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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

July 16, 1952

Memorandum

To: Acting Administrator, Defense Minerals Exploration Administration - Attention: 210

From: Field Team, Region IV

Subject: Final Report, DMA Docket 1897, (Lead-Zinc) Chautauquan Mine, Lake County, Colorado

Enclosed are four copies of the final report on DMA-1897.

The applicant requested cancellation as he was unable to obtain landlords subordination agreements.

W. H. King
W. H. King

Donald H. Macharen
for
A. H. Koschmann

Enclosures

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
JUL 24 1952

Mining Division
Region IV

November 6, 1951

Memorandum

To: DMEA Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, DMA Docket 1877, Emmett Irwin and Co., applicant; Chautauquan Mine (Lead-Zinc), California Mining District, Lake County, Colorado

The application of the subject docket was for an exploration loan of $7,500.

The proposed exploration consisted of the following three projects: (1) To clean out and enlarge the incline winze and continue it downward 200 feet toward a junction with the Winnie Lemma vein, (2) to drive a cross-cut eastward to explore the east side of the Winnie Lemma Mine and (3) in the event that the inclined winze develops sufficient ore, to drive a lateral from the bottom of the shaft through which to mine the ore body.

The future productivity of the mine is dependent on development below the second level, with an expected decrease in the degree of oxidation.

The field team proposes that only Project 1 should be considered at an estimated cost of $6,200.

They recommended approval of this loan, with which we concur.

A contract will be prepared subject to extension of the present leases.

Paul T. Allsman

Paul T. Allsman

Reviewed by
DMEA OPERATING COMMITTEE

1-30-52
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

Date Rec'd
NOV 2 1951
BUREAU OF MINES
Denver, Colorado

Building 20
Denver Federal Center
Denver 14, Colorado

November 1, 1951

Memorandum

To: Chief, Mining Division, Region IV

From: Chief, Colorado Branch, Mining Division

Subject: DMA 1897, Chautauquan Mine (Lead-Zinc), Emmett Irwin and Company, Leadville, Lake County, Colorado

Please find enclosed the original and seven copies of the Summary, Conclusions, and Recommendations by Ogden Tweto and M. H. Salsbury and the original and seven copies of Salsbury's Engineering Report, covering the subject docket.

The examining team does not recommend the loan request as submitted by the applicant for three separate projects, but does recommend the first of the three projects at an estimated cost of $6,200.00 instead of the $7,500.00 requested for the entire program.

In the Engineering Report, Salsbury's reasoning for disallowing two of the projects is entirely valid and he presents ample justification for approving the project recommended. The possibility of the proposed exploration finding ore along a vertical fissure in the favorable Peerless shale formation appears better than average. I concur with his recommendations, subject, of course, to renewal of the sublease on the Yalu tract.

The brochure and review are also returned herewith.

W. M. Traver, Jr.

W. M. Traver, Jr.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.
200 New Customhouse
Denver 2, Colorado

October 30, 1951

Memorandum

To: DMA Field Team, Region IV

From: A. H. Koschmann

Subject: DMA Docket 1897, Chautauquan Mine, Emmett Irwin and Co., Applicant, Leadville, Colorado

Attached are 8 copies of the geologic report by Ogden Tweto covering subject docket. It is pointed out that ore in the Chautauquan mine occurs at the intersection of a mineralized fissure with the Peerless (Cambrian) formation. About 25 feet above the base of the Peerless, lead-zinc ore 2 to 24 inches thick was found, and locally replacement bodies 1 to 3 feet thick run out on the bedding for a few feet from the fissure. This ore body has been stoped above the second level and about 40 feet below the level. The ore ran 8 to 19% Pb and 4 to 17% Zn. The applicant requests a loan of $7,500 to drive an incline down along this mineralized fissure at the horizon of the favorable beds, in the Peerless formation, to its junction with the Winnie-Luema vein. The incline will be about 200 feet long and cost about $6,200. Tweto recommends that a loan of $6,200 be granted.

The applicant also includes in his plans proposals for driving from the shaft to the incline, if ore is found, and for doing some prospecting east of the Winnie-Luema vein. Tweto does not recommend these two projects.

I concur with Tweto's recommendations.

A. H. Koschmann
A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Attachments (8)

UNITED STATES
DEPARTMENT OF THE INTERIOR
OSCAR L. CHAPMAN, SECRETARY

DEFENSE MINERALS ADMINISTRATION

REPORT OF EXAMINIATION BY FIELD TEAM
REGION IV

DMA-1897, Chautauquan Mine (Lead-Zinc)

Emmett Irwin and Company, Applicant

Leadville, Lake County, Colorado

Lead-Zinc

Ogden Tweto, Geologist
U. S. Geological Survey

M. H. Salsbury, Mining Engineer
Bureau of Mines

October 31, 1951

CHAUTAUQUAN MINE (LEAD-ZINC)
EMMETT IRWIN AND COMPANY, APPLICANT
LEADVILLE, LAKE COUNTY, COLORADO

Summary, Conclusions, and Recommendations

By Ogden Tweto
Geologist
U. S. Geological Survey

and

M. H. Salsbury
Mining Engineer
Bureau of Mines

CHAUTAUQUAN MINE (LEAD-ZINC)
EMMETT IRWIN AND COMPANY, APPLICANT
LEADVILLE, LAKE COUNTY, COLORADO

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By Ogden Tweto and M. H. Salsbury

The main ore shoot in the Chautauquan mine is localized at the intersection of a small vertical fissure striking N. 45° E. with a zone of "favorable beds" a few feet thick in the Peerless formation. The beds dip 20° - 30° east-northeast and the ore shoot has been worked in an incline stope down to the second bottom level of the Chautauquan shaft. The applicant has requested a loan of $7,500.00 (Government participation $3,750.00) to carry out three proposals, only one of which is recommended.

The recommended proposal is to drive an incline below the second level along the downward projection of the ore shoot mined above the level or along the vertical fissure and parallel to the bedding. This is a logical proposal. The incline should be driven downward and northeastward to the intersection of the fissure zone with the Winnie Luema vein a distance of 200 to 210 feet.

The mine is fully equipped with a small headframe, hoist house, 10-horsepower hoist, compressor, buckets and mine cars. The only further equipment needed for driving the proposed incline is an air hoist and mounted drilling equipment. These can be rented locally as are the surface hoist and compressor now in use.

The Bureau of Mines estimate of the cost of the proposed work is $6,200.00.

The ore is lead-zinc ore consisting of partly oxidized pyrite, galena, and sphalerite. The partial oxidation has reduced the value of the ore produced in the past but the ore body nevertheless could be worked. It is unlikely that completely unoxidized ore will be found in the proposed incline, but there should be at least a gradual reduction in oxidation and the value of the ore may increase correspondingly.

It is recommended that an exploration loan of $6,200.00 (Government participation $3,100.00) be granted to drive the incline subject to the renewal of the sublease on the Yalu to be granted November 1, 1951.

CHAUTAUQUAN MINE (LEAD-ZINC)
EMMETT IRWIN AND COMPANY, APPLICANT
LEADVILLE, LAKE COUNTY, COLORADO

Engineering Report

By M. H. Salsbury
Mining Engineer
Bureau of Mines

CHAUTAUQUAN MINE (LEAD-ZINC)
EMMETT IRWIN AND COMPANY, APPLICANT
LEADVILLE, LAKE COUNTY, COLORADO

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CHAUTAUQUAN MINE (LEAD-ZINC)
EMMETT IRWIN AND COMPANY, APPLICANT
LEADVILLE, LAKE COUNTY, COLORADO

ENGINEERING REPORT

By

M. H. Salsbury

INTRODUCTION

On October 11-12, an engineer of the Bureau of Mines examined the Chautauquan mine in the east part of Leadville Mining District to check the mine workings and equipment.

The Chautauquan shaft is located at the east end of the Chautauquan claim, survey number 12882, but part of the workings and the proposed project are on the Yalu claim, survey number 9487, of different ownership.

The lessees of the property, Emmett Irwin and Company, have applied for a loan of $7,500.00 (Government participation $3,750.00) to explore an intersection of a vertical northeast striking fissure and a certain bed in the Peerless formation (transition shale). Two other prospects are also included.

The shaft is equipped with a small headframe, 10-horsepower electric hoist, one drill, single stage compressor, mine cars, buckets, small tools, et cetera.

ACKNOWLEDGMENTS

Data for this report was obtained by personal examination, consultation with Emmett Irwin, one of the lessees, and by reference to Professional Paper 148 of the U. S. Geological Survey and to Report of Investigations 4518 of the U. S. Bureau of Mines. Neither

of the publications mention the Chautauquan shaft. Report of Investigation 4518 gives an account of an examination of neighboring shafts, the Silver Spoon to the north and the New Monarch to the east, but the information was of little value for this report. Professional Paper 148, U. S. Geological Survey covers this area on page 311 and following.

LOCATION, TOPOGRAPHY, AND CLIMATE

The Chautauquan shaft is on the north slope of Little Ellen Hill, a spur of Breece Hill. It is four miles from Leadville (fig. 1), the Resurrection mill and the Arkansas Valley smelter of the American Smelting and Refining Company.

The climate is characterized by cool summers, and long severe winters with heavy snowfall.

The mine is reached by a county highway up Big Evans Gulch and a ½-mile connecting road. Roads to operating mines in this area are kept open by county road crews and operation throughout the winter is possible.

The Chautauquan workings are west of the Winnie Luema vein.

HISTORY AND PRODUCTION

The ore shoots of the Winnie Luema vein and associated blanket deposits to the east have been mined extensively through various shafts for over fifty years. Emmons, on page 311 of Professional Paper 148, U. S. Geological Survey, says "The Winnie Luema vein is the longest, most thoroughly explored, and most productive single vein in the Leadville district".

Most of the development and mining has been done on the vein itself and on the east side. The Chautauquan is the only shaft near

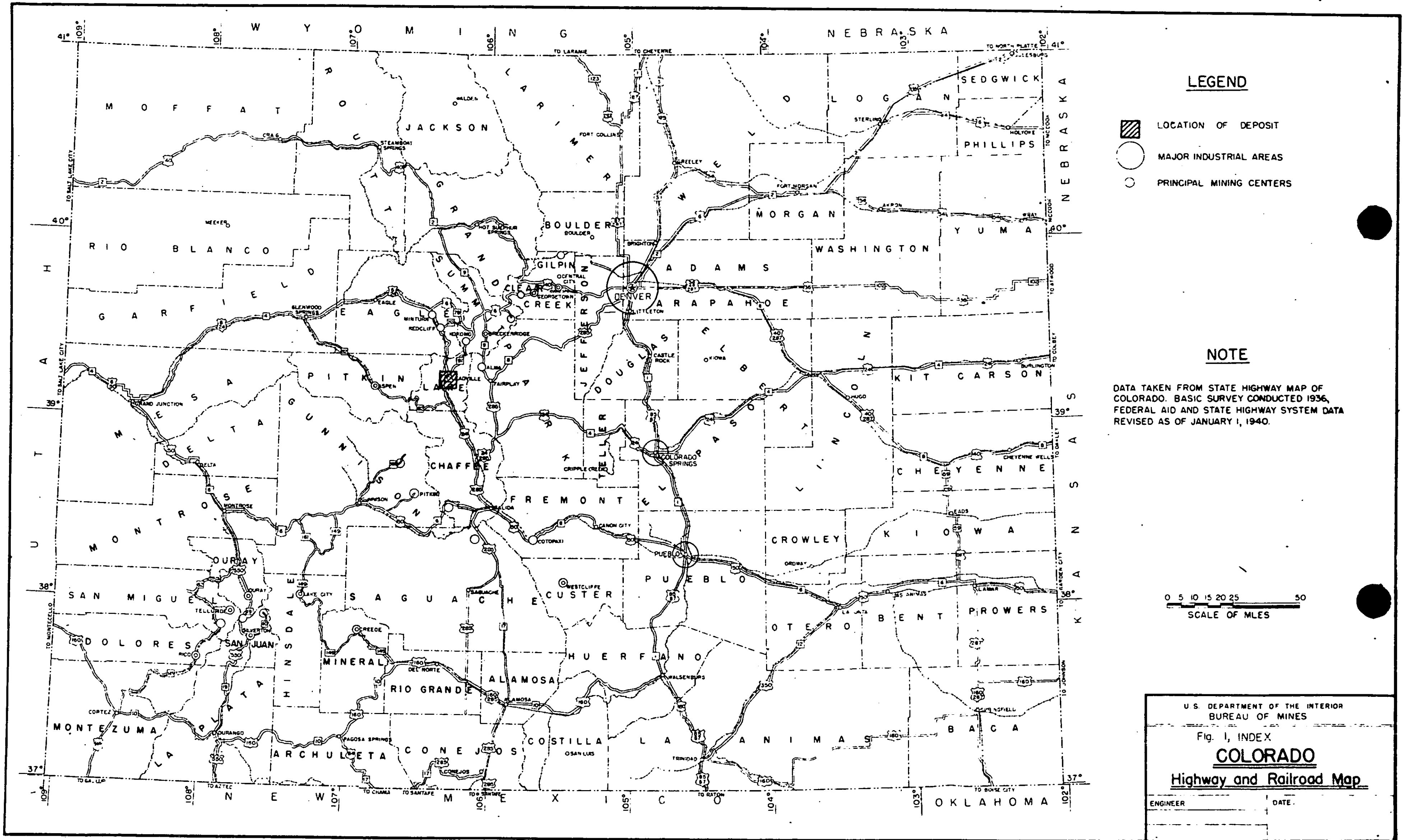

FIG. I-LOCATION MAP, EMMETT IRWIN & CO., CHAUTAUQUAN-YALU, LAKE COUNTY COLORADO D.M.A.-1897

the vein on the west side in this particular area and development through it is limited.

