May 24, 1954

Memorandum

To: DMEA Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: DMEA Docket 3237 (Tungsten), Lowe Mining Co. (Lookout Lode), Gilpin County, Colorado

Transmitted herewith are the original and eight copies of the engineering and geologic report relative to the examination of the subject property for DMEA assistance to explore for tungsten.

The applicant requested $28,725.00 to explore the property by means of sampling, mapping, 600 ft. of diamond drilling, and 500 ft. of crosscutting, drifting and raising.

This application was to be approved to allow for exploration of the property by stripping, trenching, and sampling and diamond drilling at a cost of $5,940.00 but the application was withdrawn by letter dated May 12, 1954, a copy of which is enclosed.

John F. Shaw
John F. Shaw
for W. H. King

RDB:ma

Enclosures

Denver, Colorado

May 12, 1951

W. H. King, Chief
Mining Division
U. S. Bureau of Mines
224 New Customhouse
Denver, Colorado

Dear Mr. King:

Due to unforseen circumstances, we find it necessary to withdraw the New Era Mining Companies application for a DMEA loan on the Buckhorn scheelite property.

Very truly yours,

Marvin C. Chase
Raymond C. Derzay
Cleland N. Conwell
Loren E. Smith

By: M. C. Chase
M. C. Chase

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
May 6, 1954

Memorandum

To: Executive Officer, DMEA Field Team, Region IV

From: Chief, Mineral Resources Branch, Mining Division, Region IV

Subject: DMEA 3237 (Tungsten) New Era Mining Company (Lookout lode), Larimer County, Colorado

There are enclosed the original and eight copies of the "Summary, Conclusions, and Recommendations," by D. R. MacLaren and R. L. Bolmer, and of R. L. Bolmer's engineering report on the subject docket.

Bolmer concludes the scheelite showings on the Lookout claim, Larimer County, Colorado, warrant exploration and recommends a project set up in two phases. Phase I to comprise bulldozer stripping and trenching followed by sampling the surface outcrop of the deposit to determine the lateral extent and Phase II to diamond drill the deposit at locations to be dependent on the results of Phase I. Phase II is subject to prior authorization by the Region IV Field Team. A unit-cost short-form contract is suggested allowing 100 hours of bulldozer work at $14.00 an hour or $1,400.00, 130 linear feet of trenching at $10.00 an hour or $1,300.00, and 600 feet of surface diamond core drilling at $5.00 a foot or $3,000.00, a total of $5,700.00, and in addition 40 analyses of samples at $6.00 each or a total over-all cost of $5,940.00--Government participation 75 percent, or $4,455.00. Should the stripping, trenching, and drilling indicate that additional exploration is justified, a decision as to whether such work will be considered as development or can be considered for additional funds by amendment of the contract will have to be determined by the Region IV Field Team.

I concur with Bolmer's conclusions and recommendations.

The brochure forwarded by your memorandum of January 15, 1954, instructing us to submit a suitable report and the copy of mining lease by your memorandum of February 23, 1954, are also returned.

W. M. Traver

W. M. Traver

enclosures

cc 8

DMEA 3237

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Denver Federal Center
Denver 2, Colorado

April 16, 1954

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 3237, New Era Mining Company, Larimer County, Colorado

Attached are 9 copies of the geological report by D. R. MacLaren of the U. S. Geological Survey covering the above docket.

The applicant proposes to explore for tungsten ore by diamond drilling and underground work at an estimated cost of $23,725.

MacLaren concludes that the chances of making a significant discovery are fair and recommends a modified exploration program consisting of 3 stages.

I concur in this recommendation.

A. H. Koschmann

A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (9)

DMEA 3237

LOOKOUT LODE
NEW ERA MINING COMPANY
LARIMER COUNTY, COLORADO

Summary, Conclusions, and Recommendations

By D. R. MacLaren
Geologist
Geological Survey

R. L. Bolmer
Mining Engineer
Bureau of Mines

DMEA 3237

LOOKOUT LODE
NEW ERA MINING COMPANY
LARIMER COUNTY, COLORADO

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By D. R. MacLaren and R. L. Bolmer

The New Era Mining Company--a partnership whose address is 1290 Birch Street, Denver, Colo.--applied for Government aid (Docket No. 3237) to explore the unpatented Lookout lode mining claim in Larimer County, Colo., for tungsten. The applicant proposed to explore the property by means of sampling, mapping, 600 feet of diamond drilling, and 500 feet of crosscutting, drifting, and raising. The estimated total cost of the proposed exploration was $23,725.00.

A contact metamorphic deposit, which has produced small tonnages of scheelite ore from shallow surface workings, outcrops on the Lookout claim. The outcrop of the contact zone has been developed for a length of some 180 feet, for a width of from 15 to 20 feet, and to a depth up to 10 feet by a single open-cut trench. Commercial grade tungsten mineralization appears to be concentrated within certain discontinuous lenses and pockets along the contact zone. Although its exposures are more or less obscured by spoil material and by overburden, the zone appears to extend beyond and below the limits of the present open cut.

Certain exploration designed to determine the possible vertical and lateral extent of the zone beyond its present exposures and to ascertain the mineral content, structure, and attitude of such extensions, is considered warranted. Exploration of the deposit by underground methods is not considered justified at present. A modified exploration program,

estimated to cost $5,940.00 and which would include certain stripping, trenching, sampling, and diamond drilling along the projected extensions of the deposit, is recommended.

NEW ERA MINING COMPANY

LARIMER COUNTY, COLORADO

DMEA DOCKET 3237

Geologic Report

By D. R. MacLaren
U. S. Geological Survey

NEW ERA MINING COMPANY
LARIMER COUNTY, COLORADO

INTRODUCTION

The New Era Mining Company of Denver, Colorado, has applied to the Defense Minerals Exploration Administration for assistance to explore for tungsten about 20 miles northwest of Fort Collins, Larimer County, Colorado. The property, consisting of one claim called the Lookout Lode, is in the NE 1/4 sec. 22 and the NW 1/4 sec. 23, T. 8 N., R. 72 W., 6th P.M. The exploration program proposed by the applicant is divided into two phases, phase I to consist of geologic mapping, approximately 600 feet of diamond drilling, and sampling; phase II to consist of crosscutting, drifting, and raising a total of 500 feet. The applicants estimate that the total cost of the project will be $23,725, of which the Government's share will be 75 percent or $17,793.75.

The property was examined February 18, 1954, in the company of R. L. Bolmer of the U. S. Bureau of Mines, and two of the four partner-applicants, Loren E. Smith and Marvin C. Chase. The claim may be reached from Fort Collins by car over 25 miles of good paved or gravel county roads, and 5 miles of poor to unimproved ranch road. It is not accessible during periods of heavy snow.

It is concluded that the chances of making a significant discovery of scheelite ore on this property are fair to good, and it is recommended that a modified program, which has been discussed with the applicants and is entirely acceptable to them, be approved. The estimated cost of the recommended program is given in the Engineer's report.

GEOLOGY

The rocks of the area are pre-Cambrian schist and gneiss, largely of sedimentary origin, that have been intruded by granite and pegmatite lenses and dikes. Scheelite occurs as small crystal aggregates up to 1 inch across, and as coatings along fractures in limey beds and lenses within the schist. The only workings on the property consist of a trench, or open cut, about 170 feet long, 20 feet wide, and 9 feet deep (figure 3). The trench strikes roughly N. 30° E. and is open at the northeast end. According to settlement sheets, about 77 tons of ore averaging 1.65% WO_3 have been shipped. As nearly as could be determined by using a Mineralight, the ore came from a zone in the trench about 50 feet long, 10 feet wide, and 9 feet deep, extending from about the center of the trench to the southwest end. At the southwest end of the trench a cross-trench has exposed a zone of limey rock about thirty feet wide across the strike, that appears to have the same color, texture, and mineral content throughout. However, after dark the Mineralight disclosed three distinct lens-like bodies within this zone that could be traced for about 60 feet southwest of the trench, and which contained appreciable amounts of scheelite and some powellite. Due to debris in the bottom of the trench none of the scheelite-bearing bodies could be traced with certainty, or sure continuity. As nearly as could be determined, the ore occurs in relatively narrow bands or in numerous small lenses in limey, lens-like bodies of various sizes within the schist. An attempt was made to trace the continuity of the ore bearing lenses to the northeast and southwest of the trench. A zone of rock similar in outward appearance to that in the trench can be followed in both directions, but due to overburden and snow that had started to fall, the Mineralight

gave no satisfactory results to the northeast, and only for a distance of about 60 feet to the southwest.

CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the chances of making a significant discovery of scheelite ore are fair. A modification to the proposed program to provide for tracing the lateral extent and frequency of the scheelite bearing lenses by cutting about 10 trenches across the strike of the ore trend as shown in figure 2 (Engineer's report) was discussed with the applicants. They agree that this should be done before drilling is undertaken. It is therefore recommended that a modified program be approved, and that exploration be authorized to proceed in three phases, each successive phase being dependent upon the results of the previous one, as follows:

Phase I Trenching and sampling, trenches to be located approximately as shown in figure 2 (Engineer's report)

Phase II Drilling 600 feet of diamond drill holes, location of holes to be determined after completion of Phase I

Phase III Crosscutting approximately 100 feet, and drifting and raising approximately 400 feet. Crosscut to be located after completion of drilling.

The estimated cost of this revised program is given in the Engineer's report.

DMEA 3237

LOOKOUT LODE
NEW ERA MINING COMPANY
LARIMER COUNTY, COLORADO

Engineering Report

By R. L. Bolmer
Mining Engineer
Bureau of Mines

DMEA 3237

LOOKOUT LODE
NEW ERA MINING COMPANY
LARIMER COUNTY, COLORADO

CONTENTS

Engineering Report	Page
Introduction	1
Location, topography, and physical features	2
History and production	4
Ownership and extent	5
Description of the deposit	6
Ore reserves	9
Present status	10
Project proposals, with costs	10
Conclusions and recommendations	16

TABLES

Table	Page
1. Estimated costs of project	15

ILLUSTRATIONS

Figure	Follows Page
1. Location map, Lookout lode, Larimer County, Colo.	2
2. Applicant's property rights, New Era Mining Company, Lookout lode, Larimer County, Colo.	6
3. Plan showing geology, locations of sample channels and assays, New Era Mining Company, Larimer County, Colo.	*
4. Sketch map, showing approximate location and extent of proposed surface exploration, Lookout lode, Larimer County, Colo.	11

*With geological report.

DMEA 3237

LOOKOUT LODE
NEW ERA MINING COMPANY
LARIMER COUNTY, COLORADO

ENGINEERING REPORT

By R. L. Bolmer

INTRODUCTION

The New Era Mining Company, 1290 Birch Street, Denver, Colo.--a partnership comprised of C. N. Conwell, R. C. Derzay, L. E. Smith, and M. C. Chase--has applied for aid in an exploration project, pursuant to DMEA Order 1, under the Defense Production Act of 1950, as amended. The applicant is lessee of the unpatented Lookout lode mining claim, secs. 22 and 23, T. 8 N., R. 72 W., sixth principal meridian, Larimer County, Colo. and proposes to explore that property for tungsten by means of sampling, geologic mapping, and 600 feet of diamond drilling. Some 500 feet of crosscutting, drifting, and raising, contingent on the results of the other work, also is proposed. The estimated cost of such work is $23,725.00. The application was assigned Docket No. DMEA 3237. A suitable report has been requested by the Region IV DMEA Field Team.

The property was examined February 18, 1954, with L. E. Smith and M. C. Chase of the New Era Mining Company and D. R. MacLaren of the Geological Survey. This report has been prepared from the results of that examination and for the purpose of aiding the Region IV DMEA Field Team to evaluate the application for exploration assistance.

A contact metamorphic deposit, from which small tonnages of scheelite ore have been produced, occurs on the property. The existing development of the deposit consists of a shallow open-cut trench, about 180 feet in length, along the outcrop of the contact zone. The zone appears

to be from 10 to 15 feet in width. Disseminated scheelite mineralization is confined to discontinuous lenses and pockets along the contact zone. The individual mineral occurrences within the zone apparently are of commercial grade. Whether or not such concentrations will extend laterally and with depth and occur with sufficient frequency for the entire zone to be mined as a low-grade, large-tonnage deposit, must be determined. Within the present cut, the zone is poorly exposed due to debris and spoil material; beyond the cut the outcrop of the zone is more or less obscured by overburden. The structure, however, appears to extend laterally and with depth beyond the present cut.

Certain exploration designed to extend the presently exposed lateral and vertical limits of the zone and to ascertain its mineral content, structure, and attitude was considered warranted. Exploration of the deposit by underground methods could not be justified at present.

