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FEB 17 1955

Logan Mines, Inc.
Kellogg Pines, Idaho

Re: Docket No. DMEA 3525 - Tungsten
Last Chance Group
Big Creek Mining District
Valley County, Idaho

Gentlemen:

Your application for aid for an exploration project and other data available to us in Washington relating to the above noted property, have been carefully reviewed.

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

Careful study of all our information, although noting small lenses of tungsten ores of a marginal grade, indicates to us that the probability of discovering minable ore reserves by your proposed program is not sufficiently promising to justify Government participation. We regret to advise, therefore, that your application for exploration assistance is denied.

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

Sincerely yours,

Frank E. Johnson

Administrator

TLCHAPMAN:foc
2-11-55
cc to: Docket
Code 400
Adm. Reading File
Operating Comm.
FT. REG. I - Northwest Dist.
W. McDonis, USBM
Thor H. Kilsgaard, USGS

February 14, 1955

MEMORANDUM

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division, DMEA

Subject: Denial of application for exploration assistance in the amount of $73,280.00
Docket No. DMEA 3525 - Tungsten
Logan Mines, Inc., Last Chance Group of Claims
Big Creek Mining District
Valley County, Idaho

The denial of the subject application by this Division is based on the following information.

1. The applicant requested exploration assistance in the amount of $73,280.00, to explore for tungsten ores in a wide shear zone with numerous short quartz veins on the Last Chance claims of above docketed project.

2. The property consists of the Last Chance Nos. 1 to 6 inclusive, group of claims held by right of location. The claims have been deeded to the Logan Mines, Inc. The claims are about 6 miles southerly from Edwardsburg, a small hamlet on Big Creek, in the Big Creek Mining District, Valley County, Idaho. This is an isolated district in Central Idaho.

3. A wide shear zone occurs in the quartz-monzonite and grano-diorite of the Idaho batholith. These rocks have been cut by numerous rhyolite and dacite dikes and numerous irregular quartz veins have been formed along the dikes and within the shear zone. These veins show pyrite, fluorite, tetrahedrite, galena, sphalerite scheelite and low gold values. All values to date have been too irregular and too low grade to be minable.

4. The above noted area has been explored by eight adits, none of which have shown any minable ore bodies.

5. The applicant proposes to explore the area through the No. 3 adit, which crosscuts the shear zone for 140 feet, with 400 feet of drifting along the vein, 200 feet of short crosscuts, 235 feet of short raises and 2,400 feet of diamond drill holes.

6. Outside of some picked samples the sampling has indicated that all ore showing is of a marginal or sub-marginal grade and there is little or no chance of finding significant ore bodies of a minable grade.

7. The Field Team and the Commodity Divisions of the Geological Survey and the Bureau of Mines recommend that the application be denied.

W. S. Martin, Chief
Iron and Ferro-Alloys Division

TLChapman:fec
2-14-55
cc to: Docket (original)
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Adm. Reading File
Operating Comm.

IN REPLY REFER TO:

400

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

February 8, 1955

Copy retained 400

Re: Docket No. DMEA-3525
Tungsten
Logan Mines, Inc.
Yellow Pine, Idaho

Memorandum

To: Mr. W. S. Martin, Chief, Iron and Ferro Alloys Division, DMEA

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

Subject: Review of Field Team Report on Logan Mines, Inc., DMEA application

The Field Team has made a field examination of the applicant's property and recommended denial of the application.

A silicified shear zone, ranging up to 200 feet in width, crosses the applicant's property in a N. 20° E. direction. Within the shear zone are numerous wide, discontinuous quartz veins that more or less trend parallel to the strike of the shear zone. Scheelite has been found in the quartz veins near the eastern border of the shear zone. Other minerals occurring sparsely within the quartz veins include pyrite, fluorite, tetrahedrite, sphalerite and galena. Samples taken of the veins range from 0.02 to 1.52 percent WO_3. Gold values are nil, and silver values seldom exceed 2.0 ounces per ton. Base metal values are too low to be of economic interest.

The shear zone has been explored by eight adits, the lowest being at an altitude of 7,640 feet and the highest at an altitude of 8,245 feet. Aggregate length of the adits is less than 1000 feet.

The applicant proposes to further explore his property by the following work:

1. Rehabilitate and enlarge the present 140-foot crosscut and drift on No. 3 Tunnel.

2. Drift 400 feet along zone.

3. Crosscut 200 feet -- short crosscuts at points of good ore.

4. Raise 235 feet -- 50 to 75 foot raises on the better ore.

5. 2400 feet of diamond drilling.

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After thoroughly mapping the property, and after preparing a detailed and comprehensive report on their findings, the field examiners conclude that scheelite in the short, discontinuous quartz veins is too sporadically distributed and the grade of any minable bodies too low to warrant further exploration. Because of these characteristics there appears to be little chance of making a significant discovery and the Field Team therefore does not believe the proposed work is justified.

The Field Team's reasons for recommending denial are geologically sound. I concur with their recommendations to deny the application.

Thor N. Killsgaard

TNKillsgaard:hlm
G-2/8/55

Copy to: Director's reading, 4212
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DMEA (3)
Docket file
N. W. Geehan, 3513 Interior

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DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 14 1955

xxxxxxxxxxxxxxxxxxxx
So. 157 Howard Street
Spokane 4, Washington

January 11, 1955

Mr. B. F. Leonard
General Geology Branch
U. S. Geological Survey
Denver Federal Center
Denver, Colorado

Dear Mr. Leonard:

We have recently received an application for aid in an exploration project from Thomas W. Hewitt, Logan Mines, Inc., of Yellow Pine, Idaho (Docket No. [illegible]-3525).

The description of the property covered by the application is: 6 unpatented lode claims, The Last Chance Nos. 1, 2, 3, 4, 5, and 6, in approximately sec. 36, T. 2[illegible] N., R. 3 E., B.M., (unsurveyed) Big Creek Mining District, Valley County, Idaho. From a study of the topographic map and talks with Willard Puffett, I suspect that the property may really be in sec. 35 (unsurveyed); it apparently is located on the ridge approximately 0.[illegible] mile northeast of Greeley Mountain south of the pass southwest of Dixie Mountain.

Al Weissenborn suggested that as you have been mapping in that general area, I write and find out what you know about the property. We feel inclined to not recommend a project there but would like to get all possible information on it before we finally decide.

Sincerely yours,

John S. Shay
For: A. E. Weissenborn
Executive Officer, DMA
Field Team, Region [illegible]

cc: DMA(2)
USGS(2)

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400

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 28 1955

XXXXXXXXXXXXXXXXXXXX
So. 137 Howard Street
Spokane 4, Washington

January 24, 1955

Agree 1/28/55 WSM

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

Re: Docket No. DMEA-3525 (tungsten)
Logan Mines, Incorporated
Yellow Pine, Idaho

Dear Mr. Selfridge:

Enclosed are the original and three copies of an appraisal by Willard P. Puffett, geologist, Geological Survey, and Webster S. Anderson, engineer, Bureau of Mines, of the application submitted by Logan Mines, Inc., for DMEA assistance to explore their property near Big Creek, Valley County, Idaho.

The known scheelite occurrences on the applicant's property are lens-like and erratic in distribution, similar to many other deposits in the area which have been examined during the past few years by representatives of both the Geological Survey and the Bureau of Mines. Because of these characteristics, it is not believed that the high cost of exploration in this relatively inaccessible area is justified.

The Field Team concurs with the recommendation in the accompanying report that the application be denied.

By Field Team, Region 1
Northwest District

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

John B. Wray, Acting Member
U. S. Geological Survey

Enclosure

cc: USGS (2)
Puffett

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 28 1955

No. 157 Howard Street
Spokane 4, Washington

December 2, 1954

Memorandum

To: DMEA Field Team, Region II

From: Willard P. Puffett, Geologist, U. S. Geological Survey, and Webster S. Anderson, Engineer, U. S. Bureau of Mines

Subject: Docket No. DMEA-3383 (tungsten), Application examination of Last Chance group, Logan Mines, Inc., Valley County, Idaho

APPLICANT

Logan Mines, Inc.
Yellow Pine, Idaho

SUMMARY

A wide silicified shear zone, trending approximately N. 20° E. and ranging up to more than 200 feet wide, crosses the applicant's property. This shear zone is bounded on the west by a wide dacite porphyry dike and on the east by quartz monzonite or granodiorite of the Idaho batholith. Within the shear zone are many wide, discontinuous quartz veins, a complex of silicified metasediments and igneous rock, and at least one rhyolite porphyry dike averaging 15 feet thick.

The shear zone, where it has cropped out near the crest of a steep, east-facing slope, has been explored by eight adits. The lowest adit is at an altitude of 7,640 feet, and the highest adit is at an altitude of 8,245 feet. Aggregate length of these workings is less than 1,000 feet. In addition to these workings there are many shallow prospect pits which have exposed portions of the zone.

Scheelite has been found in quartz veins near the eastern border of the shear zone. In general, these quartz veins parallel the strike of the shear zone. Pyrite, fluorite, tetrahedrite, sphalerite, and galena are sparsely distributed within the veins.

Assays from 20 samples taken across the tungsten-bearing veins range in values from 0.02 percent to 1.52 percent WO_3. Gold values are practically nil, and silver seldom exceeds 2.0 ounces per ton. Base metal values are too low to be of economic interest.

It is believed that there are many short, relatively narrow, and sporadically mineralized, scheelite-bearing quartz veins in the wide silicified shear zone on the applicant's property. It is doubtful if any of these veins persist along strike or dip for sufficient length or depth to be minable.

RECOMMENDATIONS

It is recommended that the application be denied.

EXAMINATION

The applicant's property was first examined for DMEA on August 26, 1954, by Don F. Mallum and Willard P. Puffett, geologists, Geological Survey. Thomas W. Hewitt, Jack Robinson, and Guy Kufeld were at the property and accompanied the DMEA examiners. Approximately 8 hours were spent examining all accessible underground workings. The Klephant and Ladder adits were mapped, and nine samples of the vein material were taken.

The property was revisited on October 2, 1954, by Webster S. Anderson, engineer, Bureau of Mines, and Don F. Mallum and Willard P. Puffett, geologists, Geological Survey. Approximately 6 hours were spent re-examining exposures of the vein and checking location of various features shown on the applicant's map.

NAME AND LOCATION OF PROPERTY

The applicant's property comprises six ungatented lode claims known as the Last Chance Nos. 1, 2, 3, 4, 5, and 6. These claims extend southward from the North Fork of Logan Creek and cover a steep, sparsely timbered, east-facing slope.

The lower part of the claims can be reached via a Forest Service road some 6 miles long westward from the small hamlet of Big Creek, which has been more commonly known as Edwardsburg, Idaho. Yellow Pine is about 30 miles from the property, and Cascade, Idaho, the nearest railhead, is nearly 90 miles distant.

The property is in an unsurveyed area, but the approximate location is sec. 36, T. 2 N., R. 8 E., B.M., (unsurveyed), Big Creek mining district, Valley County, Idaho.

ACCESSIBILITY

The road from Cascade to Yellow Pine, Idaho, is not kept open during the winter months. The roads from Yellow Pine to the applicant's property are in fair condition during the summer months but can be used only about 5 months of the year due to the heavy snowfall in the region.

The lowest adit of any consequence on the property is about 300 feet above the end of the Forest Service road along the North Fork of Logan Creek. A rather steep bulldozer road with many switchbacks has been built along the north slope of the ridge and ends at an elevation about 150 feet lower than this lowest adit. Steep trails have been made between this lowest adit and the upper workings. The lower part of the bulldozer road is now blocked by debris resulting from snowslides during the past winter, and it is probable that snowslides will continue to create problems in clearing the road each working season.

COMPETENCY OF APPLICANT

Thomas W. Nevitt, general manager of Logan Mines, Inc., is a retired school superintendent, now residing in Clarkston, Washington. He has been actively associated with mining enterprises during the past 10 years. Just prior to World War II, he had developed the Snowshoe Gold mine near Big Creek, Idaho, to a productive stage.

According to the application Myron McCoy, president of Logan Mines, Inc., is a miner, but nothing is known of his ability.

The applicant has retained the services of Bill Harris, a mining engineer. Mr. Harris prepared the maps accompanying the application, and assisted in detailing the costs listed in the application.

It seems probable that Mr. Nevitt is competent of supervising the type of exploration program for which he has applied.

Nothing is known of the financial competence of the applicant, but it is presumed the work would be financed by proceeds from sale of mining stock in the company.

PROPERTY RIGHTS

The Last Chance group of claims is held by right of location by Myron and Alpha McCoy of McCall, Idaho. They have deeded these claims to Thomas W. Nevitt and his wife, Mabel D. Nevitt. In turn the property has been deeded to Logan Mines, Inc. Copies of the formal documentation of these property transfers were submitted with the application.

DESCRIPTION OF PROPERTY

Eight adits have explored parts of the silicified shear zone. The lower two adits are on a north-facing slope, just south of the North Fork of Logan Creek at an altitude of 7,600 feet. One of these had been driven southward into the hill for more than 30 feet, but the face is now caved, and less than 30 feet of this adit is now accessible. Another adit has been driven into the hill about 30 feet east of the caved adit. This adit is nearly 40 feet long. The portals of both these adits are well timbered. No track has been laid in

either one.

An adit, about 25 feet long, has been driven southward into the hill at an altitude of 7,980 feet.

The July adit, at an altitude of 8,085 feet, has been driven westward as a crosscut, the portal being on the very steep, east-facing slope. This adit extends nearly 200 feet into the hill. A drift, 40 feet long, has been driven to the south, starting 95 feet from the portal. Some timbering has been necessary in the crosscut west of the drift. There is no usable track in this adit.

The next higher adit, the Ladder adit, at an altitude of 8,180 feet, has been driven westward 180 feet. The portal of this adit is nearly 140 feet slightly south of west from the portal of the July adit. This adit has crosscut an area some 95 feet higher than the July adit and about 30 to 40 feet south of the July adit. There is no timber or track in this adit. The portal is on a very steep, east-facing cliff. Access is gained to the portal by means of a wood ladder placed on the cliff, hence the name Ladder tunnel, or adit.

On the slope above the portal of the Ladder adit, there is a very short adit, at an altitude of 8,175 feet. This adit is now caved to near the portal, but it is doubtful that it was ever more than 10 feet long.

South of the Ladder adit, the steep cliff face makes a slight curve to the west and then turns back east and then southward. Near the top of the ridge a short adit has been driven southward into the north-facing slope. This adit is not more than 35 feet long and is nearly L-shaped in plan. No track or timber was used in it. The sill level of this adit is about 45 feet below the crest of the slope.

The portal of the Upper adit is at the same elevation as the L-shaped adit, and some 250 feet to the south. The Upper adit has crosscut into the hill for 75 feet. A raise has been driven from the face of this adit, but access to the raise is now impossible due to caving ground. Track has been laid to the face of the adit. No timbering was necessary in the crosscut.

The portal of the Elephant adit is about 330 feet southeast across a shallow draw from the portal of the Upper adit. A shed has been built over the portal of the Elephant adit, and it is believed this shed served as a blacksmith shop and compressor shed. The Elephant adit is a drift to the southeast along a narrow quartz vein for nearly 200 feet. Some timbering has been necessary in faulted areas in the Elephant adit.

With the exception of the Upper adit, a certain amount of rehabilitation would be necessary before any of the underground workings on the property could be used. It would be necessary to pipe water over considerable distances to any of the adits, and the existing trails are now inadequate for transporting mining equipment. The end of the bulldozer road is nearly 120 feet lower than the portal of the July adit; thus, it would be necessary to construct additional roads or trails, or to erect a tramline to bring equipment to this, the lowest practical working level.

The portals of all the adits, with the exception of the Upper adit and the Elephant adit, are on very steep slopes, and there is always danger of rock slides during the summer or snowslides during the winter and spring which would create considerable damage to any buildings or equipment near these portals.

The nearest living quarters are some cabins north of the North Fork of Lagna Creek, nearly a quarter of a mile north and 500 feet lower in elevation from the July adit. There are two old cabins on a relatively flat area, some 50 feet higher in elevation than the sill level of the Upper adit. One cabin was for living quarters and the other cabin is reported to have been a blacksmith shop. Neither of these buildings is now habitable.

There is an old spring house, 220 feet southeast of the blacksmith building. This spring is apparently the only source of water near the upper five adits.

The outline and relative locations of all underground workings and surface facilities are shown on the accompanying plan map.