The total production of the area is not available but is large. The records of the Statistics Branch, Economics Division, Region IV, Bureau of Mines show for the Chautauquan shaft, from 1923 to 1950, a production of 236 tons with a content of 18.3 ounces gold, 932 ounces silver, and 62,580 pounds lead. The zinc content is given on four shipments only where it averages 10 percent. These were all smelter shipments and the zinc content incurred a penalty if too high. All ore from this area is more or less oxidized and is direct smelting ore.

Records of the production from the Yalu claim are included in totals of the New Monarch group and are not separable. In any case, the production from Yalu ground is negligible outside of the Winnie Luema vein production.

The Chautauquan shaft has been operated at various times for brief periods since 1900. The present lessees first worked here in 1941 for a short time and began the present operation in 1949. From this last work, three lots of low-grade ore from prospect raises on the northeast vertical fissure above the second level have been shipped to the American Smelting and Refining Company's Arkansas Valley smelter with results as shown in the appended tabulation.

This is partially oxidized lead-zinc combination ore not amenable to selective flotation, and must be shipped direct to the smelter. The proposed development is expected to produce a better grade ore than the above shipments.

TABULATION OF SMELTER SHIPMENTS BY EMMETT IRWIN AND COMPANY

FROM THE YALU CLAIM THROUGH THE CHAUTAUQUAN SHAFT,

LEADVILLE MINING DISTRICT

Date	Mine Lot	Smelter Lot	Dry Wgt. Tons	Ounces/ton Au.	Ounces/ton Ag.	Percent Pb.	Percent Insol.	Percent Fe.	Percent S.	Percent Zn.	Gross Value Per ton	Treatment Charges and Penalties: Base Charge	Lead Deficit	Zinc Penalty	Sulfur Penalty	Total Charges	Net Return Per ton
December 1949	1	5744	8.924	.04	2.75	11.05	33.3	17.85	7.55	8.4	$20.04	$8.00	$ .895	$.120	$1.137	$10.152	$9.89
March 1950	2	6737	29.254	.04	2.25	8.75	38.6	17.2	5.15	6.1	13.49	8.00	1.125	-	.537	9.66	3.83
August 1950	3	8292	20.634	.0175	1.575	5.15	48.9	17.25	2.93	4.2	9.72	8.00	1.485	-	-	9.49	.23

NOTES: Gold paid for when over .03 ounce

90 percent of lead content paid for

Silver content less 1 ounce paid for

Penalty assessed for lead content of less than 12 percent

Penalty assessed for zinc content of over 8 percent

Penalty assessed for excess sulfur over 3 percent

OWNERSHIP AND EXTENT

The Chautauquan claim, survey number 12882, 1.474 acres is owned by Mrs. U. G. Crispell, 1036 North Fayette Street, Jacksonville, Ill. The applicant has a lease on the entire claim expiring September 20, 1958. The royalties are from 10 percent up to $15.00 of net ore value, after smelter and/or mill charges and hauling, to 35 percent of net ore value over $75.00 per ton. In addition, an overriding royalty of 2 percent is charged on ore from other properties hoisted through the Chautauquan shaft.

The Yalu claim, survey number 9487, is part of the property of the New Monarch Mining Company. The applicant has a sublease from the New Monarch Lease, Fred H. Rice and Associates, who hold a lease on the ground expiring November 1, 1951. The applicant's sublease will expire the same date. A renewal for five years is promised by the owners, in which case the sublease held by the applicant will run to November 1, 1956.

The sublease covers a block some 300 x 300 feet, from elevation 10,923 feet to elevation 11,072, as defined in Resurrection Mining Company and Platt and Kleff surveys.

The royalties on Yalu ore are from 10 percent up to $10.00 of net ore value to 35 percent over $75.00 of net ore value with an overriding royalty to the New Monarch Lease of 2½ percent up to $20.00 ore and 5 percent over $20.00 ore.

The lease blocks cover the proposed development adequately and are shown on figure 2.

Copies of the lease are attached to the application.

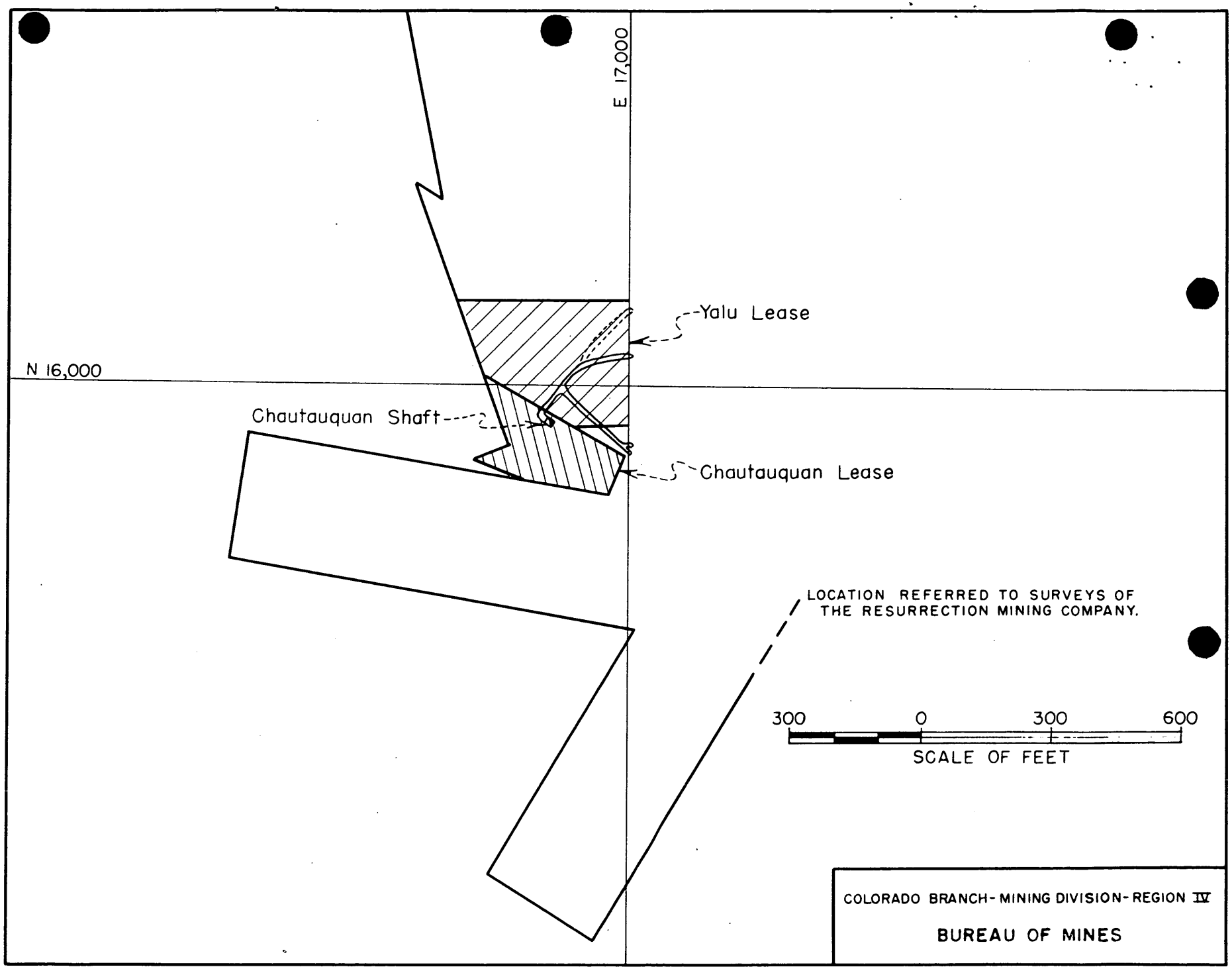

FIG. 2-EMMETT IRWIN & CO., CHAUTAUQUAN-YALU, LAKE COUNTY COLO. D.M.A.-1897

DESCRIPTION OF THE DEPOSITS

The geology and ore deposits are covered in the accompanying Geological Report. Two geological sketches are included.

MINABLE ORE RESERVES

The property has no known ore reserves.

PRESENT STATUS

Exploration and Development

The area covered by the lease is developed by the Chautauquan shaft, collar elevation 11,203, 246 feet in depth with three levels, at 125, 186, and 206 feet, respectively, below the collar. The shaft is in good condition except for the sump where the cribbing is in poor repair.

There are several small stopes reported in the Chautauquan shaft workings all above the second level only one of which is accessible. This is a long narrow replacement deposit of partially oxidized lead-zinc ore just above the second level about 120 feet long, 15 feet wide, and up to 4 feet thick. It is in a favorable bed of the Peerless (transition) shale along a northeast striking vertical fissure and has been mined out except for some remnants of ore along the stope margins which give some idea of the character of the ore but probably not of the grade. The shale strikes S. 30° E. and dips about 38° to the northeast. The Peerless shale - Manitou limestone contact is a short distance above.

A small incline some 40 feet deep was sunk on the dip of the bedding and along the northeast striking fissure to explore the downward continuation of the flat stope just described. This goes

below the second level and is on Yalu ground. It is reported to have a good lead streak in the face but unfortunately has been filled in and the streak cannot be sampled. Obviously the winze did not open up ore which could be mined profitably at the time it was sunk. However, it was a good prospect and should have been carried further.

There are two crosscuts on the second level both of which are driven east to the Winnie Luema vein and break into old filled stopes. This is the only stoping on Yalu ground which is exposed in Chautauquan workings.

The present lessee has driven two short prospect raises on the same northeast striking fissure zone which made the ore in the Peerless formation described above. They are approaching the Manitou limestone contact but have not found commercial ore such as that represented by settlement records. This work is above the incline winze.

The lessee is now engaged in investigating the remnants of ore on the margins of the stope described above on Chautauquan ground.

Mining and Milling Equipment and Other Facilities

The mining equipment is comprised of a small headframe, hoist house, 10-horsepower hoist, electric-driven compressor, buckets, and mine cars. All are on the property and being used in present operations.

A mill or mill equipment is not needed as past production has not been amenable to beneficiation and was shipped direct to the local smelter.

PROPOSED EXPLORATION AND DEVELOPMENT PROGRAM

The applicant proposes three projects:

(1) To clean out and enlarge the incline winze and continue it downward toward a junction with the Winnie Luema vein some 200 feet to explore the possibility of a flat stope similar to the one above the second level.

(2) To drive a North Crosscut eastward to explore the east side of the Winnie Luema vein.

(3) In the event the incline winze opens up sufficient ore, to drive a lateral from the bottom of the shaft through which to mine the ore body.

ESTIMATED COST OF PROJECT

Because only one of the above proposals, the first, will be recommended, the cost of it alone is estimated.

The applicant's estimate of $7,500.00 for the three proposals is low but is more than would be needed for the first one. The time estimate of ten months is high for the one project.

The Bureau engineer's estimate for the cost of the inclined winze, expected to require a maximum of four months time to complete, is as follows:

<u>Equipment</u> (to be rented locally)

Hoist and compressor rental (already installed) Four months at $80.00 per month	$320.00
Air hoist for winze Four months at $20.00 per month	80.00
Drilling machine and equipment Four months at $60.00 per month	240.00

Power	
Electric power for hoist and air compressor Four months at $50.00 per month	$ 200.00
Supplies	
Twelve pound track and 2-inch drain and air line for 225 feet of incline	223.50
Drill steel, detachable bits, and sharpening	75.00
Explosives	400.00
Labor	
Three men (1 man on surface, 2 underground), including taxes and insurance at $45.00 per day Four 25-day months	4,500.00
Miscellaneous expenses	
Fuel, repairs, small tools, incidentals	161.50
Total	$6,200.00

The rental costs used above are somewhat lower than accepted rental rates, but are actual rentals which are current in the Leadville district. The hoist, compressor, mine cars, and buckets are in place and the only additional equipment needed is the drilling equipment and air hoist for the winze. The time estimate of four months is ample for the winze work and includes cleaning out and enlarging the old winze which, it is believed, will cost about as much per foot as the new work.