A modified exploration program, acceptable to the applicants and to be performed in two phases is recommended. Phase I included stripping, trenching, sampling, and mapping of the apparent lateral extension of the outcrop of the zone. Phase II, to be dependent on the results obtained under Phase I, consists of 600 feet of core drilling. The total estimated cost of the program is $5,940.00 of which the Government would contribute 75 percent, or $4,455.00.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The deposit is located some 30 miles, mostly by mountain road, west of Fort Collins, Colo. (fig. 1). The specific location of the Lookout claim is NE1/4 sec. 22, NW1/4 sec. 23, T. 8 N., R. 72 W., sixth principal meridian, Larimer County, Colo. The property is most readily accessible from Bellvue, Colo., a community on the Colorado and Southern Railroad and

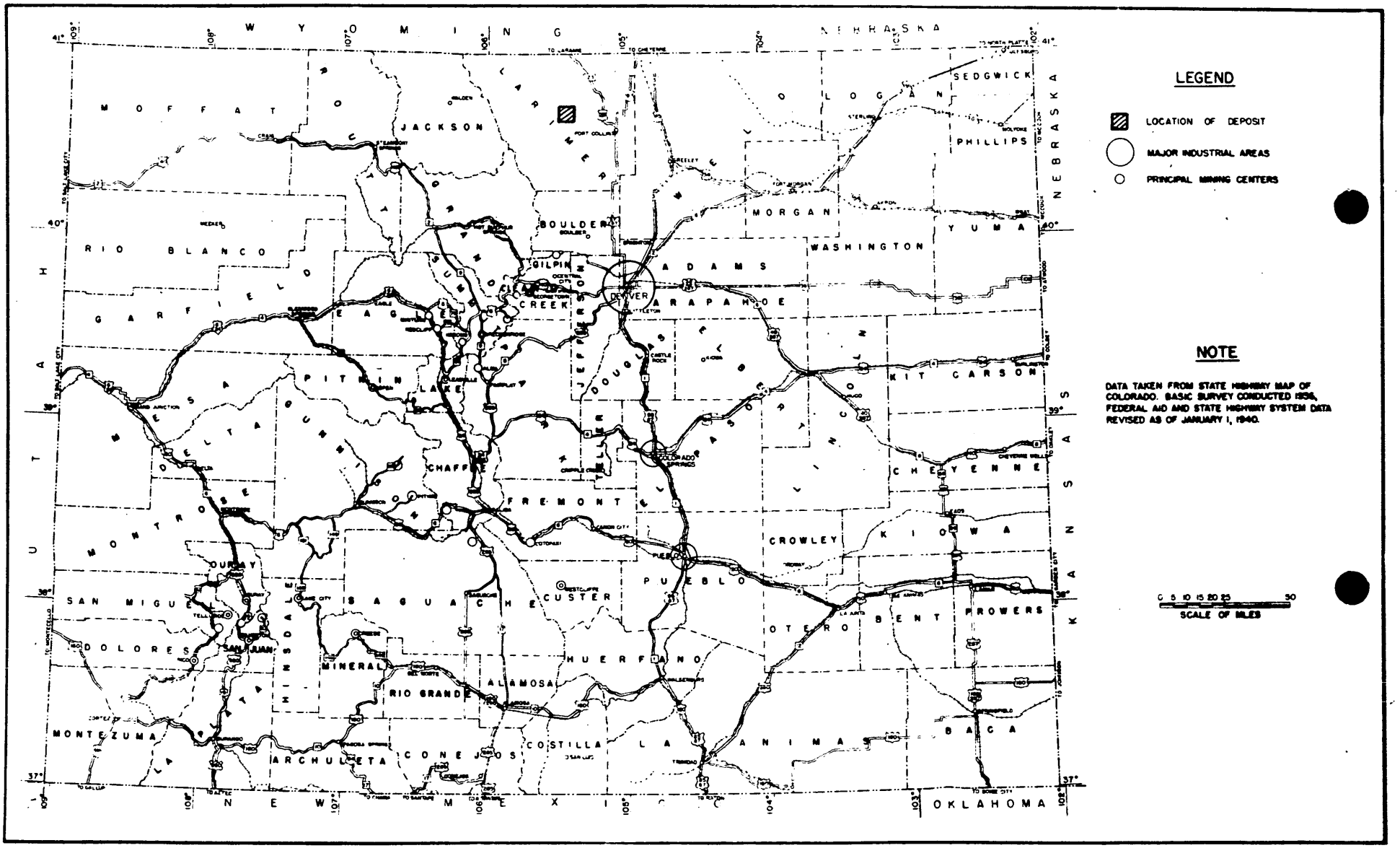


FIGURE 1- LOCATION MAP, LOOKOUT LODE, LARIMER COUNTY, COLO. (DMEA 3237)

U. S. Highway 287 approximately 8 miles west of Fort Collins. A good mountain road through Rist Canyon and Stratton Park junctions with the Stove Prairie road 13 miles west of Bellvue. The deposit is 8 miles farther west and north of the Stove Prairie-Rist Canyon crossroads via the Stevens Ranch road. The 5 miles of access road beyond the Stevens Ranch is rough and unimproved.

The claim is in a heavily wooded mountainous section of the Roosevelt National Forest at an altitude of 8,250 feet above sea level. The timber on the property, mostly aspen and jackpine should be suitable for most exploratory needs. The drainage of the area is northerly into the Cache la Poudre River. Gulches in the immediate area are dry throughout most of the operating season and water for exploration and mining purposes would have to be hauled about 2 miles.

Winters in the area at the elevation of the deposit can be severe and it is possible that mining operations would be curtailed 4 to 5 months of the year due to weather conditions and isolation of the property. There are no housing facilities on or near the property, and, as it is in an area away from mining activity, experienced labor is not readily available. The topography of the immediate area lends itself to deeper development of the deposit by short crosscut or drift adits from the steep slope along the western and southern sections of the claim.

The nearest tungsten mills are in Boulder County, a trucking distance of some 75 miles. These custom mills are set up for the gravity concentration of ferberite ores and generally do not make an efficient recovery on most scheelite ores and, therefore, are not anxious to receive them. Shipments to custom mills in the Salt Lake City area, or to a scheelite mill reportedly under construction in the Salida, Colo. area

would entail trucking to Fort Collins or Bellvue for rail shipment. Crude ore probably could not stand the freight rates to these points. The applicants, should sufficient reserves be developed, have indicated a desire to construct a flotation mill in the area.

HISTORY AND PRODUCTION

The Lookout lode claim was located in recent years; the exact date, however, is unknown. The annual assessment work performed by the locators consisted of shallow surface trenches and pits along the outcrop of the deposit and the construction of an access road to the property. No known production resulted from this work. During 1952-53, the property was leased to a group of individuals who made several small shipments from the property under the name of the Buckhorn Mining Company of 405 Wood Street, Fort Collins, Colo.

The deposit was mined from an open surface cut along its outcrop. The ore zone was not mined selectively but was broken 10-12 feet in width and excavated with a drag line. A small sorting plant was constructed and some effort was made to upgrade the crude ore by means of hand sorting with the aid of a Mineralight. Altogether, five lots of crude and upgraded ore, aggregating 51.55 dry short tons and containing 102.01 short ton units of tungsten trioxide were shipped to Boulder Tungsten Mines Incorporated in Boulder County, Colo. The total recorded production from the property is as follows:

Date	Net dry weight (pounds)	WO_3 Content Percent	WO_3 Content Pounds	Gross value	Deductions	Net market value
9/18/52	257	59.88	153.91	$ 445.54	$ 115.36	$ 330.18
11/ 8/52	620	32.30	200.26	468.61	446.61	22.00
12/24/52	18,627	1.14	212.34	272.85	88.52	184.33
1/24/53	46,919	1.50	703.78	888.52	239.28	649.24
4/17/53	36,677	2.10	770.00	1,060.67	187.07	873.60
Total	103,100	1.98	2,040.29	$3,136.19	$1,076.84	$2,059.35
	Average per short dry ton:			$60.84	$20.89	$39.95
	Average per short ton unit of contained WO_3:			$30.74	$10.55	$20.19

It can be seen from the above summary that nearly one-third of the gross value of the production was lost through deductions for milling and hauling. After royalties totaling $267.32 or about 13 percent of the net market value were paid, the net return to the lessees was $1,792.03, an average of only $34.76 per ton of ore marketed or $17.56 per unit of contained WO_3.

At least two similar scheelite deposits, which the applicants are attempting to secure by lease, occur near the Lookout lode. These also have been developed by shallow surface workings and are believed to have produced small tonnages during and possibly since World War II. Two of these deposits were examined and reported on by the Bureau of Mines in 1943.*

OWNERSHIP AND EXTENT

The Lookout lode mining claim is held through location by a group of individuals whose names are listed on the lease accompanying the application for exploration assistance. It is understood that all of the owners

*Heline Property, Larimer County, Colo. - Tungsten; War Minerals Memorandum by C. R. Wilfley, November 1943.

are residents of Larimer County, Colo. T. H. Sackett of Fort Collins, Colo., one of the recorded owners, acts as agent for the other parties. The location certificate is recorded in Book 936, page 548, of the Larimer County records, Fort Collins, Colo. The property consists of a single, rectangular lode mining claim, 1,500 feet in length by 600 feet in width (fig. 2). The claim boundaries encompass the known outcrop and the apparent extensions of the tungsten deposit.

The recorded owners have leased the property to Raymond C. Derzay, Cleland N. Conwell, Loren E. Smith, and Marvin C. Chase, who comprise a partnership known as the New Era Mining Company, 1290 Birch Street, Denver, Colo., which is the applicant for Government exploration assistance (Docket No. DMEA 3237). The lease is for a period of 5 years or until November 1, 1958, and is renewable for an additional 5-year period. The lease calls for a royalty payment of 10 percent of the net market value on all ores taken and sold from the property.

DESCRIPTION OF THE DEPOSIT

The rock outcropping on the property is predominately a schist which has been intruded to a considerable degree by granite, pegmatite, and quartz. Certain zones within the schist, which probably represent the more limey members of the original formation, show evidence of considerable alteration. The altered and recrystalized lime rocks comprising these zones contain or have been replaced by considerable amounts of almost massive garnet and to a minor degree by other high-temperature minerals. Certain internal units or lenses within the altered zones contain disseminated scheelite mineralization. The deposit appears similar to those of a contact metamorphic origin and may be associated with the nearby and probably underlying granite intrusive.

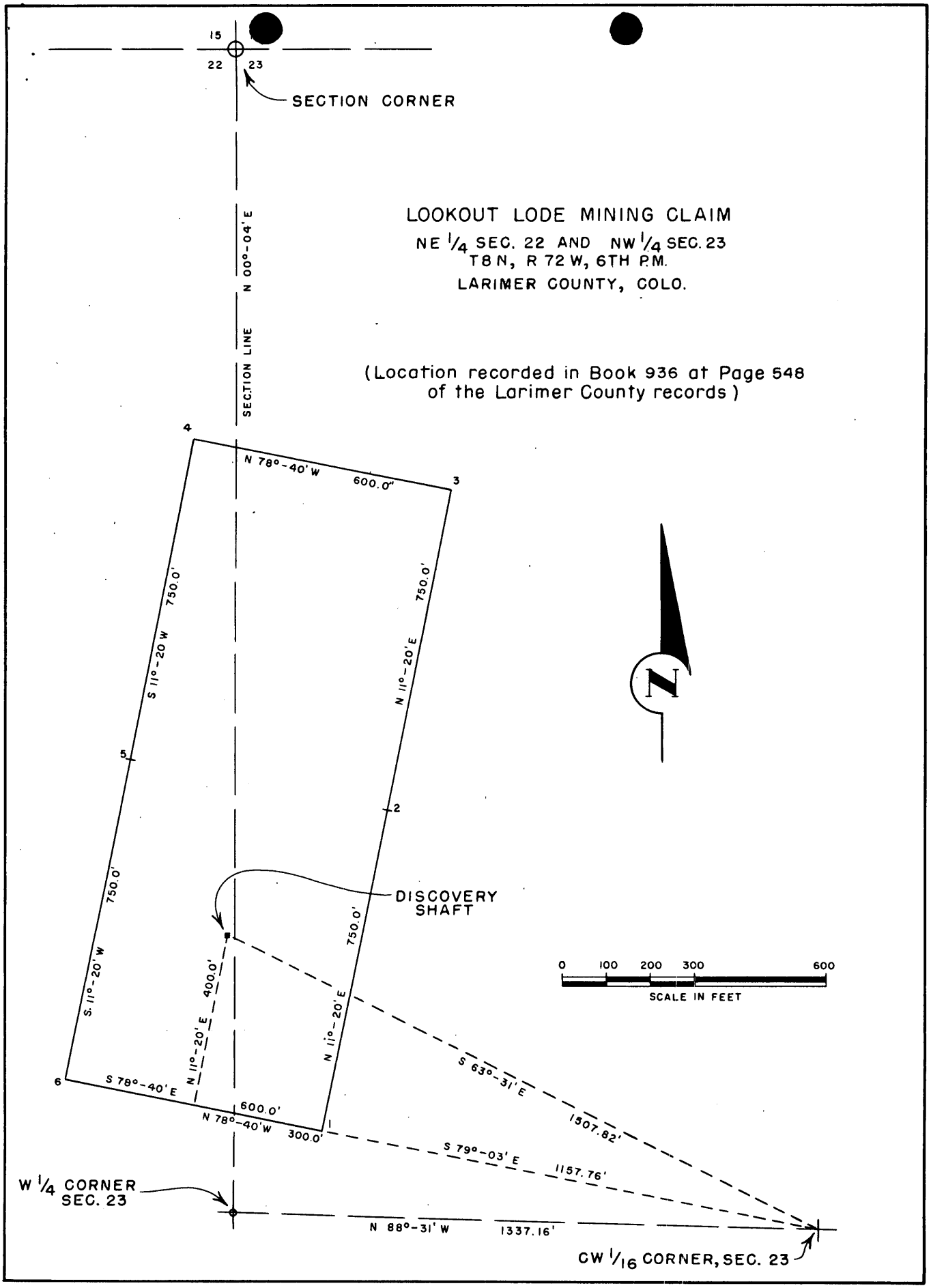


FIGURE 2-APPLICANTS PROPERTY RIGHTS, NEW ERA MINING CO., LOOKOUT LODE, LARIMER COUNTY, COLO. (DMEA 3237)

The outcrop of the zone has been exposed for a length of some 200 feet and for depths up to 10 feet by an open-cut trench which was the source of the earlier production from the deposit. The bottom of the trench is some 15 to 20 feet in width. Much of the trench bottom is obscured by debris; the zone, however, is fairly well exposed in the southern most walls of the cut. Although obscured to a greater or lesser degree by overburden, the outcrop of the zone apparently can be traced for several hundred feet northeasterly and southwesterly beyond the existing cut. Where it can be observed, the apparent outcrop extension is from a few to several feet in width and is garnetized. The occurrence of scheelite in these few and poorly exposed locations along the apparent extensions of the zone, could not be determined. Toward the southern end of the open cut, the main zone appears to split and to fan out into at least three separate units. The zone apparently parallels the schistosity and dips nearly vertical to steeply southeasterly.

