colorado

Property: Owners of 204 unpatented claims in Secs. 10, 11, 12, 13, 14, 15, 16, 21, 22, 23, and 24, T. 20 S., R. 70 W., and Secs. 7, 8, 17, and 18, T. 20 S., R. 71 W., 6th P.M., Fremont County, Colorado.

Date of Application: June 24, 1955, received
July 11, 1955 from Region III
Referred for Field examination: Aug. 3, 1955; Field Team Report Received: Nov. 4, 1955

Amount of Application: $48,225.30

Work Proposed: 6000 feet of diamond drilling
200 hours of bulldozing
300 feet of crosscutting and drilling
Preliminary Geological Inventigation.

Estimated Costs:

Drilling @ $4.59/ft	$27,540.00	
Bulldozing @ $17/hr	3,400.00	
Drifts and crosscuts @ $29.29/ft	8,787.00	
Preliminary Geological Investigation	3,052.50	
Operating equipment rental	1,006.68	
Miscellaneous	55.00	
Contingencies	4,384.12	
Total		$48,225.30

Excerpts from Field Team Report:

The country rocks are predominantly Pre-Cambrian granitic gneisses, and the thorium-bearing veins seem to be genetically related to a Pre-Cambrian syenite. Thirty-eight shear zone and vein deposits have been mapped by the Applicant on the Cunac property.

The deposits are along the veins and shear zones, most of which are less than 5 feet wide and are traceable for distances of 100 to 1000-feet. Quartz, barite, and iron carbonate are the principal gangue minerals.

The thorium is present as thorite or a closely related mineral. It is usually associated with hematite and limonite. Its distribution in the veins is erratic. Few, if any, of the deposits average more than 1 percent ThO_2, and most of them run less than 0.5 percent. Parts of a deposit may be richer, but only selected samples assay more than 2 percent ThO_2.

Nine of the deposits, which the Applicant considered to be the largest, richest, and most accessable, were inspected during the examination. They were found to be generally similar to the prospects described in other parts of the Wet Mountains, although some of them may be larger than the average for the district.

Channel and dump samples taken by the field examiners ranged from 0.01 to 0.31 percent ThO_2. Two samples were taken at the pilot plant, one of ore from the Serpent claim, the other of the pilot plant concentrates. Assays of these samples showed 1.40 and 2.23 percent ThO_2, respectively.

The examing team believe that there is no evidence to indicate that significant thorium ore deposits will be discovered by the proposed exploration, and therefore, denial of assistance is recommended.

The Field Team concurred in the recommendation.

Commodity Members Comments: (Excerpts)

U. S. Geological Survey - N. E. Nelson - November 9, 1955:

> Of the veins and zones examined, not one yielded cut samples assaying over 0.31 percent ThO_2 when sampled over probable mining widths. Much thorium material was found, but sampling by the DMEA field examiners failed generally to check the grade estimate of the Applicant, and therefore concluded that the reserves of material, presently of ore grade, are small in amount.
>
> I concur with the recommendations of the examiners and the Field Team that the application be denied, but without prejudice. Thorium may be a "Cinderella."

U. S. Bureau of Mines - Frank D. Lamb - November 16, 1955:

> Recommends denial of application without prejudice. Mentions possibilities of property if there is more demand for thorium.

Rare and Miscellaneous Metals Division - F. M. Murphy - November 17, 1955:

Judging from the field examiners report, the Applicant's report of assays of material being mined on the subject property appear to be high. The Applicant, under "Physical Description - item (a)", states: "The ore being mined runs between 2% and 3% thorium". However, no such grade ore was found by the examiners.

The Applicant proposed a Preliminary Geologic Investigation as part of the project, with bulldozer trenching and diamond-drilling work to explore indicated favorable areas.

After reviewing the application, the Commodity Members and this Division concluded that possibly enough preliminary work had been done on the property to expose a number of veins or shear zones for further exploration. However, according to the field examiners, no suitable exploration targets exist on the property. If such is the case, this Division concurs in the Field Teams recommendation to deny the subject application.

However, as the Applicant is presently exploring the subject property on his own account, this Division recommends the application be denied without prejudice to the property because it is quite possible that the Applicant may develop a large amount of low-grade thorium ore on the subject property, that can be cheaply mined and concentrated.

Ernest Wm. Ellis

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

11/16/55 gla

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

RECEIVED
NOV 16 1955

November 16, 1955

Memorandum

To: E. W. Ellis, Chief, Division of Rare and Misc. Metals, DMEA

From: Assistant Chief, Branch of Rare and Precious Metals

Subject: Review of Field Team Examination Report, DMEA Docket 3894, (Thorium), Cunac Minerals, Inc., Fremont County, Colorado

A review of the subject report indicates that while thorium minerals are present over an extensive area on the applicant's claims the thorium oxide contents of samples taken by the examiners from the better looking exposures on the properties were less than 0.31 percent.

While vein material as low as 0.3 percent ThO_2 may some day be considered to be commercial ore it is not now, and because the examination did not indicate the probability of any richer material being discovered by the proposed exploration the examiners recommended that the application be denied.

I agree with the conclusions of the examiners and the Field Team and recommend that the application be denied without prejudice. If the commercial value of thorium becomes appreciably higher than it is at present or if evidence can be furnished by the applicant that substantially richer portions of the deposit exist than indicated by the examination further consideration should be given the proposed project.

Frank D Lamb

Frank D. Lamb

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

RECEIVED
NOV 16 1955

November 16, 1955

Memorandum

To: B. W. Ellis, Chief, Division of Rare and Misc. Metals, DMEA

From: Assistant Chief, Branch of Rare and Precious Metals

Subject: Review of Field Team Examination Report, DMEA Docket 3894, (Thorium), Cunac Minerals, Inc., Fremont County, Colorado

A review of the subject report indicates that while thorium minerals are present over an extensive area on the applicant's claims the thorium oxide contents of samples taken by the examiners from the better looking exposures on the properties were less than 0.31 percent.

While vein material as low as 0.3 percent ThO_2 may some day be considered to be commercial ore it is not now, and because the examination did not indicate the probability of any richer material being discovered by the proposed exploration the examiners recommended that the application be denied.

I agree with the conclusions of the examiners and the Field Team and recommend that the application be denied without prejudice. If the commercial value of thorium becomes appreciably higher than it is at present or if evidence can be furnished by the applicant that substantially richer portions of the deposit exist than indicated by the examination further consideration should be given the proposed project.

Frank D. Lamb

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

RECEIVED
NOV 16 1955

November 16, 1955

Memorandum

To: [illegible] Ellis, Chief, Division of Rare and Misc. Metals, DMPA

From: Assistant Chief, Branch of Rare and Precious Metals

Subject: Review of Field Team Examination Report, [illegible] Docket 3394, (Thorium), [illegible] Minerals, Inc., Fremont County, Colorado

A review of the subject report indicates that while thorium minerals are present over an extensive area on the applicant's claims the thorium oxide contents of samples taken by the examiners from the better looking exposures on the properties were less than 0.31 percent.

While vein material as low as 0.3 percent ThO_2 may some day be considered to be commercial ore it is not now, and because the examination did not indicate the probability of any richer material being discovered by the proposed exploration the examiners recommended that the application be denied.

I agree with the conclusions of the examiners and the Field Team and recommend that the application be denied without prejudice. If the commercial value of thorium becomes appreciably higher than it is at present or if evidence can be furnished by the applicant that substantially richer portions of the deposit exist than indicated by the examination further consideration should be given the proposed project.

Frank E. Lamb

RECEIVED
NOV 16 1955

November 16, 1955

Mr. Warren W. Walker
General Manager
Graphite Metallizing Corporation
1050 Nepperhan Avenue
Yonkers, New York

Dear Mr. Walker:

Reference is made to your letter of November 3, 1955, addressed to the Director, requesting information on mica.

The following enclosed Bureau of Mines publications contain information on the occurrence and uses of mica:

Preprint of the "Mica" chapter from Bulletin 556, "Mineral Facts and Problems"

Information Circular 7617, "Domestic Mica"

"Myealex" is a registered trade-mark used to identify glass-bonded mica products of the Myealex Corporation of America.

Following is a partial list of patents pertaining to this material:

Patent No.	Date	Patentee
1,394,973	October 25, 1921	P. B. Crossley
2,400,337	May 14, 1946	G. Buechner
2,405,011	July 30, 1946	G. Buechner
2,529,566	November 14, 1950	A. J. Monack

The first one listed is the basic patent for the process.

If I can be of further service, please do not hesitate to call upon me.

Very truly yours,

Copy to: Division of Minerals
Br. of Ceram. and Fert. Mtls. (2)
Director's Reading File
F I L E S

W. F. Dietrich, Chief
Branch of Ceramic and Fertilizer Materials

Enclosures 2

MLSkow:arb

11/10/55 gla

IN REPLY REFER TO:

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

RECEIVED
NOV 1 3 1955

November 9, 1955

Re: DMEA 3894
Cunac Minerals, Inc.
Grape Creek and other prospects
Fremont County, Colorado
$48,225.30 - Thorium

Memorandum

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

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

Subject: Review of Field Team report.

The applicant requested assistance in doing work on a number of thorium-bearing zones and veins exposed on a large property, 204 claims. Thirty-eight shear zone and vein deposits had been noted by the applicant.

The work as planned by the applicant was to consist of and cost:--

Diamond drilling, 6000 feet	$27,540.00
Bulldozing, 200 hours	2,800.00
Crosscutting, 300 feet	8,787.00
Miscellaneous	
Supervision	600.00
Labor and geologists	3,172.50
Operating equipment	706.68
Payroll taxes, etc.	235.00
Contingencies	4,384.12
Total	$48,225.30

The examiners found numerous veins and shear zones, more or less as set out in the application. Most of the veins and shear zones are less than 5 feet wide and traceable for distances of 100 to 1,000 feet. Quartz, barite, and iron carbonate are the principal gangue minerals.

Of the veins and zones examined, not one yielded cut samples assaying over 0.31% when sampled over probable mining widths. Much thorium-bearing material was found but sampling by

the examiners failed generally to check the grade estimate of the applicant and the examiners concluded that the reserves of material, presently of ore grade, are small in amount. The conclusion, in substance, agreed with that of A.E.C. examiners and other observers.

I concur with the recommendations of the examiners and the Field Team that the application be denied, but without prejudice. Thorium may be a 'Cinderella.'

N. E. Nelson

N. E. Nelson

IN REPLY REFER TO:

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

November 9, 1955

Re: DMEA 3894
Cumac Minerals, Inc.
Grape Creek and other prospects
Fremont County, Colorado
$48,225.30 - Thorium

Memorandum

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

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

Subject: Review of Field Team report.

The applicant requested assistance in doing work on a number of thorium-bearing zones and veins exposed on a large property, 204 claims. Thirty-eight shear zone and vein deposits had been noted by the applicant.

The work as planned by the applicant was to consist of and cost:--

Diamond drilling, 6000 feet	$27,540.00
Bulldozing, 200 hours	2,800.00
Crosscutting, 300 feet	8,787.00
Miscellaneous	
Supervision	600.00
Labor and geologists	3,172.50
Operating equipment	706.68
Payroll taxes, etc.	235.00
Contingencies	4,384.12
Total	$48,225.30

The examiners found numerous veins and shear zones, more or less as set out in the application. Most of the veins and shear zones are less than 5 feet wide and traceable for distances of 100 to 1,000 feet. Quartz, barite, and iron carbonate are the principal gangue minerals.

Of the veins and zones examined, not one yielded cut samples assaying over 0.31% when sampled over probable mining widths. Much thorium-bearing material was found but sampling by

the examiners failed generally to check the grade estimate of the applicant and the examiners concluded that the reserves of material, presently of ore grade, are small in amount. The conclusion, in substance, agreed with that of A.E.C. examiners and other observers.

I concur with the recommendations of the examiners and the Field Team that the application be denied, but without prejudice. Thorium may be a 'Cinderella.'

M. E. Nelson

M. E. Nelson

MENelson:iml
G-11/9/55

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

IN REPLY REFER TO:

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

November 9, 1955

Re: DMEA 3894
Cunac Minerals, Inc.
Grape Creek and other prospects
Fremont County, Colorado
$48,225.30 - Thorium

Memorandum

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

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

Subject: Review of Field Team report.

The applicant requested assistance in doing work on a number of thorium-bearing zones and veins exposed on a large property, 204 claims. Thirty-eight shear zone and vein deposits had been noted by the applicant.

The work as planned by the applicant was to consist of and cost:--

Diamond drilling, 6000 feet	$27,540.00
Bulldozing, 800 hours	2,800.00
Crosscutting, 300 feet	8,787.00
Miscellaneous	
Supervision	600.00
Labor and geologists	3,172.50
Operating equipment	706.68
Payroll taxes, etc.	235.00
Contingencies	4,384.12
Total	$48,225.30

The examiners found numerous veins and shear zones, more or less as set out in the application. Most of the veins and shear zones are less than 5 feet wide and traceable for distances of 100 to 1,000 feet. Quartz, barite, and iron carbonate are the principal gangue minerals.

Of the veins and zones examined, not one yielded cut samples assaying over 0.31% when sampled over probable mining widths. Much thorium-bearing material was found but sampling by

the examiners failed generally to check the grade estimate of the applicant and the examiners concluded that the reserves of material, presently of ore grade, are small in amount. The conclusion, in substance, agreed with that of A.E.C. examiners and other observers.

I concur with the recommendations of the examiners and the Field Team that the application be denied, but without prejudice. Thorium may be a 'Cinderella.'

M. E. Nelson

M. E. Nelson

MENelson:iml
6-11/9/55

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

IN REPLY REFER TO:

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

November 9, 1955

Re: DMEA 3894
Cunac Minerals, Inc.
Grape Creek and other prospects
Fremont County, Colorado
$48,225.30 - Thorium

Memorandum

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

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

Subject: Review of Field Team report.

The applicant requested assistance in doing work on a number of thorium-bearing zones and veins exposed on a large property, 204 claims. Thirty-eight shear zone and vein deposits had been noted by the applicant.

The work as planned by the applicant was to consist of and cost:--

Diamond drilling, 6000 feet	$27,540.00
Bulldozing, 200 hours	2,800.00
Crosscutting, 300 feet	8,787.00
Miscellaneous	
Supervision	600.00
Labor and geologists	3,172.50
Operating equipment	706.68
Payroll taxes, etc.	235.00
Contingencies	4,384.12
Total	$48,225.30

The examiners found numerous veins and shear zones, more or less as set out in the application. Most of the veins and shear zones are less than 5 feet wide and traceable for distances of 100 to 1,000 feet. Quartz, barite, and iron carbonate are the principal gangue minerals.

Of the veins and zones examined, not one yielded cut samples assaying over 0.31% when sampled over probable mining widths. Much thorium-bearing material was found but sampling by

the examiners failed generally to check the grade estimate of the applicant and the examiners concluded that the reserves of material, presently of ore grade, are small in amount. The conclusion, in substance, agreed with that of A.E.C. examiners and other observers.

I concur with the recommendations of the examiners and the Field Team that the application be denied, but without prejudice. Thorium may be a 'Cinderella.'

H. E. Nelson

HENelson:fml
6-11/9/55

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

11-10-55 [illegible]

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

RECEIVED
NOV - 4 1955

November 1, 1955

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Joint Report of Examination, DMEA Docket 3894, (Thorium), Cunac Minerals, Inc., Fremont County, Colorado

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

The examiners found no evidence to indicate that significant amounts of thorium would be discovered as a result of the proposed exploration.

We concur in their recommendation that the application be denied.

W. M. Traver

By J. W. Townsend
J. W. Townsend

E. N. Harshman
E. N. Harshman

Enclosures

Referred by
DMEA Examiner [illegible]
11-9-55
(6330)

IN REPLY REFER TO:

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

DMEA
Date Rec'd RECEIVED
OCT 31 1955 - 4 1955
BUREAU OF MINES
DENVER

October 28, 1955

TRANSMITTED
NOV 1 - 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: John F. Shaw
E. N. Harshman

Subject: DMEA Docket 3894 (Thorium), Cunac Minerals, Inc., Cunac Minerals property, Fremont County, Colorado

Enclosed are the original and nine copies of an examination report by Carl Belser, U. S. Bureau of Mines, and J. E. O'Rourke, U. S. Geological Survey, in which denial of the subject application for exploration assistance is recommended.

At the time of the examination, O'Rourke tentative concluded that exploration of a part of the property was justified, and his portion of the draft of the report contained recommendations for limited exploration. These recommendations were based on a reported ThO_2 content of about 1 percent in the vein material; they were considered by him as tentative pending results of analyses on samples taken during the examination. He returned to school before the results of the analyses were received and firm conclusions reached.

The samples were analyzed chemically in the Salt Lake City laboratory of the U. S. Bureau of Mines and checked radiometrically in the Denver laboratories of the U. S. Geological Survey. Based on the results of these analyses, the Bureau of Mines member of the examining team revised the report to recommend denial of the application for exploration assistance.

Mr. E. L. Newcomb of the AEC has examined the property and, although noting small isolated masses of high grade material, he concludes that the average thorium content of the veins is low. He believes that the application for exploration assistance should be denied at least until data are obtained by the applicant indicating the presence of significant amounts of material that might now or in the future be considered as ore.

11-9-55

The application was briefly discussed with Maurice Brock, U. S. Geological Survey, who is mapping in the Wet Mountain area and has briefly examined the Cunac property. He inferred that the property was not one of major significance.

We concur with the recommendation that the subject application for exploration assistance be denied.

John F. Shaw
Supervising Mining Engineer

E. N. Harshman
Member, Field Team

Enclosures (10)

ENHarshman:arh

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

RECEIVED
NOV - 4 1955

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

TRANSMITTED

NOV 1 - 1955

DMEA 3894

Cunac Minerals, Inc.