HISTORY OF PROPERTY

The property was first located by Charles Crown in 1899, at which time it was known as the Golden Bay Up mine. Some development work was done in the ensuing years, but later the property was abandoned. In 1908 Joe Davis and George Laufer relocated the claims. Since that time only annual assessment work has been done. Apparently some ore was removed in recent years from the raise at the end of the Upper adit, but there is no record of any production from any part of the property. In recent years this group of claims has been referred to as the Joe Davis property.

GEOLOGY

According to the state geologic map of Idaho the area underlying the applicant's property is mainly quartz monzonite and granodiorite of the Idaho batholith. A swarm of Tertiary dikes are shown just to the west of Edwardsburg and may extend into the area in which the Last Chance claims are located.

During the past two years a field party for the General Geology Branch of the Geologic Division, U. S. Geological Survey, has been mapping the Big Creek quadrangle. According to a very preliminary map prepared by E. F. Leonard, who is directing this work, there is a wide band of Tertiary dikes in a zone extending north from Profile Gap to the Smith River. These dikes are predominately dacite and rhyolite and have intruded quartz monzonite of the Idaho batholith and remnants of the Yellowjacket and Hoodoo formations of pre-Cambrian age. There has been considerable silicification of the intruded rocks, and numerous quartz veins have been formed. Numerous prospect tunnels have been driven on these quartz veins primarily in search of precious metals. Within the past 10 or 15 years, tungsten minerals, including wolframite, huebnerite, and scheelite have been discovered within quartz veins closely associated with the Tertiary dikes. The two known tungsten properties, the Snowbird (Docket No. DMEA-864) and the Red Bluff (Docket No. DMEA-8654), have been developed on this type of vein.

The applicant's property is near the eastern margin of this swarm of dikes. A dacite porphyry, or quartz latite porphyry dike, exceeding 200 feet in thickness, crosses the western portion of the property in a general N. 30° E. direction. The indicated dip of this dike is from 60° to 80° to the east. On the east side of this dike is a silicified shear zone 200 to 300 feet thick. Within this shear zone there is a mixture of silicified monzonite or granodiorite, bands of quartz-mica schist, presumably part of the Yellowjacket formation, a few rhyolite dikes, and many rather thick but discontinuous quartz veins. In general the quartz veins parallel the trend of the dacite porphyry dike, but at least one vein, just south of the blacksmith shop, strikes slightly north of west and dips steeply to the south.

Shannon and Rose 1/ have described part of the workings on the applicant's property as follows:

> "The tunnels have been run principally to develop a silicified lode which is perhaps 200 feet wide. The lode is similar to the mineralized zone that extends from the area south of the Hecla mine northward to the Independence, and probably it is part of that zone. The lode is well exposed in the Ladder tunnel, which cuts across a zone of nearly pure quartz containing some sulphide in small veinlets and disseminated. Near the portal and in some other places the quartz also contains fluorite. The beds in the silicified zone appear to trend N. 15° E. and dip about 80° SE. Textures resembling those of granodiorite can be recognized in the silicified zone near the portal. Both granodiorite and schist crop out along the trail just east of the mineralized zone. An altered and silicified dike of quartz latite porphyry cuts the granite near the portal of the Ladder tunnel. No sulphides were noted in it.

1/ Shannon, F. J., and Rose, C. F., Geology and ore deposits near Edwardsburg and Thunder Mountain, Idaho: Idaho Bureau of Mines and Geology Pamphlet No. 44, pp. 26-27, Dec. 1936.

"Pyrite is the most abundant sulphide in the silicified area, although tetrahedrite, sphalerite, and galena are disseminated through the rock. These sulphides are partly oxidized at the surface, but are relatively free from alteration a few feet below the surface. Some samples have been cut from the silicified zone, but so far as known the property has not been adequately sampled. According to Henry Abetein, the first 25 feet in the Ladder tunnel averaged 0.04 ounce of gold and 2½ ounces of silver to the ton, and samples cut from other places in the tunnel ran 0.025 ounce of gold and 1.8 ounces of silver to the ton.

"In addition to the large silicified lode a vein deposit, known as the Little vein, has been opened by a tunnel 185 feet long. This vein strikes N. 40° - 50° E. and dips 35° - 80° SE. In places it branches and is widest where the branches join. The width ranges from less than 1 foot to 6 or 8 feet, but probably averages 2 feet. The vein is composed of quartz that contains considerable sphalerite, galena, pyrite, tetrahedrite, chalcopyrite, supergene covellite, and oxidation products. The oxidation products are abundant near the portal of the tunnel and include limonite, azurite, malachite, and manganese oxides. In places there are bands of nearly solid sulphides in the quartz. Sphalerite and galena are by far the most abundant of these sulphides."

The Little vein to which Shenon and Ross refer is the vein exposed in the Elephant adit which is shown on the accompanying plan map. No mention of tungsten minerals was made by these two authors, as scheelite was not discovered in the area until after their report was published.

The best showings of scheelite have been discovered in the silicified shear zone which has been referred to as the Big vein by authors of numerous unpublished memorandum reports concerning the property. S. V. Hobbs of the Geological Survey visited the property in August 1944. In the memorandum report of this visit Hobbs states:

> " " " " The major vein zone, the 'big vein' is a quartz vein which is locally over 100 feet wide, and is continuous for long distances. It is sparsely mineralized and contains but very small amounts of scheelite. Fair to good showings of scheelite have been found in 3 or 4 prospect adits and pits which are scattered along the same trend as the main vein but at a distance of 80 or 100 feet east of it. These scheelite showings extend for a distance of several hundred feet and appear to occur in a 3- to 4-foot vein which is parallel to, but separate from the 'big vein.' The occurrences of scheelite are located along a steep ridge and the suggested continuity of the scheelite-bearing vein is evidenced only by its location in cuts and tunnels at a relatively consistent distance from the main vein. However, there is no evidence that the tungsten

content is continuous. On the contrary it seems probable that the scheelite mineralization is quite spotty and that the exposed tungsten showings are merely higher grade pockets of ore in an otherwise low grade vein * * * * "

Some geologic detail is shown on the accompanying plan map; namely, the eastern margin of the dacite porphyry dike and the general outline of the silicified shear zone. The quartz veins which are known to contain scheelite are indicated by stippling. A thick, apparently barren, quartz vein crops out near the upper end of the bulldozer road but is not shown on the map.

The most promising showings of scheelite are in the July and Ladder adits and in the short L-shaped adit south of these two. In the drift in the July adit, a quartz vein at least 3.5 feet thick is exposed in the face. Scattered scheelite occurs throughout it at the face, but only very sparse indications can be found in the vein a few feet north of the face. A BMEA sample taken across the face about 3 feet above sill level assayed 0.02 percent WO_3. The applicant reports a sample cut in a channel across the face assayed 1.43 percent WO_3. A sample taken a few years ago by Robert McKee assayed 0.73 percent WO_3 across 3.7 feet. The applicant reports that after the submission of the application, a sample was cut from a random location across the face which assayed 0.36 percent WO_3.

A quartz vein about 20 feet thick is exposed near the portal of the Ladder adit. The most favorable indications of scheelite in this vein is near its western margin wherein is bounded by a rhyolite porphyry dike. A 3-foot BMEA sample taken next to the dike assayed 0.21 percent WO_3. The applicant's sample, taken in approximately the same location, assayed 0.08 percent WO_3. Three samples taken earlier by Robert McKee in the same area assayed from 0.23 to 1.38 percent WO_3. This vein in the Ladder adit is nearly directly above the face of the drift in the July adit, and it probably represents the upper extension of the vein in the July adit. The silicified area exposed in the Ladder adit west of the rhyolite porphyry dike contains a few scattered grains of scheelite but in no place were the concentrations of these grains sufficient to merit sampling.

Near the portal of the short L-shaped adit south of the Ladder adit, a quartz vein, nearly 6 feet wide, crops out. This vein is bounded on both sides by granodiorite or quartz monzonite. Scattered fluorite occurs within this vein. The strike and dip of this vein suggests that it could represent the southward extension of the vein exposed in the July and Ladder adits, but no trace of the vein can be found on the bare hillslope between the L-shaped adit and the Ladder adit. A sample taken by Robert McKee across the vein near the portal of the L-shaped adit assayed 0.19 percent WO_3 over 8 feet. The applicant's sample, taken in the same location, assayed 0.18 percent WO_3. The face of the adit has exposed what appears to be the southward extension of this vein, although the adit does not completely cut through the vein. A BMEA sample cut across 2 feet of this vein near

its footwall or western margin in the face of the adit assayed 0.89 percent WO_3. A sample taken by Robert Meller at the same location assayed 0.51 percent WO_3. A sample taken by McKee across the vein on the surface a few feet south of the face of the adit assayed 0.72 percent WO_3 across 6 feet.

Overburden obscures the surface trace of the vein between the L-shaped adit and the Upper adit, a horizontal distance of more than 200 feet. No prospect pits have been excavated in this area.

The Upper adit extends N. 62° W. for 75 feet and crosscuts the area in which the scheelite vein should be found, if it is projected to the south along its apparent strike. In the face of the adit scheelite occurs in a shear zone in which the wall rock is silicified metasediments, mainly a quartz-mica schist. A raise has been driven from the face of this adit, but the walls of the raise have sloughed and it cannot be examined. The scheelite-bearing shear zone exposed in the adit is at least 33 inches thick, strikes about N. 20° E. and dips 75° to the east. A channel sample taken across this shear zone on the north wall of the adit assayed 0.32 percent WO_3.

A quartz vein is exposed on the surface, nearly directly above the face of the Upper adit. A small prospect pit about 3 feet deep has been dug on this vein east of the blacksmith shop. The wall rock is granodiorite with remnants of silicified metamorphic rocks. The quartz vein is at least 33 inches thick, strikes about due north and dips 70° E. A few scattered base metal sulfides occur in the vein and lamping indicated the presence of moderate amounts of scheelite. A chip sample taken at random locations across 33 inches assayed a trace gold, 4.7 ounces per ton silver, 0.8 percent lead, 1.0 percent zinc, 0.45 percent copper, and 1.33 percent WO_3.

A small prospect pit, just to the west of the blacksmith shop, exposed quartz vein material containing blue copper stain and pyrite. This vein appears to strike due north and to dip vertically. It is impossible to determine the actual width of the vein here. A grab sample of the broken quartz material from the dump near the pit assayed a trace gold, 4.3 ounces per ton silver, 1.1 percent lead, 1.0 percent zinc, 0.46 percent copper, and 0.04 percent WO_3. The precious and base metal content of this vein compares favorably with that in the vein sample beneath the blacksmith shop.

It may be that the vein exposed on the surface near the blacksmith shop represents the southern extension of the scheelite-bearing quartz vein exposed in the July, Ladder, and L-shaped adits. If this is true, faulting must have offset the southern end of the vein to the west. It is more probable that the vein near the blacksmith shop represents a relatively short lens-like quartz vein in the wide metamorphic zone which cannot be reliably projected for any distance to the north or to the south.

A quartz vein, averaging about 1 foot thick crosses the portal of the Upper adit. This vein strikes N. 55° E. and dips 72° N. No base metal sulfides were seen in this vein. This vein can be traced southwestward along the surface for nearly 150 feet. About 35 feet south of the portal of the Upper adit this vein intersects another quartz vein which strikes N. 83° W. and dips 75° S. The northwest striking vein contains scattered blue copper stain and some pyrite near its junction with the northeast-striking vein. A sample cut across 4 feet of the northwest vein assayed a trace gold, 0.9 ounce per ton silver, and 0.25 percent WO_3. Records show the results of three samples taken by Robert McRae across the northwest-striking vein in an area just south of the blacksmith shop. It appears that these samples were taken along the strike of this vein near where the vein exposed near the blacksmith shop should intersect it. These three samples, each 6 feet long, ranged in value from 0.07 to 0.22 percent WO_3.

The narrow quartz vein in the Elephant adit was mapped closely by BMEA examiners as this was the only place on the property where a drift had been driven on a vein. It was hoped that more definite information regarding the character of veins along the strike on the property could be gained in mapping this adit. This is the Little vein which is described above in the excerpt from the pamphlet by Shenon and Ross. The vein ranges in thickness from 14 to 30 inches, strikes in a general northeast direction, and dips from 45° to 85° to the southeast. Scattered base metal sulfides occur along it, and the richest concentration of these minerals is near a fault 140 feet southeast of the portal. A sample taken across this part of the vein assayed 0.080 ounce per ton gold, 3.3 ounces per ton silver, 3.4 percent zinc, 0.4 percent copper, and 0.04 percent WO_3. The vein is 30 inches thick in the face of the adit and contains scattered scheelite in 3 inches of gouge material on its hanging wall side. It is believed that the vein in the Elephant adit is in the area to the east of the main silicified shear zone in which the most promising scheelite-bearing quartz veins have been found.

The information available suggests that the scheelite occurs in discontinuous quartz veins that are aligned somewhat parallel to the trend of the wide, silicified shear zone. The scheelite occurs as sporadic concentrations within these quartz veins and ranges greatly in grade within short distances along the strike of the vein. Prospecting has been done at only scattered locations within the shear zone, but this work does not indicate the presence of a continuous vein carrying tungsten values of minable grade.

The following is an excerpt from a short memorandum written by John H. Cooper, associate geologist, Geological Survey, summarizing his impression of the property as a result of two visits in 1943:

"The property impressed me favorably as a tungsten prospect when I first saw it. This is partly because of the strong obviously mineralized shear zone and partly because the scheelite concentrations exposed in the underground workings are of substantial size and relatively uniform grade. The average grade appeared to be 0.25 to 0.50 percent WO3. All this seemed promising in view of the fact that the underground work was done before the presence of scheelite was known and thus might well have missed the best tungsten areas. Later lamping of the surface at night revealed no scheelite-rich areas as promising as those developed. Thus my impression of the prospect is not so favorable now as it was on first sight * * * *"

. . . Hobbs, geologist, Geological Survey, mapped in detail the Profile Gap area during World War II. In this work he mapped the south extension of the zone of silicification and dikes which underly the applicant's property. Hobbs 2/ found that in the Profile Gap area, veins similar to those on the applicant's property occur and are very discontinuous and cannot be correlated from one location to another. Diamond drilling in the Profile Gap area was not successful in proving any continuity of the scheelite-bearing veins along strike or down dip.

ORE RESERVES

In his memorandum report concerning his impressions of the applicant's property resulting from a visit in 1943, John R. Cooper, associate geologist, Geological Survey, states:

"As developed in July 1943, the prospect contained an indicated reserve of about 20,000 tons of tungsten ore which would probably average between 0.25 and 0.50 percent WO3. It is reasonable to infer an additional 30,000 tons of the same grade * * * *"

Mr. Cooper gives no measurements of the veins on which he had based the above statement.

In 1942 John V. Wilson examined and sampled the property for the Bureau of Mines and calculated ore reserves for the property as follows:

"The zone of best scheelite occurrence is 300' long and about 6' wide. The difference in elevation between the highest or Goose Neck tunnel and the lowest or Last Chance or July tunnel is 215'. Because depth over the Last Chance or July tunnel is only about 100', 150' is taken as an average depth. The tonnage estimate would then be $\frac{300' \times 6' \times 150'}{12}$ = 28,500 tons of ore.

"The zone of best scheelite would probably assay under 0.50% WO3."

2/ Personal communication

It is assumed that the area for which Mr. Wilson calculated the above ore reserves extends from the face of the drift in the July adit to the area crosscut by the Upper adit.

It appears that the above estimates of ore reserves are optimistic considering the information available concerning the character of the scheelite-bearing veins. Probably the best indication of a continuous vein is between the face of the drift in the July adit and the vein exposed near the portal of the L-shaped adit. Although the surface is covered of overburden between these two locations, no vein can be found in the intervening area; therefore, an inferred reserve may be assigned to that area between the July adit and the L-shaped adit from the level of the July adit to the surface. This block would be about 150 feet long, 5 feet thick, and average about 150 feet in depth, giving a total volume of 112,500 cubic feet. Assuming a tonnage factor of 12 cubic feet per ton, the resulting tonnage is 9,375 tons. The weighted average assay of all assay data in this area is 0.45 percent WO_3 over a width of 5.6 feet.