Much of the trench was too deeply covered with debris to be examined thoroughly; the accessible sections, however, were examined and, wherever possible, sampled. The locations and analyses of the samples taken have been shown on figure 3 accompanying the geological report. The trench also was examined after dark with a Mineralight. From such an examination it became apparent that tungsten mineralization was not continuous along or even across the zone but was confined to discontinuous lenses and pockets within the zone. The scheelite mineral occurs disseminated through the lenses and pockets. When they can be observed, the mineral crystals are small, and much of the scheelite exists in a fine-grained, almost powdery form. The individual mineral exposures, as disclosed by the Mineralight, vary from minute fragments up to areas of

several square inches. Often the scheelite occurs in a series of parallel tabular masses. These masses of nearly pure mineral vary from 1/8 to 1/2 inch in width over an area of several square inches and probably represent replacements of the host formation along its original bedding planes.

Many of the samples taken in the daylight had missed the tungsten occurrences disclosed later under the Mineralight. A fairly representative sample (RLB-71) taken at the southern end of the cut assayed 1.70 percent WO_3 over a width of 10 feet. A later examination of the southern wall of the cut under the light disclosed two additional mineralized lenses, each 2 to 3 feet in width, which had not been included with this sample. Much of the spoil material in and around the trench and much of the dump material at the north end of the cut showed tungsten mineralization under the light. Several representative pieces of sorted ore which were obtained from a 2- to 3-ton sample remaining in the old sorting shed assayed 6.25 percent WO_3.

It appears that the tungsten occurrences within the presently exposed sections of the zone are erratic. Concentrations of disseminated mineral form discontinuous lenses and pockets along the zone; the individual lenses and pockets within the zone appear to be of commercial grade or better. Whether these concentrations will continue along the apparent extensions of the zone and will occur with sufficient frequency for the zone to be mined as a large tonnage, low-grade deposit, such as the applicants hope can be proven, remains to be determined.

Even if similar mineralization is found to occur along the extensions of the zone, small scale, selective mining of the tungsten concentrations would be expensive and probably prohibitive if it were necessary to employ underground methods. The chances of obtaining commercial production from the deposit depend upon the discovering and the development of sufficient low-grade reserves to justify the construction of a milling unit.

With a mill, low-cost, non-selective surface methods could be employed to mine the zone as a complete unit. If the attitude of the deposit with depth should continue favorable, some non-selective underground method of mining the deposit might be employed.

Straight gravity concentration of the scheelite in this deposit might prove satisfactory. It is believed, however, that some of the garnet in the ore would concentrate with the tungsten mineral and that the addition of magnetic separation to the circuit might be necessary. Fine grinding probably will be required and the tungsten loss in fine sizes through sliming might be excessive. Flotation probably would be required to clean the middling concentrates from the gravity circuit. It is believed that a combination of flotation, gravity, and magnetic methods would be required for the most effective concentration of this ore. A preliminary hand sorting of the crude ore with the aid of ultraviolet light might prove profitable.

ORE RESERVES

From present exposures of the zone, particularly in the southern end of the cut, some small tonnages of measured and indicated reserves, including the dump and spoil material, could be determined from the sample results and the visual examination made of the deposit with the aid of the Mineralight. Such an estimate, however, would not be too accurate and is not considered especially pertinent at this time.

Inferred reserves, based on the geologic possibility of the continuation of the ore zone both laterally and with depth beyond the present limits of the open cut, do exist. On the assumption that the ore zone will continue similarly mineralized over an average width of 5 feet for a lateral distance of 150 feet beyond either end of the present cut and for a depth of 100 feet below its outcrop, then approximately 25,000

tons of reserves averaging 0.4 to 0.6 percent WO_3 (10-15,000 short ton units WO_3) can be inferred.

PRESENT STATUS

The existing development of the deposit, a single open-cut trench along its outcrop, already has been discussed. The property has no equipment nor facilities other than an access road suitable for exploratory work and an ore sorting building equipped with a picking belt, ore bin, and chutes. A small frame building, suitable for housing one or two persons when repaired, also exists on the property.

PROJECT PROPOSALS, WITH COSTS

The applicants originally proposed exploration of the deposit by means of sampling, geologic mapping, and 600 feet of core drilling. Some 500 feet of underground crosscutting, drifting, and raising, contingent upon the favorable results of the other work, also were proposed. The total estimated cost of the proposed work was $23,725.00.

Exploration of this deposit by underground methods is of doubtful value at present, particularly so when its lateral and vertical extent, grade, and attitude have not been determined. The locations, amount, and type of underground work that may become desirable after these facts have been determined are not known at present. Even if such work were desirable at a later period, its cost could not be determined accurately at this time. The underground exploration proposed by the applicants, therefore, is not considered nor recommended at present. At the completion of that portion of the proposed program which is being recommended, and if the results then accomplished thereunder warrant, the applicants may request additional exploration as an extension of their original contract.

At its present stage of development, it is believed most desirable to determine, within moderate limits, the lateral and vertical extent of the deposit and to obtain more definite information as to the grade and continuity of its mineralization. The continuation of the structure and its mineralization with moderate depth can be determined more quickly and cheaply by means of core drilling. The continuation of the structure and mineralization laterally can be determined most effectively by stripping overburden from the apparent extension of the outcrop and then by trenching and sampling the ore zone itself when and if it is exposed. Such work is a desirable prerequisite for the effective utilization of the core drilling. Stripping and trenching along the outcrop was discussed with the applicants and they have amended their original application to include such work.

The exploration program recommended in this report is divided into two phases: Phase I, to consist of stripping, trenching, and sampling the surface outcrop of the deposit, and Phase II, to consist of diamond drilling the deposit (the location of drill holes to be dependent upon the results obtained under Phase I).

Phase I will include (1) the stripping of overburden from areas along the projected and apparent extension of the outcrop of the tungsten-bearing zone in both directions from the present cut, and (2) the excavation of shallow trenches across the actual ore zone and the sampling of the zone. The approximate locations of the work to be completed under Phase I, in relation to the present cut, are indicated on figure 4.

An estimated maximum of 100 hours of bulldozing (including arriving and leaving time) will be required to strip overburden from the areas indicated and to clean the debris and spoil material from within and around the ends of the present cut. The overburden north of the cut is relatively

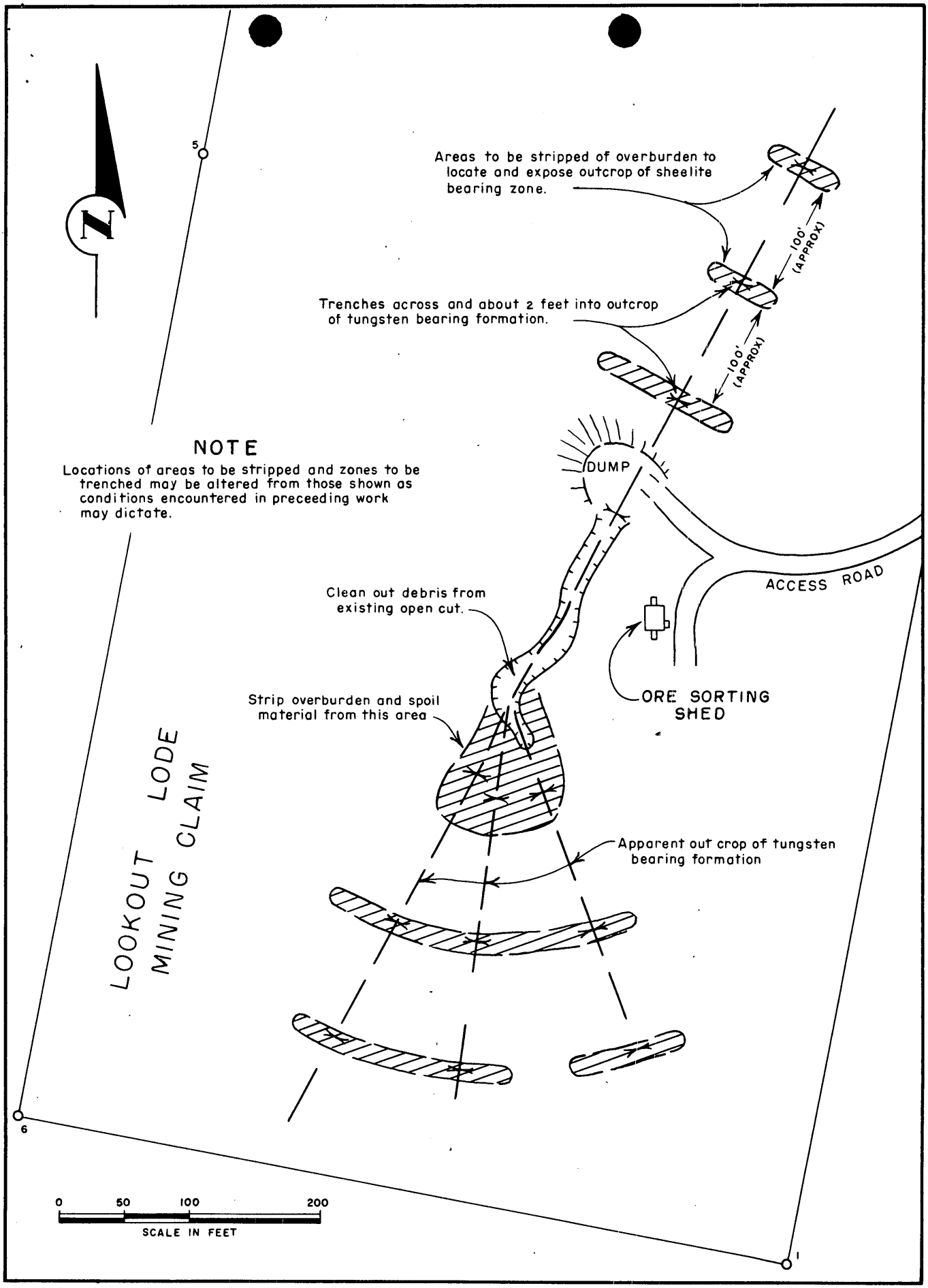


FIGURE 4 - SKETCH MAP, SHOWING APPROXIMATE LOCATION AND EXTENT OF PROPOSED SURFACE EXPLORATION, LOOKOUT LODE, LARIMER COUNTY, COLO. (DMEA 3237)

shallow; that south of the cut is deeper and the terrain is quite steep. Should conditions encountered as the work progresses not warrant the completion of the full 100 hours of bulldozing, funds equivalent to the unexpended hours could be well spent for common labor to clean by hand the irregularities in the bottom of the present cut. It is expected that the stripping by bulldozer will be contracted for at a rate of $12.00 per hour. The contractor probably will charge for the time required to deliver his equipment to and remove it from the project (an estimated 1 day or 10 hours in either direction).

An estimated maximum of 130 linear feet of shallow trench across only the actual ore zone, as exposed by the stripping operations, will be required. The trenches should penetrate solid rock to depths of about 2 feet in order to sufficiently expose the structure and present a fresh face for sampling. The trenches will require drilling and blasting.

A full-time supervisor will be required for the estimated 1 month period necessary to complete Phase I. One of the applicants, all of whom have an engineering background, will serve as supervisor at the rate of $400.00 per month. He will perform the technical services required of the project as well as the usual supervisory duties. Technical services will include locating and laying out the areas to be stripped, the zones to be trenched, sampling the trenches, preparing the samples, et cetera. A geological and topographical map of the deposit will be started which will show the locations of all work performed, all samples taken, et cetera. The required Government reports will be prepared by the supervisor.

Phase II will consist of a maximum of 600 feet of diamond drilling. The applicants state that they can contract this work for $4.00 per foot. The locations of the holes, their bearing, inclination, depth, et cetera,

will be determined from the results obtained under Phase I. Such details should have the prior approval of the DMEA Region IV Field Team. The drilling should be completed within 1 month and a full-time supervisor during that period will be required. The supervisor will also perform the usual technical duties associated with core drilling--spotting the holes, logging, splitting, sampling, boxing the core, as well as continuing the geologic map, locating the holes on the map, et cetera.

The estimated costs of both Phase I and Phase II, including independent contracts, labor, supervision, and technical services, supplies, equipment rental, et cetera has been itemized in table 1. The total estimated costs of the project are $5,940.00, of which the Government's share will be 75 percent, or $4,455.00. It is believed to be to the advantage of the Government for the project expense (excluding analyses of samples) to be reported and paid on the basis of the following unit costs for authorized work actually completed:

	Total units	Unit cost*	Total cost
Phase I	100 bulldozer hours	at $14.00 per hour	$1,400.00
	130 linear feet of trench	at $10.00 per foot	1,300.00
Phase II	600 feet of core drilling	at $5.00 per foot	3,000.00
Analysis of samples			240.00
		Total	$5,940.00

*Includes supervision and technical services.

The bulldozing hours completed can be substantiated by invoice from the independent contractor. Any hours under the maximum not completed, for which an equivalent amount of common labor is substituted, can be substantiated from the project payroll. Trenching and drilling can be paid on the basis of the inspecting engineer's measurement and invoice from independent

contractor. Payment for analyses can be made upon submission of assayer's invoice.