Cunac Properties

Fremont County, Colorado

Thorium

Joint Engineering and Geologic Report

by

J. E. O'Rourke, Geologist
Geological Survey

Carl Belser, Mining Engineer
Bureau of Mines

October 1955

11-9-55

CONTENTS

	Page
Introduction and summary	1
Acknowledgments	2
Location, topography, and climate	2
History and production	3
Ownership and extent	4
Present status	15
Exploration and development	15
Mining and milling equipment and other facilities	15
Geology	15
Samples and ore reserves	20
Applicant's estimated cost of project	21
Conclusions and recommendations	22

ILLUSTRATIONS

Figure	Follows page
1. Location map, Cunac properties, Cunac Minerals, Inc., Fremont County, Colorado. DMEA 3894	2
2. Plan map, Grape Creek and Serpent prospect, Cunac properties, Cunac Minerals, Inc., Fremont County, Colorado, DMEA 3894	16

DMEA 3894
CUNAC MINERALS, INC.
CUNAC PROPERTIES
FREMONT COUNTY, COLORADO

RECEIVED
NOV - 4 1955

INTRODUCTION AND SUMMARY

Cunac Minerals, Inc., R. H. Bliss, president, 1701 Franklin Street, Canon City, Colorado, on June 26, 1955, applied for aid from the Defense Minerals Exploration Administration to explore for thorium ore on a property consisting of 204 unpatented claims in secs. 10, 11, 12, 13, 14, 15, 16, 21, 22, 23, and 24, T. 20 S., R. 70 W., and secs. 7, 8, 17, and 18, T. 20 S., R. 71 W., 6th P. M., Fremont County, Colorado. Development consists of location shafts, a short incline, several cuts, and an old caved shaft that is said to be 130 feet deep.

An examining team visited the property on August 31, 1955. The applicant proposed exploration by 6,000 feet of diamond drilling, 200 hours of bulldozing, and 300 feet of crosscutting at a total estimated cost of $48,225.30.

The country rocks are predominantly Precambrian granitic gneisses, and the thorium-bearing veins seem to be genetically related to a Precambrian syenite. Thirty-eight shear zone and vein deposits have been mapped by the applicant on the Cunac property.

The Grape Creek prospect was worked many years ago, and the shear zone is 40 feet wide and can be followed for 330 feet. The Pink Lady, Lazy-Y, Serpent Loon Haunt, Gigi, Sherry, and Bob Cat are veins 5 or more feet wide that can be traced from 100 to 1,000 feet.

The thorium is present as thorite or closely related minerals and is usually associated with hematite and limonite. Most of the veins have a northwest strike and a dip to the southeast.

The examining team, as a result of this examination, does not believe that the grade of the thorium mineralization is high enough to warrant Government participation and recommend that the application be denied.

ACKNOWLEDGMENTS

R. H. Bliss, president, and H. C. Bishop, superintendent of operations, Cunac Minerals, Inc., accompanied the examining team during the examination.

The Atomic Energy Commission was consulted before starting the examination. John F. Able of the Bureau of Mines also accompanied the examining team.

LOCATION, TOPOGRAPHY, AND CLIMATE

The Cunac claims are located in secs. 10, 11, 12, 13, 14, 15, 16, 21, 22, 23, and 24, T. 20 S., R. 70 W., and secs. 7, 8, 17, and 18, T. 20 S., R. 71 W., 6th P. M., Fremont County, Colorado.

The area covers a steep, rugged, terrain extending westerly from Grape Creek into the Copper Gulch water shed and ranging in altitude from a low of about 6,000 feet to a high of about 8,000 feet. The claims are on the northeast slope of the Wet Mountains; the annual rainfall is about 18 inches. Winters are not too severe to permit year around operation.

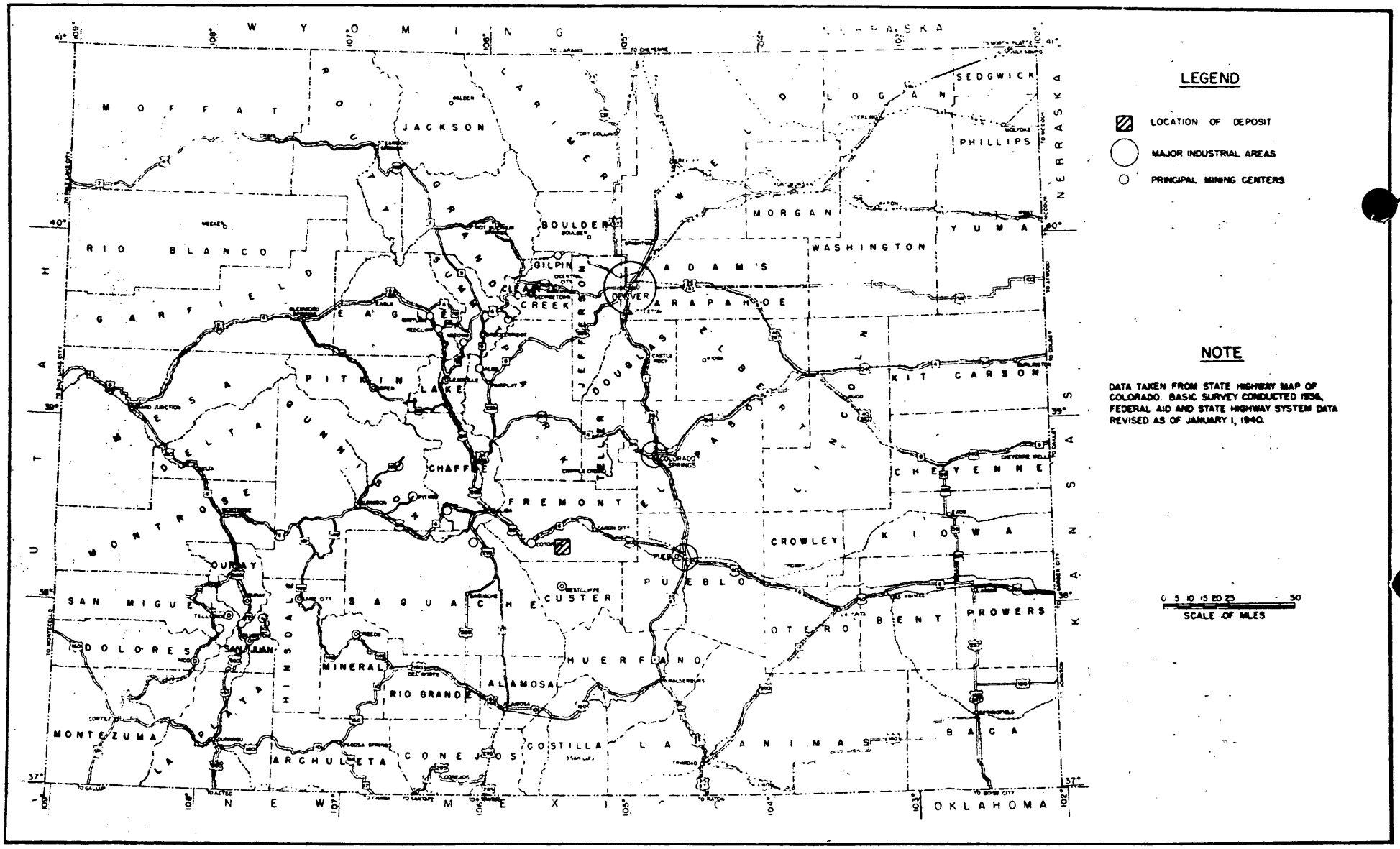


FIGURE 1 - LOCATION MAP, CUNAC PROPERTIES, CUNAC MINERALS, INC., FREMONT COUNTY, COLO. DMEA 3894

A fair 7-mile road connects the main workings on the property with the Copper Gulch road from which point Texas Creek is 14 miles, and, by Copper Gulch, Canon City is 30 miles.

Pine, spruce, and fir timber abound on the property.

Water, for drilling purposes, can be obtained from Grape Creek and from nearby springs. The nearest railroad is the Denver and Rio Grande Western at Texas Creek. Supplies and labor can be obtained at Canon City.

HISTORY AND PRODUCTION

Thorium was first recognized in the Fremont-Custer County area in 1950 when members of a U. S. G. S. field party found thorite in a vein deposit on the Haputa ranch, 5 miles northeast of Rosita, Colorado. Thorium ore in the region west of Grape Creek is not known to have been discovered until about 1953 when H. C. Bishop began to extensively prospect the area.

A small pilot plant on the west side of Pueblo was obtained by Cunac Minerals, Inc. Metallurgical processes for upgrading thorium ores are being studied. No production of thorium minerals has been made from the area. R. H. Bliss stated that the Lindsay Chemical Company will buy 2,000 tons of ore or concentrate a year at a price of $1.10 per pound of contained ThO_2 in 10 percent material and $1.58 per pound of contained ThO_2 in 20 percent material. Bliss believes the Lindsay market will reach 20,000 tons a year with the development of new uses for thorium.

OWNERSHIP AND EXTENT

A total of 204 claims are recorded in the office of the County Clerk and Recorder of Fremont County as follows:

Claim	Book	Page	Date discovered	Date filed
Bystander	338	184	6/2/54	6/3/54
Mark	"	185	"	"
Reject	"	185	"	"
Curt	"	186	"	"
Doll	"	186	"	"
Cynthia	"	187	"	"
Hambone No. 1	"	187	"	"
Hambone No. 2	"	188	"	"
Margaret	"	204	6/13/54	6/14/54
Vulture	"	234	6/18/54	6/19/54
Grisley	"	234	"	"
Raggedwood	"	235	"	"
Kodiak	"	236	"	"
Sturgeon	"	236	"	"
Dogfly	"	237	"	"
Gunner	"	238	"	"
Caribou	"	238	"	"
Winchester	"	253	6/21/54	6/22/54
Stormy	"	254	6/21/54	"
Hazel	"	255	6/20/54	"

Claim	Book	Page	Date discovered	Date filed
Turtle	338	326	7/31/54	7/12/54
Bobcat	"	323	7/5/54	7/12/54
Frank	"	325	6/28/54	7/12/54
Notch	"	369	7/25/54	7/29/54
Gunflint	"	368	7/28/54	"
Jib	"	369	7/27/54	"
Brenda	"	367	7/17/54	"
Thurston	"	367	7/16/54	"
Spruce	"	366	"	"
Chinese	"	365	"	"
Maggie	"	365	7/25/54	"
Marie	"	391	7/29/54	7/31/54
Root	"	386	7/29/54	"
Oak	"	384	7/30/54	"
Bill	"	383	"	"
Tiddy	"	383	"	"
Bobolink	"	423	8/8/54	8/13/54
Jackal	"	423	"	"
Jiggs	"	418	"	"
Widow	"	418	8/9/54	"
Wishiner	"	416	"	"
Last one	"	416	"	"
Bean	"	538	9/4/54	10/7/54
Carbine	"	539	"	"

Claim	Book	Page	Date discovered	Date filed
Willow	338	539	9/4/54	10/7/54
Zeke	"	540	"	"
Blade	"	540	"	"
Joan	"	541	"	"
Boot	"	564	9/6/54	"
Spur	"	565	"	"
Gem	"	565	"	"
Hickory	"	566	"	"
Squaw	"	566	"	"
Horn	"	567	9/6/54	"
Moose	"	567	"	"
Birch	"	568	"	"
Elk	"	536	9/11/54	"
Eagle	"	536	"	"
Hawk	"	537	"	"
Crow	"	537	"	"
Arrow	"	541	"	"
Bow	"	542	"	"
Fox	"	542	"	"
Tongue	"	535	9/12/54	"
Lizzard	"	535	"	"
Chime	"	555	9/21/54	"
Whale	"	557	"	"
Point	"	562	"	"

Claim	Book	Page	Date discovered	Date filed
Stump	338	561	9/22/54	10/7/54
Tagish	"	561	"	"
Rudy	"	551	9/23/54	"
Giant	"	551	"	"
Bear	"	538	9/25/54	"
Iowa	"	543	"	"
Leaf	"	562	"	"
Cup	"	543	9/26/54	"
Loot	"	559	"	"
Canuck	"	560	"	"
Alley	"	552	9/27/54	"
Moat	"	544	9/28/54	"
Marmont	"	560	9/29/54	"
Opal	"	563	"	"
Top	"	664	"	"
Taos	"	563	10/1/54	"
Freeze	"	558	"	"
Whip	"	559	"	"
Wagon	"	558	10/4/54	"
Thor	"	557	10/5/54	"
Snake	342	5	11/1/54	11/3/54
Yankee	338	597	10/22/54	10/28/54
Setter	"	603	10/17/54	"
Spitz	"	603	10/17/54	"

Claim	Book	Page	Date discovered	Date filed
Spaniel	338	602	10/16/54	10/28/54
Terrier	"	602	10/16/54	"
Scotty	"	601	"	"
Hound	"	600	"	"
Poodle	"	601	"	"
Husky	"	600	"	"
Collie	"	599	"	"
Bull	"	599	"	"
String	"	598	10/9/54	"
Boxer	"	598	10/16/54	"
Gloria	"	384	7/29/54	7/31/54
Rainey	"	386	"	"
Loon Haunt	"	385	"	"
Bend	"	385	"	"
Hermit	"	424	8/8/54	8/13/54
Ruth	"	183	5/31/54	6/1/54
Dinosaur	"	235	6/16/54	6/19/54
Woodchuck	"	239	"	"
Redgut	"	253	6/21/54	6/22/54
Sherwood	"	254	6/20/54	"
Dotty	"	255	6/19/54	"
Floyd	"	366	6/16/54	7/29/54
Linklatter	"	237	6/18/54	6/19/54
Amatrine	"	153	5/2/54	5/15/54

Claim	Book	Page	Date discovered	Date filed
Columbine	338	170	5/20/54	5/22/54
West Hole	"	153	5/7/54	5/15/54
Kotan	"	121	4/26/54	4/27/54
High Noon	"	99	4/13/54	4/14/54
Gigi	"	100	"	4/14/54
Sherry	"	102	4/15/54	4/15/54
Pay Day	"	102	"	4/15/54
Speakeasy	"	100	4/12/54	4/14/54
Lazy-Y	"	91	4/2/54	4/12/54
Rusty Saddle	"	91	4/4/54	4/12/54
Corann	"	183	5/31/54	6/1/54
Pink Lady	"	118	4/23/54	4/24/54
Feather	342	72	11/11/54	11/15/54
Maple	"	72	"	"
Clipper	"	71	11/14/54	"
Bone	"	73	11/11/54	"
Irene	"	73	"	"
Kathy	"	74	"	"
Luke	"	74	"	"
Pothole	338	368	4/28/54	7/29/54
Midnight	"	142	4/29/54	5/8/54
Serpent	"	141	"	"
Aspen	"	141	4/6/54	"
Wabagoon	"	169q	5/20/54	5/22/54

Claim	Book	Page	Date discovered	Date filed
Frenchie	338	167	5/20/54	5/22/54
Capri	"	170	5/17/54	5/22/54
Clyde	"	166	3/18/54	5/22/54
Mary Ann	"	154	5/21/54	"
Countless	"	166	5/17/54	"
Stevie	"	165	"	"
Lazy-4 U	"	154	5/21/54	"
Wayne	"	168	5/18/54	"
Cecelia	"	171	5/23/54	5/24/54
Mulik	"	179	5/31/54	6/1/54
Harvey	"	233	6/13/54	6/19/54
Twosome	"	233	"	"
Hogleg	"	224	"	"
Bluefrost	"	264	6/25/54	6/26/54
Bannock	"	316	7/5/54	7/12/54
Burro	"	316	"	"
Kapstickamack	"	327	7/3/54	"
Elaine	"	326	"	"
Toe	"	545	9/21/54	10/7/54
Discus	"	547	9/25/54	10/7/54
Goat	343	361	2/5/55	2/21/55
Ox	"	360	1/30/55	2/21/55
Bit	"	359	"	"
Mouse	"	358	12/17/54	"

Claim	Book	Page	Date discovered	Date filed
Pinch	343	357	12/17/54	2/21/55
Lucky	"	356	12/5/54	"
Hook	"	355	1/16/55	"
Verda	"	354	12/12/54	"
Linda	"	352	12/21/54	"
Sinker	"	362	1/23/55	"
Line	"	363	1/16/55	"
Joan	338	541	9/4/54	10/7/54
Shot	"	546	9/25/54	"
Jade	"	548	"	"
Toad	"	549	"	"
Toklat	"	550	"	"
Mattock	"	547	"	"
Pancho	"	544	"	"
Trap	"	549	"	"
Mizzoo	"	554	"	"
Maux	"	552	"	"
Bird	"	553	"	"
Foot	"	545	"	"
Eye	"	548	"	"
Spike	"	555	"	"
Bead	"	550	"	"
Heel	"	554	"	"
Dutch	346	317	3/22/55	4/29/55

Claim	Book	Page	Date discovered	Date filed
Crab	346	316	3/22/55	4/29/55
Twig	"	315	"	"
Tooth	"	314	"	"
Otter	"	313	"	"
Mink	"	312	"	"
Whisker	"	311	3/19/55	"
Jack	"	310	"	"
Jeep	"	309	"	"
Rock	"	308	"	"
Teton	"	307	4/23/55	"
Cub	"	306	4/15/55	"
Hub	"	305	"	"
Bub	"	304	"	"
		Amended Filings		
Bean	346	295		4/29/55
Carbine	"	296		"
Willow	"	298		"
Zeke	"	301		"
Blade	"	302		"
Gunflint	"	300		"
Jib	"	303		"
Boot	"	394		"
Canuck	"	397		"
Gloria	342	36		11/10/54

Claim	Book	Page	Date filed
Rainey	342	38	11/10/54
Loon Haunt	"	37	"
Bend	"	37	"
Hermit	"	36	"
Ruth	"	35	"
Dinosaur	"	34	"
Woodchuck	"	41	
Redgut	"	40	"
Sherwood	"	40	"
Dotty	"	39	"
Floyd	"	50	"
Linklatter	"	27	"
Amatrine	"	42	"
Columbine	"	27	"
	338	169	5/22/54
West Hole	342	28	11/10/54
Kotan	"	28	"
High Noon	"	29	"
Gigi	"	29	"
Sherry	"	30	"
Pay Day	"	30	"
Speakeasy	"	31	"
Lazy-Y	"	31	"
Rusty Saddle	"	32	"
Corann	"	33	"

Claim	Book	Page	Date filed
Pink Lady	342 346	32 299	11/10/54 4/29/55
Pothole	342	39	11/10/54
Midnight	344	414	3/18/55
Serpent	"	401	"
Aspen	"	415	"
Wabagoon	"	421	"
Frenchie	"	420	"
Capri	"	410	"
Clyde	"	416	"
Mary Ann	"	413	"
Countless	"	411	"
Stevie	"	418	"
Lazy-4 U	"	412	"
Wayne	"	417	"
Cecelia	342 344	33 383	11/10/54 3/18/55
Mulick	344	419	3/18/55
Harvey	342 344	34 386	11/10/54 3/18/55
Twosome	342 344	35 385	11/10/54 3/18/55
Hogleg	342 344	41 384	11/10/54 3/18/55
Bluefrost	344	387	3/18/55
Bannock	344	388	3/18/55
Burro	"	389	"
Kapstickamack	"	391	"

Claims appear to be properly located and recorded.