PROPOSED FINANCING

The applicant, a five-party partnership, proposes to furnish the capital needed for their share personally.

CONCLUSIONS

The success of the first proposal, that is to open up an ore shoot along the northeast striking vertical fissure between the bottom of the incline winze and the Winnie Luema vein, would contribute to needed lead production. It is not likely that recovery of the zinc content can be made unless the character of the ore changes radically. It is not likely that the sulfide content will increase enough to permit concentration by selective flotation. A lead content of 15 percent or better in an ore body of reasonable size would make possible a profitable operation.

While there is a possibility that there is some ore left at the junction of the vertical fissure and the Winnie Luema vein, it is more likely that this possibility has been already explored from other workings on the Winnie Luema. It is possible that ore of too low grade for former operators to mine profitably has been left.

The second proposal to explore east of the Winnie Luema vein through the North Crosscut on the second level has no definite objective and the area has been prospected from other workings. For this reason and because the possible cost cannot be estimated, this proposal is not recommended. The third proposal, to drive a lateral from the bottom of the Chautauquan shaft to reach the bottom of the proposed incline winze if any ore is found, is unnecessary so far as possibilities indicate. Moreover, it comes under the head of development rather than exploration and therefore is not recommended.

A long narrow ore body along the incline, which is the type expected, can be mined as well through the incline itself as through a new level.

It is likely that some ore will be produced while driving the incline.

The local partners in the enterprise have a good practical mining background and are well able to direct the operation.

RECOMMENDATIONS

It is recommended that a loan be approved for $6,200.00 (Government participation $3,100.00) for the purpose of driving an incline downward along the intersection of a northeast striking vertical fissure system and a certain bed of the Peerless (transition) shale some 220 feet, including clean up and enlargement of an old winze, to a junction with the Winnie Luema vein. (See maps attached to the Geological Report.) This should be subject to the renewal of the sublease on Yalu ground which is due November 1, 1951.

CHAUTAUQUAN MINE (LEAD-ZINC)

EMMETT IRWIN AND CO., APPLICANT

LEADVILLE, COLORADO

DMA DOCKET 1897

Geologic Report

By Ogden Tweto
U. S. Geological Survey
Denver, Colorado

CHAUTAUQUAN MINE (LEAD-ZINC)
EMMETT IRWIN AND CO., APPLICANT
LEADVILLE, COLORADO

INTRODUCTION

The Chautauquan mine is on the north slope of Breece Hill, in the eastern part of the Leadville district, Colorado. It lies just a short distance west of the highly productive Winnie-Luema vein, and the workings connect with some of those of the Winnie-Luema group of mines. The shaft is on the Chautauquan claim, but the workings are principally on the Yalu claim, a property under different ownership. Emmett Irwin and Co. has a long-term lease on the entire Chautauquan claim, and a block-sublease on parts of the Yalu and adjoining claims owned by the New Monarch Mining Company. By terms of this sublease and the "addition to sublease" (see papers accompanying application), the applicant is entitled to work a block between elevations 10923 and 11072 feet, with horizontal dimensions defined by coordinates of the Resurrection Mining Company and the property line of the New Monarch Mining Company. The sublease and "addition" expire November 1, 1951, but by terms of the "addition," provision is made for renewal for the length of the Rice lease on the New Monarch ground. The Rice lease also expires November 1, 1951; thus in effect, the Emmett Irwin sublease on the Yalu expires at that time. Irwin, however, says that Rice has already made arrangements for a five-year renewal of his (Rice) lease, and thus the Irwin lease would be extended until 1956. Such action is not likely to be actually accomplished until November 1, 1951, and thus, until that time, Irwin and Co. has only

a temporary lease. The question is of direct concern to the present application because all the proposed work is to be done on the Yalu ground. I have checked the proposed exploratory work, with respect to the lease boundaries, on maps of the Resurrection Mining Company; the proposed work will be entirely within the lease block.

GEOLOGY

The output from the Chautauquan mine has come almost entirely from the second level, and principally from the portion of the level that is on the Yalu claim. Most of the workings on this level are in thin-bedded dolomite, shale, and dolomitic sandstone of the (Cambrian) Peerless formation, generally known as "transition shale" at Leadville. These beds dip 20°-30° NE (Figure 1). Sawatch quartzite, beneath the Peerless beds, is exposed for a few feet near the shaft, and Manitou dolomite ("White limestone" of Leadville usage) is exposed in the drift that runs southeastward to the Winnie-Luema vein. From a point opposite the shaft, the drift runs northeastward along a small fissure that dips 75°-85° NW. The fissure is only weakly mineralized at most places, but where it intersects a bedding zone a few feet thick about 25 feet above the base of the Peerless, it contains 2 to 24 inches of lead-zinc ore, and at places replacement bodies 1 to 3 feet thick run out on the bedding for a few feet from the fissure. The fissure at this horizon in the Peerless has been rather extensively stoped above the second level and was followed below the level for about 40 feet on the slope by a small "gopher-hole" exploratory incline, now inaccessible. As shown by the sample data accompanying the application, this ore runs 8 to 19% Pb, 4 to 17% Zn, about 3 ounces Ag, and contains a little gold and copper.

The applicant has requested a loan of $7,500 (Government participation 50%, or $3,750) to drive an incline down along the fissure at the horizon of the favorable beds in the Peerless (Figure 2). Considering the productivity of this structure, i.e., the intersection of the fissure with the favorable bedding zone, above the level, and the presence, according to the operators, of 16 inches of ore on the fissure in the gopher hole below the level, this seems a good prospect. The incline should logically be continued downward and northeastward along the fissure zone to the junction with the Winnie-Luema vein, a distance of about 200 feet. The fissure on which the incline would start may peter out before the Winnie-Luema vein is reached, but as shown in the northeastern part of the level, other, overlapping fissures will doubtless take its place, and the fissure zone as a whole may be expected to continue northeastward to the Winnie-Luema. There is a possibility that minor ore-bearing veins will be found in the footwall of the Winnie-Luema vein; such veins have been worked at several places in the Winnie-Luema mines, but there is no information available to appraise this possibility in the vicinity of the proposed incline.

The applicant has predicated his request in large part on the desirability of reaching unoxidized, as contrasted to partly oxidized, sulfide ore. If the proposal had to be judged solely on the basis of this question, it would have to be denied. The change from oxidized to unoxidized ore takes place gradually in this area through a transition zone of variable but rather considerable vertical extent. Oxidized ore has been mined at places on the Winnie-Luema vein at lower depths than the proposed Chautauquan incline will reach, but on the other hand,

sulfide ore has been found at other places on this same vein at depths shallower than the second level of the Chautauquan. It is uncertain, if not unlikely, that the depth to be gained by the proposed incline will be sufficient to reach completely fresh sulfide ore, and even more unlikely that the incline will reveal any sharp boundary surface below which the sulfide ore is completely fresh.

The applicant's emphasis of the oxidation question seems to me a mis-statement of the problem. Future productivity and profitable operation of the mine depend primarily on continuation of the ore shoot below the second level. The degree of oxidation is only a modifying factor. The ore mined from the stope above the level was partly oxidized and was thus reduced in value, but it was worked profitably, and at a time when metal prices were considerably lower than at present. The small stope 80 to 120 feet northeast of the shaft crosscut was worked recently by the present operators, with a small profit. The ore, as exposed at the edges of the stope, appears to be mostly sulfides--galena, pyrite, and sphalerite--but contains too much and too many soluble salts to be amenable to flotation. It therefore must be shipped direct to the smelter, with the inevitable zinc penalty. Thus the value of the ore to the operator has been reduced by reason of the partial oxidation, but the ore was nevertheless worked down to the second level. It follows that if the ore goes down at all, it should be workable below the level at today's high metal prices, particularly as the degree of oxidation should gradually diminish downward, and there is a good possibility that ore may be reached that, although still somewhat oxidized and thus possibly subject to some penalty, may be amenable to flotation. It is also possible

that with decreasing oxidation, rough sorting to remove part of the zinc will be practicable.

RECOMMENDATIONS

The proposed incline to be driven from the second level down along the fissure at the horizon of the "favorable beds" in the Peerless formation is a good prospect and is herewith recommended. The incline will be 200 to 210 feet long, and as shown in the Engineering Report, is estimated to cost $6200. The applicant also included in his plans proposals for driving from the shaft to the incline, if ore was found, and for doing some prospecting east of the Winnie Luema vein. These two projects are not recommended; the first depends entirely on the outcome of the incline; the second is too indefinite.

It is recommended that a loan of $6200 (Government participation 50%, or $3100) be granted to sink an incline 200 to 210 feet long, along the fissure and parallel to the bedding of the Peerless formation, as described above and illustrated in Figures 1 and 2.

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

Mining Division
Region IV

July 16, 1952

Memorandum

To: Acting Administrator, Defense Minerals Exploration Administration - Attention: 210

From: Field Team, Region IV

Subject: Final Report, DMA Docket 1897, (Lead-Zinc) Chautauquan Mine, Lake County, Colorado

Enclosed are four copies of the final report on DMA-1897.

The applicant requested cancellation as he was unable to obtain landlords subordination agreements.

W. H. King
W. H. King

Donald R. Macharen
for
A. H. Koschmann

Enclosures

Mining Division
Region IV

November 6, 1951

Memorandum

To: DMEA Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 1697, Hamett Irwin and Co., applicant; Chamberlain Mine (Lead-Zinc), California Mining District, Lake County, Colorado

The application of the subject docket was for an exploration loan of $7,500.

The proposed exploration consisted of the following three projects: (1) To clean out and enlarge the incline winze and continue it downward 200 feet toward a junction with the Minnie Lamm vein, (2) to drive a cross-cut eastward to explore the east side of the Minnie Lamm Mine and (3) in the event that the inclined winze develops sufficient ore, to drive a lateral from the bottom of the shaft through which to mine the ore body.

The future productivity of the mine is dependent on development below the second level, with an expected decrease in the degree of oxidation.

The field team proposes that only Project 1 should be considered at an estimated cost of $4,200.

They recommended approval of this loan, with which we concur.

A contract will be prepared subject to extension of the present lease.

Paul T. Allaman

Reviewed by
DMEA OPERATING COMMITTEE
7-30-52.
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Date Rec'd.
NOV 2 - 1951
BUREAU OF MINES
Denver, Colorado

Building 20
Denver Federal Center
Denver 14, Colorado

November 1, 1951

Memorandum

To: Chief, Mining Division, Region IV

From: Chief, Colorado Branch, Mining Division

Subject: DMA 1897, Chautauquan Mine (Lead-Zinc), Emmett Irwin and Company, Leadville, Lake County, Colorado

Please find enclosed the original and seven copies of the Summary, Conclusions, and Recommendations by Ogden Tweto and M. M. Salsbury and the original and seven copies of Salsbury's Engineering Report, covering the subject docket.

The examining team does not recommend the loan request as submitted by the applicant for three separate projects, but does recommend the first of the three projects at an estimated cost of $6,200.00 instead of the $7,500.00 requested for the entire program.

In the Engineering Report, Salsbury's reasoning for disallowing two of the projects is entirely valid and he presents ample justification for approving the project recommended. The possibility of the proposed exploration finding ore along a vertical fissure in the favorable Peerless shale formation appears better than average. I concur with his recommendations, subject, of course, to renewal of the sublease on the Yalu tract.

The brochure and review are also returned herewith.

W. M. Craver, Jr.

W. M. Craver, Jr.

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

200 New Customhouse
Denver 2, Colorado

October 30, 1951

Memorandum

To: DMA Field Team, Region IV

From: A. H. Koschmann

Subject: DMA Docket 1897, Chautauquan Mine, Emmett Irwin and Co., Applicant, Leadville, Colorado

Attached are 3 copies of the geologic report by Ogden Tweto covering subject docket. It is pointed out that ore in the Chautauquan mine occurs at the intersection of a mineralized fissure with the Peerless (Cambrian) formation. About 25 feet above the base of the Peerless, lead-zinc ore 2 to 24 inches thick was found, and locally replacement bodies 1 to 3 feet thick run out on the bedding for a few feet from the fissure. This ore body has been stoped above the second level and about 40 feet below the level. The ore ran 3 to 19% Pb and 4 to 17% Zn. The applicant requests a loan of $7,500 to drive an incline down along this mineralized fissure at the horizon of the favorable beds, in the Peerless formation, to its junction with the Minnie-Lucma vein. The incline will be about 200 feet long and cost about $6,200. Tweto recommends that a loan of $6,200 be granted.