TABLE 1. - Estimated costs of the project

Items of cost		Estimated costs of project	Distribution of estimated costs to project operations: Phase I, Stripping	Phase I, Trenching	Phase II, Core drilling
Independent Contracts:	Bulldozing (100 hours at $12.00 per hour)	$1,200.00	$1,200.00		
	Core drilling (600 feet at $4.00 per foot)	2,400.00			$2,400.00
Labor:	Miner (120 hours at $1.75 per hour)	210.00		$210.00	
	Miner's helper (120 hours at $1.50 per hour)	180.00		180.00	
Supervision and Technical Services:	(2 months at $400.00 per month)	800.00	133.00	267.00	400.00
Operating Materials and Supplies:	Explosives	70.00		70.00	
	Pipe, fittings	30.00		30.00	
	Drill steel, bits, bit sharpening	70.00		70.00	
	Gasoline, oil, grease	137.00	16.00	74.00	47.00
	Small tools, miscellaneous supplies	30.00		30.00	
Rental of Operating Equipment:	160-210-c.f.m. portable, gasoline-powered compressor - 2/3 month at $300.00 per month	200.00		200.00	
	55-pound jackhammer, air hose - 2/3 month at $75.00 per month	50.00		50.00	
	3/4-ton pick-up truck - 2 months at $135.00 per month	270.00	45.00	90.00	135.00
Miscellaneous:	Payroll taxes	24.00	3.00	13.00	8.00
	Liability insurance	29.00	3.00	16.00	10.00
	Total Distributed Costs	$5,700.00	$1,400.00	$1,300.00	$3,000.00
Non-distributed costs:	Analysis of samples (40 assays at $6.00 each)	240.00			
	Total Estimated Costs of Project	$5,940.00			
Government participation in total estimated costs of project		$4,455.00			
Estimated maximum number of units to be completed			100 bulldozer hours	130 linear feet	600 linear feet
Estimated unit cost			$14.00 per hour	$10.00 per foot	$5.00 per foot
Estimated time for completion		2 months	1/3 month	2/3 month	1 month

CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the tungsten deposit occurring on the Lookout claim, Larimer County, Colo., warrants certain exploration and appears to meet the various requirements for Government assistance in such work under the DMEA program. The applicants are experienced and technically qualified individuals who should be able to carry out an exploration project expertly and in the manner authorized.

The exploratory program outlined in this report for an estimated cost of $5,940.00 is recommended.

RLB/pam

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

224 New Customhouse
Denver 2, Colorado

May 14, 1954

Memorandum

To: Administrator, DMEA
Attn: Code 200

From: Executive Officer, DMEA Field Team, Region IV

Subject: DMEA Docket 3237 (Tungsten), New Era Mining Co., (Lookout Lode) Laramie County, Colorado

Transmitted herewith are the original and three copies of the Engineering and Geologic report relative to the examination of the subject property for DMEA assistance to explore for tungsten.

This application was to be approved to allow for exploration of the property by stripping, trenching, sampling and diamond drilling at a cost of $5,940.00 but the application was withdrawn by letter dated May 12, 1954.

Also enclosed are the original and three copies of the letter requesting the application be withdrawn and four copies of our letter of reply.

John F. Shaw
John F. Shaw
For A. H. King

Enclosures

E. N. Haschman
for A. H. Foschmann

Reviewed by
DMEA OPERATING COMMITTEE
5/28/54
(date)

224 New Customhouse
Denver 2, Colorado

May 11, 1954

New Era Mining Co.
1290 Birch Street
Denver, Colorado

Re: DMEA Docket 3237 (Tungsten)
New Era Mining Co. (Lookout Lode)
Larimer County, Colorado

Dear Mr. Chase: Attn: Mr. Marvin G. Chase

We hereby acknowledge receipt of your letter dated May 12, 1954, requesting that the subject application be withdrawn.

We have complied with your wishes and DMEA Docket 3237 is now considered closed.

We are returning the copy of your lease, which was included with your application.

Yours very truly,

John F. Shaw
For W. H. King
Executive Officer
DMEA Field Team, Region IV

RDB:ma

Enclosure

cc: Administrator, DMEA (4)
WHTraver
AHKoschmann
Docket
Chron.
Mining Div.

Reviewed by
DMEA OPERATING COMMITTEE
5/28/54
(date)

May 14, 1954

Memorandum

To: DMEA Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: DMEA Docket 3237 (Tungsten), New Era Mining Co. (Lookout Lode), Larimer County, Colorado

Transmitted herewith are the original and eight copies of the engineering and geologic report relative to the examination of the subject property for DMEA assistance to explore for tungsten.

The applicant requested $28,725.00 to explore the property by means of sampling, mapping, 600 ft. of diamond drilling, and 500 ft. of crosscutting, drifting and raising.

This application was to be approved to allow for exploration of the property by stripping, trenching, and sampling and diamond drilling at a cost of $5,940.00 but the application was withdrawn by letter dated May 12, 1954, a copy of which is enclosed.

John F. Shaw
John F. Shaw
For W. E. King

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
5/28/54
(date)

May 12, 1954

W. H. King, Chief
Mining Division
U. S. Bureau of Mines
224 New Customhouse
Denver, Colorado

Dear Mr. King:

Due to unforseen circumstances, we find it necessary to withdraw the New Era Mining Companies application for a DMEA loan on the Buckhorn scheelite property.

Very truly yours,

Marvin C. Chase
Raymond C. Derzay
Cleland N. Conwell
Loren E. Smith

By: M. C. Chase
M. C. Chase

Reviewed by
DMEA OPERATING COMMITTEE
5/28/54
(dated)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
May 6, 1954

Memorandum

To: Executive Officer, DMEA Field Team, Region IV

From: Chief, Mineral Resources Branch, Mining Division, Region IV

Subject: DMEA 3237 (Tungsten) New Era Mining Company (Lookout lode), Larimer County, Colorado

There are enclosed the original and eight copies of the "Summary, Conclusions, and Recommendations," by D. R. MacLaren and R. L. Bolmer, and of R. L. Bolmer's engineering report on the subject docket.

Bolmer concludes the scheelite showings on the Lookout claim, Larimer County, Colorado, warrant exploration and recommends a project set up in two phases. Phase I to comprise bulldozer stripping and trenching followed by sampling the surface outcrop of the deposit to determine the lateral extent and Phase II to diamond drill the deposit at locations to be dependent on the results of Phase I. Phase II is subject to prior authorization by the Region IV Field Team. A unit-cost short-form contract is suggested allowing 100 hours of bulldozer work at $14.00 an hour or $1,400.00, 130 linear feet of trenching at $10.00 an hour or $1,300.00, and 600 feet of surface diamond core drilling at $5.00 a foot or $3,000.00, a total of $5,700.00, and in addition 40 analyses of samples at $6.00 each or a total over-all cost of $5,940.00--Government participation 75 percent, or $4,455.00. Should the stripping, trenching, and drilling indicate that additional exploration is justified, a decision as to whether such work will be considered as development or can be considered for additional funds by amendment of the contract will have to be determined by the Region IV Field Team.

per foot; see Bolmer's report, pages 12-13

I concur with Bolmer's conclusions and recommendations.

The brochure forwarded by your memorandum of January 15, 1954, instructing us to submit a suitable report and the copy of mining lease by your memorandum of February 23, 1954, are also returned.

W. M. Traver

W. M. Traver

Reviewed by
DMEA OPERATING COMMITTEE
5/28/54
(date)

enclosures

cc 8

DMEA 3237

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Denver Federal Center
Denver 2, Colorado

April 16, 1954

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 3237, New Era Mining Company, Larimer County, Colorado

Attached are 9 copies of the geological report by D. R. MacLaren of the U. S. Geological Survey covering the above docket.

The applicant proposes to explore for tungsten ore by diamond drilling and underground work at an estimated cost of $23,725.

MacLaren concludes that the chances of making a significant discovery are fair and recommends a modified exploration program consisting of 3 stages.

I concur in this recommendation.

A. H. Koschmann

A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (9)

Reviewed by
DMEA OPERATING COMMITTEE
5/28/54
(date)

DMEA 3237

LOOKOUT LODE
NEW ERA MINING COMPANY
LARIMER COUNTY, COLORADO

Summary, Conclusions, and Recommendations

By D. R. MacLaren
Geologist
Geological Survey

R. L. Bolmer
Mining Engineer
Bureau of Mines

Reviewed by
DMEA OPERATING COMMITTEE
5/28/54
(date)

DMEA 3237

LOOKOUT LODE
NEW ERA MINING COMPANY
LARIMER COUNTY, COLORADO

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By D. R. MacLaren and R. L. Bolmer

The New Era Mining Company--a partnership whose address is 1290 Birch Street, Denver, Colo.--applied for Government aid (Docket No. 3237) to explore the unpatented Lookout lode mining claim in Larimer County, Colo., for tungsten. The applicant proposed to explore the property by means of sampling, mapping, 600 feet of diamond drilling, and 500 feet of crosscutting, drifting, and raising. The estimated total cost of the proposed exploration was $23,725.00.

A contact metamorphic deposit, which has produced small tonnages of scheelite ore from shallow surface workings, outcrops on the Lookout claim. The outcrop of the contact zone has been developed for a length of some 180 feet, for a width of from 15 to 20 feet, and to a depth up to 10 feet by a single open-cut trench. Commercial grade tungsten mineralization appears to be concentrated within certain discontinuous lenses and pockets along the contact zone. Although its exposures are more or less obscured by spoil material and by overburden, the zone appears to extend beyond and below the limits of the present open cut.

Certain exploration designed to determine the possible vertical and lateral extent of the zone beyond its present exposures and to ascertain the mineral content, structure, and attitude of such extensions, is considered warranted. Exploration of the deposit by underground methods is not considered justified at present. A modified exploration program,

estimated to cost $5,940.00 and which would include certain stripping, trenching, sampling, and diamond drilling along the projected extensions of the deposit, is recommended.

NEW ERA MINING COMPANY

LARIMER COUNTY, COLORADO

DMEA DOCKET 3237

Geologic Report

By D. A. MacLaren
U. S. Geological Survey

NEW ERA MINING COMPANY
LARIMER COUNTY, COLORADO

INTRODUCTION

The New Era Mining Company of Denver, Colorado, has applied to the Defense Minerals Exploration Administration for assistance to explore for tungsten about 20 miles northwest of Fort Collins, Larimer County, Colorado. The property, consisting of one claim called the Lookout Lode, is in the NE 1/4 sec. 22 and the NW 1/4 sec. 23, T. 8 N., R. 72 W., 6th P.M. The exploration program proposed by the applicant is divided into two phases, phase I to consist of geologic mapping, approximately 600 feet of diamond drilling, and sampling; phase II to consist of crosscutting, drifting, and raising a total of 300 feet. The applicants estimate that the total cost of the project will be $23,725, of which the Government's share will be 75 percent or $17,793.75.

The property was examined February 18, 1954, in the company of R. L. Bolmer of the U. S. Bureau of Mines, and two of the four partner-applicants, Loren E. Smith and Marvin C. Chase. The claim may be reached from Fort Collins by car over 25 miles of good paved or gravel county roads, and 5 miles of poor to unimproved ranch road. It is not accessible during periods of heavy snow.

It is concluded that the chances of making a significant discovery of scheelite ore on this property are fair to good, and it is recommended that a modified program, which has been discussed with the applicants and is entirely acceptable to them, be approved. The estimated cost of the recommended program is given in the Engineer's report.

GEOLOGY

The rocks of the area are pre-Cambrian schist and gneiss, largely of sedimentary origin, that have been intruded by granite and pegmatite lenses and dikes. Scheelite occurs as small crystal aggregates up to 1 inch across, and as coatings along fractures in limey beds and lenses within the schist. The only workings on the property consist of a trench, or open cut, about 170 feet long, 20 feet wide, and 9 feet deep (figure 3). The trench strikes roughly N. 30° E. and is open at the northeast end. According to settlement sheets, about 77 tons of ore averaging 1.65% WO_3 have been shipped. As nearly as could be determined by using a Mineralight, the ore came from a zone in the trench about 30 feet long, 10 feet wide, and 9 feet deep, extending from about the center of the trench to the southwest end. At the southwest end of the trench a cross-trench has exposed a zone of limey rock about thirty feet wide across the strike, that appears to have the same color, texture, and mineral content throughout. However, after dark the Mineralight disclosed three distinct lens-like bodies within this zone that could be traced for about 60 feet southwest of the trench, and which contained appreciable amounts of scheelite and some powellite. Due to debris in the bottom of the trench none of the scheelite-bearing bodies could be traced with certainty, or sure continuity. As nearly as could be determined, the ore occurs in relatively narrow bands or in numerous small lenses in limey, lens-like bodies of various sizes within the schist. An attempt was made to trace the continuity of the ore bearing lenses to the northeast and southwest of the trench. A zone of rock similar in outward appearance to that in the trench can be followed in both directions, but due to overburden and snow that had started to fall, the Mineralight

gave no satisfactory results to the northeast, and only for a distance of about 60 feet to the southwest.