PRESENT STATUS

Exploration and development

Each of the 204 claims has a discovery hole, the Lazy-Y claim has a 35-foot inclined shaft, surface cuts are on the Pink Lady, Lazy-Y, and Serpent claims. The Grape Creek claim has been developed by a 130-foot shaft and a 50-foot shaft, both sunk by prior operators.

Mining and milling equipment and other facilities

Mining equipment consists of a compressor, drill, and hand tools. There are a number of access roads to the various claims and workings. The company has a small boarding house and a small bunkhouse on the property near Grape Creek.

GEOLOGY

The Wet Mountain thorium district was discovered by the U. S. G. S. in 1950. The area is described in USGS Circular 290, 1953, and Trace Elements Investigations Report 354, 1954.

The deposits are along veins and shear zones, most of which are less than 5 feet wide and are traceable for distances of 100 to 1,000 feet. Quartz, barite, and iron carbonate are the principal gangue minerals. They may occur together or alone, and a vein in which one of them predominates may grade laterally into a vein comprised mostly of another.

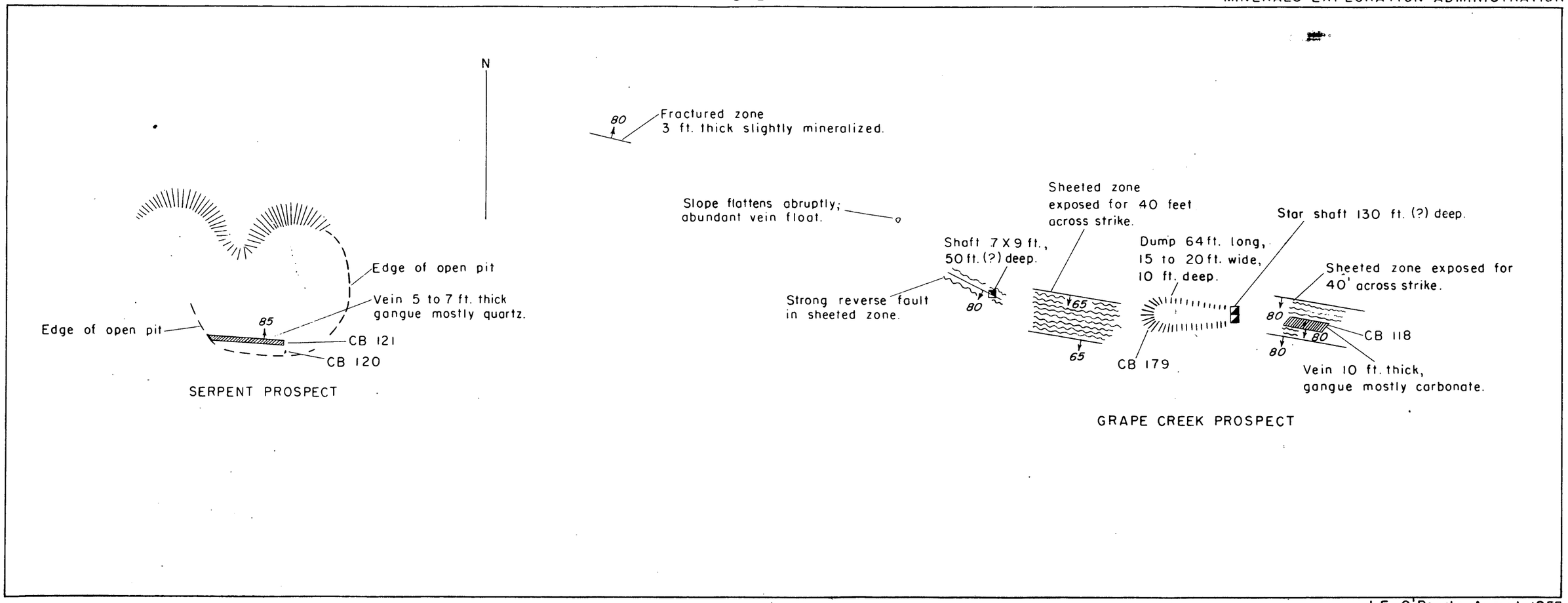
The thorium is present as thorite or a closely related mineral. It is usually intimately associated with hematite and limonite. Its distribution in the veins is erratic. Few, if any, of the deposits average more than 1 percent ThO_2, and most of them run less than 0.5 percent. Parts of a deposit may be richer, but only selected samples assay more than 2 percent ThO_2.

The country rocks are predominantly Precambrian gneisses, and the thorium-bearing veins seem to be genetically related to a Precambrian syenite.

Thirty-eight shear zone and vein deposits are reported to have been mapped on the Cunac property by Minerals Exploration Research Company. Nine of the deposits, which the applicants consider to be the largest, richest, and most accessible, were inspected during the present examination. They were found to be generally similar to the prospects described in other parts of the Wet Mountains, although some of them may be larger than the average for the district.

A brief description of the nine prospects examined follows:

Grape Creek prospect.--The largest and best exposed deposit that was seen is located on the Grape Creek and Buddy claims (see fig. 2). It was explored many years ago as a silver prospect. The "Star" shaft, said to be 130 feet deep, and another shaft, thought to be about 50 feet deep, were sunk on a strong sheeted zone that is over 40 feet wide and can be followed for 330 feet. The sheeted zone strikes N. 60°-80° W. and dips 80° SW. It contains numerous veins composed of calcite, iron carbonate, hematite, quartz, and small amounts of



J. E. O'Rourke, August 1955

FIG. 2-PLAN MAP, GRAPE CREEK AND SERPENT PROSPECT, CUNAC PROPERTIES, FREMONT COUNTY, COLORADO

100 0 100 Feet

galena. The veins are as much as 3 feet wide. A channel sample (CB 105) was cut across several closely spaced veins in the gully immediately east of the Star shaft. The sample, cut across 9.9 feet, assayed 0.31 percent ThO_2. The old mine dump is 64 feet long, about 10 feet deep, and has an average width of about 17 feet. A grab sample by Lindsay ran 0.2 percent ThO_2. A Bureau of Mines grab sample (CB 104) ran 0.31 percent ThO_2. A strong reverse fault in which the walls stand a foot apart is exposed in the westernmost shaft. The sheeted zone is not exposed to the west of this point, but abundant vein float indicates that it continues in this direction for at least 250 feet.

Lazy-Y claim.--Two prospects, which the applicant calls "the Lazy-Y cliff" and "the Lazy-Y shaft" were examined on this claim. The inclined shaft is now flooded. The applicants state that it is 35 feet long and that they extracted about 150 tons of rock that averaged between 2 percent and 3 percent ThO_2. A Lindsay sample taken in the shaft contained 2.1 percent ThO_2. The shaft followed a vertical shear zone that strikes N. 80° W. The shear zone averages about 3 feet thick but is exposed for only 20 feet along strike. The fractures are filled with limonite derived from ferruginous carbonate.

The "Lazy-Y cliff" is roughly 500 feet east of the shaft. It is an open cut about 88 feet long and 15 feet deep in the side of a hill. A vein, with a uniform thickness of 5 to 6 feet, is exposed continuously for 100 feet. It strikes N. 80° W. and dips 85° SW. It is

nearly solid iron carbonate that has weathered to limonite in places. The vein walls are highly sheared, intensely altered granitic gneiss. An 8-foot channel sample by Lindsay averaged 0.4 percent ThO_2. A USBM 6-foot channel sample (CB 108) across the vein ran 0.01 ThO_2.

Serpent claim.--A vein 4 to 7 feet thick has been exposed for 71 feet by a cut 15 feet deep in the side of a hill. The vein strikes N. 85° W. and dips 80° NE. It is composed of fine-grained quartz and earthy iron-oxides, and probably represents a silicified zone in the highly altered and sheared granitic gneiss that surrounds it. Lenses of red hematite in the country rock are radioactive. It is said that about 35 tons of this material was shipped to Pueblo. A channel sample (CB 106) 6.5 feet long of the soft altered rock ran 0.13 percent ThO_2 (USBM) and a channel cut 5 feet long (CB 107) across the quartz vein averaged 0.01 percent ThO_2.

Pink Lady claim.--This claim includes two prospect pits, one 20 feet below the other on the side of a hill. The lower pit is about 15 feet long and follows a shear zone 5 feet thick that strikes N. 30° E. and dips steeply to the NW. The upper pit, about 10 feet long, follows a shear zone about 3 feet thick that strikes N. 30° E. and dips 65° SE. A USBM channel sample 2 feet long (CB 103) across the upper shear zone assayed 0.01 percent ThO_2. Many of the fractures contain lenses of iron carbonate several feet long and 1 or 2 feet thick. A selected sample by Lindsay averaged 2.0 percent. The talus cover is heavy, and the shear zones are exposed for only about 25 feet

of their length. A grab of pieces from an ore pile near the pits (CB 102) assayed 0.13 percent ThO_2.

Loon Haunt claim.--A vein composed of quartz, barite, siderite, and limonite 8 to 10 feet wide, striking N. 80° E. and dipping 80° SW outcrops discontinuously for about 30 feet. The country rock is highly altered and sheared granitic gneiss. The applicants believe that the same vein can be traced for 300 feet to the SE. No samples were taken from this outcrop.

Gigi claim.--A vein, 4 feet thick, composed of coarsely crystalline iron carbonate with subsidiary amounts of barite and hematite, strikes N. 30° E. and dips 85° NW. It is exposed in a prospect pit 10 feet long and 6 feet deep. A mineralized shear zone striking N. 20° W. and dipping 75° SW intersects the vein but does not displace it. Radioactivity was low and no samples were taken.

Sherry claim.--The claim includes two small prospect pits. No. 1 Pit is on a heavily mineralized fractured zone 3 feet thick that strikes N. 40° W. and dips vertically. The country rock is silicified granitic gneiss. No. 2 Pit exposed numerous veins and stringers of iron carbonate that strike N. 30° E. and dip 60° NW. The largest vein averages about 1 foot thick. No samples were taken here.

Bobcat claim.--The Bobcat claim is on a hill that the applicants call "the dome." They believe it to be highly mineralized. Several small, poorly exposed, slightly mineralized shear zones were seen, but none of them are impressive. No samples were taken.

SAMPLES AND ORE RESERVES

Ten samples were taken and shipped to Salt Lake City for analysis. Because these samples ran much lower than expected, they were checked radiometrically in the USGS laboratory in Denver. The samples follow:

Sample No.	ThO_2 (percent)	$eThO_2$* (percent)	Width (feet)	Location
CB-102	0.13	0.000	Grab	Pink Lady ore pile at mine.
CB-103	0.01	0.005	2.0	Pink Lady vein - channel.
CB-104	0.31	0.230	Grab	West end Grape Creek shaft dump.
CB-105	0.31	0.210	9.9	Channel 100 ft. east of Grape Creek shaft.
CB-106	0.13	0.105	6.5	Channel on Serpent.
CB-107	0.01	0.040	5.0	Channel across quartz at Serpent.
CB-108	0.01	0.025	6.0	Channel across Lazy-Y vein.
CB-109	1.40	1.350	Grab	Serpent ore in plant.
CB-110	0.31	0.230	Grab	Lazy-Y ore in plant.
CB-111	2.23	1.935	Grab	Concentrates in plant.

* $eThO_2$ calculated from eU by subtracting the chemical U and multiplying by a factor of 5.

None of the mine samples, taken from the best looking exposures, even approached ore in grade. The plant concentrate would have to contain 10 percent ThO_2 to be marketable.

Under existing conditions, there are no known thorium ore reserves on the property at this time.

The AEC examined the property and also found the veins to be wide but to contain very little ThO_2.

APPLICANT"S ESTIMATED COST OF PROJECT

The application requested aid in core drilling 6,000 feet and 300 feet of drifting and crosscutting as follows:

Independent contracts		
Core drilling 6,000 feet at $4.59/ft..	$27,540.00	
Bulldozing 200 hrs. at $14/hr.	2,800.00	
Supervision ($600)	600.00	
Drifting and crosscutting 300 ft at $29.29/ft.	8,787.00	
Total independent contracts		$39,727.00
Labor and supervision		
Labor and geologists		
Cook - 3 months at $300.00	900.00	
Field party (surveying and expenses)	2,272.50	
Total labor and supervision		3,172.50
Operating materials and supplies		
None.		
Operating equipment		
2 jeeps at $27.78 each for 3 months	166.68	
Mileage, 75 miles/day for 90 days at 8 cents a mile	540.00	
Total operating equipment		706.68

Rehabilitation and repairs

None.

New buildings, improvements, etc.

None.

Miscellaneous

Payroll taxes, etc., 6.11 percent of $900.00	$ 55.00	
Meals to cook, 60 days at $3/day	180.00	
Total miscellaneous		$ 235.00

Contingencies

10 percent	4,384.12	
Total estimated cost		$48,225.30
Government participation, 75 percent, or		$36,168.98

CONCLUSIONS AND RECOMMENDATIONS

The examining team believes that there is no evidence to indicate that significant thorium ore deposits will be discovered by the proposed exploration, and denial of the application for exploration assistance is recommended.

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

RECEIVED
AUG 10 1955

[illegible] New Customhouse
Denver 2, Colorado

August 5, 1955

Memorandum

To: W. H. King (w/brochure)
E. N. Harshman

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA-3094 (thorium, uranium, rare earths), Cunac Minerals, Inc., Cunac Minerals Property, Fremont County, Colorado

Enclosed is a copy of the subject application for a field examination and your recommendations.

I do not believe DMEA should become involved in preliminary geophysical investigations and evaluation of the property for the purpose of finding areas for an exploration project.

Attached for your information is a copy of a letter from the Chairman of the Operating Committee and memoranda from members of the Branch of Rare and Precious Metals.

W. M. TRAVER,

W. M. Traver

Enclosures

HMC:pw

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

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

RECEIVED
AUG 10 1955

224 New Customhouse
Denver 2, Colorado

August 5, 1955

Memorandum

To: W. H. King (w/brochure)
E. N. Harshman

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA-3894 (Thorium, uranium, rare earths), Cunac Minerals, Inc., Cunac Minerals Property, Fremont County, Colorado

Enclosed is a copy of the subject application for a field examination and your recommendations.

I do not believe DMEA should become involved in preliminary geophysical investigations and evaluation of the property for the purpose of finding areas for an exploration project.

Attached for your information is a copy of a letter from the Chairman of the Operating Committee and memoranda from members of the Branch of Rare and Precious Metals.

W. M. TRAVER,

W. M. Traver

Enclosures

Surname 700

Murphy
Ellis
Martin
Holman

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

AUG - 3 1955

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

Re: Docket No. DMEA-3894 (Thorium, uranium, rare earths)
Cunac Minerals, Incorporated
Cunac Minerals property
Fremont County, Colorado

Dear Mr. Traver:

The subject application is referred to Region III Field Team for investigation, a field examination, and recommendation. A copy of the application was retained by your office.

Enclosed are copies of memoranda from Thor H. Kiilsgaard, dated July 26, and Frank D. Lamb, dated July 27, 1955, members of the Thorium Commodity Committee.

The Commodity Members' comments and recommendations with regard to this exploration proposal should be given due consideration.

Sincerely yours,

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

Enclosures

APPROVED:

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

Thor H. Kiilsgaard (SHB)
Member, Geological Survey

FMMurphy:am
8-1-55
cc to: Adrm. Reading File
Operating Committee
Docket
Messrs. ~~XXXXXXXXXXXXXXXXXXXXXXXXXX~~
Frank D. Lamb, Room 3649
T. H. Kiilsgaard, Rm. 5222
J. O. Hosted, Rm. 3210, GSA
Code 700
Mr. Murphy

R.C.S.

Surname 700
Murphy
Ellis
Kulogaard
Martin
Gechon
Fejman

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

Cunac Minerals, Inc.
c/o R. H. Bliss
1701 Franklin Street
Canon City, Colorado

AUG - 3 1955

Re: Docket No. DMEA-3894 (Thorium, uranium, rare earths)
Cunac Minerals property
Fremont County, Colorado

Gentlemen:

The application for assistance in exploring the subject property in Fremont 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 for a field examination 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

FMMurphy:am
801-55
cc to: Admr. Reading File
Docket
Code 700
Mr. Murphy
DMEA Field Team, Region III(2)

RCB.

7/27/55 gla

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

July 27, 1955

RECEIVED
JUL 28 1955

Memorandum

To: E. W. Ellis, Chief, Division of Rare and Misc. Metals, DMEA

From: Assistant Chief, Branch of Rare and Precious Metals

Subject: DMEA Docket No. 3894, Thorium, Application of Cunac Minerals, Inc., Canon City, Colo.