The applicant also includes in his plans proposals for driving from the shaft to the incline, if ore is found, and for doing some prospecting east of the Minnie-Lucma vein. Tweto does not recommend these two projects.

I concur with Tweto's recommendations.

A. H. Koschmann
A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Attachments (8)

UNITED STATES
DEPARTMENT OF THE INTERIOR
OSCAR L. CHAPMAN, SECRETARY

DEFENSE MINERALS ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMA-1097, Chautauquan Mine (Lead-Zinc)

Emmett Irwin and Company, Applicant

Leadville, Lake County, Colorado

Lead-Zinc

Ogden Tweto, Geologist
U. S. Geological Survey

M. M. Salsbury, Mining Engineer
Bureau of Mines

October 31, 1951

CHAUTAUQUAN MINE (LEAD-ZINC)
EMMETT IRWIN AND COMPANY, APPLICANT
LEADVILLE, LAKE COUNTY, COLORADO

Summary, Conclusions, and Recommendations

By Ogden Tweto
Geologist
U. S. Geological Survey

and

M. H. Salsbury
Mining Engineer
Bureau of Mines

CHAUTAUQUAN MINE (LEAD-ZINC)
BARRETT IRWIN AND COMPANY, APPLICANT
LEADVILLE, LAKE COUNTY, COLORADO

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By Ogden Tweto and M. H. Salsbury

The main ore shoot in the Chautauquan mine is localized at the intersection of a small vertical fissure striking N. 45° E. with a zone of "favorable beds" a few feet thick in the Peerless formation. The beds dip 20° - 30° east-northeast and the ore shoot has been worked in an incline stope down to the second bottom level of the Chautauquan shaft. The applicant has requested a loan of $7,500.00 (Government participation $3,750.00) to carry out three proposals, only one of which is recommended.

The recommended proposal is to drive an incline below the second level along the downward projection of the ore shoot mined above the level or along the vertical fissure and parallel to the bedding. This is a logical proposal. The incline should be driven downward and northeastward to the intersection of the fissure zone with the Winnie Luema vein a distance of 200 to 210 feet.

The mine is fully equipped with a small headframe, hoist house, 10-horsepower hoist, compressor, buckets and mine cars. The only further equipment needed for driving the proposed incline is an air hoist and mounted drilling equipment. These can be rented locally as are the surface hoist and compressor now in use.

The Bureau of Mines estimate of the cost of the proposed work is $6,200.00.

The ore is lead-zinc ore consisting of partly oxidized pyrite, galena, and sphalerite. The partial oxidation has reduced the value of the ore produced in the past but the ore body nevertheless could be worked. It is unlikely that completely unoxidized ore will be found in the proposed incline, but there should be at least a gradual reduction in oxidation and the value of the ore may increase correspondingly.

It is recommended that an exploration loan of $6,200.00 (Government participation $3,100.00) be granted to drive the incline subject to the renewal of the sublease on the Yalu to be granted November 1, 1951.

CHAUTAUQUAN MINE (LEAD-ZINC)
EMMETT IRWIN AND COMPANY, APPLICANT
LEADVILLE, LAKE COUNTY, COLORADO

Engineering Report

By M. H. Salsbury
Mining Engineer
Bureau of Mines

CHAUTAUQUAN MINE (LEAD-ZINC)
EMMETT IRWIN AND COMPANY, APPLICANT
LEADVILLE, LAKE COUNTY, COLORADO

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CHAUTAUQUAN MINE (LEAD-ZINC)
EMMETT IRWIN AND COMPANY, APPLICANT
LEADVILLE, LAKE COUNTY, COLORADO

ENGINEERING REPORT

By

M. H. Salsbury

INTRODUCTION

On October 11-12, an engineer of the Bureau of Mines examined the Chautauquan mine in the east part of Leadville Mining District to check the mine workings and equipment.

The Chautauquan shaft is located at the east end of the Chautauquan claim, survey number 12882, but part of the workings and the proposed project are on the Yalu claim, survey number 9487, of different ownership.

The lessees of the property, Emmett Irwin and Company, have applied for a loan of $7,500.00 (Government participation $3,750.00) to explore an intersection of a vertical northeast striking fissure and a certain bed in the Peerless formation (transition shale). Two other prospects are also included.

The shaft is equipped with a small headframe, 10-horsepower electric hoist, one drill, single stage compressor, mine cars, buckets, small tools, et cetera.

ACKNOWLEDGMENTS

Data for this report was obtained by personal examination, consultation with Emmett Irwin, one of the lessees, and by reference to Professional Paper 148 of the U. S. Geological Survey and to Report of Investigations 4518 of the U. S. Bureau of Mines. Neither

of the publications mention the Chautauquan shaft. Report of Investigation 4518 gives an account of an examination of neighboring shafts, the Silver Spoon to the north and the New Monarch to the east, but the information was of little value for this report. Professional Paper 148, U. S. Geological Survey covers this area on page 311 and following.

LOCATION, TOPOGRAPHY, AND CLIMATE

The Chautauquan shaft is on the north slope of Little Ellen Hill, a spur of Breece Hill. It is four miles from Leadville (fig. 1), the Resurrection Mill and the Arkansas Valley smelter of the American Smelting and Refining Company.

The climate is characterized by cool summers, and long severe winters with heavy snowfall.

The mine is reached by a county highway up Big Evans Gulch and a ½-mile connecting road. Roads to operating mines in this area are kept open by county road crews and operation throughout the winter is possible.

The Chautauquan workings are west of the Winnie Lucma vein.

HISTORY AND PRODUCTION

The ore shoots of the Winnie Lucma vein and associated blanket deposits to the east have been mined extensively through various shafts for over fifty years. Emmons, on page 311 of Professional Paper 148, U. S. Geological Survey, says "The Winnie Lucma vein is the longest, most thoroughly explored, and most productive single vein in the Leadville district".

Most of the development and mining has been done on the vein itself and on the east side. The Chautauquan is the only shaft near

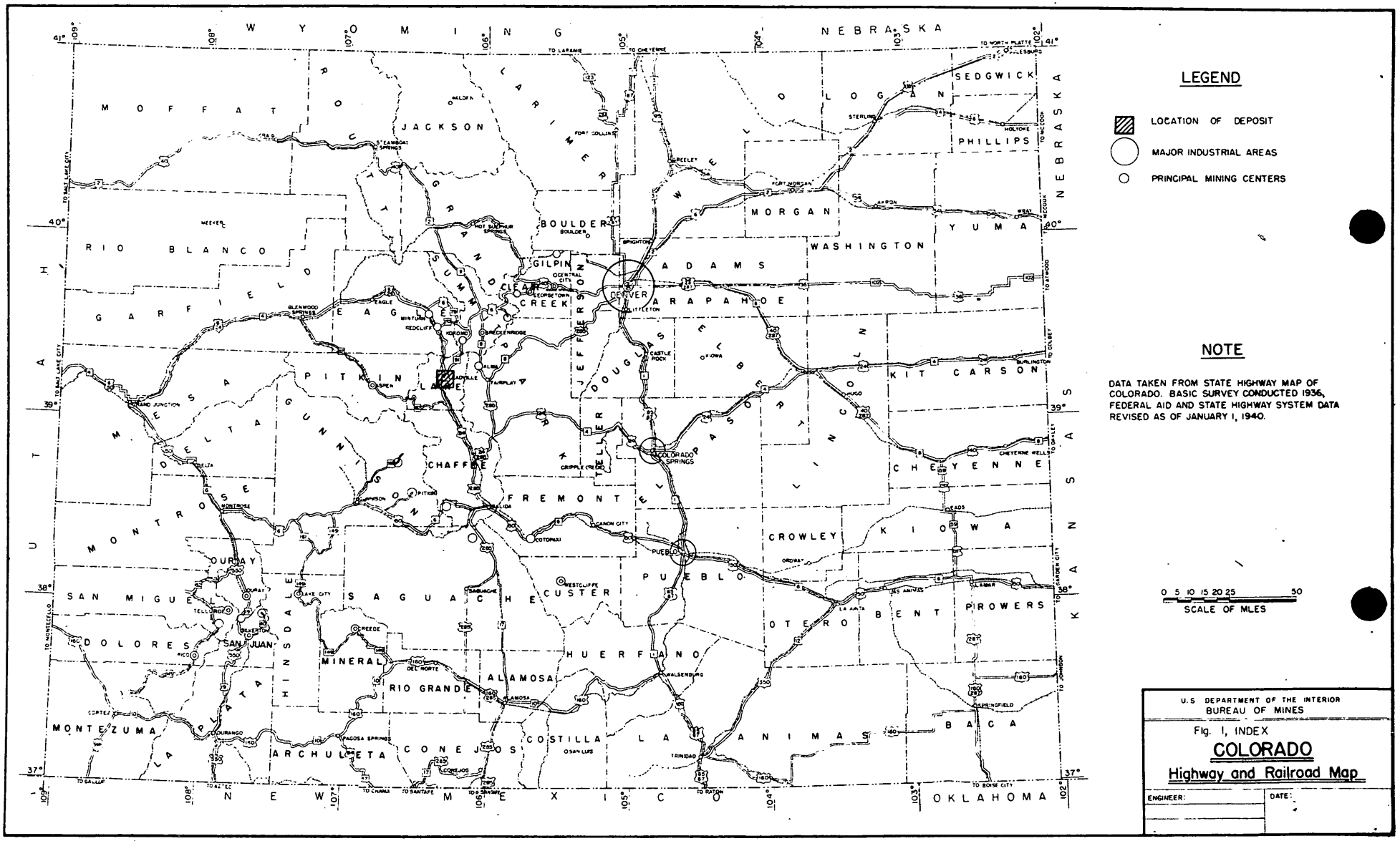

FIG. 1-LOCATION MAP, EMMETT IRWIN & CO., CHAUTAUQUAN-YALU, LAKE COUNTY COLORADO D.M.A.-1897

the vein on the west side in this particular area and development through it is limited.

The total production of the area is not available but is large. The records of the Statistics Branch, Economics Division, Region IV, Bureau of Mines show for the Chautauquan shaft, from 1933 to 1950, a production of 236 tons with a content of 18.3 ounces gold, 932 ounces silver, and 62,580 pounds lead. The zinc content is given on four shipments only where it averages 10 percent. These were all smelter shipments and the zinc content incurred a penalty if too high. All ore from this area is more or less oxidized and is direct smelting ore.

Records of the production from the Yalu claim are included in totals of the New Monarch group and are not separable. In any case, the production from Yalu ground is negligible outside of the Winnie Luema vein production.

The Chautauquan shaft has been operated at various times for brief periods since 1900. The present lessee first worked here in 1941 for a short time and began the present operation in 1949. From this last work, three lots of low-grade ore from prospect raises on the northeast vertical fissure above the second level have been shipped to the American Smelting and Refining Company's Arkansas Valley smelter with results as shown in the appended tabulation.

This is partially oxidized lead-zinc combination ore not amenable to selective flotation, and must be shipped direct to the smelter. The proposed development is expected to produce a better grade ore than the above shipments.

TABULATION OF SHIPMENTS BY THE ETT IRON AND COMPANY

FROM THE YALE CLAIM THROUGH THE CHAUTAUQUAN SHAFT,

LEADVILLE MINING DISTRICT

Date	Mine Lot	Smelter Lot	Dry Wgt. Tons	Ounces/ton Au.	Ounces/ton Ag.	Percent Pb.	Percent Insol.	Percent Fe.	Percent S.	Percent Zn.	Gross Value Per ton	Treatment Charges and Penalties: Base Charge	Lead Deficit	Zinc Penalty	Sulfur Penalty	Total Charges	Net Return Per ton
December 1949	1	5744	8.924	.04	2.75	11.05	33.3	17.85	7.55	8.4	$20.04	$8.00	$ .895	$.120	$1.137	$10.152	$9.89
March 1950	2	6737	29.254	.04	2.25	8.75	38.6	17.2	5.15	6.1	13.49	8.00	1.125	-	.537	9.66	3.83
August 1950	3	8292	20.634	.0175	1.575	5.15	48.9	17.25	2.93	4.2	9.72	8.00	1.485	-	-	9.49	.23

NOTES: Gold paid for when over .03 ounce

90 percent of lead content paid for

Silver content less 1 ounce paid for

Penalty assessed for lead content of less than 12 percent

Penalty assessed for zinc content of over 8 percent

Penalty assessed for excess sulfur over 3 percent

OWNERSHIP AND EXTENT

The Chautauquan claim, survey number 12882, 1.474 acres is owned by Mrs. U. G. Crispell, 1036 North Fayette Street, Jacksonville, Ill. The applicant has a lease on the entire claim expiring September 20, 1958. The royalties are from 10 percent up to $15.00 of net ore value, after smelter and/or mill charges and hauling, to 35 percent of net ore value over $75.00 per ton. In addition, an overriding royalty of 2 percent is charged on ore from other properties hoisted through the Chautauquan shaft.