CONCLUSIONS AND RECOMMENDATIONS

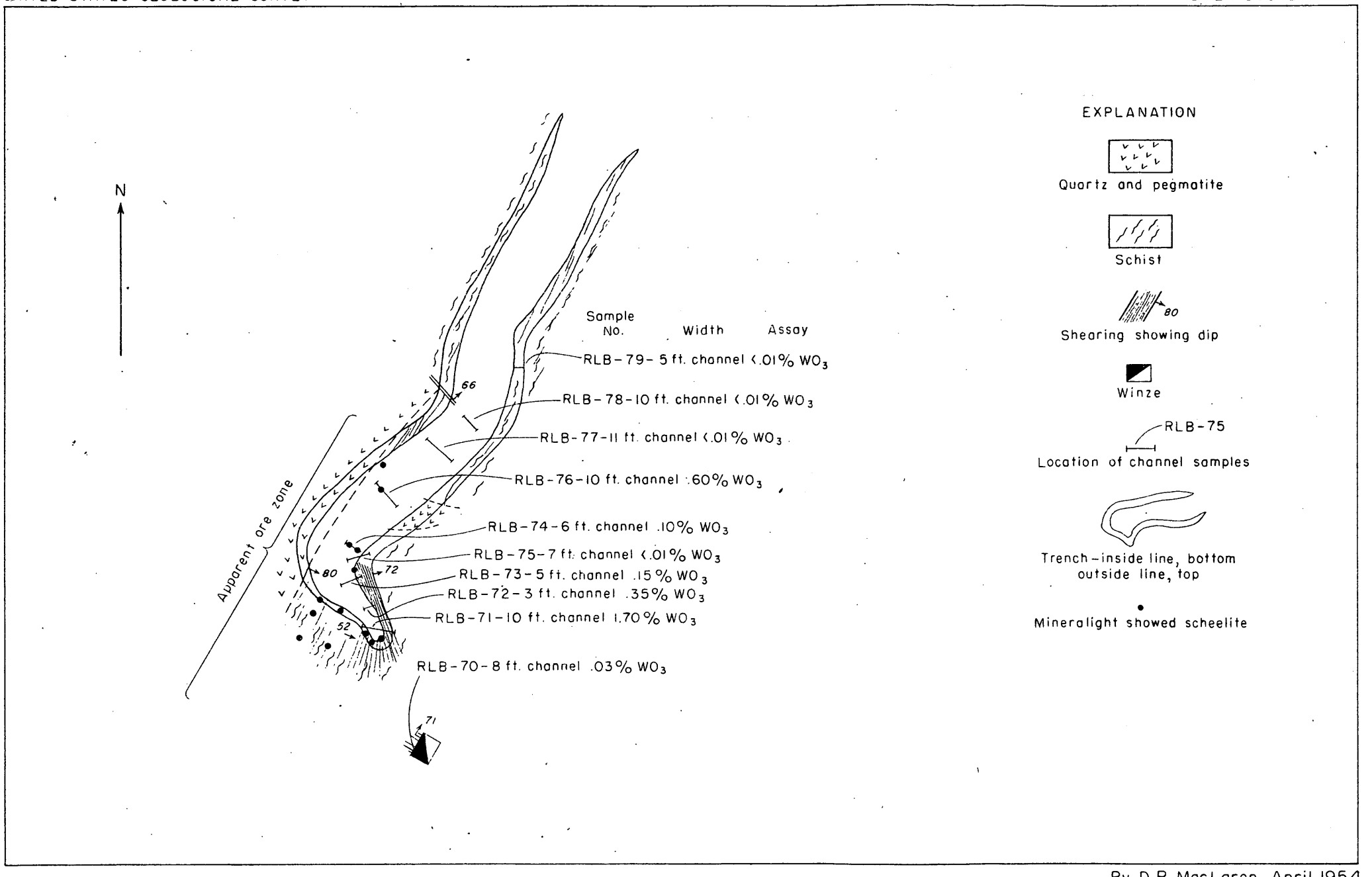
It is concluded that the chances of making a significant discovery of scheelite ore are fair. A modification to the proposed program to provide for tracing the lateral extent and frequency of the scheelite bearing lenses by cutting about 10 trenches across the strike of the ore trend as shown in figure 2 (Engineer's report) was discussed with the applicants. They agree that this should be done before drilling is undertaken. It is therefore recommended that a modified program be approved, and that exploration be authorized to proceed in three phases, each successive phase being dependent upon the results of the previous one, as follows:

Phase I Trenching and sampling, trenches to be located approximately as shown in figure 2 (Engineer's report)

Phase II Drilling 600 feet of diamond drill holes, location of holes to be determined after completion of Phase I

Phase III Crosscutting approximately 100 feet, and drifting and raising approximately 400 feet. Crosscut to be located after completion of drilling.

The estimated cost of this revised program is given in the Engineer's report.



By D.R. MacLaren. April 1954

FIGURE 3.—PLAN SHOWING GEOLOGY, LOCATIONS OF SAMPLE CHANNELS AND ASSAYS, NEW ERA MINING COMPANY, LARAMIE COUNTY, COLORADO

40 20 0 40 Feet

DMEA 3237

LOOKOUT LODE
NEW ERA MINING COMPANY
LARIMER COUNTY, COLORADO

Engineering Report

By R. L. Bolmer
Mining Engineer
Bureau of Mines

DMEA 3237

LOOKOUT LODE
NEW ERA MINING COMPANY
LARIMER COUNTY, COLORADO

CONTENTS

Engineering Report	Page
Introduction	1
Location, topography, and physical features	2
History and production	4
Ownership and extent	5
Description of the deposit	6
Ore reserves	9
Present status	10
Project proposals, with costs	10
Conclusions and recommendations	16

TABLES

Table	Page
1. Estimated costs of project	15

ILLUSTRATIONS

Figure	Follows Page
1. Location map, Lookout lode, Larimer County, Colo.	2
2. Applicant's property rights, New Era Mining Company, Lookout lode, Larimer County, Colo.	6
3. Plan showing geology, locations of sample channels and assays, New Era Mining Company, Larimer County, Colo.	*
4. Sketch map, showing approximate location and extent of proposed surface exploration, Lookout lode, Larimer County, Colo.	11

*With geological report.

DMEA 3237

LOOKOUT LODE
NEW ERA MINING COMPANY
LARIMER COUNTY, COLORADO

ENGINEERING REPORT

By R. L. Bolmer

INTRODUCTION

The New Era Mining Company, 1290 Birch Street, Denver, Colo.--a partnership comprised of C. N. Gonwell, R. C. Derzay, L. E. Smith, and M. C. Chase--has applied for aid in an exploration project, pursuant to DMEA Order 1, under the Defense Production Act of 1950, as amended. The applicant is lessee of the unpatented Lookout lode mining claim, secs. 22 and 23, T. 8 N., R. 72 W., sixth principal meridian, Larimer County, Colo. and proposes to explore that property for tungsten by means of sampling, geologic mapping, and 600 feet of diamond drilling. Some 500 feet of crosscutting, drifting, and raising, contingent on the results of the other work, also is proposed. The estimated cost of such work is $23,725.00. The application was assigned Docket No. DMEA 3237. A suitable report has been requested by the Region IV DMEA Field Team.

The property was examined February 18, 1954, with L. E. Smith and M. C. Chase of the New Era Mining Company and D. R. MacLaren of the Geological Survey. This report has been prepared from the results of that examination and for the purpose of aiding the Region IV DMEA Field Team to evaluate the application for exploration assistance.

A contact metamorphic deposit, from which small tonnages of scheelite ore have been produced, occurs on the property. The existing development of the deposit consists of a shallow open-cut trench, about 180 feet in length, along the outcrop of the contact zone. The zone appears

to be from 10 to 15 feet in width. Disseminated scheelite mineralization is confined to discontinuous leases and pockets along the contact zone. The individual mineral occurrences within the zone apparently are of commercial grade. Whether or not such concentrations will extend laterally and with depth and occur with sufficient frequency for the entire zone to be mined as a low-grade, large-tonnage deposit, must be determined. Within the present cut, the zone is poorly exposed due to debris and spoil material; beyond the cut the outcrop of the zone is more or less obscured by overburden. The structure, however, appears to extend laterally and with depth beyond the present cut.

Certain exploration designed to extend the presently exposed lateral and vertical limits of the zone and to ascertain its mineral content, structure, and attitude was considered warranted. Exploration of the deposit by underground methods could not be justified at present.

A modified exploration program, acceptable to the applicants and to be performed in two phases is recommended. Phase I included stripping, trenching, sampling, and mapping of the apparent lateral extension of the outcrop of the zone. Phase II, to be dependent on the results obtained under Phase I, consists of 600 feet of core drilling. The total estimated cost of the program is $5,940.00 of which the Government would contribute 75 percent, or $4,455.00.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The deposit is located some 30 miles, mostly by mountain road, west of Fort Collins, Colo. (fig. 1). The specific location of the Lookout claim is NE1/4 sec. 22, NW1/4 sec. 23, T. 8 N., R. 72 W., sixth principal meridian, Larimer County, Colo. The property is most readily accessible from Bellvue, Colo., a community on the Colorado and Southern Railroad and

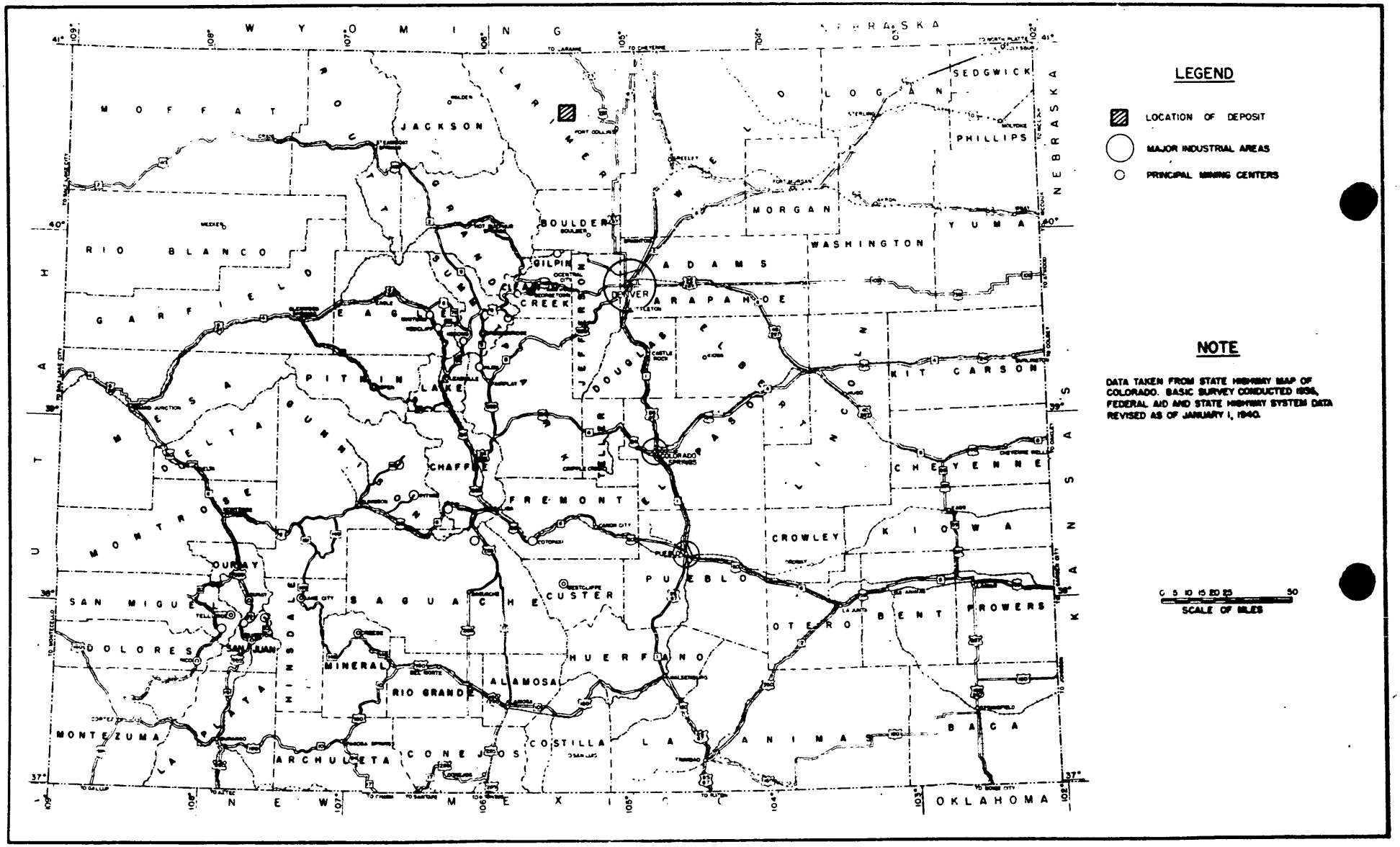


FIGURE 1- LOCATION MAP, LOOKOUT LODE, LARIMER COUNTY, COLO. (DMEA 3237)

U. S. Highway 287 approximately 8 miles west of Fort Collins. A good mountain road through Rist Canyon and Stratton Park junctions with the Stove Prairie road 13 miles west of Bellvue. The deposit is 8 miles farther west and north of the Stove Prairie-Rist Canyon crossroads via the Stevens Ranch road. The 5 miles of access road beyond the Stevens Ranch is rough and unimproved.

The claim is in a heavily wooded mountainous section of the Roosevelt National Forest at an altitude of 8,250 feet above sea level. The timber on the property, mostly aspen and jackpine should be suitable for most exploratory needs. The drainage of the area is northerly into the Cache la Poudre River. Gulches in the immediate area are dry throughout most of the operating season and water for exploration and mining purposes would have to be hauled about 2 miles.

Winters in the area at the elevation of the deposit can be severe and it is possible that mining operations would be curtailed 4 to 5 months of the year due to weather conditions and isolation of the property. There are no housing facilities on or near the property, and, as it is in an area away from mining activity, experienced labor is not readily available. The topography of the immediate area lends itself to deeper development of the deposit by short crosscut or drift adits from the steep slope along the western and southern sections of the claim.

The nearest tungsten mills are in Boulder County, a trucking distance of some 75 miles. These custom mills are set up for the gravity concentration of ferberite ores and generally do not make an efficient recovery on most scheelite ores and, therefore, are not anxious to receive them. Shipments to custom mills in the Salt Lake City area, or to a scheelite mill reportedly under construction in the Salida, Colo. area

would entail trucking to Fort Collins or Bellvue for rail shipment. Crude ore probably could not stand the freight rates to these points. The applicants, should sufficient reserves be developed, have indicated a desire to construct a flotation mill in the area.

HISTORY AND PRODUCTION

The Lookout lode claim was located in recent years; the exact date, however, is unknown. The annual assessment work performed by the locators consisted of shallow surface trenches and pits along the outcrop of the deposit and the construction of an access road to the property. No known production resulted from this work. During 1952-53, the property was leased to a group of individuals who made several small shipments from the property under the name of the Buckhorn Mining Company of 405 Wood Street, Fort Collins, Colo.