A review of the subject application indicates that a considerable quantity of thorium minerals may be present in the areas under consideration. However, the information presented is not sufficiently detailed to permit a definite appraisal of the application. It is therefore suggested that the application be referred to the Field Team for an examination and appraisal.

I have discussed the application with Mr. J. O. Hosted of the Atomic Energy Commission who informs me that the Commission has recently investigated thorite deposits in Fremont County, Colorado and that Mr. Charles Towle of the Denver office of the AEC will be able to give the Field Team some information pertaining to the applicant's properties.

The application is returned herewith.

Frank D. Lamb

Frank D. Lamb

Attachment

7/27/55

IN REPLY REFER TO:

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

RECEIVED
JUL 27 1955

July 26, 1955

Memorandum

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

From: Thor H. Kiilsgaard, U. S. Geological Survey

Subject: Review of application, Cunac Minerals, Inc., Fremont County, Colorado, DMEA Docket 3894.

The applicant has proposed a rather indefinite program of geological-geophysical investigation, bulldozing, diamond drilling, and drifting or crosscutting. This work is to be done on 15 unpatented claims, many of which are not contiguous but all of which are in the Cunac group. Estimated cost of the project is $43,225.30.

The applicant's property comprises a large group of claims staked on a series of veins containing thorium. Most of these veins appear to be members of a northwest-trending pattern, although some strike to the northeast. The veins and/or shear zones extend beyond the applicant's boundary lines and apparently comprise a system of thorium-bearing deposits in a district roughly 20 miles long and 10 miles wide. This district is discussed in some detail in U. S. Geological Survey Circular 290. This circular suggests that further prospecting of the area is warranted.

Thorium in the deposits is contained in what has been tentatively identified by X-ray patterns as thorite. At the outcrop, the mineral is usually stained with iron oxides and so finely disseminated that it is impossible to detect in the hand specimen. As it is radioactive it is best identified by a scintillation counter.

Assays submitted with the application indicate appreciable quantities of ThO_2 and Rare Earth Oxides on many of the claims. In G. F. Tom's report of December 10, 1954, he notes that he advised the applicant to figure on 1% ThO_2 as ore. He further notes that samples he took across the veins averaged 0.6% ThO_2. The grade of ThO_2 necessary to make ore will, of course, vary with economic conditions; it may be that in the

future a grade of less than 0.6% ThO_2 will be ore. While it would be prudent for the applicant to determine whether he can make money from present operations, it would seem that this factor should be of minor importance to DMEA from an exploration standpoint. In view of the comparative rarity of thorium in workable deposits it would seem that if this property has any tonnage potential it would warrant exploration.

I recommend referral of the application to the field for a field examination. Field reviewers should determine whether all of the claims are worthy of widespread exploration as now proposed or if it might not be better to confine more of the work to the more promising veins -- assuming they favor an exploration contract. Also, if a contract is recommended, some additional claims or gaps between claims might be added to those claims listed in the application. In this respect a triangular block, covered by the Chime claim, exists between the Payday, Corann, and Bobcat claims, which might be affected by the proposed work. A gap, covered by the Cup claim, exists between the Rusty Saddle and the Columbine claims. An unclaimed gap exists between the Columbine and Lazy Y claims. This unclaimed gap could be important as the applicant reports work is now in progress on a structure crossing the Lazy Y and Columbine claims. If this is the same structure as shown on the map on the Marr claim, it could cross the unclaimed fraction. If the structure is worth exploring perhaps the Marr claim should be included in the contract.

Thor H. Kiilsgaard

Thor H. Kiilsgaard

IN REPLY REFER TO:

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

RECEIVED
JUL 27 1955

July 26, 1955

Memorandum

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

From: Thor N. Kiilsgaard, U. S. Geological Survey

Subject: Review of application, Cumac Minerals, Inc., Fremont County, Colorado, DMEA Docket 3894.

The applicant has proposed a rather indefinite program of geological-geophysical investigation, bulldozing, diamond drilling, and drifting or crosscutting. This work is to be done on 15 unpatented claims, many of which are not contiguous but all of which are in the Cumac group. Estimated cost of the project is $43,285.30.

The applicant's property comprises a large group of claims staked on a series of veins containing thorium. Most of these veins appear to be members of a northwest-trending pattern, although some strike to the northeast. The veins and/or shear zones extend beyond the applicant's boundary lines and apparently comprise a system of thorium-bearing deposits in a district roughly 20 miles long and 10 miles wide. This district is discussed in some detail in U. S. Geological Survey Circular 290. This circular suggests that further prospecting of the area is warranted.

Thorium in the deposits is contained in what has been tentatively identified by X-ray patterns as thorite. At the outcrop, the mineral is usually stained with iron oxides and so finely disseminated that it is impossible to detect in the hand specimen. As it is radioactive it is best identified by a scintillation counter.

Assays submitted with the application indicate appreciable quantities of ThO_2 and Rare Earth Oxides on many of the claims. In G. F. Tom's report of December 10, 1954, he notes that he advised the applicant to figure on 1% ThO_2 as ore. He further notes that samples he took across the veins averaged 0.6% ThO_2. The grade of ThO_2 necessary to make ore will, of course, vary with economic conditions; it may be that in the

future a grade of less than 0.6% ThO_2 will be ore. While it would be prudent for the applicant to determine whether he can make money from present operations, it would seem that this factor should be of minor importance to DMEA from an exploration standpoint. In view of the comparative rarity of thorium in workable deposits it would seem that if this property has any tonnage potential it would warrant exploration.

I recommend referral of the application to the field for a field examination. Field reviewers should determine whether all of the claims are worthy of widespread exploration as now proposed or if it might not be better to confine more of the work to the more promising veins -- assuming they favor an exploration contract. Also, if a contract is recommended, some additional claims or gaps between claims might be added to those claims listed in the application. In this respect a triangular block, covered by the Chime claim, exists between the Payday, Corsan, and Bobcat claims, which might be affected by the proposed work. A gap, covered by the Cup claim, exists between the Rusty Saddle and the Columbine claims. An unclaimed gap exists between the Columbine and Lazy Y claims. This unclaimed gap could be important as the applicant reports work is now in progress on a structure crossing the Lazy Y and Columbine claims. If this is the same structure as shown on the map on the Marr claim, it could cross the unclaimed fraction. If the structure is worth exploring perhaps the Marr claim should be included in the contract.

Thor H. Kiilsgaard

THKiilsgaard:iml
G-7/26/55

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

July 11, 1955
Subject: DMEA-3894
Re: Exploration Assistance
Cunac Minerals

Cunac Minerals, Inc.
c/o R.H. Bliss
1701 Franklin Street
Canon City, Colorado

Dear Mr. Bliss:

The receipt of your application dated June 24, 1955 for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-3894 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

July 11, 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: Chief, Operation's Control and Statistics Division

Subject: Assignment of Docket Number

There is listed below the assigned docket number to an application recently received from Region III.

DMEA-3894 Cunac Minerals, Inc.

Robert E. Adams,
Chief, Operation's Control
and Statistics Division

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

RECEIVED
JUL 11 1955

224 New Customhouse
Denver 2, Colorado

July 8, 1955

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA assistance (Uranium ? Thorium), Cunac Minerals, Inc., Fremont County, Colorado

Enclosed are three copies of the subject application in the amount of $43,225.30.

A review of the application shows a request for preliminary geological investigations which are estimated to cost $2,272.50. The cost of supervision is high and the proposed exploration is too vague. The applicant requests both diamond drilling and drifting and/or crosscutting.

One copy of the application is being retained in our files.

Enclosures

W. M. Traver

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

DMEA
Date Rec'd.
JUL 8 1955

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

RECEIVED
JUL 11 1955
BUREAU OF MINES
Denver, Colorado

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. 3894
Metal or Mineral Thorium
Date Received 7-11-55
Estimated Cost $ 48,225.30
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: Cunac Minerals, Inc., c/o R. H. Bliss, 1701 Franklin Street, Canon City, Colorado, a corporation incorporated in the State of 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 A corporation incorporated in the State of Colorado.

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

(*d*) If a partnership, add to the above statement the names and addresses of all partners. not applicable.

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 Group of adjoining unpatented mining claims in Secs. 24, 10, 11, 12, 13, 14, 15, 16, 21, 22, 23, T 20 S, R 70 W; and Secs. 7, 8, 17, 18, T 20 S, R71W, Fremont Co., Colo. Specifically Aspen, Serpent, Kotan, Pink Lady, Lazy Y, Columbine, High Noon, Gigi, Speakeasy, Sherry, Pay Day, Corann, Bobcat, Margaret, and Rusty Saddle Claims.

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

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Owners of 204 unpatented claims.

(*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 none

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

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. (Attached sheets)

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

(*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. See attached Preliminary Economic Evaluation, and other reports.

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

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

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

(*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)? Yes

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

[X] Money [X] 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 June 24th, 1955

Cunac Minerals, Inc.
(Applicant)

By Robert H. Bliss

Robert H. Bliss, President

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

1. Name of Applicant

(c) President: R. H. Bliss, 1701 Franklin St., Canon City, Colorado

Treasurer: Jack Womack, Crowley, Colorado

Secretary: J. L. Hutchison, 629 Polk Street, Pueblo, Colorado

Directors:

R. H. Bliss, 1701 Franklin Street, Canon City, Colorado
T. J. Sardy, Aspen, Colorado
Frank Willoughby, Aspen, Colorado
Fred Glidden, Aspen, Colorado
Ivan Ashley, Rye, Colorado
Ed Anderson, 624 W. Grant, Pueblo, Colorado
Oscar Yarbrough, Yarbrough Lumber Company, Grand Junction, Colo.

3. Applicant's Property Rights

(f) See attached list of claims recorded in Fremont County Court House, Canon City, Colorado.

4. Physical Description

(a) There are approximately thirty five miles of accessible jeep road and approximately eleven miles of access truck road centering through the entire group of claims. Of the smaller group to be explored the accessibility in most cases is excellent.

As to present mining and exploration on the entire group, we have sunk roughly 300 discovery holes varying from five to fifteen feet in depth, a good portion of these having been sunk in sequence on the veins. We are now mining on two of the claims, the Columbine and the Lazy Y, and plan to open up the Pink Lady and the Serpent. This operation consists of drag line, bulldozer, and tunnel work. On the principal mining spot we are down thirty five feet on an incline and have taken approximately 250 tons of ore from this location. The ore being mined runs between 2% and 3% thorium. The mining is being contracted by Cunac to a responsible individual and Cunac is furnishing two men, one compressor and some accessory equipment.

The mined ore is being trucked 85 miles to Pueblo, Colorado, where it is being upgraded in the company's pilot plant. This upgrading operation was worked out and developed under our own auspices during the past year and is designed specifically for the concentrating of thorite ore. The approximate cost of the pilot plant is in excess of $10,000. The upgraded ore is now being accumulated for shipment to Lindsay Chemical Company of West Chicago. At the time of this application a larger upgrading unit has been proposed for location in Canon City which will be a saving of some 45 trucking miles.

(b) We are mining approximately ten tons a day, but insufficient work has been completed to make accurate ore reserve estimates. An important factor is that on the entire group of claims each discovery cut has revealed ore-grade

mineralization. On some claims two or three prospect holes have been sunk. As to further information on possible ore grades, refer to AEC radiometric analyses and Lindsay Company Assays.

(c) Refer to attached Preliminary Economic Evaluation of the Cunac Thorium property by Sigurd K. Herness of Minerals Exploration Research Corporation, Golden, Colorado. The general geologic features of the property are described in that report.

The geologic map accompanying that report is a reconnaissance map, showing mostly the principal veins. To our knowledge detailed geological mapping has never been done. The reason for wishing to explore is to determine the vein widths and grades at depth on those claims which now appear to have the best potential. Geological mapping is necessary to locate bulldozer cuts and drill holes in the best possible places to derive the maximum subsurface data.

(d) The group of claims is located approximately twenty two miles from Parkdale, Colorado, located on U. S. 50 with D. and R. G. W. rail facilities. A county road leads to within eight miles of the property. From that point our own access road leads to the center of the claim group and also to our Grape Creek camp.

Living supplies can be had at Parkdale; mining supplies at Canon City. Driving distance to Canon City is approximately one hour. Nearest residence point for any large body of employees would be Parkdale, Colorado, 22 miles away.

(e) We have available four men on our property and an unlimited pool of experienced miners in Canon City. On the property at present we have sufficient material for handling a limited exploration and development program. On a going mining operation all materials and supplies would be available in Canon City. The closest power line is approximately four miles from Grape Creek. Water on the property consists of approximately ten small mountain springs only, the water from Grape Creek having been appropriated for irrigation uses in the Canon City area.

5. <u>The Exploration Project</u>

(b) <u>Geological-Geophysical Investigations</u>: A preliminary evaluation of the property has been completed by Minerals Exploration Research Corporation. However, for a property of this magnitude, a more extensive geological-geophysical exploration program is necessary before an intelligent program of trenching, drilling, and underground exploration can be outlined.

Plane tabling and geological mapping on a semi-detailed scale of 1" = 200' will first be executed on the 15 claims to delineate the extent of the mineralized area and determine vein continuity and ore shoot localization. Plane tabling of culture and engineering control is estimated to take 7 days and geological mapping using the plane-table data should take 6 days. Soon after the start of geological mapping, grid scintillometer surveys will be run on a 50 foot grid for detailing areas of suspected vein projections. A time of 3 days is estimated. Working geological maps and

geophysical overlay maps will be prepared to facilitate exploration planning.

Bulldozer Operations:

Bulldozer cuts will first be made on the soil-covered projections of those veins which appear to be strongly mineralized from the preliminary evaluation. These would be the northeast-trending veins on the Pay Day, Gigi, and Pink Lady claims and the northwest veins on the Kotan, Serpent, Rusty Saddle, High Noon, and Bobcat claims. Part of this work can start immediately and part will be determined by the detailed geological-geophysical results. A total of 160 hours of bulldozing is estimated to be sufficient to expose the major veins and permit a better utilization of the drill footage. The geological data from these cuts will be integrated with the previous data.

Diamond Core Drilling:

Diamond core drilling will be located according to the results of all the above work. In general holes will be laid out to pierce the veins from 75' - 100' along dip below the surface and also at 200' below. The lengths of these holes will vary according to the dip of the veins and will average from 50' = 100' and 200' - 250' respectively. The dip angle of these holes will depend on the vein dips, but in general will be drilled at about a 60° angle. The spacing of holes along vein strike will be 100 feet. In addition to assays all holes should be radiometrically probed to determine the equilibrium factor and thereby reduce the number of assays necessary. A total of 6000' of core drilling is estimated to be necessary. Approximately 40 hours of bulldozing will probably be necessary to provide drilling sites and access roads.

Drifting or Crosscutting:

An incline is now being sunk on the vein which strikes across the Columbine and Lazy Y claims. If this development continues to look favorable, a drift will be driven from the bottom of this incline. About half the total estimated footage of 300' will be completed on the Columbine-Lazy Y vein and the other half on the vein which shows greatest promise from the drilling. In view of the limited underground development allotted to this program, all work will be confined to drifting. However a small amount of cross-cutting may be necessary in the event of a faulted vein. No shaft sinking is contemplated.

(d) The Minerals Exploration Research Corporation, Golden, Colorado has been and will be engaged by the company to plan and execute all geological and geophysical investigations and to supervise the location of all bulldozing and core drilling operations. This firm is composed of people with extensive mining experience in both the operating and exploration phases. The personal, educational, and professional history of the company principals is enclosed with the application.

Supervision of the actual mining on the property will be carried out under the direction of Charles Selingo of Canon City, Colorado. Selingo's background consists of being owner-operator of the large Chandler Coal Company operation out of Canon City which in the past has employed up to 700 men underground. Selingo has also contract mined uranium in the Gateway area of Colorado and has done extensive tunnel and shaft uranium exploration

work for Al Ward and Associates out of Dayton, Ohio. We refer you to Gordon Babble Company, Grand Junction, for an estimate of Selingo's capabilities. In Selingo's employ are a number of experienced hard rock miners out of Cripple Creek, Colorado. In respect to our own two men on the property, both have spent there working lives with heavy equipment as mechanics and in operation of drag lines, bulldozers, shovels and heavy air equipment.

6. Estimate of Costs

(a) Independent Contracts:

Diamond Core Drilling - 6000 feet

6000 feet	$4.00*/ft.
Hauling of water	.25/ft.
Supervision $\frac{\$1800}{6000}$ =	.30/ft.
150 Core boxes @ $1.50 $\frac{\$225}{6000}$ =	.04/ft.
	$4.59/ft. x 6000 = $27,540.00

* This rate is an approximate estimate by Boyles Brothers Drilling Company of Salt Lake City. Bulldozing of drill sites and roads would be extra and 40 hours is allowed under Bulldozing Operations.

Bulldozing Operations - 200 hours

200 hrs.	$14/hr.
Supervision $\frac{\$600}{200 \text{ hrs.}}$ =	3/hr.
	$17/hr. x 200 = $ 3,400.00

Drifting and Cross-cutting - 300 feet.

300 feet	$18*/ft. of advance
2 Miners helpers $\frac{\$1888}{300}$ =	6.29/ft.
Supervision $\frac{\$1200}{300}$ -	4.00/ft.
Compressor $\frac{\$300}{300}$ -	1.00/ft.
	$29.29/ft. x 300 = 8,787.00
	$39,727.00

* This rate has been negotiated with Charles Selingo of Canon City, Colo., with Cunac to furnish a compressor and 2 miners helpers.

(b) Labor, Supervision, Consultants

Labor:

2 Miners Helpers	
120 man da. @ $12/da.	$ 1,440.00
Meals, 120 man da. @ $3.00	360.00
Payroll taxes 6.111% x $1440.	88.00
(Included under Drifting and Cross-cutting)	$ 1,888.00

Labor: (Cont.)