In 1943 the Bureau of Mines conducted metallurgical tests for beneficiating ore from the applicant's property in their laboratory at Salt Lake City, Utah. From a sample assaying 0.31 percent WO_3 the following results were obtained:

> "Table concentration of ore crushed to 28-mesh followed by sulfide flotation of table concentrate reground to 100-mesh gave a recovery of 78 percent of the contained tungsten in a product assaying 56.9 percent WO_3. Retabling of the above tungsten product gave a high-grade product assaying * * * 65.6 percent WO_3 * * *
>
> "The above tungsten product represented a recovery of 45.86 percent. The remainder of the tungsten, 21.89 percent was contained in a product assaying 10.88 percent WO_3. The sulfide flotation concentrate assayed 11.8 percent Zn, 7.3 percent Pb, 4.2 percent Cu, 0.07 ounce Au, 48.9 ounces Ag, and 1.2 percent WO_3.
>
> "Selective flotation of ore ground to minus 100-mesh followed by scavenger tabling recovered 93 percent of the tungsten in a product assaying 4.74 percent WO_3. Retabling of the tungsten flotation concentrate gave only a 38 percent recovery at 60 percent WO_3 grade. An additional 28 percent was recovered at 3.86 percent WO_3 grade, or 93 percent at 8.53 percent WO_3 grade. The sulfide concentrate assayed 8.9 percent Zn, 5.8 percent Pb, 5.5 percent Cu, 0.08 ounce Au, 55.3 ounces Ag, and 0.05 percent WO_3."

APPLICANT'S PROPOSAL

The applicant has submitted a very completely outlined proposal for exploration of the scheelite-bearing silicified shear zone on his property. He has outlined the proposed work as follows:

1. Rehabilitate and enlarge the present 240-foot crosscut and drift on the No. 3 Tunnel (July adit).

2. Drift 400 feet along the zone.

3. Crosscut 500 feet--short crosscuts at points of good ore.

4. Raise 255 feet--30- to 75-foot raises on the better ore.

5. Two thousand four hundred (2,400) feet of diamond drilling. Eight (8) holes with a maximum depth of 300 feet.

The drifting, crosscutting, and raising will explore ground in the area between the face of the drift in the July adit and the Upper adit. Apparently, the applicant is of the opinion that the quartz vein is not continuous in this area and thus has applied for crosscuts and raises to permit the exploration headings to search for offset segments, should the vein be faulted or pinch.

The diamond drilling is to explore the area between the July adit northward to the short adits near the north end of his property.

It is believed that the veins between the July adit and the Upper adit, occur as short discontinuous lenses in the wide silicified zone and much wasted work would be done in starting a drift with no more knowledge than we now have concerning the continuity of these veins. A number of short diamond drill holes from the surface would be planned to determine if the veins are continuous between the July adit and the Upper adit. At least five diamond drill holes would be necessary to test this area and probably would aggregate nearly 1,500 feet in length.

Present available information suggests, however, that further exploration will show the presence of rather short, discontinuous, quartz veins, aligned parallel to the trend of the main silicified shear zone. The tungsten minerals are too sporadically distributed and of too low concentration in these veins to form any minable ore deposit of tungsten. Therefore, it is believed that the geologic evidence is sufficient to justify a recommendation for denial of the application.

Enclosures

Distribution:
DMEA (Orig. & 3) Dochat
DMEM (3) Puffett
DMEC (2)

400

XXXXXXXXXXXXXXXXX
No. 157 Howard Street
Spokane 4, Washington

November 27, 1954

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

Re: Docket No. DMEA-3523 (tungsten)
Logan Mines, Inc.
Valley County, Idaho

Dear Mr. Selfridge:

Enclosed are three copies of a recapitulation on costs submitted by Logan Mines, Inc. The recapitulation was sent to us by Logan Mines, Inc., subsequent to their submittal of an application for DMEA assistance. Will you please attach these to copies of the application which we previously sent you.

The field examination report on the application is being prepared and will be submitted within a few weeks.

Sincerely yours,

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

Enclosure - 1 (in trip.)

cc: USBM (2)
Puffett

LOGAN MINES, INC. YELLOW PINE, IDAHO.

RECAPITULATION ON COSTS

Drifing and Crosscutting	600 ft.
Raises	235 ft.

Calculations based on cost of raise and drift the same.

Program using two shifts perday with two miners per shift.

Estimated advance 4 ft. per shift.

Time required 104 days or 4 months.

Labor reqd.

Mechanic at $400 / mo/	$1,600.00
Electrician	500.00
Supervision & consultants $600.00/mo.	2,400.00
	4,500.00
Contract miners--835 ft. x 12.00	10,020.00
Operating Materials	9,851.00
add $1.00 per ft. for explosives	835.00
Rent on operating equipment. 10% x 11,725 x 4	4,690.00
Rehabilitation	867.00
New building (incl. another bunk house)	2,455.04
Misc.	1,967.50
total x-cut drift raise	35,186.34
Enlarge and rehabilitate present X-cut	1,651.12
Diamond drilling	19,150.00
TOTAL	$ 55,987.46

OCT 19 1954

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

Re: Docket No. DMEA 3525 - Tungsten
Logan Mines, Inc.
Joe Davis property, Last Chance claims
Valley County, Idaho

Dear Mr. Weissenborn:

Reference is made to the subject docket and to your letter of October 6, 1954, which states that a field examination of the property has been made.

We will, therefore, hold this application in abeyance until the report and recommendations by the Field Team are received.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee

Approved:

J. H. Hedges
Member, Bureau of Mines

Thor H. Kiilsgaard
Member, Geological Survey

cc: DOCKET
FT, REG. II
CODE 400
OPER. COMMITTEE
ADM. READING FILE
R. W. GEEHAN, USBM
THOR KIILSGAARD, USGS

FARutledge/ls
10-14-54

Docket
Surname
Chapman
Martin
McDonald
Newcomb
Hedges
F. Johnson

FEB 17 1955

Logan Mines, Inc.
Yellow Pine, Idaho

Re: Docket No. DMEA 3525 - Tungsten
Lost Chance Group
Big Creek Mining District
Valley County, Idaho

Gentlemen:

Your application for aid for an exploration project and other data available to us in Washington relating to the above noted property, have been carefully reviewed.

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

Careful study of all our information, although noting small lenses of tungsten ores of a marginal grade, indicates to us that the probability of discovering minable ore reserves by your proposed program is not sufficiently promising to justify Government participation. We regret to advise, therefore, that your application for exploration assistance is denied.

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

Sincerely yours,

Frank E. Johnson
By EST
ACTING Administrator

TLCHAPMAN:foc
2-11-55
cc to: Docket
Code 400
Adm. Reading File
Operating Comm.
FT. REG. I - Northwest Dist.
W. McDunis, USBM
Thor H. Kilsgaard, USGS

R.C.S.

Docket
Surname
400
Chapman
Martin
McDonnis
Newcomb

February 14, 1955

MEMORANDUM

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division, DMEA

Subject: Denial of application for exploration assistance in the amount of $73,280.00
Docket No. DMEA 3525 - Tungsten
Logan Mines, Inc., Last Chance Group of Claims
Big Creek Mining District
Valley County, Idaho

The denial of the subject application by this Division is based on the following information.

1. The applicant requested exploration assistance in the amount of $73,280.00, to explore for tungsten ores in a wide shear zone with numerous short quartz veins on the Last Chance claims of above docketed project.

2. The property consists of the Last Chance Nos. 1 to 6 inclusive, group of claims held by right of location. The claims have been deeded to the Logan Mines, Inc. The claims are about 6 miles southerly from Edwardsburg, a small hamlet on Big Creek, in the Big Creek Mining District, Valley County, Idaho. This is an isolated district in Central Idaho.

3. A wide shear zone occurs in the quartz-monzonite and grano-diorite of the Idaho batholith. These rocks have been cut by numerous rhyolite and dacite dikes and numerous irregular quartz veins have been formed along the dikes and within the shear zone. These veins show pyrite, fluorite, tetrahedrite, galena, sphalerite scheelite and low gold values. All values to date have been too irregular and too low grade to be minable.

4. The above noted area has been explored by eight adits, none of which have shown any minable ore bodies.

5. The applicant proposes to explore the area through the No. 3 adit, which crosscuts the shear zone for 140 feet, with 400 feet of drifting along the vein, 200 feet of short crosscuts, 235 feet of short raises and 2,400 feet of diamond drill holes.

6. Outside of some picked samples the sampling has indicated that all ore showing is of a marginal or sub-marginal grade and there is little or no chance of finding significant ore bodies of a minable grade.

7. The Field Team and the Commodity Divisions of the Geological Survey and the Bureau of Mines recommend that the application be denied.

W. S. Martin, Chief
Iron and Ferro-Alloys Division

TLChapman:fcc
2-14-55
cc to: Docket (original)
Code 400
Adm. Reading File
Operating Comm.

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

February 14, 1955

MEMORANDUM

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division, DMEA

Subject: Denial of application for exploration assistance in the amount of $73,280.00
Docket No. DMEA 3525 - Tungsten
Logan Mines, Inc., Last Chance Group of Claims
Big Creek Mining District
Valley County, Idaho

The denial of the subject application by this Division is based on the following information.

1. The applicant requested exploration assistance in the amount of $73,280.00, to explore for tungsten ores in a wide shear zone with numerous short quartz veins on the Last Chance claims of above docketed project.

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6. Outside of some picked samples the sampling has indicated that all ore showing is of a marginal or sub-marginal grade and there is little or no chance of finding significant ore bodies of a minable grade.

7. The Field Team and the Commodity Divisions of the Geological Survey and the Bureau of Mines recommend that the application be denied.

W S Martin
W. S. Martin, Chief
Iron and Ferro-Alloys Division

Docket

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 28 1955

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

WSay

January 24, 1955

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

Re: Docket No. DMEA-3525 (tungsten)
Logan Mines, Incorporated
Yellow Pine, Idaho

Dear Mr. Selfridge:

Enclosed are the original and three copies of an appraisal by Willard P. Puffett, geologist, Geological Survey, and Webster S. Anderson, engineer, Bureau of Mines, of the application submitted by Logan Mines, Inc., for DMEA assistance to explore their property near Big Creek, Valley County, Idaho.

The known scheelite occurrences on the applicant's property are lens-like and erratic in distribution, similar to many other deposits in the area which have been examined during the past few years by representatives of both the Geological Survey and the Bureau of Mines. Because of these characteristics, it is not believed that the high cost of exploration in this relatively inaccessible area is justified.

The Field Team concurs with the recommendation in the accompanying report that the application be denied.

By Field Team, Region I
Northwest District

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

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

Enclosure

cc: USBM (2)
Puffett

Reviewed by
DMEA OPERATING COMMITTEE
2-2-55
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 28 1955

December 2, 1954

Memorandum

To: DMEA Field Team, Region II

From: Willard P. Puffett, Geologist, U. S. Geological Survey, and Webster S. Anderson, Engineer, U. S. Bureau of Mines

Subject: Docket No. DMEA-3525 (tungsten), Application examination of Last Chance group, Logan Mines, Inc., Valley County, Idaho

APPLICANT

Logan Mines, Inc.
Yellow Pine, Idaho

SUMMARY

A wide silicified shear zone, trending approximately N. 20° E. and ranging up to more than 200 feet wide, crosses the applicant's property. This shear zone is bounded on the west by a wide dacite porphyry dike and on the east by quartz monzonite or granodiorite of the Idaho batholith. Within the shear zone are many wide, discontinuous quartz veins, a complex of silicified metasediments and igneous rock, and at least one rhyolite porphyry dike averaging 15 feet thick.

The shear zone, where it has cropped out near the crest of a steep, east-facing slope, has been explored by eight adits. The lowest adit is at an altitude of 7,640 feet, and the highest adit is at an altitude of 8,245 feet. Aggregate length of these workings is less than 1,000 feet. In addition to these workings there are many shallow prospect pits which have exposed portions of the zone.

Scheelite has been found in quartz veins near the eastern border of the shear zone. In general, these quartz veins parallel the strike of the shear zone. Pyrite, fluorite, tetrahedrite, sphalerite, and galena are sparsely distributed within the veins.

Assays from 20 samples taken across the tungsten-bearing veins range in values from 0.02 percent to 1.52 percent WO_3. Gold values are practically nil, and silver seldom exceeds 2.0 ounces per ton. Base metal values are too low to be of economic interest.

Reviewed by
DMEA OPERATING COMMITTEE
2-2-54
(date)

It is believed that there are many short, relatively narrow, and sporadically mineralized, scheelite-bearing quartz veins in the wide silicified shear zone on the applicant's property. It is doubtful if any of these veins persist along strike or dip for sufficient length or depth to be minable.

RECOMMENDATIONS

It is recommended that the application be denied.

EXAMINATION

The applicant's property was first examined for DMEA on August 26, 1954, by Don F. Kellum and Willard P. Puffett, geologists, Geological Survey. Thomas W. Nevitt, Jack Robinson, and Guy Kofoed were at the property and accompanied the DMEA examiners. Approximately 8 hours were spent examining all accessible underground workings. The Elephant and Ladder adits were mapped, and nine samples of the vein material were taken.

The property was revisited on October 2, 1954, by Webster S. Anderson, engineer, Bureau of Mines, and Don F. Kellum and Willard P. Puffett, geologists, Geological Survey. Approximately 6 hours were spent re-examining exposures of the vein and checking location of various features shown on the applicant's map.

NAME AND LOCATION OF PROPERTY

The applicant's property comprises six unpatented lode claims known as the Last Chance Nos. 1, 2, 3, 4, 5, and 6. These claims extend southward from the North Fork of Logan Creek and cover a steep, sparsely timbered, east-facing slope.

The lower part of the claims can be reached via a Forest Service road some 6 miles long westward from the small hamlet of Big Creek, which has been more commonly known as Edwardsburg, Idaho. Yellow Pine is about 30 miles from the property, and Cascade, Idaho, the nearest railhead, is nearly 90 miles distant.

The property is in an unsurveyed area, but the approximate location is sec. 36, T. 2 N., R. 8 E., B.M., (unsurveyed), Big Creek mining district, Valley County, Idaho.

ACCESSIBILITY

The road from Cascade to Yellow Pine, Idaho, is not kept open during the winter months. The roads from Yellow Pine to the applicant's property are in fair condition during the summer months but can be used only about 5 months of the year due to the heavy snowfall in the region.

The lowest adit of any consequence on the property is about 500 feet above the end of the Forest Service road along the North Fork of Logan Creek. A rather steep bulldozer road with many switchbacks has been built along the north slope of the ridge and ends at an elevation about 120 feet lower than this lowest adit. Steep trails have been made between this lowest adit and the upper workings. The lower part of the bulldozer road is now blocked by debris resulting from snowslides during the past winter, and it is probable that snowslides will continue to create problems in clearing the road each working season.

COMPETENCY OF APPLICANT

Thomas W. Nevitt, general manager of Logan Mines, Inc., is a retired school superintendent, now residing in Clarkston, Washington. He has been actively associated with mining enterprises during the past 10 years. Just prior to World War II, he had developed the Snowshoe Gold mine near Big Creek, Idaho, to a productive stage.

According to the application Myron McCoy, president of Logan Mines, Inc., is a miner, but nothing is known of his ability.

The applicant has retained the services of Bill Harris, a mining engineer. Mr. Harris prepared the maps accompanying the application, and assisted in detailing the costs listed in the application.

It seems probable that Mr. Nevitt is competent of supervising the type of exploration program for which he has applied.

Nothing is known of the financial competence of the applicant, but it is presumed the work would be financed by proceeds from sale of mining stock in the company.

PROPERTY RIGHTS

The Last Chance group of claims is held by right of location by Myron and Aloha McCoy of McCall, Idaho. They have deeded these claims to Thomas W. Nevitt and his wife, Mabel D. Nevitt. In turn the property has been deeded to Logan Mines, Inc. Copies of the formal documentation of these property transfers were submitted with the application.

DESCRIPTION OF PROPERTY

Eight adits have explored parts of the silicified shear zone. The lower two adits are on a north-facing slope, just south of the North Fork of Logan Creek at an altitude of 7,640 feet. One of these had been driven southward into the hill for more than 50 feet, but the face is now caved, and less than 30 feet of this adit is now accessible. Another adit has been driven into the hill about 30 feet east of the caved adit. This adit is nearly 40 feet long. The portals of both these adits are well timbered. No track has been laid in

either one.

An adit, about 25 feet long, has been driven southward into the hill at an altitude of 7,920 feet.

The July adit, at an altitude of 8,025 feet, has been driven westward as a crosscut, the portal being on the very steep, east-facing slope. This adit extends nearly 200 feet into the hill. A drift, 40 feet long, has been driven to the south, starting 95 feet from the portal. Some timbering has been necessary in the crosscut west of the drift. There is no usable track in this adit.