The Yalu claim, survey number 9487, is part of the property of the New Monarch Mining Company. The applicant has a sublease from the New Monarch Lease, Fred H. Rice and Associates, who held a lease on the ground expiring November 1, 1951. The applicant's sublease will expire the same date. A renewal for five years is promised by the owners, in which case the sublease held by the applicant will run to November 1, 1956.

The sublease covers a block one 300 x 300 feet, from elevation 10,923 feet to elevation 11,072, as defined in Resurrection Mining Company and Platt and Kleff surveys.

The royalties on Yalu ore are from 10 percent up to $10.00 of net ore value to 35 percent over $75.00 of net ore value with an overriding royalty to the New Monarch Lease of 2½-percent up to $20.00 ore and 5 percent over $20.00 ore.

The lease blocks cover the proposed development adequately and are shown on figure 2.

Copies of the lease are attached to the application.

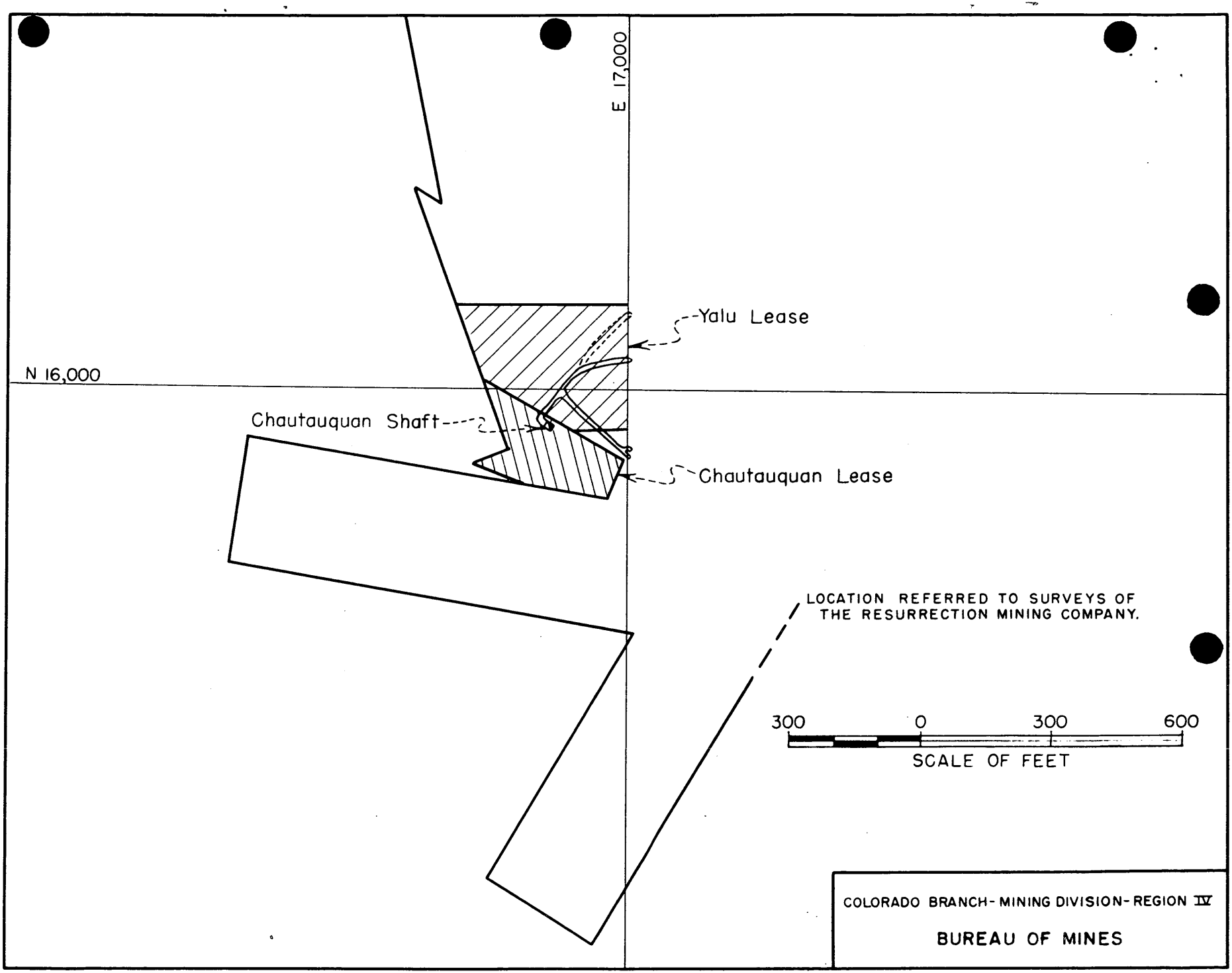

FIG. 2-EMMETT IRWIN & CO., CHAUTAUQUAN-YALU, LAKE COUNTY COLO. D.M.A.-1897

DESCRIPTION OF THE DEPOSITS

The geology and ore deposits are covered in the accompanying Geological Report. Two geological sketches are included.

MINABLE ORE RESERVES

The property has no known ore reserves.

PRESENT STATUS

Exploration and Development

The area covered by the lease is developed by the Chautauquan shaft, collar elevation 11,203, 246 feet in depth with three levels, at 125, 186, and 206 feet, respectively, below the collar. The shaft is in good condition except for the sump where the cribbing is in poor repair.

There are several small stopes reported in the Chautauquan shaft workings all above the second level only one of which is accessible. This is a long narrow replacement deposit of partially oxidized lead-zinc ore just above the second level about 120 feet long, 15 feet wide, and up to 4 feet thick. It is in a favorable bed of the Peerless (transition) shale along a northeast striking vertical fissure and has been mined out except for some remnants of ore along the stope margins which give some idea of the character of the ore but probably not of the grade. The shale strikes S. 30° E. and dips about 28° to the northeast. The Peerless shale - Manitou limestone contact is a short distance above.

A small incline some 40 feet deep was sunk on the dip of the bedding and along the northeast striking fissure to explore the downward continuation of the flat stope just described. This goes

below the second level and is on Yalu ground. It is reported to have a good lead streak in the face but unfortunately has been filled in and the streak cannot be sampled. Obviously the winze did not open up ore which could be mined profitably at the time it was sunk. However, it was a good prospect and should have been carried further.

There are two crosscuts on the second level both of which are driven east to the Winnie Luzma vein and break into old filled stopes. This is the only stoping on Yalu ground which is exposed in Chautauquan workings.

The present lessee has driven two short prospect raises on the same northeast striking fissure zone which made the ore in the Peerless formation described above. They are approaching the Manitou limestone contact but have not found commercial ore such as that represented by settlement records. This work is above the incline winze.

The lessee is now engaged in investigating the remnants of ore on the margins of the stope described above on Chautauquan ground.

Mining and Milling Equipment and Other Facilities

The mining equipment is comprised of a small headframe, hoist house, 10-horsepower hoist, electric-driven compressor, buckets, and mine cars. All are on the property and being used in present operations.

A mill or mill equipment is not needed as past production has not been amenable to beneficiation and was shipped direct to the local smelter.

PROPOSED EXPLORATION AND DEVELOPMENT PROGRAM

The applicant proposes three projects:

(1) To clean out and enlarge the incline winze and continue it downward toward a junction with the Winnie Luema vein some 200 feet to explore the possibility of a flat stope similar to the one above the second level.

(2) To drive a North Crosscut eastward to explore the east side of the Winnie Luema vein.

(3) In the event the incline winze opens up sufficient ore, to drive a lateral from the bottom of the shaft through which to mine the ore body.

ESTIMATED COST OF PROJECT

Because only one of the above proposals, the first, will be recommended, the cost of it alone is estimated.

The applicant's estimate of $7,500.00 for the three proposals is low but is more than would be needed for the first one. The time estimate of ten months is high for the one project.

The Bureau engineer's estimate for the cost of the inclined winze, expected to require a maximum of four months time to complete, is as follows:

<u>Equipment</u> (to be rented locally)

Hoist and compressor rental (already installed) Four months at $80.00 per month	$320.00
Air hoist for winze Four months at $20.00 per month	80.00
Drilling machine and equipment Four months at $60.00 per month	240.00

Power

Electric power for hoist and air compressor Four months at $50.00 per month	$ 200.00

Supplies

Twelve pound track and 2-inch drain and air line for 225 feet of incline	223.50
Drill steel, detachable bits, and sharpening	75.00
Explosives	400.00

Labor

Three men (1 man on surface, 2 underground), including taxes and insurance at $45.00 per day Four 25-day months	4,500.00

Miscellaneous expenses

Fuel, repairs, small tools, incidentals	161.50
Total	$6,200.00

The rental costs used above are somewhat lower than accepted rental rates, but are actual rentals which are current in the Leadville district. The hoist, compressor, mine cars, and buckets are in place and the only additional equipment needed is the drilling equipment and air hoist for the winze. The time estimate of four months is ample for the winze work and includes cleaning out and enlarging the old winze which, it is believed, will cost about as much per foot as the new work.

PROPOSED FINANCING

The applicant, a five-party partnership, proposes to furnish the capital needed for their share personally.

CONCLUSIONS

The success of the first proposal, that is to open up an ore sheet along the northeast striking vertical fissure between the bottom of the incline winze and the Winnie Lucma vein, would contribute to needed lead production. It is not likely that recovery of the zinc content can be made unless the character of the ore changes radically. It is not likely that the sulfide content will increase enough to permit concentration by selective flotation. A lead content of 15 percent or better in an ore body of reasonable size would make possible a profitable operation.

While there is a possibility that there is some ore left at the junction of the vertical fissure and the Winnie Lucma vein, it is more likely that this possibility has been already explored from other workings on the Winnie Lucma. It is possible that ore of too low grade for former operators to mine profitably has been left.

The second proposal to explore east of the Winnie Lucma vein through the North Crosscut on the second level has no definite objective and the area has been prospected from other workings. For this reason and because the possible cost cannot be estimated, this proposal is not recommended. The third proposal, to drive a lateral from the bottom of the Chautauquan shaft to reach the bottom of the proposed incline winze if any ore is found, is unnecessary so far as possibilities indicate. Moreover, it comes under the head of development rather than exploration and therefore is not recommended.

A long narrow ore body along the incline, which is the type expected, can be mined as well through the incline itself as through a new level.

It is likely that some ore will be produced while driving the incline.

The local partners in the enterprise have a good practical mining background and are well able to direct the operation.

RECOMMENDATIONS

It is recommended that a loan be approved for $6,200.00 (Government participation $3,100.00) for the purpose of driving an incline downward along the intersection of a northeast striking vertical fissure system and a certain bed of the Peerless (transition) shale some 220 feet, including clean up and enlargement of an old winze, to a junction with the Winnie Luema vein. (See maps attached to the Geological Report.) This should be subject to the renewal of the sublease on Yalu ground which is due November 1, 1951.

CHAUTAUQUAN MINE (LEAD-ZINC)

EMMETT IRWIN AND CO., APPLICANT

LEADVILLE, COLORADO

DMA DOCKET 1897

Geologic Report

By Ogden Tweto
U. S. Geological Survey
Denver, Colorado

CHAUTAUQUAN MINE (LEAD-ZINC)
EMMETT IRWIN AND CO., APPLICANT
LEADVILLE, COLORADO

INTRODUCTION

The Chautauquan mine is on the north slope of Breece Hill, in the eastern part of the Leadville district, Colorado. It lies just a short distance west of the highly productive Winnie-Luema vein, and the workings connect with some of those of the Winnie-Luema group of mines. The shaft is on the Chautauquan claim, but the workings are principally on the Yalu claim, a property under different ownership. Emmett Irwin and Co. has a long-term lease on the entire Chautauquan claim, and a block-sublease on parts of the Yalu and adjoining claims owned by the New Monarch Mining Company. By terms of this sublease and the "addition to sublease" (see papers accompanying application), the applicant is entitled to work a block between elevations 10928 and 11072 feet, with horizontal dimensions defined by coordinates of the Resurrection Mining Company and the property line of the New Monarch Mining Company. The sublease and "addition" expire November 1, 1951, but by terms of the "addition," provision is made for renewal for the length of the Rice lease on the New Monarch ground. The Rice lease also expires November 1, 1951; thus in effect, the Emmett Irwin sublease on the Yalu expires at that time. Irwin, however, says that Rice has already made arrangements for a five-year renewal of his (Rice) lease, and thus the Irwin lease would be extended until 1956. Such action is not likely to be actually accomplished until November 1, 1951, and thus, until that time, Irwin and Co. has only

a temporary lease. The question is of direct concern to the present application because all the proposed work is to be done on the Yalu ground. I have checked the proposed exploratory work, with respect to the lease boundaries, on maps of the Resurrection Mining Company; the proposed work will be entirely within the lease block.

