DMA Form 1

DEFENSE MINERALS ADMINISTRATION
Control Slip

CONTROLLED DOCUMENT

DMA Docket No. 15014

DO NOT DETACH THIS SLIP

Action on this document is recorded and controlled in Reports and Records Branch. Any movement of this document between divisions or offices of DMA or movement outside DMA must be reported to the Reports and Records Branch. Actions taken that affect status of the case must also be reported.

This document has been recorded as

Exploration [illegible]

Any action taken to change the type of request for assistance must be promptly reported to the Reports and Records Branch. Use DMA Form 2 for submitting these reports.

Routing Slip

To: [illegible] Date SEP 17 1951

To: Reports and Records Date SEP 18 1951

To: _____ Date _____

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To: _____ Date _____

DO NOT DETACH

DMA Form 2

DEFENSE MINERALS ADMINISTRATION
Status Change Notice

DMA Docket No. 1509-X

To: Reports and Records Branch Blue Bird Mines Inc.
LEAD ZINC BRANCH

From: _____

Date: JUL 6 1951

The following action has been taken this date on the above Controlled Document.

Forwarded to _____

Type of request changed to:

_____

Denied ☐ Withdrawn ☐

Approved in amount of $ _____

Other action, specify:

On hand to be denied

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

SEP 18 1951

Re: DMA-1509X
Bluebird Mine
Broadwater County, Montana
Exploration loan, $10,000
Zinc, lead

Memorandum

To: Reports and Records Unit
Administrative Management Div.

From: Chief, Lead-Zinc Branch

Subject: Denial of exploration loan

The applicant has requested an exploration loan of $10,000 (Government's share $5,000) for exploratory drifting and shaft sinking at the Bluebird Mine in Broadwater County, Montana.

The Field Team, Region II, has examined the property and submitted their report. This report states that the mineralization on the property is very low grade and that there are no geologic conditions to indicate that additional exploration would find mineralization of higher grade. The report concludes that the geologic probability of discovering a commercial ore body does not warrant an exploration loan and recommends that the application be denied.

The Lead-Zinc Branch concurs with the Field Team's recommendation.

Returned herewith are:

1 field team report
3 copies Form MF-103 and attachments
3 " Form MF-100 " "

T. P. Billings, Chief
Lead-Zinc Branch

Approved:
Director, Supply Division

FILE COPY
SURNAME:

350

Campbell (E.T.M.)
McKnight
Bishop
Billingsley

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

SEP 18 1951

Re: DMA-1509X

Q.E.C

Mr. Howard W. Steward
Blue Bird Mines, Inc.
Box 557
Townsend, Montana

Dear Mr. Steward:

Your application (DMA-1509X) for an exploration loan of $10,000 for work at the Bluebird Mine in Broadwater County, Montana, has been reviewed again by the Defense Minerals Administration after a report of an examination of your property was received from our field staff.

From this report, we conclude that the mineralization on your property is too low grade to give promise of developing a significant tonnage of strategic minerals. There are no geologic indications that additional exploration would encounter mineralization of higher grade. The Defense Minerals Administration does not consider that the chances for establishing significant ore reserves are great enough to warrant the expenditure of public funds which you request. I regret, therefore, that your application must be ~~declined~~. denied

We wish to thank you for bringing this property to our attention.

Very truly yours,

Tom Lyon

BJ 9/18

Tom Lyon, Director
Supply Division

ABCampbell:emp
G 9-14-51
Copies to: A. E.Weissenborn Region II (2)
Chief, Lead-Zinc Br.
E. T. McKnight 4204 GSA
O. Bishop
Directors r. files 4214 GSA
Br. r. files 4214 GSA
Directors r. file
DMA docket file

FILE COPY
SURNAME: 350

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

SEP 18 1951

Campbell (ETM)
McKnight
Bishop
Billings

Re: DMA-1509X
Bluebird Mine
Broadwater County, Montana
Exploration loan, $10,000
Zinc, lead

Memorandum

To: Reports and Records Unit
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From: Chief, Lead-Zinc Branch

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3 copies Form MF-103 and attachments
3 " Form MF-100 " "