The next higher adit, the Ladder adit, at an altitude of 8,120 feet, has been driven westward 120 feet. The portal of this adit is nearly 140 feet slightly south of west from the portal of the July adit. This adit has crosscut an area some 95 feet higher than the July adit and about 30 to 40 feet south of the July adit. There is no timber or track in this adit. The portal is on a very steep, east-facing cliff. Access is gained to the portal by means of a wood ladder placed on the cliff, hence the name Ladder tunnel, or adit.

On the slope above the portal of the Ladder adit, there is a very short adit, at an altitude of 8,173 feet. This adit is now caved to near the portal, but it is doubtful that it was ever more than 10 feet long.

South of the Ladder adit, the steep cliff face makes a slight curve to the west and then turns back east and then southward. Near the top of the ridge a short adit has been driven southward into the north-facing slope. This adit is not more than 35 feet long and is nearly L-shaped in plan. No track or timber was used in it. The sill level of this adit is about 45 feet below the crest of the slope.

The portal of the Upper adit is at the same elevation as the L-shaped adit, and some 250 feet to the south. The Upper adit has crosscut into the hill for 75 feet. A raise has been driven from the face of this adit, but access to the raise is now impossible due to caving ground. Track has been laid to the face of the adit. No timbering was necessary in the crosscut.

The portal of the Elephant adit is about 330 feet southeast across a shallow draw from the portal of the Upper adit. A shed has been built over the portal of the Elephant adit, and it is believed this shed served as a blacksmith shop and compressor shed. The Elephant adit is a drift to the southwest along a narrow quartz vein for nearly 200 feet. Some timbering has been necessary in faulted areas in the Elephant adit.

With the exception of the Upper adit, a certain amount of rehabilitation would be necessary before any of the underground workings on the property could be used. It would be necessary to pipe water over considerable distances to any of the adits, and the existing trails are now inadequate for transporting mining equipment. The end of the bulldozer road is nearly 120 feet lower than the portal of the July adit; thus, it would be necessary to construct additional roads or trails, or to erect a tramline to bring equipment to this, the lowest practical working level.

The portals of all the adits, with the exception of the Upper adit and the Elephant adit, are on very steep slopes, and there is always danger of rock slides during the summer or snowslides during the winter and spring which would create considerable damage to any buildings or equipment near these portals.

The nearest living quarters are some cabins north of the North Fork of Logan Creek, nearly a quarter of a mile north and 500 feet lower in elevation from the July adit. There are two old cabins on a relatively flat area, some 50 feet higher in elevation than the sill level of the Upper adit. One cabin was for living quarters and the other cabin is reported to have been a blacksmith shop. Neither of these buildings is now habitable.

There is an old spring house, 220 feet southwest of the blacksmith building. This spring is apparently the only source of water near the upper five adits.

The outline and relative locations of all underground workings and surface facilities are shown on the accompanying plan map.

HISTORY OF PROPERTY

The property was first located by Charles Crown in 1899, at which time it was known as the Golden Way Up mine. Some development work was done in the ensuing years, but later the property was abandoned. In 1908 Joe Davis and George Laufer relocated the claims. Since that time only annual assessment work has been done. Apparently some ore was removed in recent years from the raise at the end of the Upper adit, but there is no record of any production from any part of the property. In recent years this group of claims has been referred to as the Joe Davis property.

GEOLOGY

According to the state geologic map of Idaho the area underlying the applicant's property is mainly quartz monzonite and granodiorite of the Idaho batholith. A swarm of Tertiary dikes are shown just to the west of Edwardsburg and may extend into the area in which the Last Chance claims are located.

During the past two years a field party for the General Geology Branch of the Geologic Division, U. S. Geological Survey, has been mapping the Big Creek quadrangle. According to a very preliminary map prepared by B. F. Leonard, who is directing this work, there is a wide band of Tertiary dikes in a zone extending north from Profile Gap to the Smith River. These dikes are predominately dacite and rhyolite and have intruded quartz monzonite of the Idaho batholith and remnants of the Yellowjacket and Hoodoo formations of pre-Cambrian age. There has been considerable silicification of the intruded rocks, and numerous quartz veins have been formed. Numerous prospect tunnels have been driven on these quartz veins primarily in search of precious metals. Within the past 10 or 15 years, tungsten minerals, including wolframite, hubnerite, and scheelite have been discovered within quartz veins closely associated with the Tertiary dikes. The two McRae tungsten properties, the Snowbird (Docket No. DMEA-864) and the Red Bluff (Docket No. DMEA-2654), have been developed on this type of vein.

The applicant's property is near the eastern margin of this swarm of dikes. A dacite porphyry, or quartz latite porphyry dike, exceeding 200 feet in thickness, crosses the western portion of the property in a general N. 20° E. direction. The indicated dip of this dike is from 60° to 80° to the east. On the east side of this dike is a silicified shear zone 200 to 300 feet thick. Within this shear zone there is a mixture of silicified monzonite or granodiorite, bands of quartz-mica schist, presumably part of the Yellowjacket formation, a few rhyolite dikes, and many rather thick but discontinuous quartz veins. In general the quartz veins parallel the trend of the dacite porphyry dike, but at least one vein, just south of the blacksmith shop, strikes slightly north of west and dips steeply to the south.

Shenon and Ross 1/ have described part of the workings on the applicant's property as follows:

> "The tunnels have been run principally to develop a silicified lode which is perhaps 200 feet wide. The lode is similar to the mineralized zone that extends from the area south of the Moscow mine northward to the Independence, and probably it is part of that zone. The lode is well exposed in the Ladder tunnel, which cuts across a zone of nearly pure quartz containing some sulphide in small veinlets and disseminated. Near the portal and in some other places the quartz also contains fluorite. The beds in the silicified area appear to trend N. 15° E. and dip about 80° SE. Textures resembling those of granodiorite can be recognized in the silicified zone near the portal. Both granodiorite and schist crop out along the trail just east of the mineralized zone. An altered and silicified dike of quartz latite porphyry cuts the granite near the portal of the Ladder tunnel. No sulphides were noted in it.

1/ Shenon, P. J., and Ross, C. P., Geology and ore deposits near Edwardsburg and Thunder Mountain, Idaho: Idaho Bureau of Mines and Geology Pamphlet No. 44, pp. 26-27, Dec. 1936.

"Pyrite is the most abundant sulphide in the silicified area, although tetrahedrite, sphalerite, and galena are disseminated through the rock. These sulphides are partly oxidized at the surface, but are relatively free from alteration a few feet below the surface. Some samples have been cut from the silicified zone, but so far as known the property has not been adequately sampled. According to Henry Abstein, the first 25 feet in the Ladder tunnel averaged 0.04 ounce of gold and $2\frac{1}{2}$ ounces of silver to the ton, and samples cut from other places in the tunnel ran 0.025 ounce of gold and 1.8 ounces of silver to the ton.

"In addition to the large silicified lode a vein deposit, known as the Little vein, has been opened by a tunnel 125 feet long. This vein strikes N. 40° - 50° E. and dips 35° - 80° SE. In places it branches and is widest where the branches join. The width ranges from less than 1 foot to 6 or 8 feet, but probably averages 2 feet. The vein is composed of quartz that contains considerable sphalerite, galena, pyrite, tetrahedrite, chalcopyrite, supergene covellite, and oxidation products. The oxidation products are abundant near the portal of the tunnel and include limonite, azurite, malachite, and manganese oxides. In places there are bands of nearly solid sulphides in the quartz. Sphalerite and galena are by far the most abundant of these sulphides."

The Little vein to which Shenon and Ross refer is the vein exposed in the Elephant adit which is shown on the accompanying plan map. No mention of tungsten minerals was made by these two authors, as scheelite was not discovered in the area until after their report was published.

The best showings of scheelite have been discovered in the silicified shear zone which has been referred to as the Big vein by authors of numerous unpublished memorandum reports concerning the property. S. W. Hobbs of the Geological Survey visited the property in August 1944. In the memorandum report of this visit Hobbs states:

" * * * * The major vein zone, the 'big vein,' is a quartz vein which is locally over 100 feet wide, and is continuous for long distances. It is sparsely mineralized and contains but very small amounts of scheelite. Fair to good showings of scheelite have been found in 3 or 4 prospect adits and pits which are scattered along the same trend as the main vein but at a distance of 80 or 100 feet east of it. These scheelite showings extend for a distance of several hundred feet and appear to occur in a 3- to 4-foot vein which is parallel to, but separate from the 'big vein.' The occurrences of scheelite are located along a steep ridge and the suggested continuity of the scheelite-bearing vein is evidenced only by its location in cuts and tunnels at a relatively consistent distance from the main vein. However, there is no evidence that the tungsten

content is continuous. On the contrary it seems probable that the scheelite mineralization is quite spotty and that the exposed tungsten showings are merely higher grade pockets of ore in an otherwise low grade vein * * * * "

Some geologic detail is shown on the accompanying plan map; namely, the eastern margin of the dacite porphyry dike and the general outline of the silicified shear zone. The quartz veins which are known to contain scheelite are indicated by stippling. A thick, apparently barren, quartz vein crops out near the upper end of the bulldozer road but is not shown on the map.

The most promising showings of scheelite are in the July and Ladder adits and in the short L-shaped adit south of these two. In the drift in the July adit, a quartz vein at least 5.5 feet thick is exposed in the face. Scattered scheelite occurs throughout it at the face, but only very sparse indications can be found in the vein a few feet north of the face. A DMEA sample taken across the face about 3 feet above sill level assayed 0.02 percent WO_3. The applicant reports a sample cut in a channel across the face assayed 1.43 percent WO_3. A sample taken a few years ago by Robert McRae assayed 0.73 percent WO_3 across 5.5 feet. The applicant reports that after the submission of the application, a sample was cut from a random location across the face which assayed 0.56 percent WO_3.

A quartz vein about 20 feet thick is exposed near the portal of the Ladder adit. The most favorable indications of scheelite in this vein is near its western margin whereit is bounded by a rhyolite porphyry dike. A 5-foot DMEA sample taken next to the dike assayed 0.21 percent WO_3. The applicant's sample, taken in approximately the same location, assayed 0.08 percent WO_3. Three samples taken earlier by Robert McRae in the same area assayed from 0.23 to 1.52 percent WO_3. This vein in the Ladder adit is nearly directly above the face of the drift in the July adit, and it probably represents the upper extension of the vein in the July adit. The silicified area exposed in the Ladder adit west of the rhyolite porphyry dike contains a few scattered grains of scheelite but in no place were the concentrations of these grains sufficient to merit sampling.

Near the portal of the short L-shaped adit south of the Ladder adit, a quartz vein, nearly 6 feet wide, crops out. This vein is bounded on both sides by granodiorite or quartz monzonite. Scattered fluorite occurs within this vein. The strike and dip of this vein suggests that it could represent the southward extension of the vein exposed in the July and Ladder adits, but no trace of the vein can be found on the bare hillslope between the L-shaped adit and the Ladder adit. A sample taken by Robert McRae across the vein near the portal of the L-shaped adit assayed 0.19 percent WO_3 over 8 feet. The applicant's sample, taken in the same location, assayed 0.18 percent WO_3. The face of the adit has exposed what appears to be the southward extension of this vein, although the adit does not completely cut through the vein. A DMEA sample cut across 2 feet of this vein near

its footwall or western margin in the face of the adit assayed 0.29 percent WO_3. A sample taken by Robert McRae at the same location assayed 0.31 percent WO_3. A sample taken by McRae across the vein on the surface a few feet south of the face of the adit assayed 0.72 percent WO_3 across 6 feet.

Overburden obscures the surface trace of the vein between the L-shaped adit and the Upper adit, a horizontal distance of more than 200 feet. No prospect pits have been excavated in this area.

The Upper adit extends N. 62° W. for 75 feet and crosscuts the area in which the scheelite vein should be found, if it is projected to the south along its apparent strike. In the face of the adit scheelite occurs in a shear zone in which the wall rock is silicified metasediments, mainly a quartz-mica schist. A raise has been driven from the face of this adit, but the walls of the raise have sloughed and it cannot be examined. The scheelite-bearing shear zone exposed in the adit is at least 33 inches thick, strikes about N. 20° E. and dips 75° to the east. A channel sample taken across this shear zone on the north wall of the adit assayed 0.32 percent WO_3.

A quartz vein is exposed on the surface, nearly directly above the face of the Upper adit. A small prospect pit about 3 feet deep has been dug on this vein east of the blacksmith shop. The wall rock is granodiorite with remnants of silicified metamorphic rocks. The quartz vein is at least 33 inches thick, strikes about due north and dips 70° E. A few scattered base metal sulfides occur in the vein and lamping indicated the presence of moderate amounts of scheelite. A chip sample taken at random locations across 33 inches assayed a trace gold, 4.7 ounces per ton silver, 0.8 percent lead, 1.0 percent zinc, 0.45 percent copper, and 1.35 percent WO_3.

A small prospect pit, just to the west of the blacksmith shop, exposed quartz vein material containing blue copper stain and pyrite. This vein appears to strike due north and to dip vertically. It is impossible to determine the actual width of the vein here. A grab sample of the broken quartz material from the dump near the pit assayed a trace gold, 4.3 ounces per ton silver, 1.1 percent lead, 1.0 percent zinc, 0.46 percent copper, and 0.04 percent WO_3. The precious and base metal content of this vein compares favorably with that in the vein sample beneath the blacksmith shop.

It may be that the vein exposed on the surface near the blacksmith shop represents the southern extension of the scheelite-bearing quartz vein exposed in the July, Ladder, and L-shaped adits. If this is true, faulting must have offset the southern end of the vein to the west. It is more probable that the vein near the blacksmith shop represents a relatively short lens-like quartz vein in the wide metamorphic zone which cannot be reliably projected for any distance to the north or to the south.

A quartz vein, averaging about 1 foot thick crosses the portal of the Upper adit. This vein strikes N. 35° E. and dips 72° NW. No base metal sulfides were seen in this vein. This vein can be traced southwestward along the surface for nearly 150 feet. About 35 feet south of the portal of the Upper adit this vein intersects another quartz vein which strikes N. 83° W. and dips 75° S. The northwest striking vein contains scattered blue copper stain and some pyrite near its junction with the northeast-striking vein. A sample cut across 4 feet of the northwest vein assayed a trace gold, 0.9 ounce per ton silver, and 0.25 percent WO_3. Records show the results of three samples taken by Robert McRae across the northwest-striking vein in an area just south of the blacksmith shop. It appears that these samples were taken along the strike of this vein near where the vein exposed near the blacksmith shop should intersect it. These three samples, each 6 feet long, ranged in value from 0.07 to 0.22 percent WO_3.

The narrow quartz vein in the Elephant adit was mapped closely by DMEA examiners as this was the only place on the property where a drift had been driven on a vein. It was hoped that more definite information regarding the character of veins along the strike on the property could be gained in mapping this adit. This is the Little vein which is described above in the excerpt from the pamphlet by Shenon and Ross. The vein ranges in thickness from 14 to 30 inches, strikes in a general northeast direction, and dips from 45° to 83° to the southeast. Scattered base metal sulfides occur along it, and the richest concentration of these minerals is near a fault 140 feet southeast of the portal. A sample taken across this part of the vein assayed 0.080 ounce per ton gold, 3.3 ounces per ton silver, 3.4 percent zinc, 0.4 percent copper, and 0.04 percent WO_3. The vein is 30 inches thick in the face of the adit and contains scattered scheelite in 5 inches of gouge material on its hanging wall side. It is believed that the vein in the Elephant adit is in the area to the east of the main silicified shear zone in which the most promising scheelite-bearing quartz veins have been found.

The information available suggests that the scheelite occurs in discontinuous quartz veins that are aligned somewhat parallel to the trend of the wide, silicified shear zone. The scheelite occurs as sporadic concentrations within these quartz veins and ranges greatly in grade within short distances along the strike of the vein. Prospecting has been done at only scattered locations within the shear zone, but this work does not indicate the presence of a continuous vein carrying tungsten values of minable grade.