GEOLOGY

The output from the Chautauquan mine has come almost entirely from the second level, and principally from the portion of the level that is on the Yalu claim. Most of the workings on this level are in thin-bedded dolomite, shale, and dolomitic sandstone of the (Cambrian) Peerless formation, generally known as "transition shale" at Leadville. These beds dip 20°-30° NE (Figure 1). Sawatch quartzite, beneath the Peerless beds, is exposed for a few feet near the shaft, and Manitou dolomite ("white limestone" of Leadville usage) is exposed in the drift that runs southeastward to the Minnie-Luema vein. From a point opposite the shaft, the drift runs northeastward along a small fissure that dips 75°-85° NW. The fissure is only weakly mineralized at most places, but where it intersects a bedding zone a few feet thick about 25 feet above the base of the Peerless, it contains 2 to 24 inches of lead-zinc ore, and at places replacement bodies 1 to 3 feet thick run out on the bedding for a few feet from the fissure. The fissure at this horizon in the Peerless has been rather extensively stoped above the second level and was followed below the level for about 40 feet on the slope by a small "gopher-hole" exploratory incline, now inaccessible. As shown by the sample data accompanying the application, this ore runs 8 to 19% Pb, 4 to 17% Zn, about 3 ounces Ag, and contains a little gold and copper.

The applicant has requested a loan of $7,500 (Government participation 50%, or $3,750) to drive an incline down along the fissure at the horizon of the favorable beds in the Peerless (Figure 2). Considering the productivity of this structure, i.e., the intersection of the fissure with the favorable bedding zone, above the level, and the presence, according to the operators, of 16 inches of ore on the fissure in the gopher hole below the level, this seems a good prospect. The incline should logically be continued downward and northeastward along the fissure zone to the junction with the Winnie-Luema vein, a distance of about 200 feet. The fissure on which the incline would start may peter out before the Winnie-Luema vein is reached, but as shown in the northeastern part of the level, other, overlapping fissures will doubtless take its place, and the fissure zone as a whole may be expected to continue northeastward to the Winnie-Luema. There is a possibility that minor ore-bearing veins will be found in the footwall of the Winnie-Luema vein; such veins have been worked at several places in the Winnie-Luema mines, but there is no information available to appraise this possibility in the vicinity of the proposed incline.

The applicant has predicated his request in large part on the desirability of reaching unoxidized, as contrasted to partly oxidized, sulfide ore. If the proposal had to be judged solely on the basis of this question, it would have to be denied. The change from oxidized to unoxidized ore takes place gradually in this area through a transition zone of variable but rather considerable vertical extent. Oxidized ore has been mined at places on the Winnie-Luema vein at lower depths than the proposed Chautauquan incline will reach, but on the other hand,

sulfide ore has been found at other places on this same vein at depths shallower than the second level of the Chautauquan. It is uncertain, if not unlikely, that the depth to be gained by the proposed incline will be sufficient to reach completely fresh sulfide ore, and even more unlikely that the incline will reveal any sharp boundary surface below which the sulfide ore is completely fresh.

The applicant's emphasis of the oxidation question seems to me a mis-statement of the problem. Future productivity and profitable operation of the mine depend primarily on continuation of the ore shoot below the second level. The degree of oxidation is only a modifying factor. The ore mined from the stope above the level was partly oxidized and was thus reduced in value, but it was worked profitably, and at a time when metal prices were considerably lower than at present. The small stope 80 to 120 feet northeast of the shaft crosscut was worked recently by the present operators, with a small profit. The ore, as exposed at the edges of the stope, appears to be mostly sulfides--galena, pyrite, and sphalerite--but contains too much and too many soluble salts to be amenable to flotation. It therefore must be shipped direct to the smelter, with the inevitable zinc penalty. Thus the value of the ore to the operator has been reduced by reason of the partial oxidation, but the ore was nevertheless worked down to the second level. It follows that if the ore goes down at all, it should be workable below the level at today's high metal prices, particularly as the degree of oxidation should gradually diminish downward, and there is a good possibility that ore may be reached that, although still somewhat oxidized and thus possibly subject to some penalty, may be amenable to flotation. It is also possible

that with decreasing oxidation, rough sorting to remove part of the zinc will be practicable.

RECOMMENDATIONS

The proposed incline to be driven from the second level down along the fissure at the horizon of the "favorable beds" in the Peerless formation is a good prospect and is herewith recommended. The incline will be 200 to 210 feet long, and as shown in the Engineering Report, is estimated to cost $6200. The applicant also included in his plans proposals for driving from the shaft to the incline, if ore was found, and for doing some prospecting east of the Winnie Lucas vein. These two projects are not recommended; the first depends entirely on the outcome of the incline; the second is too indefinite.

It is recommended that a loan of $6200 (Government participation 50%, or $3100) be granted to sink an incline 200 to 210 feet long, along the fissure and parallel to the bedding of the Peerless formation, as described above and illustrated in Figures 1 and 2.

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

224 New Customhouse
Denver 2, Colorado

June 30, 1952

Memorandum

To: C. O. Mittendorf

From: Executive Officer, Field Team, Region IV

Subject: DMA Docket 1897, Emmett Irwin & Company

Enclosed is a copy of a letter from Emmett Irwin in which he states that the landowners refuse to sign the Landlord's Subordination Agreement forms. When we received this letter, we sent Mr. Irwin copies of Form MF-203, Owner's Consent to Lien, and have just been informed that the owners refuse to sign this form. Accordingly, we have cancelled Mr. Irwin's application for exploration assistance.

JUL 7 - 1952

W. H. King

W. H. King

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

224 New Customhouse
Denver 2, Colorado

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W. H. King

W. H. King

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
JUL 7 - 1952

C
O
P
Y

EMMETT IRWIN
TREASURER OF LAKE COUNTY
P. O. BOX 276
LEADVILLE, COLORADO

May 17, 1952

J. H. East, Director
U. S. Bureau of Mines
224 New Customhouse
Denver 2, Colorado

Dear Mr. East:

I am enclosing herewith Landlord's Subordination Agreement forms which the landowners refused to comply with in our request for loan.

I wish to thank you for your kind consideration and the very cooperative and considerate attention of M. H. Salisbury in our request for loan.

In view of the failure of the land owners to sign the agreement please cancel our request for loan.

Yours very truly

/s/ Emmett Irwin
Emmett Irwin and Company
Chautauquan and Yalu lease
113 West 9th Street
Leadville, Colorado

7 - 1952

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

224 New Customhouse
Denver 2, Colorado

BL

November 6, 1951

Memorandum

To: Executive Secretary, Defense Minerals Administration

From: DMA Field Team, Region IV

Subject: DMA Docket 1897, Final Report, Emmett Irwin & Co.; applicant, Chautauquan Mine (Lead-Zinc), California Mining District, Lake County, Colorado

The subject docket report has been approved by us and an exploration loan of $6,200 is being processed.

Your copies of the report and the brochure are being held here until the execution of the exploration project contract.

J. H. East, Jr.

A. H. Koschmann

OFFICIAL FILE COPY

NOV 13 1951
RECEIVED
Defense Minerals Administration

To	Initials	Date

Carbon copy of this memo. to Base Metals Div. - 2/13/52 - BL

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

224 New Customhouse
Denver 2, Colorado

November 6, 1951

Memorandum

To: Executive Secretary, Defense Minerals Administration

From: DMA Field Team, Region IV

Subject: DMA Docket 1897, Final Report, Emmett Irwin & Co.; applicant, Chautauquan Mine (Lead-Zinc), California Mining District, Lake County, Colorado

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Your copies of the report and the brochure are being held here until the execution of the exploration project contract.

J. H. East, Jr.

A. H. Koschmann

FILE COPY
SURNAME:

Gildersleeve
McKnight
O'Leary
(For Mote)
Johnson
Thayer
Moon

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

AUG 27 1951

Re:DMA-1897

a. e.

Emmett Irwin and Company
113 West 9th Street
Leadville, Colorado

Gentlemen:

The Lead-Zinc Branch has reviewed your application (DMA-1897) for exploration assistance. It is being sent to Mr. J. H. East, Jr., Executive Officer, DMA Field Team, 224 New Customhouse, Denver 2, Colorado, for further information and advice.

Very truly yours,

Tom Lyon, Director
Supply Division

BGildersleeve:emp
G 8-20-51
Copies to: J. H. East, Jr. Region IV (2)
Chief, Lead-Zinc Br.
E. T. McKnight 4204 GSA
R.H. Mote
Reports & Records
Directors r. file 4214 GSA
Br. r. file 4214 GSA
Files

Refer to: [illegible]-1097

AUG 27 1951

[illegible]ert Irwin and Company
[illegible] West [illegible]th Street
Louisville, Colorado

Gentlemen:

The Lead-Zinc Branch has reviewed your application ([illegible]-1097) for exploration assistance on [illegible]. It is being sent to Mr. J. H. [illegible], Jr., Executive Officer, [illegible] Field Team, [illegible] Federal Warehouse, Denver 2, Colorado, for further information and action.

Very truly yours,

[illegible], Director
Supply Division

[illegible]:ilcersleevesemp
6 8-20-51
Copies to: J. H. [illegible], Jr. Region IV (2)
Chief, Lead-Zinc Br.
[illegible] T. McKnight 4204 [illegible]
R.H. [illegible]
Reports & Records
Directors r. File 4214 [illegible]
Br. r. File 4214 [illegible]
Files

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

Mr. J. H. East, Jr.
Executive Officer, DMA Field Team
Region IV
224 New Customhouse
Denver 2, Colorado

AUG 27 1951

Dear Sir:

We attach "Review of Application for Exploration Assistance" on:

Docket No. DMA-1897

Commodity Lead-zinc

Applicant Emmett Irwin and Company, 113 West 9th Street, Leadville, Colorado

Please expedite the consideration of this application with particular reference to the points raised in the attached "Review."

Very truly yours,

Chairman
Coordinating Committee

For Bureau of Mines

For Geological Survey

6/5/51

Defense Minerals Administration

Review of Application for Exploration Assistance

Docket No. DMA-1897

Commodity Lead-zinc

Total Amount $7,500

Govt. Participation 50%

1. Name and Address of Applicant Emmett Irwin and Company

113 West 9th Street, Leadville, Colorado

2. Location of Property Chautauquan No. 12882 and Yalu No. 9487 Claims,

California Mining District, Lake County, Colorado

3. Mineral or metal Lead-zinc Is it listed in Section 9 of MO-5? Yes

If not, application will be rejected.

4. Geologic probability of discovery—based on data in application (question #16, 17, 18, 20 and 22)*

Mines or Survey reports, etc., do you rate chances:

a) Good

b) Poor

c) None

d) Don't know—needs field examination Needs examination, see attached statement

e) Is there an alternative and favorable project? Don't know
(If so, attach an explanation)

5. Is the applicant's right to the property clearly stated? Yes
(question 5, 6, 7)*

6. If applicant is a lessee, is a copy of the lease attached? Yes for Chautauquan No. 12882. Copy of addition to Yalu No. 9487

Does the lease have sufficient time to run to cover a future

productive period? See attached statement

*question numbers are those of MF-103

4. (d) A field examination is needed to clarify the geologic probability of discovery. The applicant's sketch map shows a northwest strike for the Winnie-Luema lode. This lode, as described in Professional Paper 148, is nearly vertical and strikes northward. Presumably the applicant proposes to explore a vein located west of the Winnie Luema lode by driving an incline down dip. As shown on the sketch map the dip is northward, yet at the Chautauqua shaft (applicant quotes from Professional Paper 148) the formations dip eastward. The proposed work shown on the sketch for phases 1 and 2 parallels and includes portions of old workings. No information is given as to the need for enlargement of portions of the old drifts.

6. Lease on Chautauquan No. 12882 expires September 1958. Sub-leade on Yalu No. 9487 expires November 1, 1951 and addition to this sublease, dated November 1, 1949 provides for renewal.

7. Are subordination agreements necessary? Yes

a) MF-201? No

b) MF-202 Yes

8. From the data presented, does the proposed project appear feasible from the point of view of:

a) Available manpower Yes

b) Equipment and supplies Yes
(Question 14 plus general knowledge of availability)*

c) Accessibility (question 12)* Yes, Good road to mine

d) Water (question 13)* Yes. Rental at $25.00 per month

e) Power (question 13)* Yes.