T. P. Billings, Chief
Lead-Zinc Branch

Approved:
Tom Lyon
Director, Supply Division

ABCampbell:emp
G 9-14-51
Copies to: A. E. Weissenborn Region II (2)
Chief, Lead-Zinc Br.
E. T. McKnight 4204 GSA
O. Bishop
Directors r. files 4214 GSA
Br. r. files 4214 GSA
Administrators r. file
DMA docket files

FILE COPY
SURNAME:

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

June 15, 1951

Mr. Howard W. Steward, Secretary
Blue Bird Mines, Inc.
Box 557
Townsend, Montana

Subject: DMA-1509 X
Re: Exploration Loan -
Blue Bird Mine

My dear Mr. Steward:

Receipt is acknowledged of your application and attachments of May 22, 1951 for a Government loan under the Defense Production Act of 1950.

The application was assigned Docket Number 1509 X and referred to Mr. Otto Herres, Chief, Lead-Zinc Branch, on June 7, 1951.

In any future correspondence relating to your application, kindly refer to DMA-1509 X.

Sincerely yours,

LANDON F. STROBEL

Landon F. Strobel
Executive Secretary

LFSTROBEL:aec
cc: Strobel-2
Files
Mr. Herres
Mr. Lyon

Defense Minerals Administration
Reference Slip

Date 6-7-51

To: 1. Mr. Hewes

2.

3.

4.

DMA 1509

For Action ✓
Reply
Information
Remarks:

Sender Strobel (WS)

3
Mr. Strobel

DMA 1509

Forwarded to

Branch

Date

Sender

2
Mr. Strobel

DMA 1509

Forwarded to

Branch

Date

Sender

Form MF-100
(March 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Form approved.
Budget Bureau No. 42-R1026.

GENERAL TECHNICAL DATA
FOR USE UNDER THE
DEFENSE PRODUCTION ACT OF 1950

NOT TO BE FILLED IN BY APPLICANT

Docket No. dmd 1509X

Date received 6-1-51

Blue Bird Mines, Inc.,
Box 557
Townsend, Montana

Name and address of applicant

Date May 22, 1951

INSTRUCTIONS

This form is to be filed with Defense Minerals Administration, Department of the Interior, Washington 25, D. C. It should be accompanied by appropriate application form when a specific type of Government assistance is requested, in the form of (1) loan, (2) purchase contract, (3) Government guarantee of a private loan, (4) Necessity Certificate pursuant to the provisions of Sec. 124–A (Amortization Deduction) of Internal Revenue Code, 1950, (5) priorities or allocation of mining equipment, and maintenance, repair and operating supplies, and (6) other forms of Government assistance that might arise under the Act. Submit four (4) signed copies of the form and accompanying papers. Name and address should be stamped or typed on each sheet of this form and all accompanying papers. *When a question is inapplicable it should be so stated on the form.* Additional sheets may be attached in answering any questions or in supplying additional information. (IF YOU CANNOT ANSWER A QUESTION, SO STATE.) If a question is answered elsewhere indicate where answered. It is not necessary to answer it again.

GENERAL TECHNICAL DATA

Supply the following information on separate sheets, arranged, numbered, and lettered as indicated:

1. Materials produced:
   (*a*) What are the chief mine, mill, or smelter products?
   (*b*) What are the byproducts, if any?
2. Name(s) and type(s) of mine(s), mill(s), smelter(s), refinery(ies), pit(s), quarry (ies), drilling operation(s). Include old names of property, if any. Show extent of workings, including the following:
   (*a*) Linear feet of shafts.
   (*b*) Linear feet of drifts and crosscuts.
   (*c*) Linear feet of tunnels or adits.
   (*d*) Linear feet of other mine openings (explain briefly).

   Indicate whether mine is flooded or not. Describe any pumping problems. Give size or productive capacity.
3. For each operation listed above supply the following:
   (*a*) Distance and direction from nearest town and shipping point.
   (*b*) Mining district.
   (*c*) Township, Section, Range.
   (*d*) County, State.
4. (*a*) State whether or not property is now in operation, and if in operation, by whom operated.
   (*b*) Are you operating this property as:
   - ☐ Owner.
   - ☐ Lessee.
   - ☐ Contractor.
5. Number of years in production _____

   If not in production or operation, estimated date when production will begin _____
6. Experience of operators:
   Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who manage the project.
7. History:
   (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for suspension of operation.
   (*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.