The following is an excerpt from a short memorandum written by John R. Cooper, associate geologist, Geological Survey, summarizing his impression of the property as a result of two visits in 1943:

"The property impressed me favorably as a tungsten prospect when I first saw it. This is partly because of the strong obviously mineralized shear zone and partly because the scheelite concentrations exposed in the underground workings are of substantial size and relatively uniform grade. The average grade appeared to be 0.25 to 0.50 percent WO_3. All this seemed promising in view of the fact that the underground work was done before the presence of scheelite was known and thus might well have missed the best tungsten areas. Later lamping of the surface at night revealed no scheelite-rich areas as promising as those developed. Thus my impression of the prospect is not so favorable now as it was on first sight * * * * "

S. W. Hobbs, geologist, Geological Survey, mapped in detail the Profile Gap area during World War II. In this work he mapped the south extension of the zone of silicification and dikes which underly the applicant's property. Hobbs 2/ found that in the Profile Gap area, veins similar to those on the applicant's property occur and are very discontinuous and cannot be correlated from one location to another. Diamond drilling in the Profile Gap area was not successful in proving any continuity of the scheelite-bearing veins along strike or down dip.

ORE RESERVES

In his memorandum report concerning his impressions of the applicant's property resulting from a visit in 1943, John R. Cooper, associate geologist, Geological Survey, states:

"As developed in July 1943, the prospect contained an indicated reserve of about 20,000 tons of tungsten ore which would probably average between 0.25 and 0.50 percent WO_3. It is reasonable to infer an additional 50,000 tons of the same grade * * * * "

Mr. Cooper gives no measurements of the vein on which he has based the above statement.

In 1942 John A. Wilson examined and sampled the property for the Bureau of Mines and calculated ore reserves for the property as follows:

"The zone of best scheelite occurence is 380' long and about 6' wide. The difference in elevation between the highest or Goose Neck tunnel and the lowest or Last Chance or July tunnel is 213'. Because depth over the Last Chance or July tunnel is only about 100', 150' is taken as an average depth. The tonnage estimate would then be $\frac{380' \times 6' \times 150'}{12} = 28{,}500$ tons of ore.

"The zone of best scheelite would probably assay under 0.50% WO_3."

2/ Personal communication

It is assumed that the area for which Mr. Wilson calculated the above ore reserves extends from the face of the drift in the July adit to the area crosscut by the Upper adit.

It appears that the above estimates of ore reserves are optimistic considering the information available concerning the character of the scheelite-bearing veins. Probably the best indication of a continuous vein is between the face of the drift in the July adit and the vein exposed near the portal of the L-shaped adit. Although the surface is barren of overburden between these two locations, no vein can be found in the intervening area; therefore, an inferred reserve may be assigned to that area between the July adit and the L-shaped adit from the level of the July adit to the surface. This block would be about 150 feet long, 5 feet thick, and average about 150 feet in depth, giving a total volume of 112,500 cubic feet. Assuming a tonnage factor of 12 cubic feet per ton, the resulting tonnage is 9,375 tons. The weighted average assay of all assay data in this area is 0.45 percent WO_3 over a width of 5.6 feet.

In 1943 the Bureau of Mines conducted metallurgical tests for beneficiating ore from the applicant's property in their laboratory at Salt Lake City, Utah. From a sample assaying 0.51 percent WO_3 the following results were obtained:

> "Table concentration of ore crushed to 28-mesh followed by sulfide flotation of table concentrate reground to 100-mesh gave a recovery of 70 percent of the contained tungsten in a product assaying 26.9 percent WO_3. Retabling of the above tungsten product gave a high-grade product assaying * * * 65.6 percent WO_3 * * *
>
> "The above tungsten product represented a recovery of 48.26 percent. The remainder of the tungsten, 21.85 percent was contained in a product assaying 10.88 percent WO_3. The sulfide flotation concentrate assayed 11.8 percent Zn, 7.3 percent Pb, 4.2 percent Cu, 0.07 ounce Au, 48.9 ounces Ag, and 1.2 percent WO_3.
>
> "Selective flotation of ore ground to minus 100-mesh followed by scavenger tabling recovered 93 percent of the tungsten in a produce assaying 4.74 percent WO_3. Retabling of the tungsten flotation concentrate gave only a 38 percent recovery at 60 percent WO_3 grade. An additional 28 percent was recovered at 5.86 percent WO_3 grade, or 55 percent at 2.53 percent WO_3 grade. The sulfide concentrate assayed 8.9 percent Zn, 5.8 percent Pb, 5.5 percent Cu, 0.08 ounce Au, 55.5 ounces Ag, and 0.05 percent WO_3."

APPLICANT'S PROPOSAL

The applicant has submitted a very completely outlined proposal for exploration of the scheelite-bearing silicified shear zone on his property. He has outlined the proposed work as follows:

1. Rehabilitate and enlarge the present 140-foot crosscut and drift on the No. 3 Tunnel (July adit).

2. Drift 400 feet along the zone.

3. Crosscut 200 feet--short crosscuts at points of good ore.

4. Raise 235 feet--50- to 75-foot raises on the better ore.

5. Two thousand four hundred (2,400) feet of diamond drilling. Eight (8) holes with a maximum depth of 300 feet.

The drifting, crosscutting, and raising will explore ground in the area between the face of the drift in the July adit and the Upper adit. Apparently, the applicant is of the opinion that the quartz vein is not continuous in this area and thus has applied for crosscuts and raises to permit the exploration headings to search for offset segments, should the vein be faulted or pinch.

The diamond drilling is to explore the area between the July adit northward to the short adits near the north end of his property.

It is believed that the veins between the July adit and the Upper adit, occur as short discontinuous lenses in the wide silicified zone and much wasted work would be done in starting a drift with no more knowledge than we now have concerning the continuity of these veins. A number of short diamond drill holes from the surface could be planned to determine if the veins are continuous between the July adit and the Upper adit. At least five diamond drill holes would be necessary to test this area and probably would aggregate nearly 1,500 feet in length.

Present available information suggests, however, that further exploration will show the presence of rather short, discontinuous, quartz veins aligned parallel to the trend of the main silicified shear zone. The tungsten minerals are too sporadically distributed and of too low concentration in these veins to form any minable ore deposit of tungsten. Therefore, it is believed that the geologic evidence is sufficient to justify a recommendation for denial of the application.

Enclosures

Distribution:

DMEA (Orig. & 3)	Docket
USBM (5)	Puffett
USGS (SRO)	

EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

Docket

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D.C.~~
So. 157 Howard Street
Spokane 4, Washington

1 in docket
1 in EOD
1 to U.S.G.S.

November 17, 1954

JAR.

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

Re: Docket No. DMEA-3525 (tungsten)
Logan Mines, Inc.
Valley County, Idaho

Dear Mr. Selfridge:

Enclosed are three copies of a recapitulation on costs submitted by Logan Mines, Inc. The recapitulation was sent to us by Logan Mines, Inc., subsequent to their submittal of an application for DMEA assistance. Will you please attach these to copies of the application which we previously sent you.

The field examination report on the application is being prepared and will be submitted within a few weeks.

Sincerely yours,

A. E. Weissenborn

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

Enclosure - 1 (in trip.)

cc: USBM (2)
Puffett

LOGAN MINES, INC. YELLOW PINE, IDAHO.

RECAPITULATION ON COSTS

Drifing and Crosscutting	600 ft.
Raises	235 ft.

Calculations based on cost of raise and drift the same.

Program using two shifts perday with two miners per shift.

Estimated advance 4 ft. per shift.

Time required 104 days or 4 months.

Labor reqd.

Mechanic at $400 / mo/	$1,600.00
Electrician	500.00
Supervision & consultants $600.00/mo.	2,400.00
	4,500.00
Contract miners--835 ft. x 12.00	10,020.00
Operating Materials	9,851.00
add $1.00 per ft. for explosives	835.00
Rent on operating equipment. 10% x 11,725 x 4	4,690.00
Rehabilitation	867.00
New building (incl. another bunk house)	2,455.00
Misc.	1,967.50
total x-cut drift raise	35,186.34
Enlarge and rehabilitate present X-cut	1,651.12
Diamond drilling	19,150.00
TOTAL	$ 55,987.46

list? see draft

400

DOCKET
Surname:

Rutledge
Martin
Selfridge
Fellman
Rutledge

OCT 19 1954

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

Re: Docket No. DMEA 3525 - Tungsten
Logan Mines, Inc.
Joe Davis property, Last Chance claims
Valley County, Idaho

Dear Mr. Weissenborn:

Reference is made to the subject docket and to your letter of October 6, 1954, which states that a field examination of the property has been made.

We will, therefore, hold this application in abeyance until the report and recommendations by the Field Team are received.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (2+B)

Approved:

J. H. Hedges

Member, Bureau of Mines (2+B)

Thor H. Kiilsgaard

Member, Geological Survey (2+B)

cc: DOCKET
FT, REG. II
CODE 400
OPER. COMMITTEE
ADM. READING FILE
R. W. GEEHAN, USBM
THOR KIILSGAARD, USGS

FARutledge/ls
10-14-54

R.C.S.

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

October 11, 1954

Memorandum

To: Executive Officer, DMEA Field Team, Region II

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 II.

DMEA - 3525 Logan Hines, Inc.

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

Logan Mines, Inc.
Yellow Pine
Idaho

October 11, 1954
Subject: DMEA-3525
Re: Exploration Assistance
Joe Davis Property

Gentlemen:

The receipt of your application dated October 5, 1954 for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-3525 and referred to the Iron and Ferro-Alloys Division.

Kindly refer to in any future correspondence relating to your application.

Sincerely yours,

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D.C.~~
So. 157 Howard Street
Spokane 4, Washington

Department of the Interior
Defense Minerals Administration
RECEIVED
OCT 11 1954

October 6, 1954

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

Re: New application
Logan Mines, Inc.
Valley County, Idaho

Dear Mr. Selfridge:

Enclosed are the original and two copies of an application submitted by Mr. Thomas W. Nevitt of the subject company.

When Mr. Puffett was in the Yellow Pine area on a recent field trip he examined this property prior to the receipt of the application. This application is very well prepared, although the costs are a little high. Mr. Nevitt was in the office and the application was discussed with him.

A cost analysis and a geologic report are in preparation and will be forwarded in a few days.

Very truly yours,

A. E. Weissenborn

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

Enclosure

cc: USBM (2)
DMEA (2)
Puffett

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

RECEIVED
OCT 5 1954
U. S. G. S.
SPOKANE, WASH.
DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
OCT 11 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. 3525
Metal or Mineral TUNGSTEN
Date Received
Estimated Cost $73,280
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: Logan Mines, Inc.
Yellow Pine, Idaho

(*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

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

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

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

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

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

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

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

(*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 .....

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

[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 October 5, 1954

Logan Mines, Inc.
(Applicant)

By Thos. W. Nevitt

Genl. Mgr. - Secy - Treas.
935 Riverview Blvd.
Clarkston, Washington

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

Docket

IN REPLY REFER TO:

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

February 8, 1955

Copy retained 400

Re: Docket No. DMEA-3525
Tungsten
Logan Mines, Inc.
Yellow Pine, Idaho

Memorandum

To: Mr. W. S. Martin, Chief, Iron and Ferro Alloys Division, DMEA

WSM

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

Subject: Review of Field Team Report on Logan Mines, Inc., DMEA application

The Field Team has made a field examination of the applicant's property and recommended denial of the application.

A silicified shear zone, ranging up to 200 feet in width, crosses the applicant's property in a N. 20° E. direction. Within the shear zone are numerous wide, discontinuous quartz veins that more or less trend parallel to the strike of the shear zone. Scheelite has been found in the quartz veins near the eastern border of the shear zone. Other minerals occurring sparsely within the quartz veins include pyrite, fluorite, tetrahedrite, sphalerite and galena. Samples taken of the veins range from 0.02 to 1.52 percent WO_3. Gold values are nil, and silver values seldom exceed 2.0 ounces per ton. Base metal values are too low to be of economic interest.

The shear zone has been explored by eight adits, the lowest being at an altitude of 7,640 feet and the highest at an altitude of 8,245 feet. Aggregate length of the adits is less than 1000 feet.

The applicant proposes to further explore his property by the following work:

1. Rehabilitate and enlarge the present 140-foot crosscut and drift on No. 3 Tunnel.

2. Drift 400 feet along zone.

3. Crosscut 200 feet -- short crosscuts at points of good ore.

4. Raise 235 feet -- 50 to 75 foot raises on the better ore.

5. 2400 feet of diamond drilling.

After thoroughly mapping the property, and after preparing a detailed and comprehensive report on their findings, the field examiners conclude that scheelite in the short, discontinuous quartz veins is too sporadically distributed and the grade of any minable bodies too low to warrant further exploration. Because of these characteristics there appears to be little chance of making a significant discovery and the Field Team therefore does not believe the proposed work is justified.

The Field Team's reasons for recommending denial are geologically sound. I concur with their recommendations to deny the application.

Thor H. Kiilsgaard

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Thor H. Kiilsgaard

THKiilsgaard:hlm
G-2/8/55

Copy to: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
R. W. Geehan, 3513 Interior

IN REPLY REFER TO:

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

February 8, 1955

Re: Docket No. DMEA-3325
Tungsten
Logan Mines, Inc.
Yellow Pine, Idaho

Memorandum

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THKiilsgaard:hlm
G-2/8/55

Copy to: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
R. W. Geehan, 3513 Interior

Docket

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 14 1955

xxxxxxxxxxxxxxxxxxxx
So. 157 Howard Street
Spokane 4, Washington

January 11, 1955

Mr. B. F. Leonard
General Geology Branch
U. S. Geological Survey
Denver Federal Center
Denver, Colorado

WSM

Dear Mr. Leonard:

We have recently received an application for aid in an exploration project from Thomas W. Nevitt, Logan Mines, Inc., of Yellow Pine, Idaho (Docket No. DMA-3525).

The description of the property covered by the application is: 6 unpatented lode claims, The Last Chance Nos. 1, 2, 3, 4, 5, and 6, in approximately sec. 36, T. 21 N., R. 3 E., B.M., (unsurveyed) Big Creek Mining District, Valley County, Idaho. From a study of the topographic map and talks with Willard Puffett, I suspect that the property may really be in sec. 35 (unsurveyed); it apparently is located on the ridge approximately 0.9 mile northeast of Greeley Mountain south of the pass southwest of Dixie Mountain.

Al Weissenborn suggested that as you have been mapping in that general area, I write and find out what you know about the property. We feel inclined to not recommend a project there but would like to get all possible information on it before we finally decide.

Sincerely yours,

John S. Vhay
For: A. E. Weissenborn
Executive Officer, DMA
Field Team, Region II

cc: DMA(2)
GSS(2)

Copy Published AGD

Logan Mines, Inc.
Yellow Pine, Idaho

Form MF-103

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Photographs (attached)	

F.

Logan Mines, Inc.
Yellow Pine, Idaho

Form MF-103

UNITED STATES DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

1. Name of applicant

(a) Logan Mines, Inc.

(b) A corporation, incorporated in the State of Idaho

(c) Myron McCoy, McCall, Idaho, President

Thomas W. Nevitt, Clarkston, Washington, General Manager, Secretary-Treasurer

Orge Spacek, Tekoa, Washington, Vice President

(d) Not applicable.

2. Applicants property rights.

(a) Six unpatented lode claims, i.e. Last Chance Nos. 1, 2, 3, 4, 5, and 6. The claims are located in approximate Section 36, T. 21 N. R. 8 E. B.M. (unsurveyed), Big Creek Mining District, Valley County, Idaho.

(b) Property is locally known as the "Joe Davis Property."

(c) Claims are held by location in the name of Myron McCoy.

Deed attached-McCoy to Nevitt

Deed attached-Nevitt to Logan Mines, Inc.

(d) Not applicable.

(e) There are no liens or encumbrances on the property.

(f)

Name of Claim	Book	Page	Date of Location
Last Chance No. 1	13	301	
No. 2	13	302	
No. 3	13	303	
No. 4	13	304	
No. 5	13	305	
No. 6	13	306	

Deed-McCoy to Nevitt

Deed-Nevitt to Logan Mines, Inc.

All above on record in the Office of the County Recorder, Cascade, Valley County, Idaho.

4. Physical description

(a) The mine has been idle for many years except for the performance of annual assessment work. Past exploration was done by the early day miners for gold and silver, and not until recently was tungsten known to be present. The quartz lode has been explored by tunnels on three levels. The upper level consists of 75 feet of crosscut, and a combination raise-stope at the face. This raise is not to the surface and is not accessible; and nothing is known about the ore which was taken out. The second level is explored by the Ladder tunnel, a crosscut 100 feet long. The lower level has been explored by a crosscut 130 feet long, with a drift to the south, 40 feet long. These workings are all accessible for examination. There are also numerous open cuts, short adit tunnels, which have caved and sluffed in, rendering them of little value for examination. A tunnel known as the Sulfide tunnel has been driven on a narrow quartz vein for approximately 145 feet. This vein is not considered to have any immediate bearing on the present work and was not included as a part of this examination. Also present is a long tunnel (300 ft.?) just above creek level, but it is caved at the portal. An adit level was commenced at what is referred to as the Lower tunnels several years ago, but the project was abandoned. The present owner has had no part in any past development. There are no production facilities available at the mine.