1 Cook 3 mos. @ $300.00	$ 900.00	
Meals, 60 man da. @ $3.00	180.00	
		$ 1,080.00

A cook with mess facilities will be provided as the area is quite inaccessible and all personnel must stay on the property. However, acutal food costs will be prorated to and paid by each contractor in proportion to number of men and days, except for the two miners helpers.

Preliminary Geological Investigations:

Plane table crew (2 men)	7 days @	$ 75.00	$ 525.00	
Senior Geologist	6 days @	100.00	600.00	
Junior Geologist	6 days @	50.00	300.00	
Travel Time from Golden	@	1/2 time	112.50	
Field Expense for the above	30 man da. @	5.00	150.00	
Transportation for the above	500 mi. @	0.12	60.00	
Scintillometer Survey	3 days @	75.00	225.00	
(Expenses included in this rate)				
Map Preparation and Expenses			EST. 300.00	
				$ 2,272.50

Project Supervision:

This estimate is based on the necessary services of a geologist-engineer for 3 months. He would supervise location of all bulldozer cuts, drill holes, and exploration drifts, log cores, probe holes radiometrically, map drift advance survey drill holes and drifts, keep reports for government, and handle the necessary accounting. A senior geologist-engineer will be furnished by Minerals Exploration Research Corp. to be project supervisor at the rate of $1000.00 per month for 3 months plus expenses.

Senior geologist-engineer	@ $1000/mo.	3,000.00	
Field expenses	90 man da. @ $4.00	360.00	
Transportation	400 mi. @ $0.12	48.00	
(Transportation on the job to be furnished by the Operator and is included under Operating Equipment- 2 Jeeps.)			
Map preparation Est.		200.00	
			$ 3,608.00*

*The amount for project supervision has been prorated to the exploration phases in the following proportions: Drilling 1/2, Bulldozing 1/6, Drifting 1/3.

(c) Operating Materials and Supplies

None: All will be furnished by the contractors.

(d) Operating Equipment

The following equipment will be furnished by the Operator at the listed suggested use-allowance:

1 Compressor 105 cfm
$100/mo. for 3 mo. = $300.00 (Added under drifting and cross-cutting)

2 Jeeps
Assume a depreciation of 3 years
and an estimated present value of $1000. each.
$\frac{\$1000}{36}$ = $27.78/mo. x 3 mo. x 2 jeeps = $166.68 for 2 jeeps, 3 months.

Mileage @ $0.08/mi. 75 mi/day for 90 days = 540.00 $ 706.68

(e) Rehabilitation and Repairs

None:

(f) New Buildings, Improvements, Installations

None:

(g) Miscellaneous

1. Analytical Work - All analyses will be made at no cost by Lindsay. Chemical Company.
2. Payroll Taxes 6.111% x 2340.00 = 143.00
(Taxes for miners helpers under Drifting Costs)
$900 x 6.111% = $55.00 $ 55.00

Sub Total $43841.18

(h) Contingencies 10% of above Total 4.384.12

Grand Total of Loan $43225.30

7. (b) The following is the breakdown on the share of costs by the Operator.

Use of Equipment

1 Compressor	$ 300.00	
2 Jeeps	706.68	
		$ 1006.68

Labor

2 Miners Helpers	$1888.00	
1 Cook	1135.00	
		$ 3023.00

Money 8026.65

25% of Grand Total $12056.33

NAME	DISCOVERY DATE	FILED	BOOK	PAGE
1. Bystander	June 2, 1954	June 3, 1954	338	184
2. Mark	" 2, "	" 3, "	"	185
3. Reject	" 2, "	" 3, "	"	185
4. Curt	" 2, "	" 3, "	"	186
5. Doll	" 2, "	" 3, "	"	186
6. Cynthia	" 2, "	" 3, "	"	187
7. Hambone #1	" 2, "	" 3, "	"	187
8. Hambone #2	" 2, "	" 3, "	"	188
9. Margret	" 13, "	" 14, "	"	204
10. Vulture	" 18, "	" 19, "	"	234
11. Grisley	" 18, "	" 19, "	"	234
12. Raggedwood	" 18, "	" 19, "	"	235
13. Kodiak	" 18, "	" 19, "	"	236
14. Sturgeon	" 18, "	" 19, "	"	236
15. Dogfly	" 18, "	" 19, "	"	237
16. Gunner	" 18, "	" 19, "	"	238
17. Caribou	" 18, "	" 19, "	"	238
18. Winchester	" 21, "	" 22, "	"	253
19. Stormy	" 21, "	" 22, "	"	254
20. Hazel	" 20, "	" 22, "	"	255
21. Turtle	July 3, "	July 12, "	"	326
22, Bobcat	" 5, "	" 12, "	"	325
23. Frank	June 28, "	" 12, "	"	325
24. Notch	July 25, "	" 29, "	"	369
*25. Gunflint	" 28, "	" 29, "	"	368
*26. Jib	" 27, "	" 29, "	"	369
27. Brenda	" 17, "	" 29, "	"	367
28. Thurston	" 16, "	" 29, "	"	367
29. Spruce	" 16, "	" 29, "	"	366
30. Chinee	" 16, "	" 29, "	"	365
31. Maggie	" 25, "	" 29, "	"	365
32. Marie	" 29, "	" 31, "	"	391
33. Root	" 29, "	" 31, "	"	386
34. Oak	" 30, "	" 31, "	"	384
35. Bill	" 30, "	" 31, "	"	383
36. Teddy	" 30, "	" 31, "	"	383
37. Bobolink	Aug. 8, "	Aug. 13, "	"	423
38. Jackal	" 8, "	" 13, "	"	423
39. Jiggs	" 8, "	" 13, "	"	418
40. Widow	" 9, "	" 13, "	"	418
41. Wishiner	" 9, "	" 13, "	"	416
42. Last One	" 9, "	" 13, "	"	416
* 43. Bean	Sept. 4, "	Oct. 7, "	"	538
*44. Carbine	" 4, "	" 7, "	"	539
*45. Willow	" 4, "	" 7, "	"	539
*46. Zeke	" 4, "	" 7, "	"	540
*47. Blade	" 4, "	" 7, "	"	540
*48. Joan	" 4, "	" 7, "	"	541
*49. Boot	" 6, "	" 7, "	"	564
50. Spur	" 6, "	" 7, "	"	565
51. Gem	" 6, "	" 7, "	"	565
52. Hickory	" 6, "	" 7, "	"	566
53. Squaw	" 6, "	" 7, "	"	566

* See sheet marked "Amended"

	NAME	DISCOVERY DATE	FILED	BOOK	PAGE
54.	Horn	Sept. 6, 1954	Oct. 7, 1954	338	567
55.	Moose	" 6, "	" 7, "	"	567
56.	Birch	" 6, "	" 7, "	"	568
57.	Elk	" 11, "	" 7, "	"	536
58.	Eagle	" 11, "	" 7, "	"	536
59.	Hawk	" 11, "	" 7, "	"	537
60.	Crow	" 11, "	" 7, "	"	537
61.	Arrow	" 11, "	" 7, "	"	541
62.	Bow	" 11, "	" 7, "	"	542
63.	Fox	" 11, "	" 7, "	"	542
64.	Tongue	" 12, "	" 7, "	"	535
65.	Lizzard	" 12, "	" 7, "	"	535
66.	Chime	" 21, "	" 7, "	"	555
67.	Whale	" 21, "	" 7, "	"	557
68.	Point	" 21, "	" 7, "	"	562
69.	Stump	" 22, "	" 7, "	"	561
70.	Tagish	" 22, "	" 7, "	"	561
71.	Rudy	" 23, "	" 7, "	"	551
72.	Giant	" 23, "	" 7, "	"	551
73.	Bear	" 25, "	" 7, "	"	538
74.	Iowa	" 25, "	" 7, "	"	543
75.	Leaf	" 25, "	" 7, "	"	562
76.	Cup	" 26, "	" 7, "	"	543
77.	Loot	" 26, "	" 7, "	"	559
*78.	Canuck	" 26, "	" 7, "	"	560
79.	Alley	" 27, "	" 7, "	"	552
80.	Moat	" 28, "	" 7, "	"	544
81.	Marmont	" 29, "	" 7, "	"	560
82.	Opal	" 29, "	" 7, "	"	563
83.	Top	" 29, "	" 7, "	"	564
84.	Taos	Oct. 1, "	" 7, "	"	563
85.	Freeze	" 1, "	" 7, "	"	558
86.	Whip	" 1, "	" 7, "	"	559
87.	Wagon	" 4, "	" 7, "	"	558
88.	Thor	" 5, "	" 7, "	"	557
89.	Snake	Nov. 1, "	Nov. 3, "	342	5
90.	Yankee	Oct. 22, "	Oct. 28, "	338	597
91.	Setter	" 17, "	" 28, "	"	603
92.	Spitz	" 17, "	" 28, "	"	603
93.	Spaniel	" 16, "	" 28, "	"	602
94.	Terrier	" 16, "	" 28, "	"	602
95.	Scotty	" 16, "	" 28, "	"	601
96.	Poodle	" 16, "	" 28, "	"	601
97.	Hound	" 16, "	" 28, "	"	600
98.	Husky	" 16, "	" 28, "	"	600
99.	Collie	" 16, "	" 28, "	"	599
100.	Bull	" 16, "	" 28, "	"	599
101.	String	" 9, "	" 28, "	"	598
102.	Boxer	" 16, "	" 28, "	"	598

	NAME	DISCOVERY DATE	FILED	BOOK	PAGE
103.	Gloria	July 29, 1954	July 31, 1954	338	384
104.	Rainey	" 29, "	" 31, "	"	386
105.	Loonhaunt	" 29, "	" 31, "	"	385
106.	Bend	" 29, "	" 31, "	"	385
107.	Hermit	Aug. 8, "	Aug. 13, "	"	424
108.	Ruth	May 31, "	June 1, "	"	183
109.	Dinosaur	June 18, "	June 19, "	"	235
110.	Woodchuck	" 18, "	" 19, "	"	238
111.	Redgut	" 21, "	" 22, "	"	253
112.	Sherwood	" 20, "	" 22, "	"	254
113.	Dotty	" 19, "	" 22, "	"	255
114.	Floyd	July 16, "	July 29, "	"	366
115.	Linklater	June 18, "	June 19, "	"	237
116.	Amatrine	May 2, "	May 15, "	"	153
117.	Columbine	" 20, "	" 22, "	"	170
118.	West Hole	" 7, "	" 15, "	"	153
119.	Kotan	April 26, "	April 27, "	"	121
120.	High Noon	" 13, "	" 14, "	"	99
121.	Gigi	" 13, "	" 14, "	"	100
122.	Sherry	" 15, "	" 15, "	"	102
123.	Pay Day	" 15, "	" 15, "	"	102
124.	Speakeasy	" 12, "	" 14, "	"	100
125.	Lazy-Y	" 2, "	" 12, "	"	91
126.	Rusty Saddle	" 4, "	" 12, "	"	91
127.	Corann	May 31, "	June 1, "	"	183
128.	Pink Lady	April 23, "	April 24, "	"	118
129.	Feather	Nov. 11, "	Nov. 15, "	342	72
130.	Maple	" 11, "	" 15, "	"	72
131.	Clipper	" 14, "	" 15, "	"	71
132.	Bone	" 11, "	" 15, "	"	73
133.	Irene	" 11, "	" 15, "	"	73
134.	Katy	" 11, "	" 15, "	"	74
135.	Luke	" 11, "	" 15, "	"	774
136.	Pothole	July 28, "	July 29, "	338	368
137.	Midnight	April 29, "	May 8, "	"	142
138.	Serpent	" 29, "	" 8, "	"	141
139.	Aspen	" 6, "	" 8, "	"	141
140.	Wabagoon	" 20, "	" 22, "	"	169
141.	Frenchie	" 20, "	" 22, "	"	167
142.	Capri	" 17, "	" 22, "	"	170
143.	Clyde	" 18, "	" 22, "	"	166
144.	Mary Ann	" 21, "	" 22, "	"	154
145.	Countless	" 17, "	" 22, "	"	166
146.	Stevie	" 17, "	" 22, "	"	165
147.	Lazy-4U	" 21, "	" 22, "	"	154
148.	Wayne	" 18, "	" 22, "	"	168
149.	Cecelia	" 23, "	" 24, "	"	171
150.	Mulik	May 31, "	June 1, "	"	179
151.	Harvey	" 13, "	" 19, "	"	233
152.	Twosome	" 13, "	" 19, "	"	233
153.	Hogleg	" 13, "	" 19, "	"	224
154.	Bluefrost	" 25, "	" 26, "	"	264

NAME	DISCOVERY DATE	FILED	BOOK	PAGE
155. Bannock	July 5, 1954	July 12, 1954	338	316
156. Burro	" 5, "	" 12, "	"	316
157. Kapstickamack	" 5, "	" 12, "	"	327
158. Elaine	" 3, "	" 12, "	"	326
159. Toe	Sept. 25, "	Oct. 7, "	"	545
160. Discus	" 25, "	" 7, "	"	547
161. Goat	Feb. 5, 1955	Feb. 21, 1955	343	361
162. Ox	Jan. 30, "	" 21, "	"	360
163. Bit	" 30, "	" 21, "	"	359
164. Mouse	Dec. 17, "	" 21, "	"	358
165. Pinch	" 17, "	" 21, "	"	357
166. Lucky	" 5, "	" 21, "	"	356
167. Hook	Jan. 16, "	" 21, "	"	355
168. Verda	Dec. 12, "	" 21, "	"	354
169. Linda	" 21, "	" 21, "	"	352
170. Sinker	Jan. 23, "	" 21, "	"	362
171. Line	" 16, "	" 21, "	"	363
172. Joan	Sep. 4, 1954	Oct. 7, 1954	338	541 See #48
173. Shot	" 25, "	" 7, "	"	546
174. Jade	" 25, "	" 7, "	"	548
175. Toad	" 25, "	" 7, "	"	549
176. Toklat	" 25, "	" 7, "	"	550
177. Mattock	" 25, "	" 7, "	"	547
178. Pancho	" 25, "	" 7, "	"	544
179. Trap	" 25, "	" 7, "	"	549
180. Mizzou	" 25, "	" 7, "	"	554
181. Maux	" 25, "	" 7, "	"	552
182. Bird	" 25, "	" 7, "	"	553
183. Foot	" 25, "	" 7, "	"	545
184. Eye	" 25, "	" 7, "	"	548
185. Spike	" 25, "	" 7, "	"	555
186. Bead	" 25, "	" 7, "	"	550
187. Heel	" 25, "	" 7, "	"	554
188. Dutch	March 22, 1955	April 29, 1955	346	317
189. Crab	" 22, "	" 29, "	"	316
190. Twig	" 22, "	" 29, "	"	315
191. Tooth	" 22, "	" 29, "	"	314
192. Otter	" 22, "	" 29, "	"	313
193. Mink	" 22, "	" 29, "	"	312
194. Whisker	" 19, "	" 29, "	"	311
195. Jack	" 19, "	" 29, "	"	310
196. Jeep	" 19, "	" 29, "	"	309
197. Rock	" 19, "	" 29, "	"	308
198. Teton	" 23, "	" 29, "	"	307
199. Cub	April 15, "	" 29, "	"	306
200. Hub	" 15, "	" 29, "	"	305
201. Bub	" 15, "	" 29, "	"	304

AMENDED FILINGS

	NAME	AMENDED	BOOK	PAGE	AMENDED	BOOK	PAGE
43.	Bean	April 29, 1955	346	295			
44.	Carbine	" 29, "	"	296			
45.	Willow	" 29, "	"	298			
46.	Zeke	" 29, "	"	301			
47.	Blade	" 29, "	"	302			
25.	Gunflint	" 29, "	"	300			
26.	Jib	" 29, "	"	303			
49.	Boot	" 29, "	"	294			
78.	Canuck	" 29, "	"	297			
103.	Gloria	Nov. 10, 1954	342	36			
104.	Rainey	" 10, "	"	38			
105.	Loonhaunt	" 10, "	"	37			
106.	Bend	" 10, "	"	37			
107.	Hermit	" 10, "	"	36			
108.	Ruth	" 10, "	"	35			
109.	Dinosaur	" 10, "	"	34			
110.	Woodchuck	" 10, "	"	41			
111.	Redgut	" 10, "	"	40			
112.	Sherwood	" 10, "	"	40			
113.	Dotty	" 10, "	"	39			
114.	Floyd	" 10, "	"	50			
115.	Linklater	" 10, "	"	27			
116.	Amatrine	" 10, "	"	42			
117.	Columbine	" 10, "	"	27	May 22,'54	338	169
118.	West Hole	" 10, "	"	28			
119.	Kotan	" 10, "	"	2			
120.	High Noon	" 10, "	"	29			
121.	Gigi	" 10, "	"	29			
122.	Sherry	" 10, "	"	30			
123.	Pay Day	" 10, "	"	30			
124.	Speakeasy	" 10, "	"	31			
125.	Lazy-Y	" 10, "	"	31			
126.	Rusty Saddle	" 10, "	"	32			
127.	Corann	" 10, "	"	33			
128.	Pink Lady	" 10, "	"	32			
136.	Pothole	" 10, "	"	39	April 29,'55	346	299
137.	Midnight	March 18, 1955	344	414			
138.	Serpent	" 18, "	"	401			
139.	Aspen	" 18, "	"	415			
140.	Wabagoon	" 18, "	"	421			
141.	Frenchie	" 18, "	"	420			
142.	Capri	" 18, "	"	410			
143.	Clyde	" 18, "	"	416			
144.	Mary Ann	" 18, "	"	413			
145.	Countless	" 18, "	"	411			
146.	Stevie	" 18, "	"	418			
147.	Lazy-4U	" 18, "	"	412			
148.	Wayne	" 18, "	"	417			
149.	Cecelia	Nov. 10, 1954	342	33	Mar. 18,'55	344	383
150.	Mulick	March 18, 1955	344	419			
151.	Harvey	Nov. 10, 1954	342	34	Mar. 18,'55	344	386
152.	Twosome	" 10, "	"	35	" " "	"	385

AMENDED FILINGS

	NAME	AMENDED	BOOK	PAGE	AMENDED	BOOK	PAGE
153.	Hogleg	Nov. 10, 1954	342	41	Mar.18,'55	344	384
154.	Blue Frost	March 18, 1955	344	387			
155.	Bannock	" 18, "	"	388			
156.	Burrow	" 18, "	"	389			
157.	Kapstickamack	" 18, "	"	391			

PRELIMINARY ECONOMIC EVALUATION
of
THE CUNAC THORIUM PROPERTY
in
Fremont County, Colorado

Sigurd K. Herness.