8. Names and addresses of Officers, Directors, or Partners, and in addition thereto, the five largest stockholders if applicant is a corporation.

Name and Address (a)	Official Title (If officer is also director indicate by "D") (b)	Total of Annual Salary, Commissions, Bonuses, Etc., Received From Applicant and Affiliates During Last Fiscal Year (c)	Estimated Net Worth Outside of Interest in Applicant (d)	Number of Shares Held in Applicant Corporation: Common (e)	Number of Shares Held in Applicant Corporation: Preferred (f)	Life Insurance Carried for Benefit of Applicant: Amount (g)	Life Insurance Carried for Benefit of Applicant: Net Cash Surrender Value After Loans (h)
Hilbert Andersen Box 1775 Boise, Idaho	President	None		86			
M. A. Ellis Townsend, Mont.	V. Pres.			45			
Howard W. Steward Box 1775 Boise, Idaho	Sec.- Tres.			72			
Frank Ellis Seattle, Wash.				16			
	Total		x x x x x	219		x x x x x	x x x x x

If more lines are needed continue on separate sheet.

9. Capital Stock Issues:

For Corporate Applicants

Item	Authorized (a)	Outstanding (b)	Par Value (c)	Number of Shares Outstanding (d)	Dividend Rate Last Paid* (e)
Common stock	$50,000	$ 21,900	$ 100.00	219	
Preferred stock	$	$	$		

*Indicate period covered.

10. Production:

Item	Kind of Product (a)	1948 Total (b)	1949 Total (c)	1950 Total (d)	Present Average Monthly (e)
1. Quantity of product mined or quarried (Short, long, metric tons; barrels; pounds; etc.)					
2. Quantity of product processed (specify unit of measure and type of process)					
3. Quantity and grade of product sold or shipped (specify units of measure)					

11. Do you contemplate a change in the present average monthly rate of production? If so, state estimated maximum monthly production and basis of change.

12. Ore or Mineral Reserves:

(a) Describe the ore or mineral deposit briefly. Accompany the application by any available report on the geology and ore reserves.

(*b*) If deposit is other than placer:

(1) Submit assay plans and/or sections showing location and size of proved (measured) and probable (indicated) ore or mineral reserve.

(2) State the tonnage (indicate type of ton) and grade of each class of ore reserve, as above, and show how computed. Tabulated total ore reserve as follows:

TOTAL ORE OR MINERAL RESERVES

Ore or Mineral Reserve	Estimated Tons (a)	Metal or Mineral Content Per Ton (Grade) (b)	Gross Value Per Ton (c)	Recoverable Unit Value Per Ton (d)	Estimated Cost of Production Per Ton (e)
Measured (proved)					
Indicated (probable)					

(*c*) If placer:

(1) Give estimated total yardage and average marketable mineral content of each deposit.

(2) Submit map showing location of placer deposit and surrounding area, with all test holes or pits. Submit logs of each hole and test pit with depth and average value of each.

(3) Describe gravel, stating whether fine, medium or coarse; loose, tight, cemented, or frozen, and whether it contains stumps or boulders more than 1 foot in diameter; if so, how large, and in what proportion.

(4) Describe bedrock, giving type (granite, sandstone, shale, etc.) and state whether it is hard or soft, smooth, uneven or rough.

(5) Describe overburden, stating whether loose, tight, or cemented; fine or coarse textured; furnish estimate of average thickness and total amount.

(6) Tabulate the reserves using the form outlined above for ore or mineral reserves.

13. Access Roads:

Give road distances to shipping, supply and residence points, stating kind and condition of roads.

14. Water Supply:

State source and quantity of water available for operations and whether sufficient for all seasons of year.

15. Power:

State amount of power used, rate per hour, and source thereof.

16. Labor:

State number and classes (miners, muckers, millmen, etc.) of men employed during a recent representative payroll period.