(b) There has been no known production, and there are no known ore reserves.

(c) The tunnels have been run to develop a silicified lode for gold and silver, and as no mineable ore was encountered, only crosscuts are available for examination.

The silicified lode is from 200 to 300 feet wide, and strikes approximately N. 20 E., dips 70 to 80 to the SE. The contact on the east side of the lode is with the granodiorite of the Idaho Batholith and is irregular with quartz veins noted trending in an east west direction and dipping both to the north and south. These are particularly prominent in the upper tunnel. The main body of quartz is cut into zones by gouge seams which trend N. 20 E., and have a steep dip to the SE. On the west contact of the lode, surface outcrops are all that is available. An outcrop of argillites and schist was noted on this contact, but its extent is not known. Dacite porphyry is prominent as the contact on this west side and extends for several hundred feet to the west of the lode. The contact on this side, between the porphyry and quartz appears to have a flat dip (60° or less) to the northwest. A dacite porphyry dike, not mineralized, 15 - 20 feet wide cuts the quartz, striking N. 10 E., and dipping 75° southeast. No evidence of this dyke is noted in the upper tunnel, and from the strike, and dip, it should cut the upper tunnel 30 to 40 feet in from the portal. It is assumed this dyke is cut off by the east west trending veins noted in the upper tunnel. These east west veins appear to be about 50 feet in length and do not continue through the main quartz lode.

Disseminated scheelite occurs in one of the quartz zones, averaging 5-6 feet wide, and assaying from 1.4 to .28 WO_3. This zone has fairly constant strike and dip over 500 feet horizontally and 250 feet vertically. As there is no work on the strike of this zone, the continuity of the ore cannot be determined. Scheelite also occurs in other places throughout the lode, both disseminated and in seams in sheared zones. No correlation of these can be established without further work. It is believed that with diamond drilling some of these occurrences may be fitted into minable zones. Just east of the tungsten zone there is a zone of sulfide mineralization, containing pyrite, some tetrahedrite, sphalerite, and galena, both disseminated and as small veinlets in the quartz. Fluorite also occurs in the

quartz in this zone.

Since there is no exploration on the strike of the zone known to contain scheelite, it is desired to explore this zone with a drift and at points in good ore to raise from this drift 50 to 75 feet. Since long holing is not considered indicative for scheelite in this body, short (40 to 50 foot) crosscuts from this drift are also planned to explore the body on either side of the drift. Below the level of the lower, or No. 3 tunnel, there remains 400 feet vertically and 600 feet along the strike of the vein which has not been explored. To explore this portion of the body, diamond drilling is planned. Several sites are available on the road from which to drill. By exploring this section of the quartz lode interest will develop in other parts, as this is known to extend for considerable distance (several miles) north and south of the Last Chance property. Plate 1 shows the geology and assay data.

(d) The property is located about 6 miles west of Edwardsburg, the nearest town and residence. Yellow Pine is the nearest trading center and is about 30 miles via mountain road from the mine. Cascade, the rail head is about 90 miles via forest road from the mine. State Highway 15 passes through Cascade. Accessibility is limited to the summer months from approximately June 1 to November 1. Quarters will have to be built and rehabilitated at the mine for the workmen and supervision force.

(e) Manpower is readily available in this area. There are several small operations going which attract men looking for mine work. Ample timber is available on the property to supply the mine. Water is available from a spring situated on top of the hill for drilling and camp water. The supply is limited and larger water consumption will be taken care of from the North Fork of Logan Creek. The gradient of Logan Creek is sufficient that this water can be piped under gravity to the lower tunnels with minimum pipe. Power will be generated by diesel electric.

Practically all of the equipment is available locally from idle gold mines. Materials and supplies will be purchased mainly in Boise, with secondary points at Cascade and Yellow Pine.

5. The exploration project

(a) The project is designed to explore for tungsten.

(b) Description of proposed work: The company wished to explore the quartz lode along the strike and at depth for the extension of the tungsten present in the zone exposed and sampled, and to explore the reaminder of the lode for other occurrences of tungsten. The zone has fairly constant dip and strike, indicating the samples were taken from the same zone. The sampling indicates tungsten in mineable quantity in this zone. Since no work has been done along the strike of the zone it is planned to explore this by drifting. To determine the extent of lenses or ore chutes encountered, short raises and crosscuts are planned. It is anticipated these will be run where good ore is encountered. Below the lower, or No. 3 tunnel, no work has been done. It is proposed to diamond drill this area from two sites on the road. Diamond drilling will explore the western contact and extent of the quartz lode, and it is believed this drilling will develop other zones of good tungsten ore, as lamping on the surface indicates tungsten mineralization continues throughout the quartz lode. This exploration will greatly increase our knowledge of the geology of the deposit as the exposures now available are relatively meager in geological information. Drilling will be commenced in the Dacite porphyry and run into the granodiorite on all holes. It is planned to drill these holes to intersect the known ore zone at least two elevations from each site. The direction and inclination of each hole will be based on the preceding holes. Holes will be planned as short as possible and none will be drilled over 300 feet. The site and scope of the proposed work is shown on Plate 2.

Outline of proposed work follows:

1. Rehabilitate and enlarge present 140 ft. crosscut and drift on the No. 3 tunnel.

2. Drift 400 feet along the zone.

3. Crosscut 200 feet--short crosscuts at points of good ore.

4. Raise 235 feet--50 to 75 feet raises on the better ore.

5. 2400 feet of diamond drilling. Eight (8) holes with a maximum depth of 300 feet.

It is planned to build a cabin for the workers and a power house at the end of the road. Mining materials will be "chuted" to the level of the No. 3 tunnel with the air tugger. The compressor will be installed at the portal of the No. 3 tunnel. The cabin on the creek will be rehabilitated for mine office and management quarters.

It should be noted at this time that the company plans on installing a tram and ore bins at its own expense. Our sampling has indicated that this drift will be started in mill rock, and the company plans on stockpiling this ore until sufficient value is present to justify installation of a mill.

(c) The work will be started as soon as practical--this fall or early in the spring, and be completed within 24 months from the date of the exploration contract.

(d) The members of the Board of Directors of Logan Mines, Inc. have had a wide and varied experience in mining. Thomas W. Nevitt, the general manager, has had 10 years successful experience in mine management and operation. The Snowshoe Gold, Inc. property was under his management for 7 years. This mine was only a prospect when the company purchased it. A 16 mile road was built, a hydro-electric plant installed, including a 70 ft. dam and 3600 ft. pipe line. Ore was opened and mined on the 240 ft. level and on the 514 ft. level. A mill was built and

operated for 5 years until closure of the mines by government order. Two of the Board of Directors are experienced miners and diamond drill operators with wide experience in both fields. Myron McCoy, the president of the company, is a miner. Direction of the program will be by Bill Harris, Engineer of Mines. Mr. Harris has been in the general consulting business for the past 6 years. Prior to this he had a number of years experience with various mining companies and federal agencies. Mr. Harris and Walter Hovey Hill were associated until Mr. Hill's death two years ago.

6. Estimate of costs

(a)	Independent contracts	$32,502.50
(b)	Labor, supervision and consultants	12,603.47
(c)	Operating materials and supplies	10,987.23
(d)	Operating equipment	11,725.00
(e)	Rehabilitation and repairs	867.20
(f)	New buildings, improvement and installations	1,862.14
(g)	Miscellaneous	2,732.85
(h)	Contingencies	none
		$73,280.39

Detail of above follows.

6. Estimate of costs.

(a) Independent contracts

1. Rehabilitate and enlarge X-cut	None
2. Drifting and X-cut. The labor for 3. actual drifting and X-cutting can be done best by contract. It is estimated this will cost $18.00 per foot. This is all hand mucked and trammed. It is estimated that 20% of this will be timbered.	
80% x 600 x $18.00	$ 8,640.00
20% x 600 x $20.00	2,400.00
4. Raises. The direct labor will be independent contract. It is estimated this cost will be $17.50 per foot.	
235 x 17.50	4,112.50
5. Diamond Drilling (Estimate by Nichols and Thompson)	
Moving, in and out	350.00
Drill @$6.25 per ft. x 2400 ft.	15,000.00
Ream and cement $2.50 x 800 ft.	2,000.00
Total Independent Contract	$32,502.50

6. Continued

(b) Labor, Supervision, Consultants

Salaried Personnel

The general manager will direct operations at the mine and will be time keeper. He will also handle the bookkeeping, accounting, payroll, etc. 2
Probable salary--$300.00 per month

General supervision, engineering and geology.
Estimated cost--$300.00 per month.

Total salaried personnel $600.00

Workmen

2 miners (one shift)@$1.95 per hour 3
1 mechanic and compressor man (one shift)
@$2.10 per hour

Payroll Taxes

Federal Social Security	1.5%
Idaho Industrial Accident Insurance	6.5%
Federal Unemployment	0.3%
Idaho Unemployment	2.7%
	11.0%

Shifts of 6 days per week
Overtime factor of $1.08

6. (b) Continued

1. Rehabilitating and enlarging prexent x-cut 140 ft.
Installing track, vent line, pipe, etc.
Estimated time 6 days

Salaried personnel 1/4 month x $600.00	150.00	
Labor 2 Miners 2 x 8 x 1.95 x 6 x 1.08	202.18	
1 Mechanic 1 x 8 x 6 x 2.10 x 1.08	108.86	
	311.04	
		461.04

2. Drifting 400 ft.
Estimated time--140 days

Salaried personnel 4.67 x $600.00	2,802.00	
Labor 1 Mechanic 1 x 8 x 140 x 2.10 x 1.08	2,540.16	
1 part time electrician	300.00	
	2,840.16	
		5,642.16

3. Crosscutting--200 ft.
Estimated time--60 days

Salaried personnel 2 x $600.00	1,200.00	
Workmen		
1 mechanic 1 x 8 x 60 x 2.10 x 1.08	1,088.64	
1 part time electrician	150.00	
	1,238.64	
		$2,438.64

6. (b) Continued

4. Raises--235 ft.
Estimated time--53 days

Salaried personnel		
2 x $600.00	$1200.00	
Labor		
1 mechanic (one shift		
1 x 8 x 53 x 2.10 x 1.08	961.63	
1 part time electrician	100.00	
	1061.63	
		$2,261.63

5. Diamond Drilling--2400 ft.
Estimated time--90 days

As this work will be carried on at the same time as the drifting, no salaried personnel will be needed.

Labor		
1 supervisor to handle sludge core and check diamond drillers		
3 months at $600.00	1800.00	
		$1,800.00
Total labor, supervision and consultants		$12,603.47

6. (c) Operating Materials and Supplies

Explosives		
1.	140 ft. @1.50	210.00
2. & 3.	600 ft @2.00	1200.00
4.	235 ft. @1.50	352.50
Timber		
1.	140 x 8 x $120/M ties	134.40
2. & 3.	600 x 8 x 120 ties	576.00
	24-5 ft. sets @$10.00 set	240.00
4.	235 ft. raise	
	60 sets @$12.00	720.00
Bits and Steel		
1.	140 ft @2.00	280.00
2. & 3.	600 ft. @2.00	1200.00
4.	235 ft. @1.50	352.50

Pipes and Valves

1.	140 ft. of 2" air and 1" water line inc. valves and fittings @.80/ft.	112.00
2. & 3.	600 ft. of 2" air and 1" water inc. valves and fittings @80¢	480.00
4.	235 ft. of 2" air and 1" water inc. valves and fittings @80¢	188.00
	Plus 1300 ft. of 1" water line @35¢	455.00

Pro-rated, time basis

1.	2%	9.10
2. & 3.	77%	350.35
4.	21%	95.55
		$455.00

Fan Pipe - 8"

1.	140 ft. x 50¢	70.00
2. & 3.	600 ft. x 50¢	300.00
4.	235 ft. x 50¢	117.50

Rails

1.	140 ft. of 20# rail @14.00/c	261.33
	fish plates, bolts, etc. 5¢/ft	7.00
2. & 3.	600 ft. of 20# rail @14.00/c	1120.00
	fish plates, bolts, etc. 5¢	30.00

Power Cost

Estimated cost of operating generator for fuel and oil only
$1.00 per hour x 8 x 260 — 2080.00

Pro-rated, time basis

1.	2%	41.60
2. & 3.	77%	1601.60
4.	21%	436.80
		$2080.00

Miscellaneous

Carbide, lamps, oil, grease, hose, etc. 500.00

6. (c) Continued

Pro-rated, time basis

1.	2%	10.00
2.& 3.	77%	385.00
4.	21%	105.00
		500.00

Total operating materials and supplies $10,987.23

DISTRIBUTION

1.	Rehabilitating x-cut and drift	$1,135.43
2.	Drift	4,988.63
3.	Crosscut	2,494.32
4.	Raises	2,368.85
5.	Diamond Drilling	none

6. (d) Operating equipment. To be purchased and not included in unit cost data.

(1) I.R. compressor 10x 10 (used)	$ 500.00
(2) Air receivers, valves and gauges (used)	210.00
Miscellaneous shop equipment (used)	200.00
(2) Vent fans (used)	200.00
(2) Ore cars (used)	600.00
(2) Drifters with posts, bars and saddles (used)	550.00
(2) Water tanks, pressure (used)	40.00
Miscellaneous shop tools (used)	350.00
(2) Pumps (used)	100.00
(1) D-13000 Caterpillar power unit (used)	6,000.00
(1) 50 KW G.E. generator, with excitor panel transformer etc. (used)	1,000.00
(1) 25 h.p. West motor (used)	400.00
(1) Air tugger hoist (used)	165.00
Sheave and cable for above (used)	110.00
(1) Electric welding outfit	250.00
(1) Acetylene welding outfit	150.00
(1) 1½-ton International truck (used)	500.00
Miscellaneous hand tools	400.00
Total Operating Equipment	$11,725.00

6. (e) Rehabilitation and repairs

Rehabilitation of 26 x 20, 2 story log cabin, inc. new floor, concrete foundation and inside repair. Estimated time--8 days--2 carpenters

2 x 8 x 8 x $2.40	307.20
20 yds concrete @$17.00	340.00
lumber 2M ft. @110.00	220.00
	867.00

Total rehabilitation and repairs $867.00

6. (f) New buildings, improvements, installations

New frame compressor house (8x10) at portal No. 3 tunnel
Estimated time--3 days, 2 carpenters

2 x 8 x 3 x $2.40	115.20
800 ft. lumber @110.00	88.00
Roofing 1 sq. @15.00	15.00
Hardware	25.00
	243.20

New frame power house (12 x 16) at end of road.
Estimated time 6 days, 2 carpenters

2 x 8 x 6 x $2.40	230.40
Lumber 2000 ft. @110	220.00
Roofing 2.5 sq. @15	37.50
Conc. 8 yds. @17	136.00
Hardware etc.	35.00
	658.90

New frame cabin (16 x 12) at end of road.
Estimated time 6 days, 2 carpenters

2 x 8 x 6 x $2.40	230.40
Lumber 2500 ft. @110	275.00
Roofing 2.5 sq. @15	37.50
Hardware, etc.	50.00
	592.90

Improvement of spring on top of hill to provide water for camp and drilling.
Estimated time, 8 days, 2 miners

2 x 8 x 8 x 1.95 x 1.08	267.14
500 ft. water pipe @20¢	100.00
	367.14

Total new building and improvements $1,862.14

6. (g) Miscellaneous

Repair and maintenance of operating equipment estimated at 10% of 11,725.00		1,172.50
Analytical work		300.00
Employment taxes	12,603.47	
Total salaries and wages		1,260.35
		2,732.85

Pro-rated, time basis

1.	2%	54.65
2.	54%	1475.74
3.	23%	628.56
4.	21%	573.89
		2732.85

6. (h) Contingencies

None

6. Estimated costs

Recapitulation, use for unit cost, less operating equipment purchased, rehabilitation and new building.