MINERALS EXPLORATION RESEARCH CORPORATION
CONSULTANTS AND CONTRACTORS IN MINERAL EXPLORATION, EVALUATION, DEVELOPMENT AND EXPLOITATION
MAIN OFFICE 2120 FORD STREET GOLDEN, COLORADO PHONE 937
DISTRICT OFFICE 1103 WHITE STREET GRAND JUNCTION, COLORADO PHONE 241

PRELIMINARY ECONOMIC EVALUATION
of
THE CUNAC THORIUM PROPERTY
in
Fremont County, Colorado

10. LOCATION

The Cunac thorium property is approximately fifteen miles southwest of Canon City, Colorado, on the northwest-trending axis of the Wet Mountain.

20. GEOLOGY

21. REGIONAL SETTING: The property is on the northwest-trending metallogenic axis which is coincident with the Wet Mountain axis. Many areas of noteworthy thorium mineralization occur on this axis to the southeast of the Cunac properties, and have been described in United States Geological Survey Circular 90. Silver, lead, zinc, and gold mineralizations on this metallogenic trend are at Querida, Rosita, Ilse, and many other Wet Mountain localities. The Wet Mountain country rocks are pre-Cambrian phanerites, pegmatites, and gneisses varying in composition from granitic to basic. Most of the rocks, however, are granites, granite pegmatites and granite and pegmatite gneisses.

22. LOCAL GEOLOGY:

22.1 PETROLOGY:

22.11 Pre-Cambrian Rocks: Most of the rocks are granite and granite gneiss. Many pegmatite bodies occur either as schlieren masses and extension fracture dikes, and occasional pre-Cambrian basic dikes were observed.

22.12 Tertiary Rocks and Effects: The vein material consists of siderite, specularite, limonite, quartz, and occasional barite. Assays show appreciable thorium and cerium. Previous operations were directed to development of gold and silver. Hydrothermal sericitic alteration-bleaching is evident along veins.

23. SPACE RELATIONSHIPS:

23.1 AREAL GEOLOGY: No distribution pattern of the pre-Cambrian rock facies was discernable in the limited examination time available to the writer.

The Tertiary vein mineralization is elliptical in shape with the major axis trending northeast.

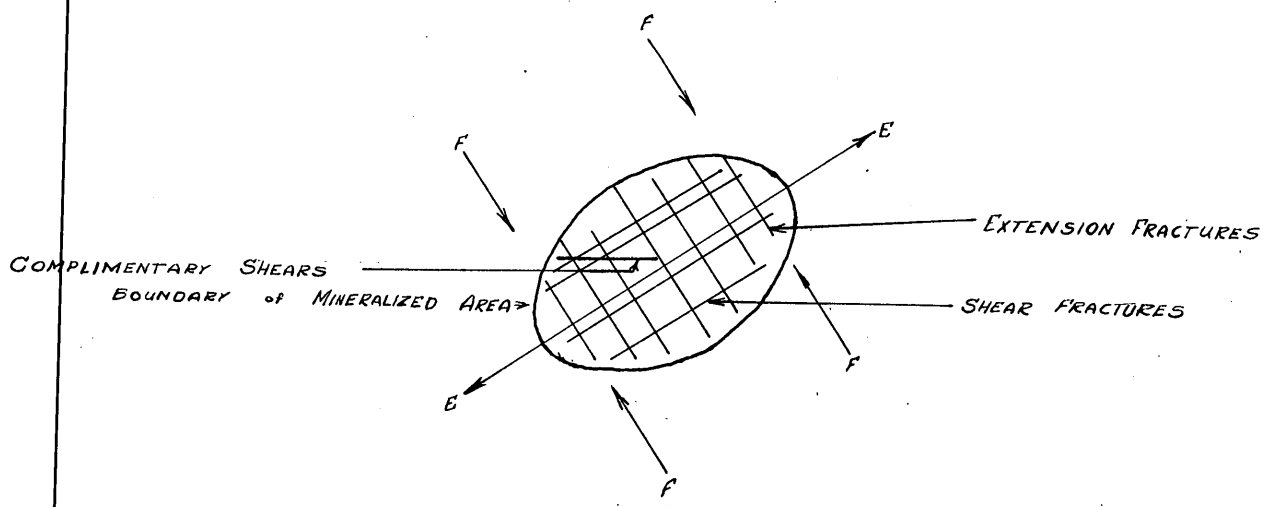
23.2 STRUCTURAL GEOLOGY: The pre-Cambrian foliation strikes roughly east-west and dips 30 to 50° north. Pegmatites and basic dikes are normal to the gneissic foliation.

Two major and one minor vein systems are evident. One major system strikes northwest (in a direction normal to mineralized area maximum elongation) and dips from 60° to 90° southwest. A second system strikes northeast (in a direction parallel to maximum elongation) and dips 30° to 45° northwest. A minor system strikes east-west and dips 80° south.

24. TIME RELATIONSHIP: The country rocks of the area are pre-Cambrian in age.

The mineralization is of Tertiary Age as evidenced by the moderate to low vein mineralization intensity, well developed sericitic wall rock alteration, and independence of pre-Cambrian foliation structure. The well-developed extension fracture veins are likewise indicative or Tertiary age.

25. ORE GENESIS: The vein fractures are the result of compressive tectonism. The northwest-trending system is extension fractures normal to maximum elongation, whereas the northeast system is sheared parallel to maximum elongation and normal to direction of compressive forces. Minor east-west veins represent complimentary 45° oblique shear fractures.



30. ECONOMIC EVALUATION

There is little doubt that the ore shoots are of substantial size and that this is a major thorium-cerium mineralization.

31. RADIOACTIVITY as evidenced by readings on nucleometers and geiger counters indicates that the thorium oxide content at numerous places is several percent.

32. Analyses for uranium, thorium, and cerium were made available to the writer and are listed on following page.

Claim	%ThO	%U_3O_8	%Ce
Fools Delight		0.26	
Lazy Y	0.42		
Pink Lady	7.33		
Margaret	1.49		17.40

Analysis of samples cut at the time of the examination have not been completed at this writing.

33. THE TERTIARY HYDROTHERMAL ORIGIN of the deposits is a further favorable criteria of major potential.

34. STRUCTURAL RELATIONSHIPS are a favorable criteria of magnitude potential. The fact that the veins fall into definite systems as typified by major vein districts in the western states is indicative of major potential. In all major Tertiary vein districts, the elongation of the mineralized area is normal to the direction of compression, and the major extension, minor shear, and subsidiary oblique fractures are readily identified. The major economic metallization is expected on northwest-trending extension fractures, although important production may be developed on the northeast-trending shears.

35. HYDROTHERMAL ALTERATION of sericitic type is extensive along the veins and is a favorable criteria of extensive hydrothermal activity.

40. MARKETABILITY

41. THORIUM: The AEC at the present time has no program for buying ores rich in thorium. They are interested but will pay for only the uranium in an ore with thorium and the rare earths. Several companies will buy the concentrate. They are listed below. The price ranges from $250 to $300 per ton running 50% rare earths or over. These companies prefer 60% or over; however, ores with a thorium content of 8% or 9% may find a market. A concentrator at the property would probably be necessary after sufficient reserves are developed. The present sale is on a contract market.

Lindsay Chemical Co.
258 Ann Street
West Chicago, Ill.

General Cerium Co.
Edgewater, N. J.

Rare Earths, Inc.
Box 488
Pompton Plains, N. J.

Cerium Metals Co.
Niagra Falls, N. Y.

Maywood Chemical Co.
100 West Hunter Ave.
Maywood, N. J.

New Process Metals Co.
Newark, N. J.

Foote Mineral Co.
18 West Chelten Ave.
Philadelphia 44, Pa.

The Dickerson Co., Inc.
Fifth & Chestnut Streets
Philadelphia 6, Pa.

There seems little doubt that thorium will undoubtedly be increasingly in demand for chemicals, alloys, and atomic energy.

42. CERIUM: Recent discovery of large bastnaesite deposits at Mountain Pass, California has caused a present oversupply of cerium and other rare earth metals. However, much research is being done on new uses for cerium, especially in alloys. An abundant supply of cerium will undoubtedly facilitate its use in many new industries where formerly the supply was too limited.

50. CONCLUSIONS

The property appears to be one of favorable potential expectancy. In view of limited development, however, no tonnage or grade estimates are in order at this time. The property merits development on the basic of reserve expectancy and market outlook.

60. RECOMMENDATIONS

Investigations should preceed exploration expenditures in order that systematic low cost ore development may proceed.

61. GEOLOGICAL INVESTIGATION: Semi-detail geological mapping on a scale of 1" = 200' should be undertaken in order to delineate boundaries of the mineralized area, correlate veins laterally, determine most favorable host rocks, and delineate ore shoots.

62. GEOPHYSICAL INVESTIGATIONS:

62.1 MAGNETIC SURVEYS should be executed to lend corroborative evidence of the relationships and correlations determined as a result of geological and magnetic investigations. An airborne survey should be checked by ground scintillometer observation. An isorad map should then be prepared.

63. DEVELOPMENT: Diamond drilling should follow execution of the above recommendations, and no mining operation should be attempted before completion of development drilling. It is believed that systematic drilling executed on substantial reserves at relatively small cost.

Respectfully submitted,

Sigurd K. Herness

MINERALS EXPLORATION RESEARCH CORPORATION
CONSULTANTS AND CONTRACTORS IN MINERAL EXPLORATION, EVALUATION, DEVELOPMENT AND EXPLOITATION
MAIN OFFICE 2120 FORD STREET GOLDEN, COLORADO PHONE 937
DISTRICT OFFICE 1103 WHITE STREET GRAND JUNCTION, COLORADO PHONE 241

APPENDIX

Atomic Energy Commission
Denver, Colorado

DEB:RCD

September 1, 1954

Cunac Minerals, Inc.
1701 Franklin Avenue
Canon City, Colorado

Attn: Robert H. Bliss

Dear Mr. Bliss:

We are enclosing the results of 33 samples from Fremont County, Colorado which you submitted to us for analysis.

The AEC is not purchasing monazite at the present time, however, if the Th mineral is not monazite it may be that a concentrate or end product could be produced which would be acceptable to the AEC. We would be interested in investigating any deposits of thorite or some similar mineral containing several million tons of ore carrying plus 8 percent Th.

We would be interested in hearing from you regarding further development of your properties, and if we can be of further service to you, please do not hesitate to contact us.

Very truly yours,

Raymond C. Derzay, Acting Chief
Colorado District

Encl: as mentioned

- COPY -

Field Number:	Location:	Description:	$\%U_3O_8$:	$\%U_3O_8$:	$\%ThO_2$:
F-11248	Grape Creek	Dump	0.15	0.001	0.74
F-11249	Stevie	2' depth	0.06	0.001	0.29
F-11250	Gigi	3' depth	0.03	-	-
F-12544	Highnoon	6' depth	0.03	-	-
F-12545	Corann	3' depth	0.04	-	-
F-12546	Serpent	6' depth	0.66	0.001	3.19
F-12547	Buddy	2' depth	0.07	0.001	0.33
F-12548	Grape Creek	Side of hill	0.90	0.001	4.33
F-12549	Kotan	Hole No. 2	0.11	0.001	0.54
F-12550	Amatrine	4' depth	0.02	-	-
F-12682	Lazy 4-U	4' depth	0.50	0.002	2.50
F-12683	Pink Lady #2	5' depth	0.61	0.001	2.96
F-12684	Speakeasy	5' depth	0.02	-	-
F-12685	Pink Lady #1	5' depth	0.15	0.001	0.74
F-12686	Lazy Y	7' depth	0.30	0.001	1.42
F-12687	Lazy 4-U	Surface	0.64	0.001	3.08
F-12688	Rusty Saddle	5' depth	0.14	0.001	0.68
F-12689	Sherry #1	7' depth	0.20	0.002	0.96
F-12690	Kotan #1	1' depth	0.01	-	-
F-12691	New Mexico	Surf. hill #2	0.28	0.030	1.23
F-12692	Frenchie	3' depth	0.54	0.001	2.62
F-12693	New Mexico	14' depth	0.48	0.017	2.26
F-12694	Sherry #2	4' depth	0.11	0.001	0.54
F-12695	Amatrine	5' depth	0.06	0.002	0.27
F-12696	West Hole	6' depth	0.01	-	-
F-12697	Cecilia	Surface	0.45	0.057	1.89
F-12698	Capri	7' depth	0.05	0.001	0.24
F-12699	Frenchie	"rock"	0.30	0.001	1.42
F-12700	Lazy Y #2	-	0.57	0.001	2.73
F-19923	Pay Day #2	3' depth	0.04	-	-
F-19924	Pay Day #1	3' depth	0.13	0.001	0.63
F-19926	Bell #2	-	0.033	-	-
F-19927	Bell #1	-	0.24	0.004	1.12

The term eU_3O_8 is equivalent uranium oxide as determined radiometrically; shipments of uranium ores are paid for the U_3O_8 content which is a chemical analysis; $eThO_2$ is equivalent ThO_2 as determined by the difference in radiometric and chemical uranium content multiplied by a factor.

LINDSAY CHEMICAL COMPANY
West Chicago, Illinois

ORE PROSPECTING REPORT

To: HEK

From: GFT

cc:

Date: Oct. 15, 1954

Prospect:

Cunac Minerals, Inc.
Robt. H. Bliss
1701 Franklin St.
Canon City, Colo.

Ph.--1157-W

Robert Bliss whose home is at the above address is a fellow about 35 years of age and is a salesman for the Celotex Company in southern Colorado and northern New Mexico. He is on the road most of the time during the week and spends weekends on the property. Other men in the company whom I met at Bliss' home on September 24 were Frank Rhoads who is a former teacher of Chemistry at the Pueblo Junior College and is at present in the contracting business, Ivan Ashley who is a Geologist formerly from Alamosa, Colorado and has staked some claims for them over near Monticello, Utah as well as some of those in this area, and Harvey Bishop who is a former employee of the Ordnance Depot in Pueblo now living at a trailer court in Canon and as of the 1st of October is living at the camp on the property.

These last three men accompanied me to the property in a Jeep belonging to the company. The property is best reached by going South of Canon City 16 miles on the Oak Creek road to an old ranch house on the West side of this road; turn West and go 3 miles to the Cunac camp on Grape Creek where they have several tents and a cook shack. The property is only accessible to narrow Jeep due to the narrow road between some of the large boulders and the canyon wall. Charles and Edward Inglebrecht are staying at the camp doing prospecting and discovery.

On the first visit, they were supposed to have staked about 140 claims and since have staked many more, making possibly 200 in all. The work for discovery has been done on a few of them but on most they have only a 4 or 5 ft. hole. They have been trying to do the work using an old gasoline hammer and hand steel but have gone about as far as possible with these methods and will be forced to get an air compressor in the near future. They plan on getting a dozen in the near future to improve the roads to some of the various claims. About half of the claims can be reached at present by Jeep roads, others by walking distances of not more than a half mile. Most of the new claims added since the map of August, 1954 are on the south and west and are all tied in as a group.

The major rock formations in this area, typical of the Westcliffe occurrences seen thus far, are Pre-Cambrian granites, gneisses, schists, and quartsites profusely injected in many places. There are many pegmatites from stringer size up to several feet in thickness. The main fracture zones seem to be in an east-west direction with usually up to 15° variance to the north or south. There are other fractures where Thorite mineralization occurs at about N 50° W and N 50°E. Dips are generally from 75° to 80° with a few flat-lying at 45° or less.

Barite occurs in most of these Thorium-bearing zones along with the iron-bearing minerals hematite, limonite, and magnetite in some of them.

The better claims as regards width of vein and radioactivity occur in the eastern part of the property and the most work was done on a few of these, although dozens of others were examined and sampled briefly. Transportation is the hindering factor to a more complete examination in the short time available. About ten of the samples taken were discarded after being checked radiometrically and compared with others. These should be reported as having the same Thorium content as the one on which sheet they appear.

The best of the claims seen are the Grape Creek, Pink Lady, Lazy Y, and Serpent. The general amount of RA in the area of the Grape Creek is much higher than most places. The Grape Creek is one of a group of three claims on which Cunac has a leasing arrangement with Orin Wagner of Canon City. It is an old Silver property having been last worked 50-60 years ago. Parts of the old hoist and boiler are still there and some rails and pipe. There are two shafts about 75 ft. apart and dumps on them which contain about 375 yds. of material which shows good RA throughout. The lower shaft is probably about 60 ft. to water level. There is another shaft on this vein about 500 ft. to the west which also contains this same type of rock very high in Barite. These dumps would contain at least 500-700 tons of material similar to samples 549130 and 549145.

At the present time it is necessary to walk about .5 miles to get to the outcrop on the Pink Lady which was sampled. They propose to put a road to this claim from Hambone Gulch as soon as they are able to get a dozer in to the camp. This particular outcrop is at least 30 ft. wide and parts of it are covered by overburden, but at nearly every point checked with the scintillator the RA is higher than at most other claims on this property. There are probably 10,000 tons of material at this outcrop which could be obtained with relatively cheap surface mining with much more available adjacent to it, altho it is doubtful if the width of 30 ft. would continue for any great distance. This should be fairly well represented by Sample 549146. The sample taken previously, No. 549132, was more or less salted by one of the men along and will not be representative of anything other than the 15 in. high grade part of the vein in the discovery hole.