17. Equipment and Facilities:

Describe present equipment on the property, including buildings. (State condition.) List major pieces of equipment now owned or controlled and in serviceable condition available for this operation.

18. Are there any particular conditions or circumstances affecting your operations that are not described above? If so, explain.

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.

Blue Bird Mines, Inc
(Name of company)

By Howard W. Stewart
(Signature of authorized official)

May 24 1951
(Date)

Sectry - Treas
(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.

U. S. GOVERNMENT PRINTING OFFICE 16—63792-1

General Technical Data
For use under the
Defense Production Act of 1950

Form IT-100

GENERAL TECHNICAL DATA

1. a. Silver, lead, and zinc
   b. None

2. a. Original location name "Moonbeam of The Mine"; the new name is The Blue Bird Mines, Inc.
   a,b,c,d. See map #1.

3. a. Distance is 11 miles due West from Townsend, Montana.
   b. Hassel Mining District
   c. T6N R1W No. 1
   d. Broadwater County, Montana

4. a. No
   b. No

5. Three years on the original location it produced ore, then it lay idle for 2[illegible] years until the present ownership took it over. Production is expected at the consummation of this application.

6. See item three, last paragraph on page 2.

7. a. See item 3 pages 1 and 2.
   b. There are no adjoining properties closer than four miles to the South, none to the East, none to the West. To the North there is a patented claim (The St. Louis) which was worked in late 1909, been idle ever since. It is a copper claim.
   c. There are no written reports other than the Montana School of Mines report of June 5, 1947 which is included in this application. The Montana Bureau of mines sent one L. F. Lynn, M. E., over to help us with our exploration work in 1947. His report was verbal to us, but we were at liberty to quote him as saying it was a very likely property and had good possibilities.

8. (Answered on the form (IT-100) table)

9. (Answered on the form (IT-100) table)

10.

11. (10, 11, & 12 not applicable to our application)

12.

13. There is a well-maintained County highway up Indian Creek for nine miles, a County road branching off from this goes within a half mile of the mine. It is good, as a dirt road goes. We have been assured by the county commission that they would be very happy to cooperate in maintaining an accesible road to the mine under all weather conditions.

14. To the best of our knowledge the water situation is completely satisfactory.

15. We do not have electric power at the mine. Seven miles to the South a high-tension power line could be contacted and power brought to the mine if and when needed.

16. There has been no activity other than the stockholders' work.

17. See list. Detailed mining equipment.

18. We have a winze sunk 25 feet on this Fissure-Vein. The ore has gone from a four-inch high-grade vein on the sill to 2[illegible] feet of good milling ore. Our mineral dressing [illegible] shows that this vein will widen to the full Fissure which is six feet, in another [illegible] 25 to [illegible] feet. Our thought is to sink an additional 50 feet, then drift from on the Fissure for a hundred feet. This should give a very accurate picture of what the ore is doing or might contemplate doing on further depth. Also-

Wise this drift will contact a fracture zone and piercin into this zone we will be drifting from the winze along the fissure and if the ore possibilities justify further exploration, we should drift along the fissure until contact is made with some well-defined veins (See map 1) that, in my estimation, are cut by the fissure. That is to be decided later.