1. Rehabilitation of crosscut and drift, 140 ft.

a.	None		
b.	461.04		
c.	$1,135.43		
d.	None		
e.	None		
f.	None		
g.	54.65		
h.	None		
	$1,651.12	/ 140 ft.	$11.80 / foot

2. Drifting on zone. 400 feet.

a.	$7,590.00		
b.	$5,642.00		
c.	$4,988.00		
d.	None		
e.	None		
f.	None		
g.	$1,475.74		
h.	None		
	19,695.74	/ 400	$49.24 / foot

3. Crosscutting 200 ft.

a.	$3,450.00		
b.	$2,438.00		
c.	$2,494.32		
d.	None		
e.	None		
f.	None		
g.	628.56		
h.	None		
	9,010.88	/ 200	$45.05 / foot

6. Continued

4. Raises. 235 feet

a. $4,112.50
b. $2,261.63
c. $2,368.85
d. None
e. None
f. None
g. 573.89
h. None

$9,316.87 / 235 feet $39.65 / foot

5. Diamond drilling. 2400 ft.

a. $17.350.00
b. $ 1,800.00
c. None
d. None
e. None
f. None
g. None
h. None

$19,150.00 / 2400 $8.00 / foot

TOTAL COST OF PROJECT $73,280.39

25% Company participation 18,320.10
75% DMEA participation 54,960.29

7. (a) The applicant will be prepared to furnish its share of the cost of the proposed project in accordance with the regulations on government participation.

(b) The applicant proposes to furnish its share of the costs by money.

McCall, Idaho
June 21, 1954

Mr. Thomas W. Nevitt
935 Riverview Blvd.
Clarkston, Washington

Dear Mr. Nevitt,

Following our conversations with you we wish to make you a formal offer to take over the development and management of our Logan Creek tungsten property which we are not able to handle for ourselves.

We offer you the following deal:

1. You to keep up the assessment work beginning with 1954.

2. You to organize an Idaho corporation.

3. Forty per cent of the stock of the corporation to be issued to pay for the property.

4. Of the 40% of the stock issued to pay for the property we as owners of the Last Chance Claims would receive ¼ of the shares so issued.

5. Reberson and Koefoed as owners of the 2 Palo Alto Stibnite claims to receive 20% of the stock issued for the purchase of claims.

6. You will receive the remainder of the original stock for organizing the corporation, arranging the financing for starting operations, for supervision of the operations until such time as the corporation can afford to employ management and supervisory personnel. You are to obtain the services of a competent mining engineer to make a report and to act as consultant.

7. You will be responsible for furnishing the finances for the operation of the property until such time as funds secured from the sale of stock of the corporation are available or until government funds are secured to aid in exploration of the property. You have the option of furnishing the cash from your personal funds or from the sale of stock issued in your name. In other words: the first stock sold up to 5/16 of the original issue of stock is to be from the sale of your personal stock or from your personal funds. This would leave you with a share of the corporation equal to ours.

8. Further financing will be supplied, if needed, by issues of the capital stock of the corporation from the 60% of the stock still in the treasury of the corporation after the original issue of stock for the purchase of the properties.

9. You will furnish such mining and milling equipment as is available to you for the use of the corporation at a reasonable and customary rental or purchase price.

We believe that this arrangement will be to the best interests of all parties to the agreement.

Sincerely yours,

Myron McCoy

Aloha M. McCoy

ACCEPTED: Thomas U. Newitt

MINING DEED

THE GRANTORS Myron McCoy and Aloha McCoy, husband and wife residing at McCall, Idaho for and in consideration of ONE DOLLAR AND OTHER VALUABLE CONSIDERATIONS in hand paid, convey and transfer to Thomas W. Nevitt and Mabel D. Nevitt, husband and wife the grantee the following described real estate

Six Quartz Lode Mining Claims situated on the North Fork of Logan Creek, in the Big Creek Mining District, Valley County, Idaho, more specifically described and recorded as follows to wit:

Last Chance, Number 1 as recorded in book 13 page 301 in the County Recorder's office at Cascade, Valley County, Idaho

Last Chance, Number 2 as recorded in book 13 page 302 in the County Recorder's office at Cascade, Valley County, Idaho

Last Chance, Number 3 as recorded in book 13 page 303 in the County Recorder's office at Cascade, Valley County, Idaho

Last Chance, Number 4 as recorded in book 13 page 304 in the County Recorder's office at Cascade, Valley County, Idaho

Last Chance, Number 5 as recorded in book 13 page 305 in the County Recorder's office at Cascade, Valley County, Idaho

Last Chance, Number 6 as redorded in book 13 page 306 in the County Recorder's office at Cascade, Valley County, Idaho

Said claims are held uncontested by possessory rights from the Governmand of the United States of America.

Dated September 7, A. D. 1954

Myron McCoy
Aloha McCoy

STATE OF IDAHO)
)ss
COUNTY OF VALLEY)

I, N E Ingebretsen, Notary Public in and for the State of Idaho, residing at McCall Idaho do hereby certify that on this SEVENTH DAY OF SEPTEMBER 1954, personally appeared before me MYRON McCOY and ALOHA McCOY, to me known to be the individuals described in and who executed the within instrument and acknowledged that they signed and sealed the same as their free and voluntary act and deed for the uses and purposes herein mentioned.

GIVEN UNDER MY HAND AND OFFICIAL SEAL this SEVENTH day of SEPTEMBER 1954.

N E Ingebretsen
Notary Public in and for the State of Idaho residing at McCall Idaho

MINING DEED

THE GRANTORS Thomas W. Nevitt and Mabel D. Nevitt, husband and wife residing at Clarkston, Asotin County, Washington, for and in consideration of ONE DOLLAR & OTHER VALUABLE CONSIDERATIONS in hand paid, transfer all our rights, title, and interest to LOGAN MINES, INC., an Idaho corporation the grantee to the following described real estate:

Eight Quartz Lode Mining Claims, situated on the North Fork of Logan Creek, in the Big Creek mining District, Valley County, Idaho, known, described, and recorded as follows, to wit:

Last Chance, Number 1 as recorded in book 13 page 304 in the County Recorder's office at Cascade, Valley County, Idaho

Last Chance, Number 2 as recorded in book 13 page 305 in the County Recorder's office at Cascade, Valley County, Idaho

Last Chance, Number 3 as recorded in book 13 page 306 in the County Recorder's office at Cascade, Valley County, Idaho

Last Chance, Number 4 as recorded in book 13 page 307 in the County Recorder's office at Cascade, Valley County, Idaho

Last Chance, Number 5 as recorded in book 13 page 308 in the County Recorder's office at Cascade, Valley County, Idaho

Last Chance, Number 6 as recorded in book 13 page 309 in the County Recorder's office at Cascade, Valley County, Idaho

Palo Alto, Number 1 as recorded in book 13 page 312 in the County Recorder's office at Cascade, Valley County, Idaho

Palo Alto, Number 2 as recorded in book 13 page 312 in the County Recorder's office at Cascade, Valley County, Idaho

All of said claims are held possessary rights, from the Government of the United State of America, Situated in the County of Valley, State of Idaho.

Dated September 7, 1954

Thomas W. Nevitt

Mabel D. Nevitt

STATE OF WASHINGTON)
)ss
COUNTY OF ASOTIN)

I, E. S. Goodnow, Notary Public in and for the State of Washington residing at CLARKSTON do hereby certify that on the SEVENTH day of September, 1954, personally appeared before me THOMAS W. NEVITT and MABEL D. NEVITT, to me known to be the individuals described in and who executed the within instrument and acknowledged that to me known they signed and sealed the same as their free and voluntary act and deed for the uses and pruposes herein mentioned.

GIVEN UNDER MY HAND AND OFFICIAL SEAL this SEVENTH day of SEPTEMBER 1954.

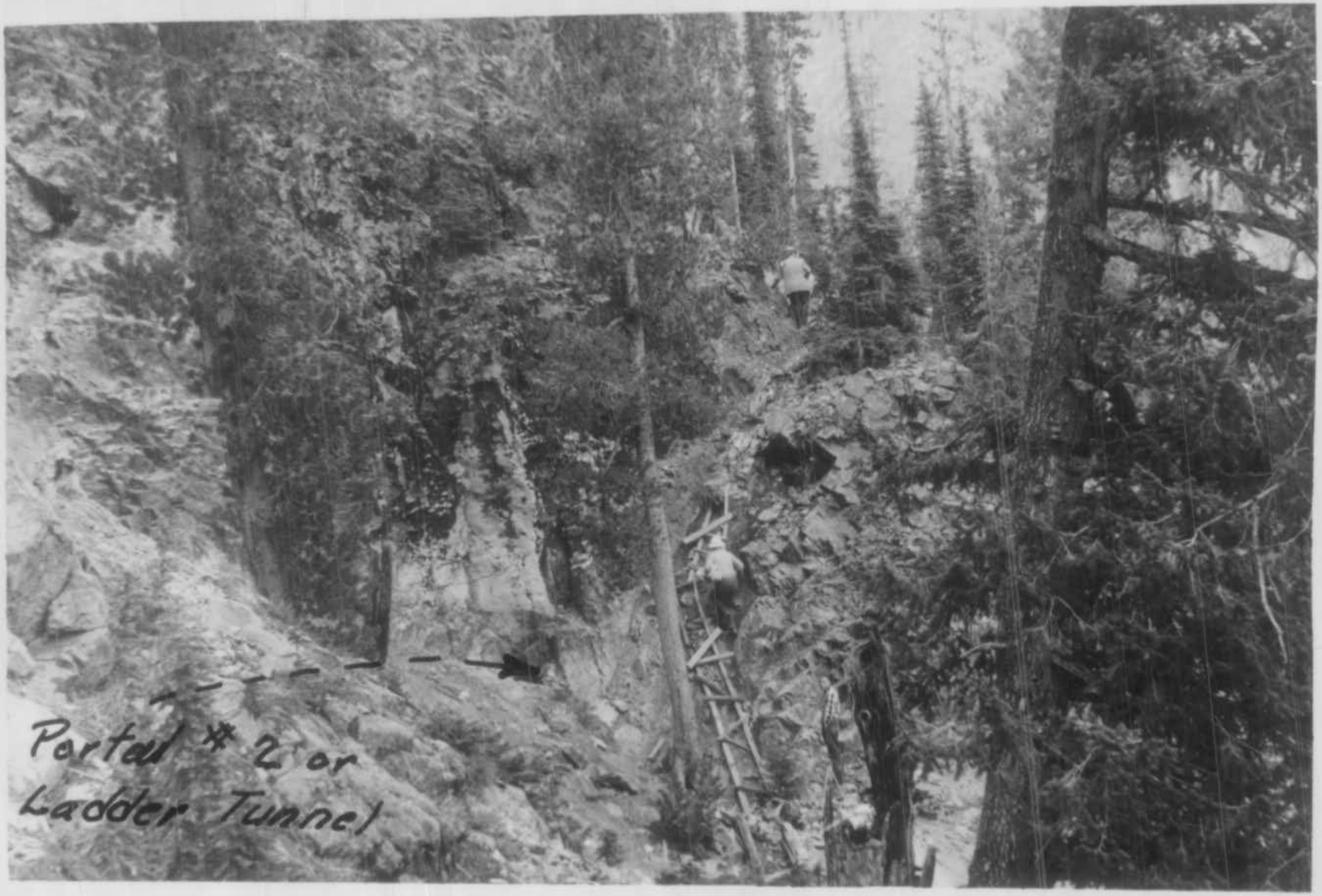
E S Goodnow

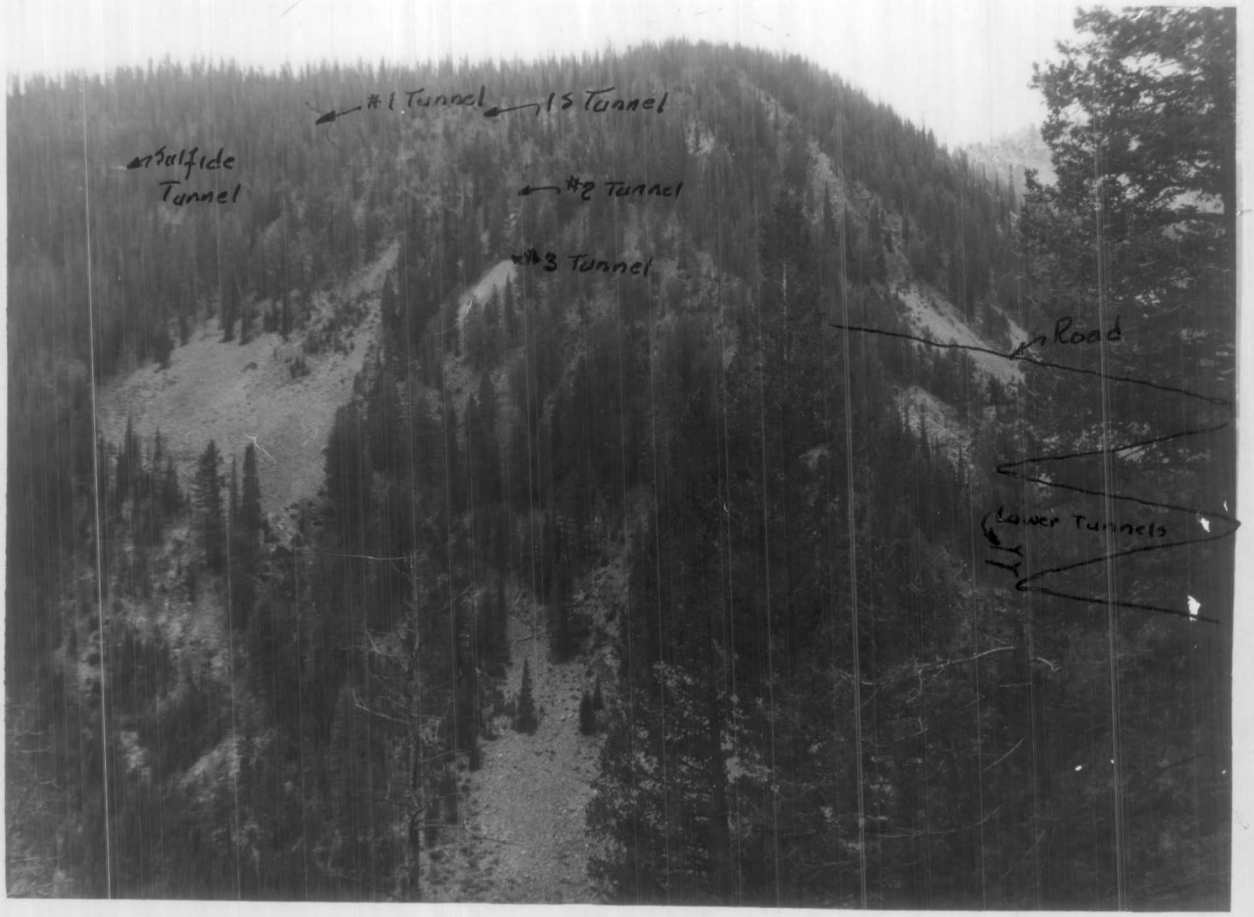
Notary Public in and for the State of Washington, residing at Clarkston in said County.

Portal #1 Tunnel

Lower Tunnels

Blasted Ore Outcrop
at 2nd Switch back


Portal # 2 or
Ladder Tunnel


#1 Tunnel
1S Tunnel
Sulfide Tunnel
#2 Tunnel
#3 Tunnel
Road
Lower Tunnels

SPOKANE 2, WASH.

OFFICIAL BUSINESS

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

PLAT OF WORKINGS

LAST CHANCE GROUP

for

LOGAN MINES, INC.