The Serpent lies on the strike of the Grape Creek vein and shows good mineralization on an 8 ft. face in the discovery shaft.

The Lazy Y lies along the Jeep road and the vein outcrops in several places in this canyon showing varying degrees of RA. That on the middle of the 3.5 ft. vein in the discovery hole is the highest seen in RA on the property, 13 MR/HR. An 8 ft. channel sample was taken at one of the outcrops in the canyon 500 ft. east of the discovery hole. Here the RA is comparatively good, .3 to 2.5 M/H across the vein. There are several thousands of tons of this type of material easily obtainable at this outcrop.

Many of the other claims seen show high RA, also, and are probably capable of producing substantial tonnage. These were taken as the best because of the tonnage readily available and the ease with which they can be reached after a road is put from the Oak Creek grade to the camp on Grape Creek. This is going to entail building about 2.5 miles of road down Bear Gulch which will require from 5 days to 2 weeks for a road good enough to handle large trucks. After that, many weeks could be used in building roads to the various claims, depending upon the number desired and the quality of surface.

There is considerable water in Grape Creek most of the year but it is very doubtful if any of it would be available for milling. This is the outlet from LeWeese Reservoir near Westcliffe to the Arkansas River and is a privately owned irrigation project of some group of farmers down the river from Canon City. It seems very likely that all the ore would have to be hauled for milling into Canon City, a distance of about 20 miles.

This is without a doubt the best concentration of potential Thorium ore seen on any one group of claims and is capable of producing a large amount of tonnage. I have told these boys that we are not too much interested in the Rare Earth content at present, and then only on a total oxide basis rather than for any value based on a particular element. (As usual, they have ideas of something worth thousands of dollar per pound!) Also, that we are interested in getting a Thorium concentrate of 10% minimum but can only offer about $1.00 per lb. of contained ThO_2 at present.

They appear to be pretty long on ambition and short on ready cash. I don't know if they are selling stock, but imagine that Bliss is putting in some cash to maintain the camp and do the discovery work, and Rhoads may be also, but it is doubtful if any of the others whom I have met are donating anything other than work.

Rhoads indicated a willingness to work out a deal with us whereby they mill the stuff up to a 10% conc. of ThO_2 plus whatever REO would be contained on some sort of an arrangement whereby they

would be allowed to compensate for one shipment on the next in the event the grade fell below requirements, we making them an offer of the best possible price for both Thorium and Rare Earths.

I doubt if they realize that a mill of any sort at all will cost at least 50 thousand, plus road building and much mining equipment, trucks, etc. I don't know what they have in mind but believe that we should, if possible, go along with them on a deal to buy any concentrates which they may be able to produce in the future.

G. F. Tom

- COPY -

LINDSAY CHEMICAL COMPANY
West Chicago, Illinois

ORE PROSPECTING REPORT

Prospect:

Cunac Minerals, Inc.
Robert H. Bliss
1701 Franklin Street
Canon City, Colorado

To: HEK

From: GFT

cc:

Date: Dec. 10, 12, 1954

On this latest visit to the Cunac property, I drove in using a company Jeep. The road down Bear Gulch is ice covered but still easily passable, sometimes chains being needed, especially in coming out. I was out the first day with Harvey Bishop who is living at the property and along with Chas. Inglebretsen and Lloyd Stover is doing the discovery work on this group of claims. At the present time they have staked out over 200 claims, most of which contain outcrops of Thorium-bearing rock.

On Saturday, Bob Bliss came down to the property with Ed Anderson, a retired building contractor of Pueblo, and Chas. Denton, a road contractor from Raton, N.M., both members of the corporation. Present plans include Denton's mining and hauling of the ore when operations are begun.

Ed Anderson has been investigating the possibility of securing the mill at Parkdale for the processing of these Thorium-bearing materials. He says that it is owned by the International Chemical Company and that there is a Govt. lien against it for a considerable amount, also that the original cost was over $1 million and that it could be secured for $300,000. I have understood previously that some of the equipment has been moved and sold. There is a 100-ton crusher, leaching tanks, concrete storage tanks, a railroad siding, water rights, and better than 250 acres of ground. The ball or rod mill has been taken away and I do not know if there were float cells or tables in the original flowsheet, or not. They think that they could get a Govt. Production loan to refit the mill as required for Thorium concentration. I could not enlighten them as to cost as I don't know what type of equipment would be required for separation, but it surely would not be a gravity separation, entirely, due to great slime losses in this type material.

They spoke of a 500 ton per day operation but evidently have little conception of the huge amount of mining and milling equipment which this would require. They also seem to think that there will be considerable strip or surface mining but actually most of the mining will be underground. In some instances there is a possibility of trenching some of these more vertical veins but due to their narrow width this would not be very satisfactory and would not be practicable for large tonnage or great depth.

The northwestern part of the property along Pine Gulch is about 20 miles from Parkdale with a good road most of the way which is maintained by the County. This would be the ideal route to follow in trucking the ore from this property. Parkdale would also be ideally situated in respect to Westcliffe, being about 40 miles from there. It is approximately 60 miles from Colorado Springs and located on the D & R G W RR. and the Arkansas River.

Bliss and Anderson have told me that they believe that with a price of $1.50 per lb. for a 15% ThO_2 concentrate they can make out, figuring a 2% average for the ore which they would mine. Denton says that he will mine, load, and haul it to Parkdale or Canon City for $15 per ton. This figure is dependent upon our working out the metallurgical problems of initial separation and recommending equipment adapted to the upgrading of this material. I have told Bob that they should figure on a 1% ore for any great tonnage, although 2% could be selectively mined from a few places. Most of the samples they have taken have been selected ones, while the ones I have submitted have been taken across the veins, generally at a mineable width. These latter ones show about .6% ThO_2, average.

G. F. Tom

COPY COPY COPY

CUNAC SAMPLES ANALYZED BY LINDSAY CHEMICAL CO.

Lindsay Analysis Number	Date Received	Submitted by	Mark	%ThO_2	% Rare Earth Oxide
547115	7/14/54	Cunac	#1	2.2	3.1
547116	7/19/54	Cunac	#2	2.4	4.0
547117	7/20/54	Cunac	Pink Lady type rock in Mtn.	5.7	1.9
547118	7/20/54	Cunac	Lazy-Y 6 ft.	3.3	1.2
547119	7/20/54	Cunac	Grape Creek - 4 ft. side	2.3	0.5
547120	7/20/54	Cunac	Sherry #2 - 5 ft.	0.6	0.4
547121	7/20/54	Cunac	Gigi, 3 ft.	nil	7.0
547122	7/20/54	Cunac	Corann - 6 ft.	nil	nil
547123	7/20/54	Cunac	Frenchie - 3 ft.	1.4	0.2
547124	7/20/54	Cunac	Harvey - 4 ft.	0.4	2.5
547125	7/20/54	Cunac	Sherry #1 - 6 ft.	0.7	3.0
547126	7/20/54	Cunac	Lazy - 4U - 9 ft.	1.7	2.1
547127	7/20/54	Cunac	Rusty Saddle - 5 ft.	1.1	3.5
547128	7/20/54	Cunac	Kotan - 5 ft.	1.1	1.3
547129	7/20/54	Cunac	Margaret - 6 ft.	1.7	21.4
547130	7/20/54	Cunac	Pink Lady side of cliff	1.6	0.7
547131	7/20/54	Cunac	Grape Creek - 40 ft. depth	0.9	1.2
547132	7/20/54	Cunac	Serpent - 6 ft.	1.6	0.4
547133	7/20/54	Cunac	Blue Hill	nil	nil
549130	9/24/54	Lindsay	Grape Creek	1.2	2.7
549131	9/24/54	Lindsay	Serpent - 8 ft.	0.6	0.1
549132	9/24/54	Lindsay	Pink Lady (high grade)	2.0	0.7
549133	9/24/54	Lindsay	Amatrine - 7 ft.	0.3	1.0
549134	9/24/54	Lindsay	Sherry #2 Hole - 3.5 ft.	0.5	0.2
549135	9/24/54	Lindsay	Sherry Discovery Hole - 4 ft.	0.6	1.7
549136	9/24/54	Lindsay	Margaret - 1.5 ft.	1.2	13.3
549137	9/24/54	Lindsay	Rusty Saddle - 1 ft.	0.5	3.6
549138	9/24/54	Lindsay	Lazy Y - 8 ft.	2.1	0.8
549139	10/20/54	Lindsay	Gigi Dump - 6 ft.	0.5	6.9
549144	10/20/54	Lindsay	Grape Creek Discovery	0.5	0.7
549145	10/20/54	Lindsay	Grape Creek Dump	0.2	0.3
549146	10/20/54	Lindsay	Pink Lady - 30 ft.	0.1	0.4
549147	10/20/54	Lindsay	Stevie Discovery - 3.5 ft.	0.1	1.8
549148	10/20/54	Lindsay	Elaine - 5 ft.	0.1	1.0
549149	10/20/54	Lindsay	Frenchie Black Rock (float)	3.8	0.4
549150	10/20/54	Lindsay	Thurston Discovery - 2 ft.	0.3	7.1
549151	10/20/54	Lindsay	Maggie Discovery - 2.5 ft.	0.5	2.9
549152	10/20/54	Lindsay	Hermit Discovery - 2 ft.	0.08	0.8
549153	10/20/54	Lindsay	Lazy Y Cliff - 8 ft.	0.4	0.9
547202	11/24/54	Cunac	Dome Sample	7.4	0.2
549182	12/23/54	Lindsay	Bob Cat Discovery - 1.5 ft.	0.2	0.1
549183	12/23/54	Lindsay	Chime - 4 ft.	0.2	0.1
549184	12/23/54	Lindsay	Yellow Hill - 15 inches	0.7	1.0
549185	12/23/54	Lindsay	Irene - 1.5 ft.	0.4	1.4
549186	12/23/54	Lindsay	Capri - 4 ft.	nil	0.1

PERSONNEL

MINERALS EXPLORATION RESEARCH CORPORATION
CONSULTANTS AND CONTRACTORS IN MINERAL EXPLORATION, EVALUATION, DEVELOPMENT AND EXPLOITATION
MAIN OFFICE 2120 FORD STREET COLDEN, COLORADO PHONE 937
DISTRICT OFFICE URANIUM CENTER GRAND JUNCTION, COLORADO PHONE 241

PERSONNEL

"There is no substitute for ingenuity and personal judgement, especially in a vocation which--is fully as much of an art as a technology."
Hugh Exton McKinstry, "Mining Geology"

Geologist-geophysicists are the persons who can properly utilize effective techniques, procedures, and principles in the search for ore deposits. For example, a certain geophysical technique may be effective in delineating one type of deposit and still be ineffective in the discovery of other types. Geophysicists who have no knowledge of mining geology are just as incapable of making decisions concerning the most effective geophysical technique as the geologist who has no geophysical background. Geologist-geophysicists or geologist-geochemists are needed to make intelligent decisions. The MERCO technological group is composed of such men. There are still no "magic wands" available to the mining industry in its search for ore deposits. This conclusion implies that exploration can be most effectively conducted by personnel who individually and collectively possess a broad technological and scientific background in geology, geophysics, and geochemistry.

Teamwork involving many skills are essential to effective exploration, and the final conclusions are only as valid as the data on which they are based. Data in time is only as valid as the training ability and skill of each worker. For example, it is impossible to produce a good scintillation isorad map even with the best aircraft, instrumentation, and technologists but without highly skilled and experienced pilots. The MERCO organization has been assembled with this viewpoint in mind, and each person on the staff has been retained on the basis of specific superior qualifications.

The following resume's of personnel illustrated the varied background of the MERCO personnel as industrial, and research geologists. The group possesses extensive experience in regional large scale exploration as well as detailed operating geology and geophysics.

PERSONNEL

Sigurd Kermit Herness - Geologist-Geophysicist

Age: 44

Education

University of Minnesota School of Mines, Engineer of Mines (Mining Geology) 1936.

Colorado School of Mines 1948-1954, Completed doctorate studies 1954. Mining geology major, geophysics, minor; Thesis: "Applied Mineral Exploration";
Part I, "Genesis of Hypogene Ore Deposits", Part II, "Geological and Geophysical Representation and Interpretation", Part III, Geophysical and Geochemical Procedures".

Company Affiliations

Southern Pacific Railroad	Exploration consultant and Director of personnel training		1954-1955
Kennecott Copper Corp.	Exploration Research	Consultant	1952-1954
Kennecott Copper Corp.	Director of Geol. Personnel training	Consultant	1952-1953
Moulden Mining Co.	Argenta, Montana	Consultant	1951-1953
John Hopkin Smith	Aspen, Colorado	Consultant	1951-1953
Quick Way Shovel Co.	Denver, Colorado	Consultant	1952
U. S. Lead Corp.	Denver, Colorado	Consultant	1952
Colorado School of Mines	Golden, Colorado	Instructor	1948-1954
Mont. Bureau of Mines and Geology		Consultant	1948-1954
Montana School of Mines	Butte, Montana	Instructor	1947
Jardine Mining Co.	Jardine, Montana	Consultant	1946-1947
Denver Development Co.	Montana	Consultant	1944-1947
Anaconda Copper Mining Co.	Butte, Montana	Geologist	1939-1946
Middle Fork Mining Co.	Mother Lode,	Geologist	1938-1939
(International Minerals and	Metals Co.) Calif. and	Engineer	
Gilt Edge Mines,	Deadwood, So. Dakota	Engineer	1938
Anaconda Min. and Milling Co.	Deadwood, So. Dakota	Geologist	1936-1937

Experience

Applied or Operating Geology and Engineering:

An ore finding record in the Butte district, measured in terms of ore discovered per foot in development, has been surpassed by no other Anaconda Copper Mining Co. geologist. As a consultant at the Jardine, Montana, tungsten-gold property, complex geology controlling ore localization was solved. Other consulting assignments in the western states have contributed extensive experience involving varied geology. Regional exploration was the main field of activity during 1952-1954 as a consultant to the Kennecott Copper Corporation.

Research:

Geological mapping and representation research has been executed during the past twelve years. A text covering this subject was

prepared and was used as a basis for mining geology instruction at the Colorado School of Mines. (The complete text will be published in 1955 under the title "Applied Mining Geology".) A partial release of this text has been published in "Subsurface Geologic Methods", a symposium of papers by foremost geologists of the world. This symposium is used as a text at more than 30 universities and colleges. Ore genesis and localization research has been conducted during the past fifteen years while engaged as an industrial mining geologist, consultant, and teacher. The fields of research include: genetic or source control and ore localization criteria; flow structure as a guide to ore localization (this research led to a 300 percent ore-finding efficiency increase in the Butte district); time-source control and metallogenic zonation; hydrothermal alteration as related to ore localization; metal ion transport in ore deposition; a host-rock favorability series; physical criteria for ore-favorable host-rock recognition; structural controls as ore localization criteria; the western states tecto-metallogenic fabric; a systematic procedure for long-range regional survey of the western states was conducted for the Kennecott Copper Corporation; magnetic anomalies as a guide to tecto-metallogenic trends and pattern; structure as a regional metallogenic fabric criterion; hot springs as a metallogenic fabric criterion; metallization maps of the western states; relationship of helium to uranium deposits (in collaboration with Gerald Gould).

Teaching:

At the Colorado School of Mines, all courses pertaining to mining geology were taught. The mining geology course reorganization and field training has been recognized as the major contribution to the rapid growth of the mining geology option.

Consulting:

The duties and experience as a consultant have covered all mineral exploration phases. Geological and geophysical procedures have been utilized from provincial and regional investigations to detailed examinations and evaluations. Conducted geological and geophysical investigations and recommended all drill holes which led to discovery of Los Ocho uranium deposit, Gunnison, Colorado.

Publications

Published:

"Representation in Mining Geology" published in "Subsurface Geologic Methods", 1951.

"Airphoto Criteria of Ore Localization in the Corbin-Wickes Mining District, Montana", coauthor with William S. Levings, Photogrammetric Engineering, June, 1953.

"Mining Geology Training Program", Mines Magazine, July, 1953.

"Aerial Color Photography in Mineral Exploration", Uranium Information Digest, January, 1955.

"Magnetic Anomalies A Guide To Non-Magnetic Ore Localization", Mining World, June, 1955.

Manuscript Completed

"Geology and Ore Deposits of the Corbin-Wickes District, Montana", Montana Bureau of Mines and Geology.

Manuscript Nearly Completed

"Magma and Ore Solution Mobilization and Orogeny"
"Ore Solution Channelization"
"A Time-Source Channelization"
"A New Concept of Host Rock Favorability"
"An Ionic Theory of Ore Metal Transport"
"Tecto-Metallogenic Framework of the Western States"
"Mining Geology Representation"

Charles E. Melbye - Geologist-Geophysicist

Age: 28

Education

University of Minnesota, 1946-1948
Colorado School of Mines, 1948-1950; Geological Engineer 1950 expect to receive doctoral degree 1955; mining geology major and geophysics minor. Thesis: "Geology of Southwestern Colorado".

Company Affiliations

Southern Pacific Railroad	San Francisco, Calif.	Consultant	1954-1955
Kennecott Copper Corp.		Consultant	1952-1954
Armstrong Minerals Corp.	Washington, D. C.	Consultant	1952-1953
Kanarado Min. and Dev. Co.,	Ohio City, Colorado	Consultant	1952
Warm Spring Talc Mines	Shoshone, Calif.	Consultant	1950-1951
Telluride Mines, Inc.,	Telluride,	Geologist and Engineer	1951
Anaconda Copper Corp.		Geologist and Engineer	1950-1951
Southern Calif.Minerals Co.,	Shoshone, Calif.	Consultant	1950-1951
State of Colorado		Consultant	1950

Experience

Applied or Operating Geology and Engineering:

Experienced in all technical duties and phases pertaining to development and exploitation of ore deposits, including: Ore deposits sampling calculation and systematic assay recording; ore reserve calculation; geological mapping and interpretation; diamond drill core logging; surface and underground surveying; calculation, and map preparation; mill engineering and underground construction; claim litigation services.