The deposit was mined from an open surface cut along its outcrop. The ore zone was not mined selectively but was broken 10-12 feet in width and excavated with a drag line. A small sorting plant was constructed and some effort was made to upgrade the crude ore by means of hand sorting with the aid of a Mineralight. Altogether, five lots of crude and upgraded ore, aggregating 51.55 dry short tons and containing 102.01 short ton units of tungsten trioxide were shipped to Boulder Tungsten Mines Incorporated in Boulder County, Colo. The total recorded production from the property is as follows:

Date	Net dry weight (pounds)	WO_3 Content Percent	WO_3 Content Pounds	Gross value	Deductions	Net market value
9/18/52	257	59.88	153.91	$ 445.54	$ 115.36	$ 330.18
11/ 8/52	620	32.30	200.26	468.61	446.61	22.00
12/24/52	18,627	1.14	212.34	272.85	88.52	184.33
1/24/53	46,919	1.50	703.78	888.52	239.28	649.24
4/17/53	36,677	2.10	770.00	1,060.67	187.07	873.60
Total	103,100	1.98	2,040.89	$3,136.19	$1,076.84	$2,059.35
	Average per short dry ton:			$60.84	$20.89	$39.95
	Average per short ton unit of contained WO_3:			$30.74	$10.55	$20.19

It can be seen from the above summary that nearly one-third of the gross value of the production was lost through deductions for milling and hauling. After royalties totaling $267.32 or about 13 percent of the net market value were paid, the net return to the lessees was $1,792.03, an average of only $34.76 per ton of ore marketed or $17.56 per unit of contained WO_3.

At least two similar scheelite deposits, which the applicants are attempting to secure by lease, occur near the Lookout lode. These also have been developed by shallow surface workings and are believed to have produced small tonnages during and possibly since World War II. Two of these deposits were examined and reported on by the Bureau of Mines in 1943.*

OWNERSHIP AND EXTENT

The Lookout lode mining claim is held through location by a group of individuals whose names are listed on the lease accompanying the application for exploration assistance. It is understood that all of the owners

*Beline Property, Larimer County, Colo. - Tungsten; War Minerals Memorandum by C. R. Wilfley, November 1943.

are residents of Larimer County, Colo. T. N. Sackett of Fort Collins, Colo., one of the recorded owners, acts as agent for the other parties. The location certificate is recorded in Book 936, page 548, of the Larimer County records, Fort Collins, Colo. The property consists of a single, rectangular lode mining claim, 1,500 feet in length by 600 feet in width (fig. 2). The claim boundaries encompass the known outcrop and the apparent extensions of the tungsten deposit.

The recorded owners have leased the property to Raymond C. Derzay, Cleland N. Conwell, Loren E. Smith, and Marvin C. Chase, who comprise a partnership known as the New Era Mining Company, 1290 Birch Street, Denver, Colo., which is the applicant for Government exploration assistance (Docket No. DMEA 3237). The lease is for a period of 5 years or until November 1, 1958, and is renewable for an additional 5-year period. The lease calls for a royalty payment of 10 percent of the net market value on all ores taken and sold from the property.

DESCRIPTION OF THE DEPOSIT

The rock outcropping on the property is predominately a schist which has been intruded to a considerable degree by granite, pegmatite, and quartz. Certain zones within the schist, which probably represent the more limey members of the original formation, show evidence of considerable alteration. The altered and recrystalized lime rocks comprising these zones contain or have been replaced by considerable amounts of almost massive garnet and to a minor degree by other high-temperature minerals. Certain internal units or lenses within the altered zones contain disseminated scheelite mineralization. The deposit appears similar to those of a contact metamorphic origin and may be associated with the nearby and probably underlying granite intrusive.

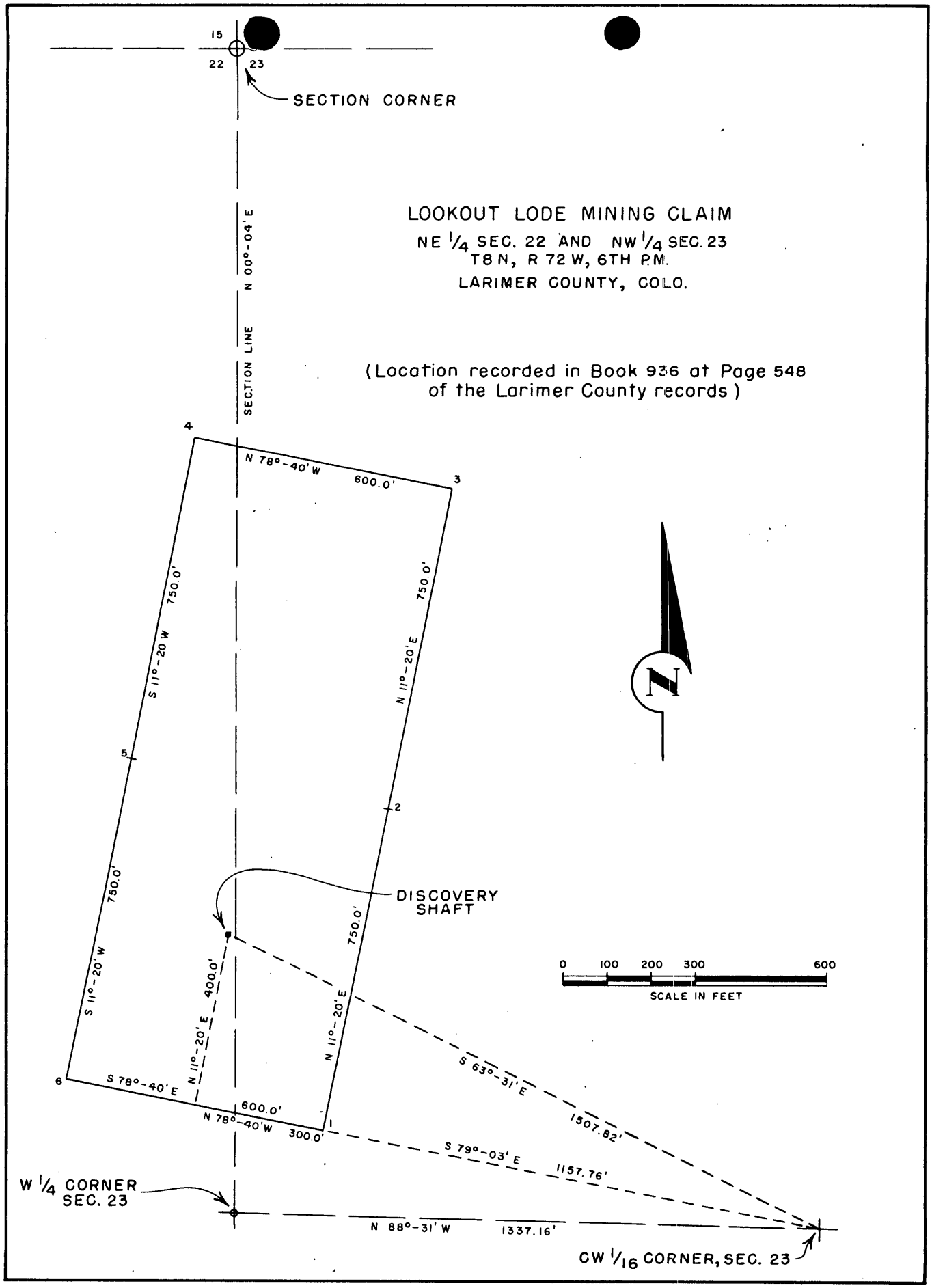


FIGURE 2-APPLICANTS PROPERTY RIGHTS, NEW ERA MINING CO., LOOKOUT LODE, LARIMER COUNTY, COLO. (DMEA 3237)

The outcrop of the zone has been exposed for a length of some 200 feet and for depths up to 10 feet by an open-cut trench which was the source of the earlier production from the deposit. The bottom of the trench is some 15 to 20 feet in width. Much of the trench bottom is obscured by debris; the zone, however, is fairly well exposed in the southern most walls of the cut. Although obscured to a greater or lesser degree by overburden, the outcrop of the zone apparently can be traced for several hundred feet northeasterly and southwesterly beyond the existing cut. Where it can be observed, the apparent outcrop extension is from a few to several feet in width and is garnetized. The occurrence of scheelite in these few and poorly exposed locations along the apparent extensions of the zone, could not be determined. Toward the southern end of the open cut, the main zone appears to split and to fan out into at least three separate units. The zone apparently parallels the schistosity and dips nearly vertical to steeply southeasterly.

Much of the trench was too deeply covered with debris to be examined thoroughly; the accessible sections, however, were examined and, wherever possible, sampled. The locations and analyses of the samples taken have been shown on figure 3 accompanying the geological report. The trench also was examined after dark with a Mineralight. From such an examination it became apparent that tungsten mineralization was not continuous along or even across the zone but was confined to discontinuous lenses and pockets within the zone. The scheelite mineral occurs disseminated through the lenses and pockets. When they can be observed, the mineral crystals are small, and much of the scheelite exists in a fine-grained, almost powdery form. The individual mineral exposures, as disclosed by the Mineralight, vary from minute fragments up to areas of

several square inches. Often the scheelite occurs in a series of parallel tabular masses. These masses of nearly pure mineral vary from 1/8 to 1/2 inch in width over an area of several square inches and probably represent replacements of the host formation along its original bedding planes.

Many of the samples taken in the daylight had missed the tungsten occurrences disclosed later under the Mineralight. A fairly representative sample (RLB-71) taken at the southern end of the cut assayed 1.70 percent WO_3 over a width of 10 feet. A later examination of the southern wall of the cut under the light disclosed two additional mineralized lenses, each 2 to 3 feet in width, which had not been included with this sample. Much of the spoil material in and around the trench and much of the dump material at the north end of the cut showed tungsten mineralization under the light. Several representative pieces of sorted ore which were obtained from a 2- to 3-ton sample remaining in the old sorting shed assayed 6.25 percent WO_3.

It appears that the tungsten occurrences within the presently exposed sections of the zone are erratic. Concentrations of disseminated mineral form discontinuous lenses and pockets along the zone, the individual lenses and pockets within the zone appear to be of commercial grade or better. Whether these concentrations will continue along the apparent extensions of the zone and will occur with sufficient frequency for the zone to be mined as a large tonnage, low-grade deposit, such as the applicants hope can be proven, remains to be determined.

Even if similar mineralization is found to occur along the extensions of the zone, small scale, selective mining of the tungsten concentrations would be expensive and probably prohibitive if it were necessary to employ underground methods. The chances of obtaining commercial production from the deposit depend upon the discovering and the development of sufficient low-grade reserves to justify the construction of a milling unit.

With a mill, low-cost, non-selective surface methods could be employed to mine the zone as a complete unit. If the attitude of the deposit with depth should continue favorable, some non-selective underground method of mining the deposit might be employed.

Straight gravity concentration of the scheelite in this deposit might prove satisfactory. It is believed, however, that some of the garnet in the ore would concentrate with the tungsten mineral and that the addition of magnetic separation to the circuit might be necessary. Fine grinding probably will be required and the tungsten loss in fine sizes through sliming might be excessive. Flotation probably would be required to clean the middling concentrates from the gravity circuit. It is believed that a combination of flotation, gravity, and magnetic methods would be required for the most effective concentration of this ore. A preliminary hand sorting of the crude ore with the aid of ultraviolet light might prove profitable.

ORE RESERVES

From present exposures of the zone, particularly in the southern end of the cut, some small tonnages of measured and indicated reserves, including the dump and spoil material, could be determined from the sample results and the visual examination made of the deposit with the aid of the Mineralight. Such an estimate, however, would not be too accurate and is not considered especially pertinent at this time.

Inferred reserves, based on the geologic possibility of the continuation of the ore zone both laterally and with depth beyond the present limits of the open cut, do exist. On the assumption that the ore zone will continue similarly mineralized over an average width of 5 feet for a lateral distance of 150 feet beyond either end of the present cut and for a depth of 100 feet below its outcrop, then approximately 25,000

tons of reserves averaging 0.4 to 0.6 percent WO_3 (10-15,000 short ton units WO_3) can be inferred.

PRESENT STATUS

The existing development of the deposit, a single open-cut trench along its outcrop, already has been discussed. The property has no equipment nor facilities other than an access road suitable for exploratory work and an ore sorting building equipped with a picking belt, ore bin, and chutes. A small frame building, suitable for housing one or two persons when repaired, also exists on the property.

PROJECT PROPOSALS, WITH COSTS

The applicants originally proposed exploration of the deposit by means of sampling, geologic mapping, and 600 feet of core drilling. Some 500 feet of underground crosscutting, drifting, and raising, contingent upon the favorable results of the other work, also were proposed. The total estimated cost of the proposed work was $23,725.00.

Exploration of this deposit by underground methods is of doubtful value at present, particularly so when its lateral and vertical extent, grade, and attitude have not been determined. The locations, amount, and type of underground work that may become desirable after these facts have been determined are not known at present. Even if such work were desirable at a later period, its cost could not be determined accurately at this time. The underground exploration proposed by the applicants, therefore, is not considered nor recommended at present. At the completion of that portion of the proposed program which is being recommended, and if the results then accomplished thereunder warrant, the applicants may request additional exploration as an extension of their original contract.

At its present stage of development, it is believed most desirable to determine, within moderate limits, the lateral and vertical extent of the deposit and to obtain more definite information as to the grade and continuity of its mineralization. The continuation of the structure and its mineralization with moderate depth can be determined more quickly and cheaply by means of core drilling. The continuation of the structure and mineralization laterally can be determined most effectively by stripping overburden from the apparent extension of the outcrop and then by trenching and sampling the ore zone itself when and if it is exposed. Such work is a desirable prerequisite for the effective utilization of the core drilling. Stripping and trenching along the outcrop was discussed with the applicants and they have amended their original application to include such work.

The exploration program recommended in this report is divided into two phases: Phase I, to consist of stripping, trenching, and sampling the surface outcrop of the deposit, and Phase II, to consist of diamond drilling the deposit (the location of drill holes to be dependent upon the results obtained under Phase I).

Phase I will include (1) the stripping of overburden from areas along the projected and apparent extension of the outcrop of the tungsten-bearing zone in both directions from the present cut, and (2) the excavation of shallow trenches across the actual ore zone and the sampling of the zone. The approximate locations of the work to be completed under Phase I, in relation to the present cut, are indicated on figure 4.