Mining Discription

Map # 1

A, The fissure vein on which all work is being done on, is some 3000 feet long striking East and West. The native rock is Andesite and very firm, the foot and hanging walls are not shattered. The U.S.Bureau of Mines show this district from Winston, Mont. to Raidersburg as capped with this Andesite, varying in depth from 30 to 1200 feet. The " Ohio Keating " at Raidersburg broke through this capping on the 1200 foot level years ago and on doing so, their Copper values shot up, but not mining Copper they closed down. At the East Pacific, Winston, Mont. the mine has broken through the Andesite at various levels. The Iron Mask, about half way between the two above described properties, stoped work on the 900 foot level. At that time, they were working an ore almost a duplicate of the Ore found in the botton of our Winze. (Report of K.D.Lynn)
You will please note from this map that the veins south of the Fissure strike NE and the one north strike SE, this is trure of a veins systems on the Blue Bird Group, even the small stringers follow this pattern.
In the case of Vein " D ", this is a Gold, Lead, Zinc and Copper Vein. It was worked to great extent on the surface by a man named Mexican John (still alive) some 25 years ago. He took out $ 20,000. mostly in Gold and Lead and by drifting along the vein to the grass roots, at one point, his shaft, he went down on the vein to see what the Copper was doing. This is the only hole I hav'nt examined as I have previously stated. He told me another man sank his shaft down to 100 foot level and quit because he could not finance it. I call your attention now to the Pat. Claim 5411 on what is locally known as Copper Mt. this property was patented in 1899 and is being held by the original filer it is copper and his vein runs parallel with vein " A " of our Group. There are many smaller veins that follow this pattern and as above stated they are all cut by the Fissure Vein " A "
Mr. Andersen, Pres. of the Blue Bird Mines, Inc. was one of the three owners in the Indian Creek Placers and while that ground was being worked I had the opportunity of studying their bed rock and noting the various veins that crossed Indian Creek and that strikes to the SE toward the Blue Bird. It is no wonder that the old timers called it " Treasure Hill ".
Vein " B ", we have named the Mike, it is a 2 inch vein of High Grade with values in Lead, Gold Silver and Zinc and at the present price of metals, assays $ 96. per ton. It carries 39% ZINC.
To summerize this and to point out that nothing has ever been done to bring about depth. I have arrived at the conclusion that depth is all that is needed to bring in a good body of Ore. By driving a tunnel from dwon the hill we can follow this Fissure Vein to the point of Contact to some of these other veins and prove that the original ore increases in width, on depth, as well as get rid of

the water and have plenty of stoping ground over head,as we gain length, we will gain depth abruptly for these hills are quit steep. On contact, if it does, with Vein " B " there should be some excellent values. All these veins carry Copper values and it is not to much assumption to says they will gain on depth, for the Ohio Keating to the south of us, proved that point. Mr. Lynn was very definite on the same conclusion.

Our request for financial aid is for that expressed purpose, namely, to drive this drift in some 300 to 500 feet and by CONTRACT only, this will do away with any waste or unneccessary enxpense will bring us to 100 feet below our present lowest works, the winze, where the ore has widened from 4 inches to 2 feet in 22 feet of sinking. It will be exploration work on a vein that has present Milling values and possibly shipping values on depth. In other words it is not money spent in Wildcatting for there is Ore on the dump from this work not waste.

Item . 3

a. The Blue Bird Mines as now known, was first discover -ed 35 years ago by an Italian prospector and called the Moonbeam.
The original discovery is located in Broadwater County, Hassel Mining District, State of Montana. The mine portal is on the NE of Section 18 T 6 N R No. 1 E, on a hill known to the oldtimers as " Treasure Mt. "
This man sunk anincline shaft 30 feet on a Fissure Vein and then drifted west about 35 feet stopping up to the grass roots and almost to the surface on the hill side. He then drifted west from the incline 30 feet and then went down 15 feet with a incline and ceased work there along side of a fracture. The Ore he extracted was an Oxide, with values in Gold and Lead. From the best informed sources I could obtain, I learned that he shipped one car of Ore that grossed him $ 5000.
He interested a Merchant and a Doctor in Townsend, Mont. and sold them the property and then took a Shift Boss job of driving a tunnel to tap his upper workings and gain depth on the vein. This tunnel is 216 feet to the vein and 45 feet along the vein and some 25 feet below the winze sunk in the upper works. The Ore was carrying considerable Zinc now, with Silver values.
This 45 feet of drift faced the frature and they made no effort to cross it, but the sank a Winze 12 feet and the Zinc values shot upwards so they ceased work.
In 1945 we (Ellis, Andersen and myself) filed on the property and started right in to clean out the old workings, retimber and lay a new 12# steel track. As soon as this work was completed, we cleaned out the uppe upper workings and opened the original Incline Shaft for ventilation and safty measures. We timbered the old raises and then pupped the water out of the Winze and cleanse it out, retimbered and sank it 12 feet more in order to get a look at FIRST OFF. From the fill of the drift the ore body has shifted from the Oxide to a Sulphide, from a 4 inch High Grade vein it has shifted to Grey Quartz vein 2 feet wide and all indications are for a full eight feet of the Fissure vein on more depth.
I personally spent two months with my examination of surface leads and old workings on the Treasure Mt. examining them and assaying all values and tracing this Fissure vein cast some 3000 feet, all other veins contact or interlace this Fissure and it was on this findings that I established an Apex system and staked 18 claims on this system to cover the complete mineralization.
The Montana School of Mines sent one of their M E (K.D.Lynn) over to help with the examination and and development of this property as well as to get some underground knowledge of that district, which they did not have.