SITUATE IN

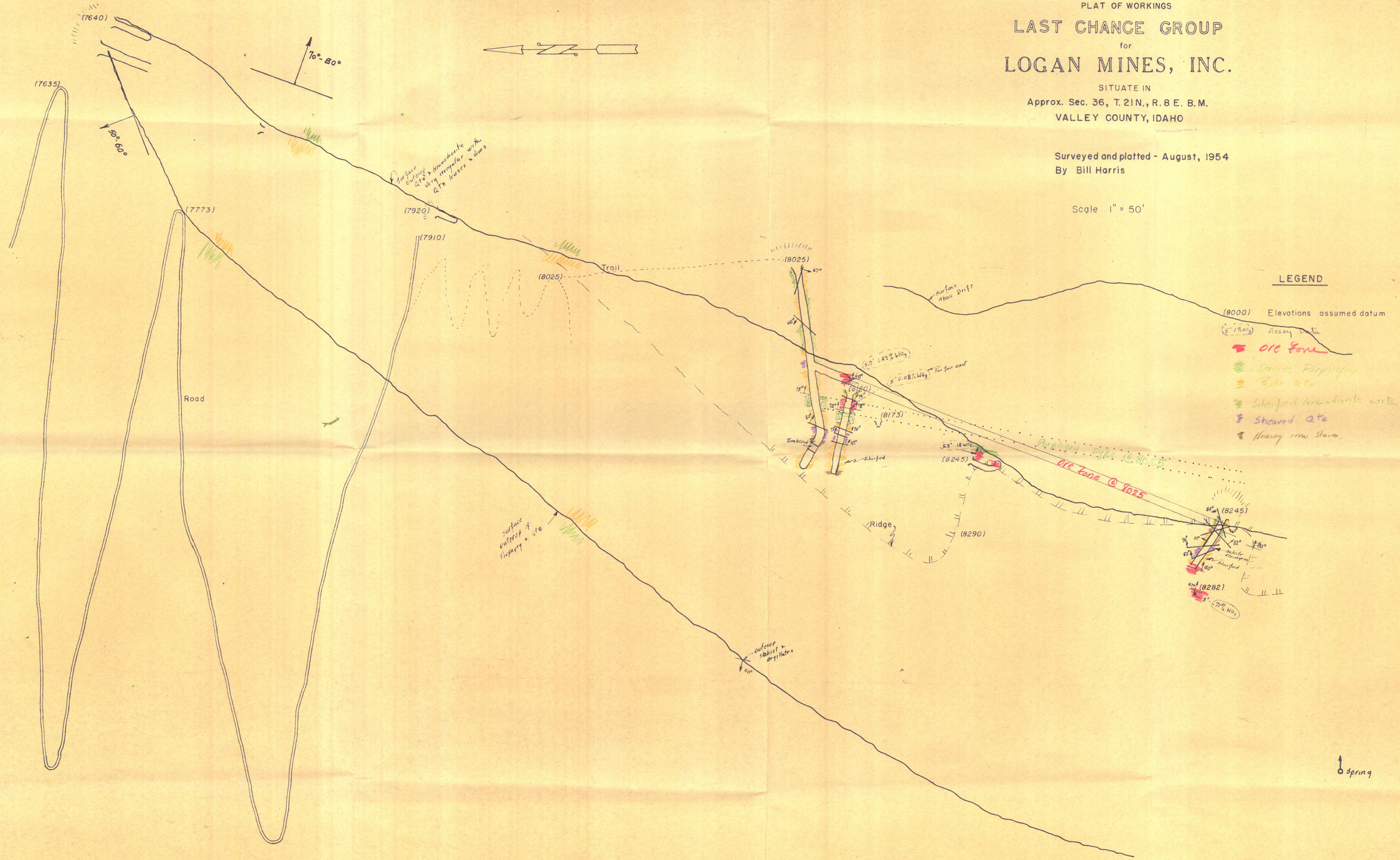
Approx. Sec. 36, T. 21 N., R. 8 E. B.M.

VALLEY COUNTY, IDAHO

Surveyed and platted - August, 1954

By Bill Harris

Scale 1" = 50'



LEGEND

(8000) Elevations assumed datum

(5' 17% WO3) Assay & Ft.

Ore Zone

Dacite Porphyry

Pure Qtz

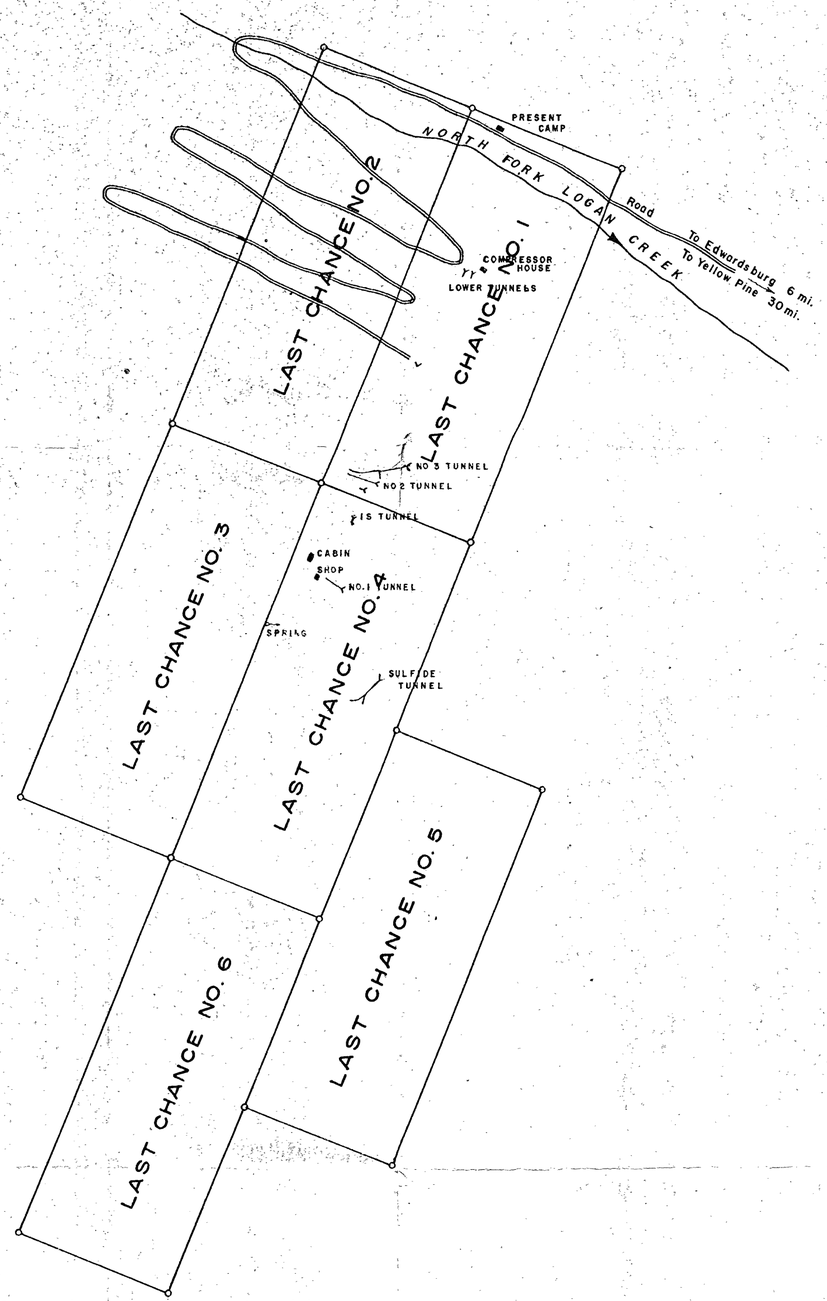
Silicified Granodiorite with Qtz lenses

Sheared Qtz

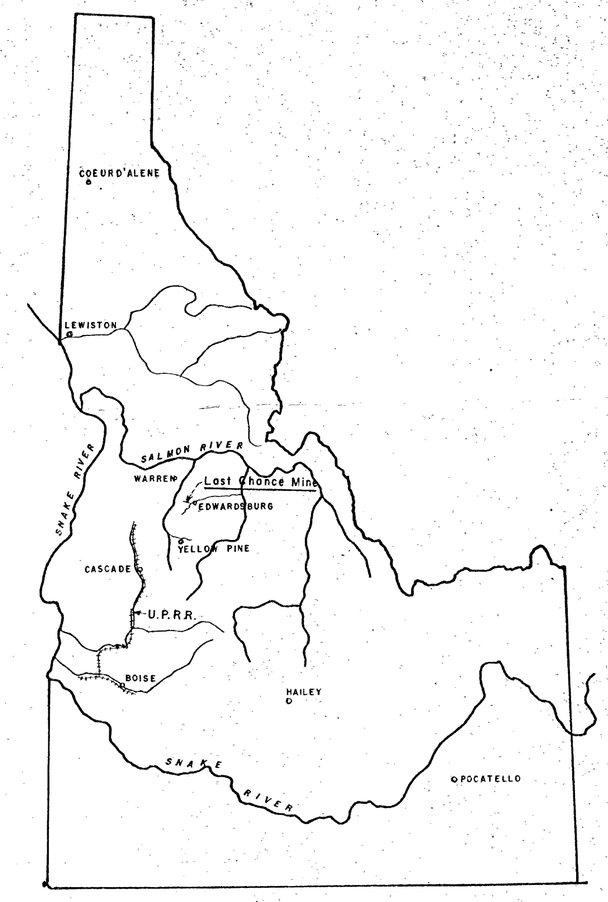
Heavy iron Stains

PLATE I

GEOLOGY - ASSAY DATA



Scale 1" = 400'



INDEX MAP OF IDAHO

Showing location of property

LOCATION MAP

LAST CHANCE GROUP

of

LOGAN MINES, INC.

SITUATE IN

Approx. Sec. 36, T.21N., R.8E.B.M.

BIG CREEK MINING DISTRICT

VALLEY COUNTY, IDAHO

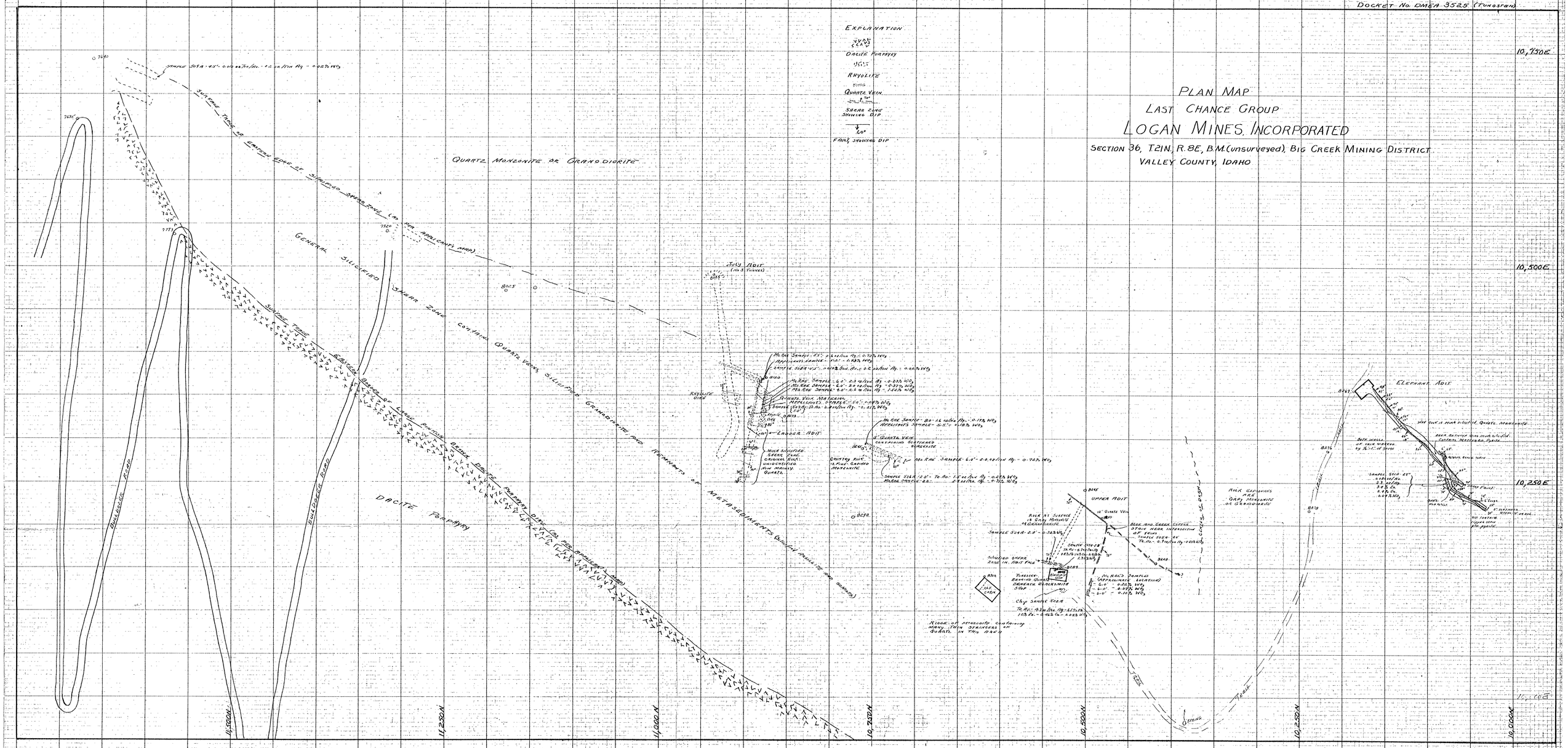
Platted – September, 1954

By Bill Harris, E.M.

DOCKET No. DMEA 3525 (Tungsten)

PLAN MAP
LAST CHANCE GROUP
LOGAN MINES, INCORPORATED

SECTION 36, T21N, R.8E, B.M. (unsurveyed), BIG CREEK MINING DISTRICT
VALLEY COUNTY, IDAHO



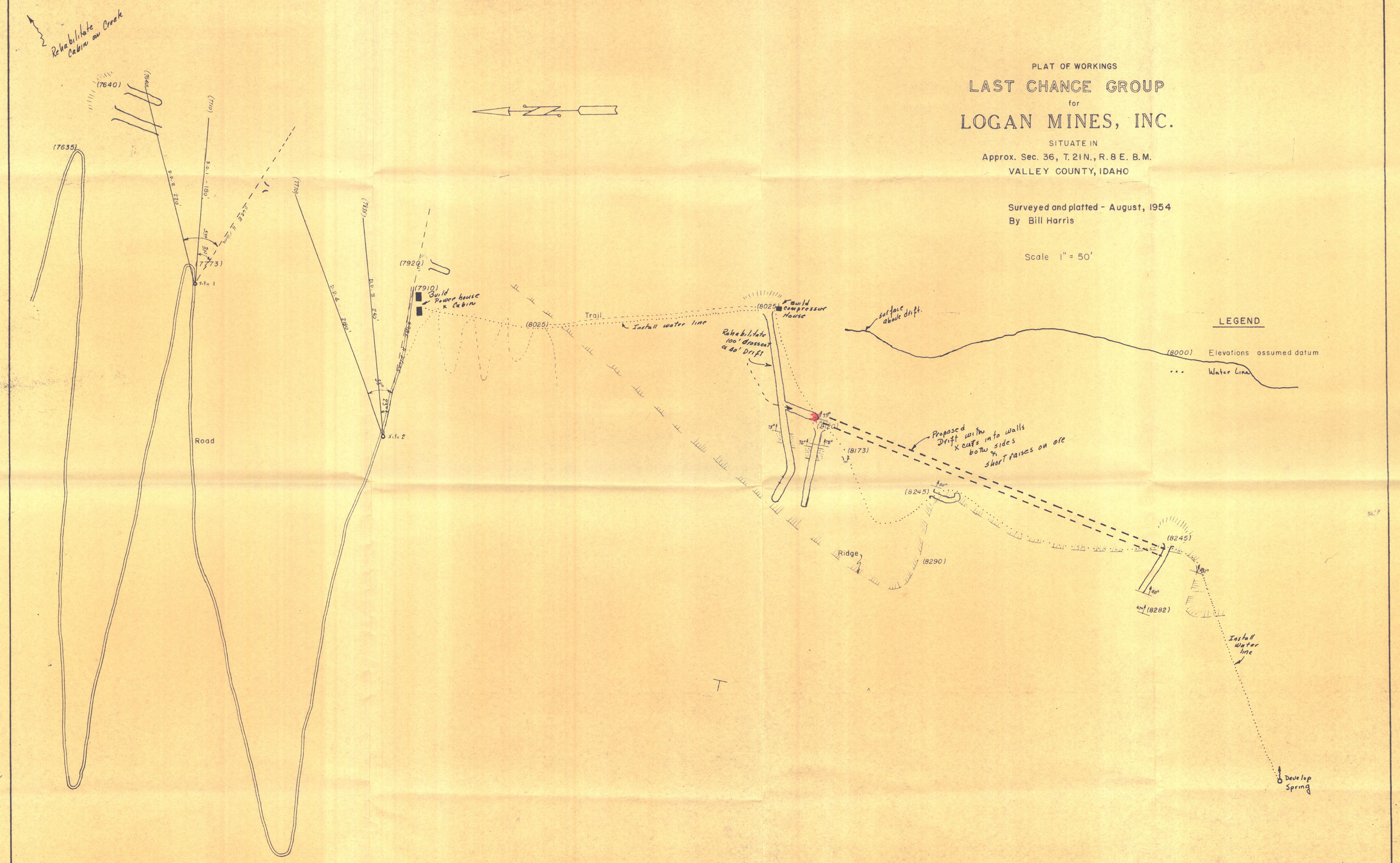


PLATE 2

THE EXPLORATION PROJECT