An estimated maximum of 100 hours of bulldozing (including arriving and leaving time) will be required to strip overburden from the areas indicated and to clean the debris and spoil material from within and around the ends of the present cut. The overburden north of the cut is relatively

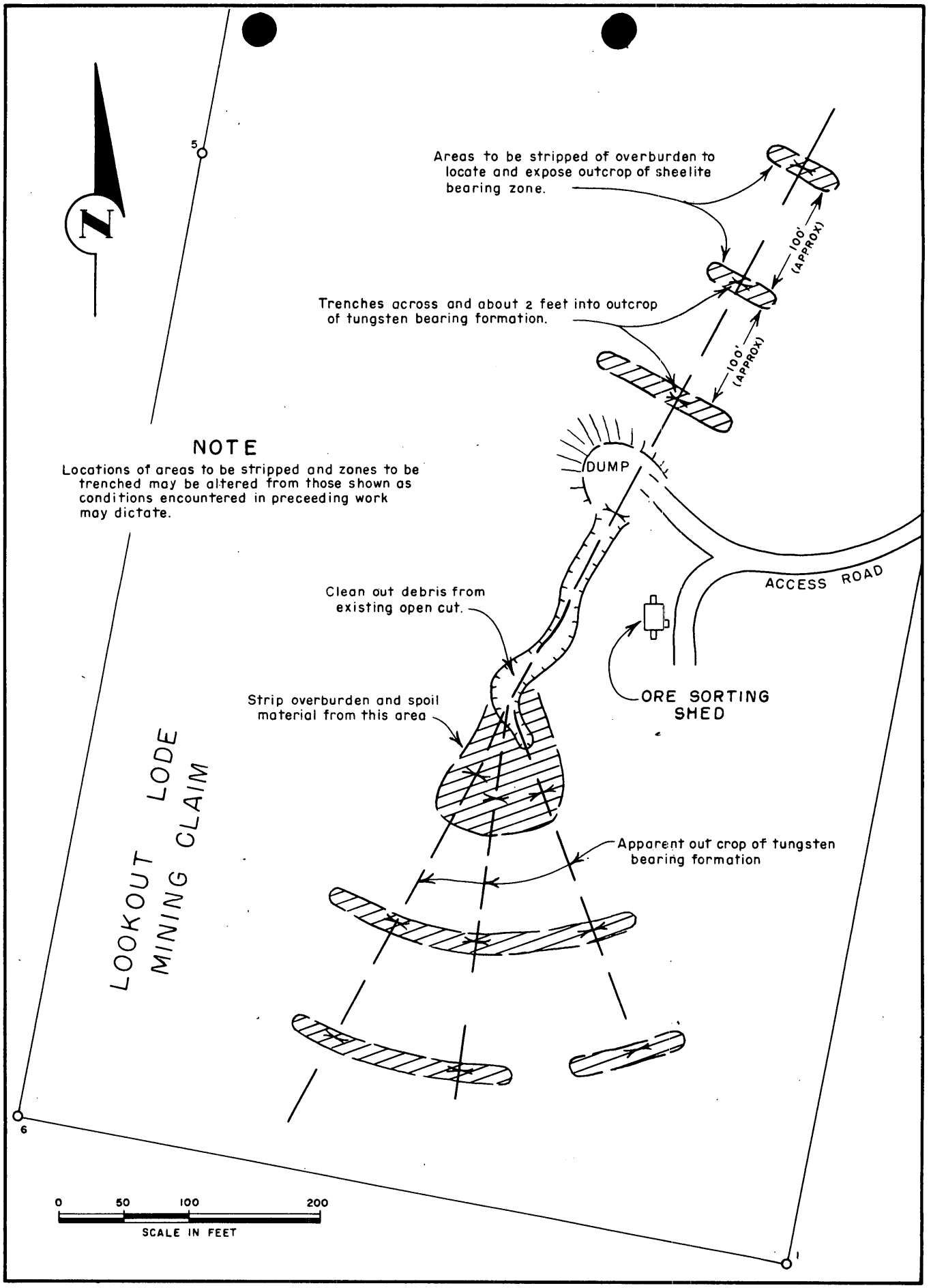


FIGURE 1 - SKETCH MAP, SHOWING APPROXIMATE LOCATION AND EXTENT OF PROPOSED SURFACE EXPLORATION, LOOKOUT LODE, LARIMER COUNTY, COLO. (DMEA 3486)

Fig. 4

now!

shallow; that south of the cut is deeper and the terrain is quite steep. Should conditions encountered as the work progresses not warrant the completion of the full 100 hours of bulldozing, funds equivalent to the unexpended hours could be well spent for common labor to clean by hand the irregularities in the bottom of the present cut. It is expected that the stripping by bulldozer will be contracted for at a rate of $12.00 per hour. The contractor probably will charge for the time required to deliver his equipment to and remove it from the project (an estimated 1 day or 10 hours in either direction).

An estimated maximum of 130 linear feet of shallow trench across only the actual ore zone, as exposed by the stripping operations, will be required. The trenches should penetrate solid rock to depths of about 2 feet in order to sufficiently expose the structure and present a fresh face for sampling. The trenches will require drilling and blasting.

A full-time supervisor will be required for the estimated 1 month period necessary to complete Phase I. One of the applicants, all of whom have an engineering background, will serve as supervisor at the rate of $400.00 per month. He will perform the technical services required of the project as well as the usual supervisory duties. Technical services will include locating and laying out the areas to be stripped, the zones to be trenched, sampling the trenches, preparing the samples, et cetera. A geological and topographical map of the deposit will be started which will show the locations of all work performed, all samples taken, et cetera. The required Government reports will be prepared by the supervisor.

Phase II will consist of a maximum of 600 feet of diamond drilling. The applicants state that they can contract this work for $4.00 per foot. The locations of the holes, their bearing, inclination, depth, et cetera,

will be determined from the results obtained under Phase I. Such details should have the prior approval of the DMEA Region IV Field Team. The drilling should be completed within 1 month and a full-time supervisor during that period will be required. The supervisor will also perform the usual technical duties associated with core drilling--spotting the holes, logging, splitting, sampling, boxing the core, as well as continuing the geologic map, locating the holes on the map, et cetera.

The estimated costs of both Phase I and Phase II, including independent contracts, labor, supervision, and technical services, supplies, equipment rental, et cetera has been itemized in table 1. The total estimated costs of the project are $5,940.00, of which the Government's share will be 75 percent, or $4,455.00. It is believed to be to the advantage of the Government for the project expense (excluding analyses of samples) to be reported and paid on the basis of the following unit costs for authorized work actually completed:

	Total units	Unit cost*	Total cost
Phase I	100 bulldozer hours	at $14.00 per hour	$1,400.00
	130 linear feet of trench	at $10.00 per foot	1,300.00
Phase II	600 feet of core drilling	at $5.00 per foot	3,000.00
Analysis of samples			240.00
		Total	$5,940.00

*Includes supervision and technical services.

The bulldozing hours completed can be substantiated by invoice from the independent contractor. Any hours under the maximum not completed, for which an equivalent amount of common labor is substituted, can be substantiated from the project payroll. Trenching and drilling can be paid on the basis of the inspecting engineer's measurement and invoice from independent

contractor. Payment for analyses can be made upon submission of assayer's invoice.

TABLE 1. - Estimated costs of the project

Items of cost		Estimated costs of project	Distribution of estimated costs to project operations: Phase I, Stripping	Phase I, Trenching	Phase II, Core drilling
Independent Contracts:	Bulldozing (100 hours at $12.00 per hour)	$1,200.00	$1,200.00		
	Core drilling (600 feet at $4.00 per foot)	2,400.00			$2,400.00
Labor:	Miner (120 hours at $1.75 per hour)	210.00		$210.00	
	Miner's helper (120 hours at $1.50 per hour)	180.00		180.00	
Supervision and Technical Services:	(2 months at $400.00 per month)	800.00	133.00	267.00	400.00
Operating Materials and Supplies:	Explosives	70.00		70.00	
	Pipe, fittings	30.00		30.00	
	Drill steel, bits, bit sharpening	70.00		70.00	
	Gasoline, oil, grease	137.00	16.00	74.00	47.00
	Small tools, miscellaneous supplies	30.00		30.00	
Rental of Operating Equipment:	160-210-c.f.m. portable, gasoline-powered compressor - 2/3 month at $300.00 per month	200.00		200.00	
	55-pound jackhammer, air hose - 2/3 month at $75.00 per month	50.00		50.00	
	3/4-ton pick-up truck - 2 months at $135.00 per month	270.00	45.00	90.00	135.00
Miscellaneous:	Payroll taxes	24.00	3.00	13.00	8.00
	Liability insurance	29.00	3.00	16.00	10.00
	Total Distributed Costs	$5,700.00	$1,400.00	$1,300.00	$3,000.00
Non-distributed costs:	Analysis of samples (40 assays at $6.00 each)	240.00			
	Total Estimated Costs of Project	$5,940.00			
Government participation in total estimated costs of project		$4,455.00			
Estimated maximum number of units to be completed			100 bulldozer hours	130 linear feet	600 linear feet
Estimated unit cost			$14.00 per hour	$10.00 per foot	$5.00 per foot
Estimated time for completion		2 months	1/3 month	2/3 month	1 month

THE SECRETARY OF THE INTERIOR

WASHINGTON

MEMORANDUM

TO: All Bureau Heads and Interior Department Employees

FROM: Secretary of the Interior

SUBJECT: Memorial Ceremony

Wednesday, November 10, at 11:00 a.m., in the Interior Department Auditorium, Post No. 63, The American Legion, will hold its annual Veterans Day Memorial Ceremony. Music will be furnished by the U. S. Army Band. The guest speaker will be Father Albert J. Hoffman, the National Chaplain of the American Legion. Father Hoffman is Professor of Religion and Spanish at Loris College in Dubuque, Iowa.

This impressive service is dedicated to those Department of the Interior employees who gave their lives in this country's wars that we may enjoy the way of life which we deeply cherish.

I regret exceedingly that I am unable to join with you personally in commemorating this memorable and patriotic occasion but I shall be out of the city on official business of the Department of the Interior. I earnestly urge all employees that possibly can to attend the Memorial Ceremony. The Service will take approximately 30 minutes and there will be no charge to annual leave.

Douglas McKay

Secretary of the Interior

CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the tungsten deposit occurring on the Lookout claim, Larimer County, Colo., warrants certain exploration and appears to meet the various requirements for Government assistance in such work under the DMEA program. The applicants are experienced and technically qualified individuals who should be able to carry out an exploration project expertly and in the manner authorized.

The exploratory program outlined in this report for an estimated cost of $5,940.00 is recommended.

RLB/pam

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

224 New Customhouse
Denver 2, Colorado

May 14, 1954

Memorandum

To: Administrator, DMEA
Attn: Code 200

From: Executive Officer, DMEA Field Team, Region IV

Subject: DMEA Docket 3237 (Tungsten), New Era Mining Co., (Lookout Lode) Laramie County, Colorado

Transmitted herewith are the original and three copies of the Engineering and Geologic report relative to the examination of the subject property for DMEA assistance to explore for tungsten.

This application was to be approved to allow for exploration of the property by stripping, trenching, sampling and diamond drilling at a cost of $5,940.00 but the application was withdrawn by letter dated May 12, 1954.

Also enclosed are the original and three copies of the letter requesting the application be withdrawn and four copies of our letter of reply.

John F. Shaw
For W. H. King

Enclosures
cc

for E. N. Haschman
A. H. Koschmann

224 New Customhouse
Denver 2, Colorado

May 14, 1954

New Era Mining Co.
1290 Birch Street
Denver, Colorado

Re: DMEA Docket 3237 (Tungsten)
New Era Mining Co. (Lookout Lode)
Larimer County, Colorado

Dear Mr. Chase: Attn: Mr. Marvin C. Chase

We hereby acknowledge receipt of your letter dated May 12, 1954, requesting that the subject application be withdrawn.

We have complied with your wishes and DMEA Docket 3237 is now considered closed.

We are returning the copy of your lease, which was included with your application.

Yours very truly,

John F. Shaw
For W. H. King
Executive Officer
DMEA Field Team, Region IV

RDB:ma

Inclosure

cc: Administrator, DMEA (4)
WMTraver
AHKoschmann
Docket
Chron.
Mining Div.

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

January 19, 1954

Memorandum

To: Executive Officer, DMEA Field Team, Region IV

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 IV.

DMEA - 3237 - The New Era Mining Co.

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

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 18 1954

224 New Customhouse
Denver 2, Colorado

January 15, 1954.

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: 200

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docketing for Exploration Assistance

Enclosed herewith in duplicate is DMEA Form 3a (Revised) and MF-103 and supporting data pertaining to the following applications for Government assistance in exploration work:

Tantalizer Mining Corporation c/o Ben Bozeman 635 Majestic Building Denver 2, Colorado	Tantalum & Copper
The New Era Mining Company, a Partnership 1290 Birch Street Denver, Colorado	Tungsten
Earl B. Willden, Al Willden and L. A. Petty Delta, Utah	Tungsten

W. H. King

W. H. King

Enclosures

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

RECEIVED
JAN 18 1954

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. 3237
Metal or Mineral Tungsten
Date Received
Estimated Cost $23,575
Participation (Government %) 75%

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: The New Era Mining Company of 1290 Birch Street, Denver 20, Colorado
A partnership: Cleland N. Conwell, 1290 Birch Street, Denver, Colorado; R. C. Derzay 4281 Julian, Denver, Colorado; Loren E. Smith, 3460 W. Amherst, Denver, Colorado; Marvin C. Chase, 665 Hooker, Denver, Colorado

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

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

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract Part of the NE¼ Sec. 22 and NW¼ Sec. 23, T. 8 N., R. 72 W., of the 6th P.M.; beginning at Cor. #1 thence the center west 1/16 Cor. of Sec. 23, 8, 72 bears S. 79° 03' E. 1157.76 ft.; thence N. 11° 20' E. 1500 ft.; thence N. 78° 40' W. 600 ft.; thence S.11° 20' W. 1500ft.; thence S.78° 40' E. 600 ft.; to the point of beginning.