Mr. Lynn was very much pleased with the findings and sampled the mine and expressed his opinion that it was a very promising property. His next visit was after I had cleaned out the Winze and sank it 12 foot deeper. He was of the same opinion and I, that on further depth we would have 8 feet of fine Milling ore. At this time he cross sampled the mine and the School of Mines ran a Mill test for us showing a free Floation extraction with good recovery.
Up to this time we (Ellis, Andersen and myself) had financed this development between us. I now thought we should get the property into shape footfuture development so we Incooperated for $ 50,000. under the State of Montana laws.
My Ellis's son was permitted to buy $ 1000 worth of Stock, the rest of the stock is in the hands of the three of us, except what we assigned back to the Treasure of " The Blue Bird Mines, Inc. ".

My personal back ground in the Mining field is;
I had three years on a Mining degree but World War 1 cut it short and I did not have the finance to complete it after the war. I took up Photography and have been following that profession ever since with exceptions. 32 years with Kennecott Copper at Latouche and Kennecott, Alaska, The Engel Copper Co. of Plumas, Calif. U.S. Smelting & Refining at Rainbow, Ore. I have been inclined of the development of the Blue Bird and an Sectr. Treas. of the Cooperation as such, I have done every thing with a view that we have a producer and every cent expended was with a future outlook, such as arranging the camp so that no unneccessary money would have to be spent if and when it come into production. At present I am a Staff Cameraman for the Idaho Daily Statesman in Boise and also do Commercial Photo work on the side. If this Loan is approved I will be on hand to see that it is expended to the best of the value for the MINE and not in salary or traveling and other expenses as I have seen in so many other places where Stock was sold to promote a property. We are free of debt, own our equipment and are ready to mine. But private capital is not interested, unless you get out and sell STOCK and that we have not and will not do.

MONTANA SCHOOL OF MINES
Butte
June 5, 1947

MEMORANDUM REPORT: Mineral Dressing Tests - H. W. Stewart, Bluebird Mine, Hassel Mining District

TO: Director, Montana Bureau of Mines and Geology, Montana School of Mines, Butte, Montana.

INTRODUCTION

Two samples of gold, silver, lead and zinc bearing material were collected by K. D. Lynn, Field Representative, Montana Bureau of Mines and Geology, and submitted for Mineral Dressing tests by Mr. H. W. Stewart, Townsend, Montana. These samples represented material from the Bluebird Mine, Hassel Mining District.

The Bluebird Mine is in the development stage and the material submitted for Mineral Dressing tests is from a winze and a drift. Sample No. 2 (Mr. Stewart's designation for sample numbers) represents 7.4 ft. of channel sampling across the bottom of a winze. The depth of this winze is 17 feet. Sample No. 3 represents six feet of channel sampling from the sill of a drift and in the vicinity of the winze from which Sample No. 2 was taken.

SUMMARY

Mineral Dressing tests indicate that:

1. The samples submitted assayed:

Sample No.	GOLD oz. per ton	SILVER oz. per ton	LEAD per cent	ZINC per cent
2	o.035	0.50	1.4	3.3
3	0.025	0.3	0.3	1.75

2. By flotation, an over-all recovery of 26.5 per cent of the gold, 91.9 per cent of the silver, 92.4 per cent of the lead and 96.9 per cent of the zinc was obtained in Test No. 1. The tailing assayed o.01 oz. Gold per ton, 0.1 oz. silver per ton, o.1 per cent lead and 0.1 per cent zinc.