Is a field check needed on any of these points? No

9. Does the experience of the applicant appear to be adequate to assure that he can properly conduct the proposed project? (question 4)* Yes

Is a field check needed on this point? No

10. Exhibit A. (questions 21 and 22)*

a) Is the project adequately described? No

If not, are there sufficient data given so that you can describe the project? No If so, attach a draft.

b) Is there an adequate map or sketch of the proposed work? No

c) Is the proposed work "exploration" under the definition of Section 8, MO-5? Yes

If not, what part of it is?

Is this part a worthwhile exploration project? _____

d) Are the cost estimates detailed? Not adequately

Can they be summarized, as on page 2 of Procedural Instruction 5-A, from the available data? No If so, attach a draft.

e) Are the cost estimates reasonable? Don't know

f) Should more information be requested from applicant? Yes

g) Is a field examination necessary to complete Exhibit A? Yes

11. Exhibit B (question 23-d)*

a) Is it applicable? No

b) If so, are sufficient data furnished? _____ If so, attach a draft.

c) Is a field check needed? No

12. Exhibit C (question 23-e, f and g)*

a) Is it applicable? Yes

b) Sufficient data? No If so, attach a draft.

c) Are rents and charges reasonable? Don't know

d) Is a field check needed? Yes. See attached statement

13. Exhibit D (question 23-a, b)*

a) Are there sufficient data? No. Salaries of Supervisors not given

b) Is the schedule adequate for the work proposed? Yes

c) Is the schedule excessive for the work proposed? No

d) Are the proposed wages and salaries reasonable? Incomplete data, see "a" of item 13.

e) Is a field check needed? Yes

12. (d) Applicant states that during the past 12 months machinery was rented from Custom Machine Works, Leadville, Colorado at $90 per month. It is not indicated if this machinery will be needed for the proposed work or if it is to be included in the rental cost of $900.00 per month for the hoist and compressor.

14. Exhibit E (question 23-c)*

a) Is it applicable? not applicable

b) Sufficient data?

c) Reasonable?

d) Field check needed? No

15. In your judgment, can the proposed work be done in the proposed time? Yes

(All exploration must be completed within two years)

16. If field examination is not needed, attach your recommendation.

17. If field examination is needed, do you have any special instructions for the field team not indicated by your answers to the foregoing question? If field examination indicates approval, the applicant should be requested to supply 6 copies of leases and 6 copies of Landlord's Subordination Agreement

Reviewed by: B. Gildersleeve 8-16-51

Date 8-20-51

INT.-DUP. SEC., WASH., D.C. 99009

August 2, 1951

Emmett Irwin and Company
113 West 9th Street
Leadville, Colorado

Subject: DMA-1897
Re: Exploration Loan -
Chautauquan #12882 and
Yalu #9487 lode mining claims

Gentlemen:

Receipt is acknowledged of your application and attachments of June 26, 1951 for an exploration loan under the Defense Production Act of 1950.

The application was assigned Docket Number DMA-1897 and referred to Mr. Thomas Billings, Chief, Lead-Zinc Branch on August 1, 1951.

In any future correspondence relating to your application, kindly refer to DMA-1897.

Sincerely yours,

ROBERT E. ADAMS

Robert E. Adams
Chief, Reports & Records Unit

R. E. Adams:jc
cc: Adams
File
✓Billings
Lyon

AUG 3 1951

L

FILE COPY
SURNAME:

UNITED STATES
DEPARTMENT OF THE INTERIOR 210
DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.

August 2, 1951

Emmett Irwin and Company
113 West 9th Street
Leadville, Colorado

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Sincerely yours,

ROBERT E. ADAMS

Robert E. Adams
Chief, Reports & Records Unit

R. E. Adams:jc
cc: Adams
File
Billings
Lyon

dma-1897

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

OFFICE OF
REGIONAL DIRECTOR

REGION IV

224 NEW CUSTOMHOUSE
DENVER 2, COLORADO

July 24, 1951

Memorandum

To: Landon Strobel, Executive Secretary
Defense Minerals Administration

From: Executive Officer, DMA Field Team, Region IV

Subject: DMA Application, MF-103

Enclosed herewith is application for exploration aid MF-103, for the following:

Emmett Irwin and Company
113 West 9th Street
Leadville, Colorado

P. T. Allsman, Alternate

Enclosure

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 30 1951
LANDON F. STROBEL
Executive Secretary

AUG 3 1951

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

REGION IV

OFFICE OF
REGIONAL DIRECTOR

224 NEW CUSTOMHOUSE
DENVER 2, COLORADO

July 24, 1951

Memorandum

To: Landon Strobel, Executive Secretary
Defense Minerals Administration

From: Executive Officer, DMA Field Team, Region IV

Subject: DMA Application, MF-103

Enclosed herewith is application for exploration aid MF-103, for the following:

Emmett Irwin and Company
113 West 9th Street
Leadville, Colorado

P. T. Allsman, Alternate

Enclosure

1d

cc: DMA

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. DMA-1897

Date received 7/30/51

Participation

Name and address of applicant

Emmett Irvin and Company
Chautauquan #12872
Yalu #9487
113 West 9th Street
Leadville, Colorado

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 30 1951
LAMBERT F. CRISBEL
Executive Secretary

Date June 26, 1951

FILL IN THIS BLOCK

Date of application June 26, 1951

Estimated cost $7,500.00

Mineral or metal Lead-zinc, gold-silver

Percentage of Government participation 50%

Location of mine Evans Gulch
California Mining District
Lake County, Colorado

Date of filing MF-100

DMA Docket Number, if available

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation? Partnership

*2. If a partnership, state names and addresses of partners.

*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.

*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.

*5. Are you the owner or the lessee of the property? Lessee

6. If owner, state what claims, liens, or encumbrances, if any, are against the property. None

7. If lessee, attach a copy of the lease and state if it is in good standing. Lease in good standing

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.

9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

*If you have already answered these questions on MF-100, you are not required to answer the questions for this application.

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.
*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.
*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.
*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.
15. State in detail how the ore could be shipped and how and where milled.
*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.
*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.
19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?
21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.

22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.
24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

See entire sheet attached

CERTIFICATION

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this form and accompanying papers is correct and complete to the best of their knowledge and belief.

Emmett Irwin & Company — (Name of company)

By Emmett Irwin — (Signature of authorized official)

June 29, 1951 — (Date)

Manager — (Title)

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.

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

The Applicant

1. Is applicant an individual, partnership, or corporation?

   a. partnership

2, If a partnership, state name and addresses of partners?

   a. Emmett Irwin, 113 West 9th St., Leadville, Colorado
   William Schuck, Delaware Hotel, Leadville, Colorado
   Austin Schuck, 135 East 8th St., Leadville, Colorado
   Clarence Motzer, 143 West 7th St., Leadville, Colorado
   Harry Yukon, 405 Walnut Street, Kansas City, Missouri

3. If corporation, and etc.

4. Describe the mining and general business experience of (a) applicant and (b) the person or persons who will manage the project.

   a. Emmett Irwin, 2 years Mechanical Engineering, University of Colorado, 7 years mining experience tunnel, shaft, and ore stoping. Deputy County Assessor 8, years. County Treasurer 5 years.

   William Schuck, 10 years mining experience, 10 years manager Delaware Hotel.

   Clarence Motzer, 2 years college, 10 years mining experience, Assayer and Chemist 7 years.

5. Are you the owner or lessee of the property?

   a. Lessee:

   10 year lease on Chautauquan #12892
   Lease expires November 1, 1951 on Yalu 9497
   New lease to issue on that date.

6. If owner, state what claims, liens or encumbrances if any are against the property?

   a. None

7. If lessee, attach copy of lease and state if in good standing?

   a. see lease attached hereto. Lease in good standing

8. Furnish curent financial statement, showing assets and liabilities and a profit and loss statement.

   a. See statement attached hereto.

9. How much money is applicant prepared to invest in proposed project?

   a. $3,750.00 in cash and labor.

Questions Continued

10. Chautauquan # 12882 and Yalu #9487 lode mining claims, California Mining District, Lake County, Colorado

11. Yalu #9487, vertical limits: from horizontal plane located at elevation 11,043.325 to horizontal plane located at an elevation of 11,072.325. Elevations based on Resurrection Company and Platt and Kleff Surveys. North of coordinate 15900 North, South of Coordinate 16200, North West of coordinate 17000 West to the New Monarch Mining Company West property lines said area being part of Yalu, U. S. Survey 9489 AM, Yalu #2, U.S. Survey No. 10382, Virginius, U.S. Survey No. 511 and Jessie Clark, U. S. Survey No. 949 (Description from mining sublease; however, proposed work will be only on the Yalu #9487 and Chautauquan #12882).

12. Same

13. Water available at all seasons, rental @ $25.00 per month from Leadville Water Company watershed.

14. The mine is in excellent condition the shaft has been repaired from surface down to the two hundred foot level. There is a good head-frame, engine-room, electric hoist and two-drill electric compressor installed and in operating condition. Three mine cars, rails and air line to two headings. New thirty tons capacity ore bins on surface. Good road into the mine. Operations can start in one day.

15. The ore can be shipped by truck on good county roads to the Resurrection Mill, three and one-half miles and to the A. S. and R. Co. Smelter, four and one-half miles. A fifty ton lot can be handled in one day.

16. From Emmons Report, Professional Paper, 148: "There has been little opportunity for observation of formations on the west side of the vein (Winnie Luema vein). It is known ath the formation cut by the Blue Ribbon and Chautauquan shafts are Cambrian quartzite and White limestone dipping eastward, but there has been no opportunity to examine the two properties in detail. On theeast side of the vein the rocks in the Winnie mine have a much steeper dip than on the west side, apparently having been dragged upward in the fault movement". "The vein ranges 4 to 40 ft. in thickness,consists of gouge material, resembling decomposed porphry criss-crossed by small veins and bordered by larger veins of high grade ore." "From table" Ores average .25 Au, 2.7 to 9.4 Ag, .8 to 4.6 Pb. 5.0 to21.9 zinc." Local mining engineers and geologists have examined the mine and think we have a very good prospect in developement along the peerless shales. See map sketch attached.

17. The mine is not now in production, but two lots shipped gave the following results:

	Au.	Ag.	Pb.	Cu.	Insol.	Fe	Zn.	Sulphur
Lot 1.	0.04	2.75	11.05	0.15	33.3	17.85	8.4	7.55
Lot 2.	0.04	2.25	8.75	0.0	38.6	17.2	6.1	5.15

A blanket vein of sulphide assays:

0.14	3.8	12.4		29.4	23.9	4.7	1.1
0.08	3.1	11.1				17.4	
0.03	3.9	19.3				13.7	

We have not been able to ship this ore, although the vein is three feet wide, because the non-sulphides are too high to ship to the mill and the zinc penalty is too great to ship to the Smelter. This is the ore body we wish to follow down in the peerless shales in order to get a straight sulphide product.

18. If milling could reduce the ores of non-sulphides, we have 2000 tons of ore "in sight"

19. The Chautauquan #12882 shipped high grade lead zinc ore during World War I. Neither the Chautauquan or the Yalu has operated to any extent since 1926 when the metal market was very low. Argall's report shows large bodies and pillars of ore left that can be mined at a profit under the present market.

20. Principally lead-zinc.

21. As shown on the enclosed sketch, we estimate 10 months would complete our three phases of prospecting.

(Over)

22. Answered by foregoing questions.

23.

Three men at $250.00 each, 8 months	$6,000.00	100 ft. of work per month.
Hoist and compressor rent 8 months	900.00	
Powder, fuse, caps carbide, rails and pipe	600.00	
	$7,500.00	

24. Upon receipt of granted loan application, we will start to work immediately, we have men who will start to work and barring unforseen calamities, the work will be completed and proven in 8months and not more than 10 months.

Respectfully submitted

Emmett Dawson

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. Dma-1897

Date received 9/30/51

Participation

Emmett Irwin and Company
Chautauquan #12882
Yalu #9487
113 West 9th Street
Leadville, Colorado

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 30 1951
LABON F. SPIEGEL
Executive Secretary

Name and address of applicant

Date June 26, 1951

FILL IN THIS BLOCK

Date of application June 26, 1951

Estimated cost $7,500.00

Mineral or metal Lead-zinc, gold-silver

Percentage of Government participation 50%

Location of mine Evans Gulch
California Mining District
Lake County, Colorado

Date of filing MF-100

DMA Docket Number, if available

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation? Partnership

*2. If a partnership, state names and addresses of partners.

*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.

*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.

*5. Are you the owner or the lessee of the property? Lessee

6. If owner, state what claims, liens, or encumbrances, if any, are against the property. None

7. If lessee, attach a copy of the lease and state if it is in good standing. Lease in good standing

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.

9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

*If you have already answered these questions on MF-100, you are not required to answer the questions for this application.