(*b*) State any mine name by which the property is known. Lookout Lode Mining Claim

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

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

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

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. The Lookout Lode Mining Claim is recorded in Larimer Co. records in Book No. 936, Page 548, Fort Collins, Colorado.

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. See attached application.

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

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

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

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

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

(*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. See attached application.

(*c*) The work will start within 60 days and be completed within 18 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. See attached application.

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. (See attached application)

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 [ ] 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 January 4, 1954

The New Era Mining Company
(Applicant)

By Leland H. Connelly
Raymond C. Herzog
John C. Smith
Mark C. Chase

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

Colorado Mineral Industry Authority
RECEIVED
JUN 18 1954

THE NEW ERA MINING COMPANY
1290 Birch Street, Denver, Colorado

Application for aid in an exploration project, pursuant to DMEA Order 1, under Defense Production Act of 1950, as amended.

1. The New Era Mining Company, of 1290 Birch Street, Denver 20, Colorado.
   A partnership:
   R. C. Dersay, 4281 Julian Street, Denver, Colorado
   Loren E. Smith, 3460 W. Amherst, Denver, Colorado
   Marvin C. Chase, 665 Hooker, Denver, Colorado
   Cleland N. Conwell, 1290 Birch Street, Denver, Colorado

3. Part of the NE¼ Sec. 22 and NW¼ Sec. 23, T. 8 N., R. 72 W. of the 6th P.M.; beginning at Cor. #1 thence the Center West 1/16 Cor. of Sec. 23,8,72 bears S. 79° 03' E. 1157.76 ft.; thence N. 11° 20' E. 1500 ft.; thence N. 78° 40' W. 600 ft.; thence S. 11° 20' W. 1500 ft., thence S. 78° 40' E. 600 ft.; to the point of beginning.

3b. Lookout Lode Mining Claim.

3c. Lessee

3d. Lease attached.

3f. The Lookout Lode Mining Claim is recorded in the Larimer County records in Book No. 936, Page 548, Fort Collins, Colorado.

4. A surface cut approximately 8 feet deep and 225 feet long has been made by a drag line. The rock was indiscriminately loaded into trucks and then sorted on a hand picking belt. This cut exposing mineralization is open for examination. The property is serviced by a truck road and is probably snowed in in winter months.

4b. No current production. See attached reproductions of settlement sheets for past production. Probable ore reserve 200 feet X 200 feet X 8 feet = 320,000 cu. ft. or 26,000 tons of ~~.05% WO3~~ 0.5% W

4c. It is a contact metamorphic deposit of limestone and granite. Minerals are scheelite and attendant contact metamorphic minerals.

4d. The property is easily accessible during spring and summer weather. It is about 20 miles northwest of Ft. Collins, Colorado a city of adequate size for source of supplies, residence and equipment.

4c. Manpower, materials, equipment, and supplies are available nearby. Water may be had two miles from the deposit. Diesel or gasoline power will be used.

5a. The mineral to be explored for will be scheelite (tungsten).

5b. Only surface indications of the deposit are present. Proposed exploration is divided into two phases:

Phase I. This will consist of sampling, geologic mapping and approximately 600 feet of diamond drilling.

Phase II. This will consist of crosscutting about 100 feet from the mountain slope to the ore deposit and approximately 400 feet of drifting and raising to fully explore the vein. This phase is contingent upon the favorable results of Phase 1, indicating an ore body of sufficient depth, length and grade to warrant further exploration.

5c. The work will start within 60 days and be completed within 18 months from the date of an exploration project contract.

5d. The applicants have an aggregate of 42 years of geologic, mining and engineering experience. The applicants will personally supervise the operations.

6a. Phase I. Independent Contracts:
Diamond drilling per foot, 600 feet @ $4.00= $2400.00 (includes moving drill rig in and off the property).

Phase II. Crosscutting approximately 100 feet at $37.50 per foot= $3750. Drifting and raising approximately 400 feet at $40.00 per foot= $16,000.

6b. Phase I. Supervision: ½ mo. @ $400.00 per mo.= $200.00
Engineering Services: 5 days @ $75.00 per day (includes engineer, helper and expenses)= $225.00.

Phase II. Supervision: 1 man at $400 per mo., 4 months to be apportioned as supervisor on the job (about ¼ time)= $400.

6c. Contractor will furnish supplies and equipment.

6d. As above.

6e. No rehabilitation necessary.

6f. No new installations.

6g. Phase I. Analytical work 40 samples @ $3.00= $120.00

Phase II.	Metallurgical tests=	300.00
	Analytical work 60 samples @ $3.00=	180.00
	Accounting at $25.00 per mo. for max. 6 mos. =	150.00

6h. No contingencies.

7a. Yes

7b. Money

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 December 31, 1953.

NEW ERA MINING COMPANY
Applicant

By Raymond C. Dempsey
Marvin C. Chase
Loren E. Smith
Edward H. Cornwell

BOULDER TUNGSTEN MINES, INC.

Tungsten Mining And Milling
Box 37
BOULDER, COLORADO

Phones:
Office 2312-J
Mill & Mine 01-R1

New York Office
17 East 42nd St.
MU 2-0448

DEPARTMENT OF ... Defense Minerals ... RECD. JAN 18 1954

TUNGSTEN SETTLEMENT SHEET

Shipper: Mr.T.H.Sacket Agent

Lessees Sam Harris,Herbert Veisner & Associates
Fort Collins Colo.

Date Sept 18,1952

Shippers Lot No. S

Mill Lot No. S-911 A

Name of Mine

Mine Owner T.H.Sacket & Associates

Royalty At:

Containers: 3 sacks

Gross Weight Lbs. 263

Tare Weight Lbs. 3

Net Weight Lbs. 260

Moisture Per Cent 1%

Lbs. H2O 3

Analysis:- WO3 ____
P ____
Cu ____
As ____
Bi ____
Mo ____
Sn ____
S ____
Sb ____
Mn ____
Pb ____

Net Dry Weight 257 @ 59.88% WO3 153.91 Lbs WO3 7.695 Units WO3

Base Price $____ Per Unit $ 59.20

Penalties

None

Total Penalties $____ Net Price $ 59.20 Per unit Total Value

7.695 Units @ 59.20 Per Unit $ 445.54

Gross Proceeds:	$ 445.54
Royalty	
Sampling & Assaying	40.00
Hauling	
Milling	75.36
Total Deductions	$ 115.36
Net Value	$ 340.18

I hereby certify that the ore described above and sold is from the _____ Mine, and that I have authority from its owner to remove and sell the same, that said ore is not encumbered by any liens or attachments and receipt of payment in full is hereby acknowledged.

_____
Vendor

By_____

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Mill & Mine 01-R1

Tungsten Mining And Milling
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BOULDER, COLORADO

New York Office
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MU 2-0448

TUNGSTEN SETTLEMENT SHEET

Shipper: Buckhorn Mining Company
c/o Herbert Beisner & Vernon Fangmeir

Date November 5, 1952

Shippers Lot No. 1022-A

Mill Lot No. 1022-A

Name of Mine Buckhorn

Mine Owner T.H. Sackett, Agent

Calculated as follows: Net tons 20.68, Gross Value $468.61 or $22.12 per ton

Royalty At: 7.37% 1/3 of 22.12 - - 7.37%

Containers: 7 sacks

Analysis:- WO3 32.30

P

Cu

As

Bi

Mo

Sn

S

Sb

Mn

Pb

Gross Weight Lbs. 632

Tare Weight Lbs. 7

Net Weight Lbs. 626

Moisture Per Cent 1%

Lbs. H2O 6

Net Dry Weight 620 @ 32.30 WO3 200.26 Lbs WO3 10.013 Units WO3

Base Price $ Per Unit $ 46.66

Penalties

None

Total Penalties $ Net Price $ 46.66 Per unit Total Value

10.013 Units @ 46.80 Per Unit $468.61

Gross Proceeds:	$ 468.61	Gross Value	468.61
Royalty ~~T.H. Sackett 7.37% of $22.00~~	1.62	Milling $ 248.16	
Sampling & Assaying		Hauling 198.45	
Hauling ~~Herbert Beisner 20.89 tons @ $9.50~~	198.45		446.61
Milling ~~20.68 tons @ $12.00 per ton~~	248.16	Net	22.00
Total Deductions	$ 448.23	Royalty 7.37%	1.62
Net Value	$ 20.38	Lessee's	$ 20.38

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_____
Vendor

By _____

BOULDER TUNGSTEN MINES, INC.

Tungsten Mining And Milling
Box 37
BOULDER, COLORADO

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Mill & Mine 01-R1

New York Office
17 East 42nd St.
MU 2-0448

TUNGSTEN SETTLEMENT SHEET

Shipper: Buckhorn Mining Company

Date December 24, 1952

Shippers Lot No. _____

Mill Lot No. _____

Name of Mine Buckhorn

Mine Owner T. H. Sackett, Agent

Royalty At: 9.16% - net tons 9.318, Gross value 272.28 or $29.2[illegible] per ton, 1/3 of 29.28 or 9.16%

Containers: _____

Analysis:- WO3 1.14
P .062
Cu
As
Bi
Mo
Sn
S
Sb
Mn
Pb

Gross Weight Lbs. ~~18600~~ 16200 / 6785 / 9415

Tare Weight Lbs. 13785

Net Weight Lbs. 16815 / 16400 / 7000 / 9400

Moisture Per Cent 1%

Lbs. H2O 188

Net Dry Weight 18627 @ 1.14% WO3 212.34 Lbs WO3 10.617 Units WO3

Base Price $_____ Per Unit $ 26.00

Penalties Phos penalty - 15¢ per unit for each .01% or fraction over .05% .30

Total Penalties $ .30 Net Price $ 25.70 Per unit Total Value

10.617 Units @ 25.70 Per Unit 272.85

Gross Proceeds: $ 272.85

Royalty 9.16% 28.88

Sampling & Assaying

Hauling Hubert Riesner 88.52
(9.318 tons @ $9.50)

Milling

Total Deductions $ 105.40

Net Value $ 167.45

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_____
Vendor

By _____

Phones:
Office 2312-J
Mill & Mine 01-R1

BOULDER TUNGSTEN MINES, INC.

Tungsten Mining And Milling
Box 37
BOULDER, COLORADO

New York Office
17 East 42nd St.
MU 2-0443

TUNGSTEN SETTLEMENT SHEET

Shipper: Buckhorn Mining Company ~~Fort Collins, Colo.~~

Date January 24, 1953

Shippers Lot No.

Name of Mine

Mill Lot No. 1226-A

Mine Owner T.H.Sacket, Agent

Royalty At: 12.38% (Gross Value per ton $37.14 1/3 - - $12.38)

Containers: 3 Truck

Gross Weight Lbs.	72,425	No.1	24800
			7950
			16850
Tare Weight Lbs.	24,550	No.2	24500
			8200
			16300
Net Weight Lbs.	47,875	No.3	23125
			8400
			14725
Moisture Per Cent	2%		
Lbs. H2O	956		
Net Dry Weight	46,919#		

Analysis:

WO3	1.50%
P	~~0.093%~~
Cu	
As	
Bi	
Mo	
Sn	
S	
Sb	
Mn	
Pb	

Net Dry Weight 46,919# @ 1.50% WO3 703.785 Lbs WO3 35.189 Units WO3

Base Price $ 26.00 Per Unit

Penalties 15¢ per unit for each 0.01% P over 0.01% to 0.10% P or fraction thereof. $ .75

Total Penalties $ .75

Net Price $ 25.25 Per unit

~~35.189~~ Units @ ~~$25.25~~ Per Unit Total Value ~~$886.52~~

Gross Proceeds: 888.52

Royalty T.H.Sacket, Agent 12.38% after hauling $ 80.39

Sampling & Assaying

Hauling Ed.Burgener, Box 96, La Port, Colo. 239.28

Milling

Total Deductions $

Net Value $ 568.85

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_____
Vendor

By _____

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Box 37
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Mill & Mine 01-R1

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MU 2-0448

TUNGSTEN SETTLEMENT SHEET

Shipper: Buckhorn Mining Company
205 Wood Street
Fort Collins, Colo.

Date April 17, 1953

Shippers Lot No. 1

Mill Lot No. 407 A

Name of Mine

Mine Owner T.H. Sacket Agent
231 So. Grant Street, Fort Collins, Colo.

Royalty At: 19.28%

Containers: ~~3 truck loads~~

Mar. 25th 23750
8425
15325

Gross Weight Lbs. ~~63990~~
25475

Mar. 27 23640
6425
17215

Tare Weight Lbs.

Net Weight Lbs. ~~37415~~

Apr. 6 13,500
8,625
4875

Moisture Per Cent ~~2%~~

Lbs. H2O ~~748~~

Analysis: WO3 2.10%
P .077
Cu
As
Bi
Mo
Sn
S
Sb
Mn
Pb

Net Dry Weight ~~36667#~~ @ ~~2.10~~ WO3 ~~770.00~~ Lbs WO3 ~~38.50~~ Units WO3

Base Price $ Per Unit $ ~~28.00~~

Penalties 15¢ per unit for each 0.01% Phos or fraction thereof over 0.05% P to 0.10% P .45

Total Penalties $ ~~.45~~ Net Price $ ~~27.55~~ Per unit Total Value

~~38.50~~ Units @ ~~27.55~~ Per Unit ~~$ 1060.67~~

Gross Proceeds $ ~~1060.67~~

Royalty T.H. Sacket, Agent 19.28% 168.43

Sampling & Assaying

Hauling Dick Latham 10.00 per ton 187.07

Milling

Total Deductions $ ~~355.50~~

Net Value $ ~~705.17~~

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_____
Vendor

By _____