3. By flotation, an over-all recovery of 97.5 per cent of the gold, 84.9 per cent of the silver, 98.3 per cent of the lead and 97.2 per cent of the zinc was obtained in Test No. 2 The tailing assayed 0.01 oz. Gold per ton, 0.1 oz. silver per ton 0.3 per cent lead and 0.1 per cent zinc.

COPY

SUGGESTIONS

In the event that satisfactory grade and tonnage of material result from development, it is suggested that after thorough sampling detailed laboratory tests be conducted for determination of milling requirements. Ascertainment of the adequacy of grade and tonnage of ore reserves should precede further Mineral Dressing tests and expenditure for milling plant equipment.

The low mineral content of the material as represented by the samples submitted and the present high cost index demand careful evaluation of all factors concerned. It is recognized that the Bluebird Mine is in the development stage, but the economic considerations must be evaluated concurrently with development. Satisfactory recovery of the valuable mineral constituents can be anticipated by the application of modern Mineral Dressing methods.

(Signed)
Donald W. McGlashan
Assistant Research Professor
Department of Mineral Dressing

McG/mn:v

COPY

Mineral Dressing Tests: Bluebird Mine

Head Assay of Sample

	ozs Au per ton	ozs Ag per ton	%Pb	%Zn
Sample No. 2	0.035	0.50	1.40	3.30
Sample No. 3	0.025	0.30	0.30	1.75

Sample No. 2 was taken from bottom of Winze - weight 70 lbs
Sample No. 3 was taken from sill of drift - weight 60 lbs
Samples No. 1 and No. 4 were hand samples for microscopic work.

Sample Preparation:

The samples were air dried and then crushed to 1/4 inch. Each sample was split, one half being held in reserve: the remaining half was put thru the rolls until minus 20 mesh. The head samples were split from the minus 20 mesh and sent to Lewis and Walker, Butte, for assays.

Microscopic Examination:

Examination of hand specimens under the binocular microscope revealed the following minerals: altered andesite, quartz, calcite, sphalerite, galena, limonite, chalcopyrite and bornite.

Grinding:

For flotation tests, 600 gram portions were further reduced in size by grinding with 600 grams of water in an Abbé laboratory pebble mill.

Flotation:

The object of the flotation was to find if the material was amenable to selective flotation.

Test No. 1

Products	weight %	Assays ozs gold	ozs silver	%lead	%zinc	Distribution Percent Gold	Silver	Lead	Zinc
Lead Concentrate	5.0	0.04	12.2	21.5	24.5	16.5	62.6	90.4	41.8
Zinc Concentrate	6.0	0.02	4.6	0.4	26.9	10.0	28.3	2.0	55.1
Tailings	89.0	0.01	0.1	0.1	0.1	73.5	9.1	7.6	3.1
						100.0	100.0	100.0	100.0

The above test was batch ground for 20 minutes in the pebble mill, conditioned for 5 minutes, lead flotation for 10 minutes, zinc conditioning for 10 minutes and zinc flotation for 5 minutes. The pH of lead circuit was 8.0 and zinc circuit was 10.1 using the following reagents. No attempt was made to clean the lead or zinc from either concentrate.

Sodium Cyanide	0.06 lbs per ton
Zinc Sulphate	0.30 lbs per ton
Aerofloat 31	0.04 lbs per ton
Cresylic Acid	0.10 lbs per ton
Copper Sulphate	1.50 lbs per ton
Lime	1.50 lbs per ton
Pine Oil	0.05 lbs per ton