Research:

Conducted or assisted in ore localization research as follows: Magnetic surveys, structure contouring and metallization studies to determine Western States tecto-metallogenic trends; fixed carbon-coal ratios as related to Colorado structural trends; relationship between geothermal gradients and structural trends; correlation of radioactivity index and relative host-rock favorability.

Teaching:

Instruction at the Colorado School of Mines in mineralography, economic geology, mining geology methods, field geology and

mineralogy. Instruction in mining geology field methods and geophysical techniques for the Kennecott Copper Corporation.

Consulting:
Regional magnetic investigations; solution of operating geological problems; geological and engineering system installations; exploration-examination for new orebodies; claim litigation services; pegmatite deposits evaluation; foundation geology investigations.

Publications
"The Economic Geology of the New Metals", Mines Magazine, Feb. 1953.
"Practical Geology as an Aid to the Small Miner", Mines Magazine, Feb.1954.
"A Manual of Geoelectric Procedures", Southern Pacific Railroad.
"A Manual of Geogravimetric Procedures", Southern Pacific Railroad.
"Geological Mapping" Uranium Information Digest, May, 1955.

Gerald E. Gould - Geologist-Geochemist

Age: 31

Education
Colorado School of Mines, 1941-1944, 1946-1947; Engineer of Mines (Mining Geology) 1947; expect to receive doctoral degree in 1955, major in mining geology and minor in geochemistry; Thesis: "Hydrothermal Alteration as Related to Ore Localization at Climax, Colorado."

Company Affiliations

Colorado School of Mines		Instructor 1952-1954
Kennecott Copper Corp.		Consultant 1952-1954
New Park Mining Co.,	Park City, Utah	Geologist and Engineer 1947-1951

Experience
Applied or Operating Geology and Engineering:
Active in all technical phases of ore exploration, development, and exploitation including: Executing geochemical and geophysical surveys; sampling of underground workings; calculation and systematic assay representation; ore reserve calculation; surface and underground geological mapping; diamond drill core logging; surface and underground surveying; calculation, and map preparation; cost accounting system installation.

Research:
Conducted research pertaining to ore genesis and localization as follows: Geochemical and geobotanical procedures in ore exploration, (sampling, analysis, and interpretation); spectrographic research to determine elements suitable for regional geochemical exploration; relationship of helium occurrences to major geological structures and uranium mineralization; X-ray diffraction and petrographic identification of hydrothermal alteration minerals.

Teaching:
Instruction at the Colorado School of Mines in crystallography, mineralogy, petrology and economic geology. Instruction in geochemical techniques for the Kennecott Copper Corporation trainees.

Consulting:
Regional magnetic investigations; advised Kennecott Copper Corporation on installation of geochemical laboratory. Prepared manual of Geochemical Procedures for Southern Pacific Railroad.

Stuart S. Merwin - Geologist-Geophysicist

Age: 32

Education
Colorado School of Mines, Geological Engineer 1952. Graduate studies 1953-1954, major in mining geology and minor in mining.

Company Affiliations

Kennecott Copper Corp.	Geologist 1953-1954
The New Jersey Zinc Co.	Geologist and Geophysicist 1952-1953
U. S. Lead Corporation	Consultant 1951-1952
Potash Company of America	Engineer 1949-1950

Experience
Applied or Operating Geology and Engineering:
Performed all technical duties pertaining to ore deposit development and exploration, including; regional and detailed geologic mapping; diamond drill core logging; ore reserve calculation; supervision of geochemical surveys; execution and interpretation of geophysical surveys (applied potential and magnetics); office and field supervision of technical exploration phases; surface and underground surveying, including all calculation and map preparation; acquisition of leases for exploration; miner.

Research:
Executed ore finding research as follows: Magnetic surveys; structural contouring and metallization investigations to determine Western States tecto-metallogenic trends; correlation of structural symetry and uranium localization.

Teaching:
Instruction in field mapping and geophysical techniques for Kennecott Copper Corporation.

Consulting:
Engineering consultant U. S. Lead Corporation.

Publications:
"The Use of the Magnetometer in Uranium Exploration", Uranium Information Digest.

Fred C. Hohne - Uranium Geologist

Age: 32

Education
Colorado School of Mines, Geological Engineer 1950.

Company Affiliations

Kerr-McGee Oil Industries Inc. (Navajo Uranium Division, Cove, Ariz.)		Mine Supt.	1952-1954
Dulaney Mining Co.	Grand Junction, Colo.	Geologist	1951-1952
Telluride Mines, Inc.	Telluride, Colo.	Geologist	1950-1951

Experience

Applied or Operating Geology and Engineering:

Experienced in all technical phases and duties pertaining to exploitation and development of ore deposits, specializing in uranium.

Publications

"Drilling and Evaluation of Uranium Ore-Bodies", Uranium Information Digest
"Underground Long Hole Exploration Programs", " " "
"Radiometric Assaying of Uranium Ores in Place", " " "
"How To Get Into the Uranium Business", " " "
(Uranium Information Digest published by Uranium Ore Producers' Assoc., Grand Junction, Colorado)

Franklin W. Baumgartner - Petroleum Geologist

Age: 27

Education

Clark University, A. B. 1950;
Colorado School of Mines, Graduate studies, 1951-1953.

Company Affiliations

F. W. Baumgartner, Oil Co.		Geologist	1 year
Colorado School of Mines		Instructor	2 years
Anschutz Drilling Co.		Geologist	2 years
Ray Campbell	Greeley, Colorado	Consultant	
Howard Glenn,	Fort Morgan, Colorado	Consultant	

Experience

Applied or Operating Geology and Engineering:

All phases of geology associated with the discovery, evaluation, and production of petroleum. Drilled first well in the Adena Field, Denver Basin.

Research:

Application of regional magnetics to the discovery of economic accumulations of petroleum.

Teaching:

Instruction at Colorado School of Mines in mineralogy and crystallography.

Consulting:

Evaluation of potential petroleum producing areas.

George M. Meshko

Age: 30

Company Affiliations

Frontier Airlines	Denver, Colorado	Co-Pilot	1951-1955

John Curry Flight School Denver, Colorado Dusting Pilot 1950
Colo. Aircraft Sales and Service, Alamosa, Colo.
Charter Pilot, Flight Instructor 1949-1950
Vest Aircraft Co. Denver, Colorado Ferry Pilot 1948-1949

Experience
Extensive airplane mechanic and flight engineer, training and experience; active in aviation both flight and engineering from 1942-1955.
CAA ground Instructor since 1949, 2 years flight instructing; served with 8th Air Force on B-17, 1943-1944, European theater of operations.

Ratings Held:
Airline transport pilot
Airplane multi-engine land Douglas DC-3
Commercial privileges airplane-single and multi-engine land
Flight instructor - Airplane
CAA Ground Instructor:
Civil Air Regulations
Meteorology
Navigation
Radio Navigation
Aircraft Engine Mechanic
Total Flight Time - 6000 hours.
4000 hours DC-3 - Balance of time crop spraying, Flight Instructing, Aerial Photography, Scintillation Surveys, Ferry Pilot.
Equipment flown-
DC-3, AT-6, BT-18, Beech D 18, Stagger Wing Beech, B-17's
Wide and varied experience on light aircraft.

Bradley J. Hurd, Jr. - Pilot

Age: 30

Education:
University of Wisconsin, 1946-1948.
University of Denver, 1948-1950, Bacheolor of Science-Business Administration.

Company Affiliations:
Frontier Airlines Co-Pilot 1951-1955
Montgomery Ward Asst.Mercandiser 1950
U. S. Army Air Force 1943-1945

Experience:
Flight: Airline transport pilot
Airplane multi-engine land - Douglas DC-3
Commercial Privileges Airplane S. and M. Eng. Land.
Consolidated PBY Land and Sea.
Total Flight Time - 6000 hours.
4000 hours DC-3, balance of time, crop spraying, scintillation surveys in light aircraft, time in B-26, AT-6, P-40, P-38, Beech D-18;

Business:
Asst. Merchandiser for Montgomery Ward mail order. Various sales and accounting jobs during college.

Harold Blakely - Uranium Geologist

Age: 30

Education:
Colorado School of Mines, Geological Engineer 1951

Company Affiliations
Experienced in following phases of mineral exploration development and exploitation; surface and underground geological mapping, supervision of exploration drilling programs, supervision of airborne radioactivity surveys.

Employed Senior Personnel

Karl Lambertson - Mining Engineer

Age: 31

Education:
Colorado School of Mines 1942-1944, 1947-1949 Engineer of Mines 1949.

Company Affiliations:

Livingston Mining Co., and Edgemont, So. Dakota	Dove Creek, Colo.	Engineer and Foreman 1951-1954
Star Mine,	Taylor Park, Colo.	Engineer and 1949-1951

Experience:
All engineering activities connected with the exploration, development and exploitation of mineral deposits including; surface and underground surveying, calculation and plotting of maps; surface and underground plant design and construction; planning and execution of diamond and wagon-drill exploration program; supervision of mining operations; supervision of research program to develop method of in-place leaching of low-grade uranium ores.

William Brown - Geologist

Age: 28

Education:
Lawrence College: Appleton, Wisconsin; B. S. (Geology Major) 1949
Colorado School of Mines, graduate studies 1951-1953

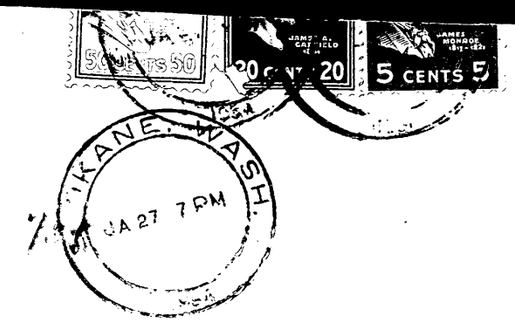
Company Affiliations:

Kennecott Copper Corp.	Computer
Molybdenum Corp. of America	Geological Assistant
Minerals Exploration Research Corp.	Geologist

Experience:
Regional and detailed geologic mapping, mine mapping, surveying, ore sampling, diamond drill core logging, magnetic survey calculations, ore reserve calculations, regional magnetic and structural contour research, radiometric surveys.

BUREAU OF MINES
1201 NORTH DIVISION STREET
SPOKANE 2, WASHINGTON

OFFICIAL BUSINESS



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

RIDGES
ORE HOLES
MEADOWS
OLD MINES
CABIN RUINS
JEEP + ACCESS ROADS
HIGH PEAKS
SADDLES
CORRALS

PRINCIPAL RIDGES + GULCHES DRAWN IN

ALL CLAIM CORNERS AND END CENTERS MARKED WITH WHITE PAINT.

RANGE LINE
T.20 S. R.72 W.
T.20 S. R.71 W.

CUSTER COUNTY LINE 2 MI.

TOWARD: SUNSHINE, CRISTO, TIMBERVILLE

TOWARD: IRON MOUNTAIN, TEXAS CREEK, SALIDA

TOWARD: GREEN MT. MINE, COAL PARK

TOWARD: DEAD MULE GULCH, DEWEESE, ROD, WESTCLIFFE

TOWARD: TEMPLE CANON PARK, CANON CITY

TOWARD: OAK CREEK GRADE ROAD, GRIFFEN RANCH

GRAPE CREEK

"CASTLE" MT.

"BUCK" MT. (HIGHEST POINT IN AREA)

"PACKRAT" RIDGE

"HIGHGONE" MT.

"HANBONE" GULCH

"RED EYE" CLIFF

BEAR GULCH

DEATH VALLEY GULCH

PIERCE GULCH

PINE GULCH

HIGH RIDGE POINTS (NORTH SIDE OF ORE ZONE)

HIGH RIDGE ROAD

ELLISON RANCH

SPRING

CUNAC CAMP

MAGNETIC VARIATION 14°

CUNAC MINERALS, INC.

THORIUM PROPERTIES

FREMONT COUNTY, COLORADO

APRIL, 1955

223 CLAIMS

1500 FT. SCALE

ONE-TENTH INCH = 150 FEET

FINAL MAP R.H. BLISS

BEAR GULCH GROUP CONNECTING WITH THE MAIN CUNAC GROUP ON WEST SIDE OF GRAPE CREEK

T. 20 S. R. 71 W.

1.2 MI. TO OAK CREEK GRADE ROAD

POSITIVE SECTION CORNER

CANON CITY QUADRANGLE

23

FOREST SERVICE

(1876' C. TO G. 335' EC. TO G.)

TANNER TRAIL COUNTRY

SHUTE PARK

WET MOUNTAIN RANGE

CURLEY PEAK

NOTE: Claim map revised from distorted photostat of unknown accuracy.

GEOLOGICAL RECONNAISSANCE AND CLAIM MAP

of

CUNAC MINERALS, INCORPORATED PROPERTIES

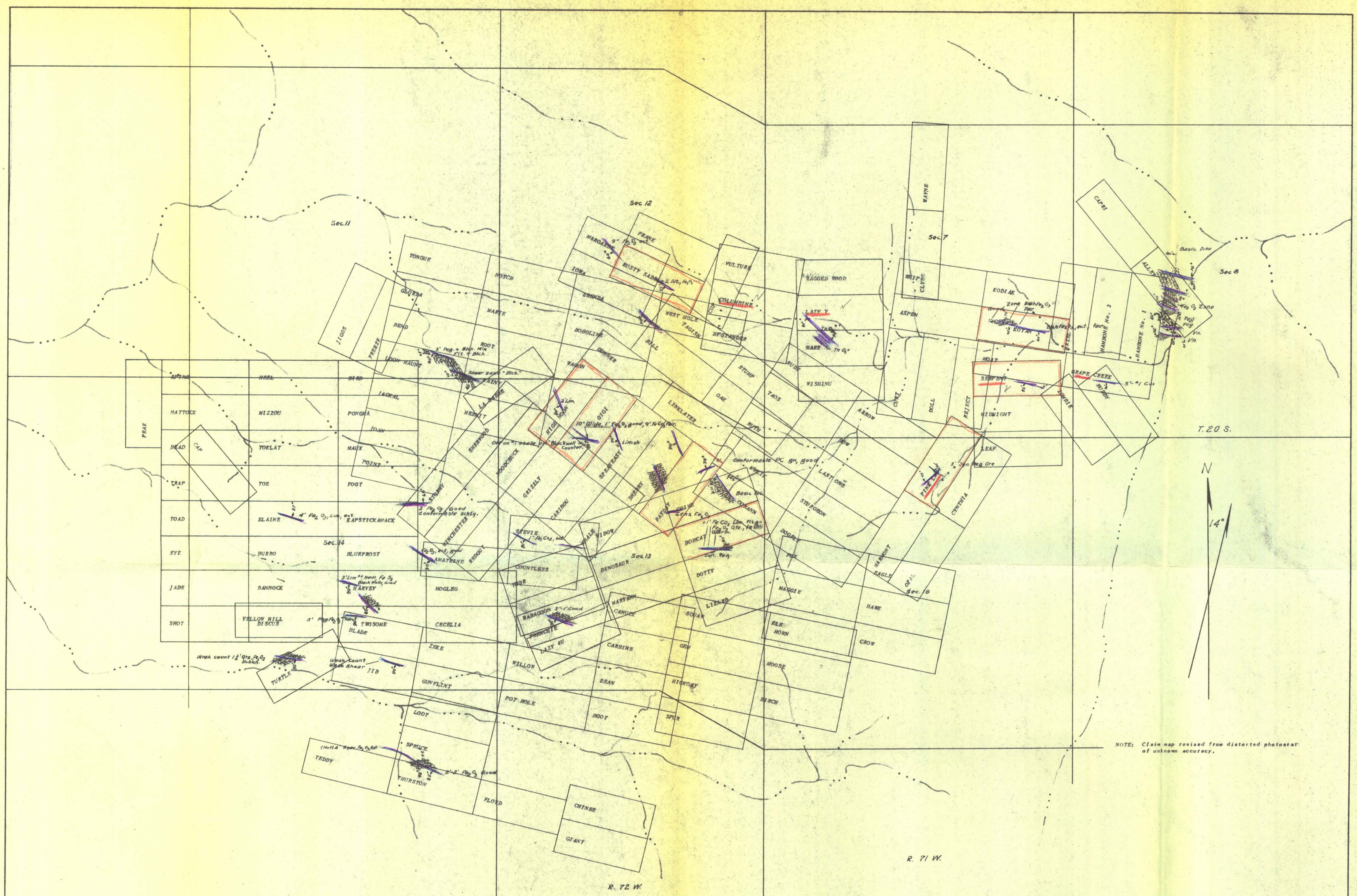
T 20 S, R 71 W and R 72 W
Fremont County, Colorado

June, 1955 Scale - 1" : 1000'

MINERALS EXPLORATION RESEARCH CORPORATION

LEGEND

- Pegmatite
- Granite gneiss
- Fault
- Mineralization
- 87° Dip and strike of structure
- 45° Dip and strike of gneissic foliation
- Intermittent stream



NOTE: Claim map revised from distorted photostat of unknown accuracy.

GEOLOGICAL RECONNAISSANCE AND CLAIM MAP

of

CUNAC MINERALS, INCORPORATED PROPERTIES

T 20 S, R 71 W and R 72 W
Fremont County, Colorado

June, 1955 Scale - 1" : 1000'

MINERALS EXPLORATION RESEARCH CORPORATION

LEGEND

- Pegmatite
- Granite gneiss
- Fault
- Mineralization
- 87° Dip and strike of structure
- 45° Dip and strike of gneissic foliation
- Intermittent stream