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.
*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.
*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.
*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.
15. State in detail how the ore could be shipped and how and where milled.
*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.
*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.
19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?
21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.
22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.
24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this form and accompanying papers is correct and complete to the best of their knowledge and belief.

Emmett Lawson & Company — (Name of company)
By Emmett Lawson — (Signature of authorized official)
June 29, 1951 — (Date)
Manager — (Title)

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.

*Same as footnote on page 1.

See on the sheet attached

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

The Applicant

1. Is applicant an individual, partnership, or corporation?

   a. partnership

2. If a partnership, state name and address of partners?

   a. Barrett Irwin, 113 West 9th St., Leadville, Colorado
   William Schuck, Delaware Hotel, Leadville, Colorado
   Austin Schuck, 135 East 8th St., Leadville, Colorado
   Clarence Metzer, 143 West 7th St., Leadville, Colorado
   Harry Yukon, 405 Walnut Street, Kansas City, Missouri

3. If corporation, and etc.

4. Describe the mining and general business experience of (a) applicant and (b) the person or persons who will manage the project.

   a. Barrett Irwin, 2 years Mechanical Engineering, University of Colorado, 7 years mining experience tunnel, shaft, and ore stoping. Dewey County Accounter 8, years. County Treasurer 5 years.

   William Schuck, 10 years mining experience, 10 years manager Delaware Hotel.

   Clarence Metzer, 2 years college, 10 years mining experience, Assayer and Chemist 7 years.

5. Are you the owner or lessee of the property?

   a. Lessee:

   10 year lease on Chautauquan #12822
   Lease expires November 1, 1951 on Kalu #17
   New lease to issue on that date.

6. If owner, state what claims, liens or encumbrances if any are against the property?

   a. None

7. If lessee, attach copy of lease and state if in good standing?

   a. See lease attached hereto. Lease in good standing

8. Furnish current financial statement, showing assets and liabilities and a profit and loss statement.

   a. See statement attached hereto.

9. How much money is applicant prepared to invest in proposed project?

   a. $3,750.00 in cash and labor.

Questions Continued

10. Chautauquan # 12882 and Yalu #9487 lode mining claims, California Mining District, Lake County, Colorado

11. Yalu #9487, vertical limits: from horizontal plane located at elevation 11,043.325 to horizontal plane located at an elevation of 11,072.325. Elevations based on Recurrection Company and Platt and Kloff Surveys. North of coordinate 15900 North, South of Coordinate 16200, North West of coordinate 17000 West to the New Monarch Mining Company West property lines said area being part of Yalu, U. S. Survey 9489 AM, Yalu #2, U.S. Survey No. 10382, Virginius, U.S. Survey No. 511 and Jessie Clark, U. S. Survey No. 949 (Description from mining sublease; however, proposed work will be only on the Yalu #9487 and Chautauquan #12882).

12. Same

13. Water available at all seasons, rental @ $25.00 per month from Leadville Water Company watershed.

14. The mine is in excellent condition the shaft has been repaired from surface down to the two hundred foot level. There is a good head-frame, engine-room, electric hoist and two-drill electric compressor installed and in operating condition. Three mine cars, rails and air line to two headings. New thirty tons capacity ore bins on surface. Good road into the mine. Operations can start in one day.

15. The ore can be shipped by truck on good county roads to the Recurrection Mill, three and one-half miles and to the A. S. and R. Co. Smelter, four and one-half miles. A fifty ton lot can be handled in one day.

16. From Emons Report, Professional Paper, 148: "There has been little opportunity for observation of formations on the west side of the vein (Winnie Lucas vein). It is known ath the formation cut by the Blue Ribbon and Chautauquan shafts are Cambrian quartzite and White limestone dipping eastward, but there has been no opportunity to examine the two properties in detail. On theeast side of the vein the rocks in the Winnie mine have a much steeper dip than on the west side, apparently having been dragged upward in the fault movement". "The vein ranges 4 to 40 ft. in thickness, consists of gouge material, resembling decomposed porphry criss-crossed by small veins and bordered by larger veins of high grade ore." "From table" Ores average .25 Au, 2.7 to 9.4 Ag, .8 to 4.6 Pb. 5.0 to21.9 zinc." Local mining engineers and geologists have examined the mine and think we have a very good prospect in development along the pearlese shales. See map sketch attached.

17. The mine is not now in production, but two lots shipped gave the following results:

	Au.	Ag.	Pb.	Cu.	Insol.	Fe	Zn.	Sulphur
Lot 1.	0.04	2.75	11.05	0.15	33.3	17.85	8.4	7.55
Lot 2.	0.04	2.25	8.75	0.0	38.6	17.2	6.1	5.15

A blanket vein of sulphide assays:

0.14	3.8	12.4	29.4	23.9	4.7	1.1
0.08	3.1	11.1			17.4	
0.03	3.9	19.3			13.7	

We have not been able to ship this ore, although the vein is three feet wide, because the non-sulphides are too high to ship to the mill and the zinc penalty is too great to ship to the Smelter. This is the ore body we wish to follow down in the pearlese shales in order to get a straight sulphide product.

18. If milling could reduce the ores of non-sulphides, we have 2000 tons of ore "in sight"

19. The Chautauquan #12882 shipped high grade lead zinc ore during World War I. Neither the Chautauquan or the Yalu has operated to any extent since 1926 when the metal market was very low. Argall's report shows large bodies and pillars of ore left that can be mined at a profit under the present market.

20. Principally lead-zinc.

21. As shown on the enclosed sketch, we estimate 10 months would complete our three phases of prospecting.

(Over)

22. Answered by foregoing questions.

23. Three men at $250.00 each, 8 months $6,000.00
Hoist and compressor rent 8 months 900.00
Powder, fuse, caps carbide, rails and pipe 600.00
$7,500.00

100 ft. of work per month.

24. Upon receipt of granted loan application, we will start to work immediately, we have men who will start to work and barring unforseen calamities, the work will be completed and proven in 8months and not more than 10 months.

Respectfully submitted

Emmett Davis

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. DMA-1897

Date received 7/30/51

Participation

Barrett Irwin and Company
Chautauqua 81212
Yale 29187
113 West 9th Street
Leadville, Colorado

Name and address of applicant

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 30 1951
LAMON F. CHAGBEL
Executive Secretary

Date June 26, 1951

FILL IN THIS BLOCK

Date of application June 26, 1951

Estimated cost $7,500.00

Mineral or metal Lead-zinc, gold-silver

Percentage of Government participation 50%

Location of mine Lyons Gulch
California Mining District
Lake County, Colorado

Date of filing MF-100

DMA Docket Number, if available

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation? Partnership

*2. If a partnership, state names and addresses of partners.

*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.

*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.

*5. Are you the owner or the lessee of the property? Lessee

6. If owner, state what claims, liens, or encumbrances, if any, are against the property. None

7. If lessee, attach a copy of the lease and state if it is in good standing. Lease in good standing

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.

9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

*If you have already answered these questions on MF-100, you are not required to answer the questions for this application.

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.

*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.

*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.

*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.

15. State in detail how the ore could be shipped and how and where milled.

*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.

19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

See extra sheets attached

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?

21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.

22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.

24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this form and accompanying papers is correct and complete to the best of their knowledge and belief.

Emmett Irwin & Company
(Name of company)

By Emmett Irwin
(Signature of authorized official)

June 29, 1951
(Date)

Manager
(Title)

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.

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

The Applicant

1. Is applicant an individual, partnership, or corporation?

   a. partnership

2. If a partnership, state name and address of partners?

   a. Benoit Irwin, 113 West 9th St., Leadville, Colorado
   William Schmit, Delaware Hotel, Leadville, Colorado
   Austin Lehrer, 135 East 8th St., Leadville, Colorado
   Clarence Metzer, 142 East 7th St., Leadville, Colorado
   Harry Julian, 405 Walnut Street, Kansas City, Missouri

3. If corporation, and etc.

4. Describe the mining and general business experience of (a) applicant and (b) the person or persons who will manage the project.

   a. Benoit Irwin, 2 years Rock Island Engineering, University of Colorado, 7 years mining on various tunnel, shaft, and core drilling. Deputy County Assessor 8 years. County Treasurer 3 years.

   William Schmit, 10 years similar experience, 10 years manager Delaware Hotel.

   Clarence Metzer, 2 years college, 10 years mining experience, Assayer and Chemist 7 years.

5. Are you the owner or lessee of the property?

   a. Lessee

   10 year lease as Chautauqua Placer
   lease expires December 1, 1951 on fair cash
   per lease to lease on that date.

6. If owner, state what claims, liens or encumbrances if any are on just the property?

   a. None

7. If leasee, attach copy of lease and state if in good standing?

   a. See lease attached hereto. Lease in good standing

8. Attach current financial statement, showing assets and liabilities and a profit and loss statement.

   a. See statement attached hereto.

9. How much money is applicant prepared to invest in proposed project?

   a. $3,750.00 in cash and notes.

10. Chautauqua #12872 and Yale #5817 lode mining claims, California Mining District, Lake County, Colorado

11. Yale #5817, vertical limits: from horizontal plane located at elevation 11,969.325 to horizontal plane located at an elevation of 11,872.325. Elevations based on Bourgeron's Company and Plant and Shaft Survey. North of coordinate 15925 North, South of Coordinate 16280, West West of coordinate 17610 West to the Ten Mamarch Mining Company West property lines and area being part of Yale, U. S. Survey #4[illegible] 41, Yale #2, U.S. Survey No. 10382, Virginian, U.S. Survey No. 511 and Jessie Plant, U. S. Survey No. 969 (Description from mining evidence; however, proposed work will be only on the Yale #5817 and Chautauqua #12872).

12. None

13. Water available at all seasons, rental $25.00 per month from Leadville Water Company untreated.

14. The mine is in excellent condition the shaft has been repaired from surface down to the two hundred foot level. There is a good head-frame, engine-room, electric hoist and two-drill electric compressor installed and in operating condition. There nine cars, rails and air line to the workings. Now thirty tons capacity ore bins on surface. Good road into the mine. Operations can start in one day.

15. The ore can be shipped by truck on good county roads to the Resurrection Mill, three and one-half miles and to the A. B. and A. B. Smelter, four and one-half miles. A fifty ton lot can be handled in one day.

16. From Census Report, Professional Paper, 162: "There has been little opportunity for observation of formations on the west side of the vein (Minnie Lacme vein). It is known that the formation cut by the Blue Ribbon and Chautauqua shafts are Cambrian quartzite and white limestone dipping eastward, but there has been no opportunity to examine the two properties in detail. On the east side of the vein the rocks in the Minnie Lacme have a much steeper dip than on the west side, apparently having been dragged upward in the fault movement". "The vein ranges 4 to 10 ft. in thickness, consists of coarse material, sometimes decomposed but has ores-crossed by small veins and bordered by larger veins of high grade ore." "Iron table" Iron average .25 in, 3.7 to 9.4 Ag, .4 to 5.6 Pb. 5.0 to 21.9 zinc." Local mining engineers and geologists have examined the mine and think we have a very good prospect in development along the pearlose chalcs. See map sketch attached.

17. The mine is not now in production, but the lots shipped gave the following results:

	Au.	Ag.	Pb.	Cu.	Insol.	Fe	Zn.	Sulphur
Lot 1.	0.04	2.75	11.05	0.15	33.3	17.65	8.4	7.55
Lot 2.	0.04	2.25	8.75	0.0	38.8	17.2	6.1	5.15

A blanket vein of sulphide ranges:

0.16	3.8	13.4	29.4	29.9	4.7	1.1
0.08	3.1	11.1			17.4	
0.03	3.9	19.3			13.7	

We have not been able to ship this ore, although the vein is three feet wide, because the non-sulphides are too high to ship to the mill and the zinc penalty is too great to ship to the Smelter. Skin is the ore body we hope to follow down in the pearlose chalcs in order to get a straight sulphide product.

18. If milling could reduce the ores of non-sulphides, we have 2000 tons of ore "in sight"

19. The Chautauqua #12872 shipped high grade lead silver ore during World War I. Neither the Chautauqua or the Yale has operated to any extent since 1926 when the metal market was very low. Ingall's report shows large bodies and pillars of ore left that can be mined at a profit under the present market.

20. Principally lead-zinc.

21. As shown on the enclosed sketch, we estimate 10 months would complete our three phases of prospecting.

(Over)

22. Answered by foregoing questions.

23. Three men at $250.00 each, 6 months $5,400.00 — 100 ft. of work per month.
Hoist and compressor rent 6 months 900.00
Lumber, fuse, caps explosive, drills and pipe 600.00
$7,500.00

24. Upon receipt of permanent loan application, we will start to work immediately. We have now we will start to work and hasten underground activities, the work will be completed and proven in 6 months and not more than 10 months.

Respectfully submitted