COPY

Test No. 2

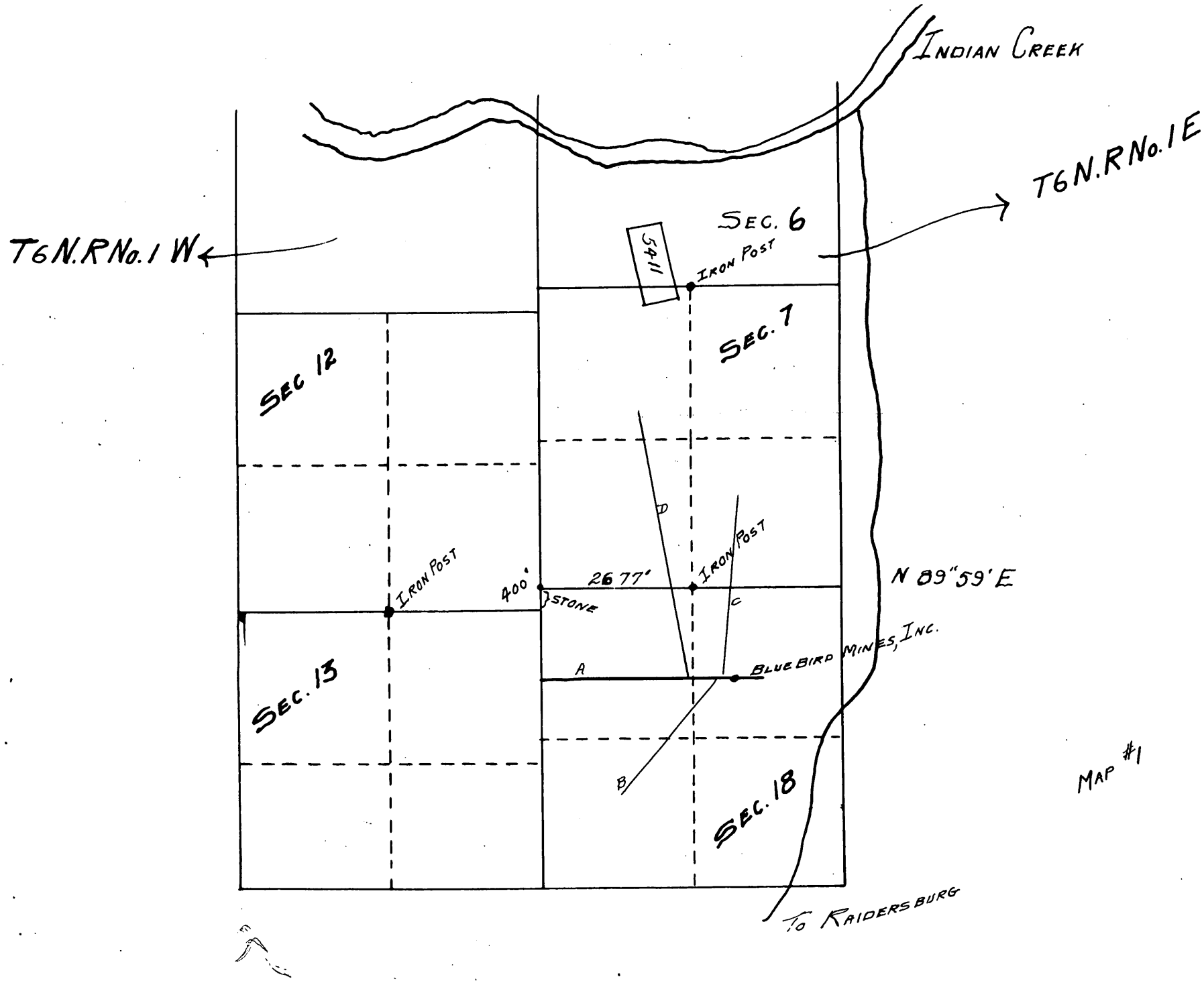
Products	Weight %	Assays ozs gold	ozs silver	% lead	% zinc	Distribution Percent gold	silver	lead	zinc
Lead Concentrate	16.2	0.14	2.1	6.5	6.5	79.9	69.1	87.6	41.3
Zinc Concentrate	9.8	0.06	0.8	1.3	14.5	17.6	15.8	10.7	55.9
Tailings	74.0	0.01	0.1	0.3	0.1	2.5	15.1	1.7	2.8
						100.0	100.0	100.0	100.0

The above test was batch ground for 20 minutes in the pebble mill, conditioned 8 minutes, lead flotation for 4 minutes, zinc conditioning 10 minutes and flotation 5 minutes. The pH was 6.9 for the lead flotation and 10.4 for zinc flotation using the following reagents. No attempt was made to clean concentrates.

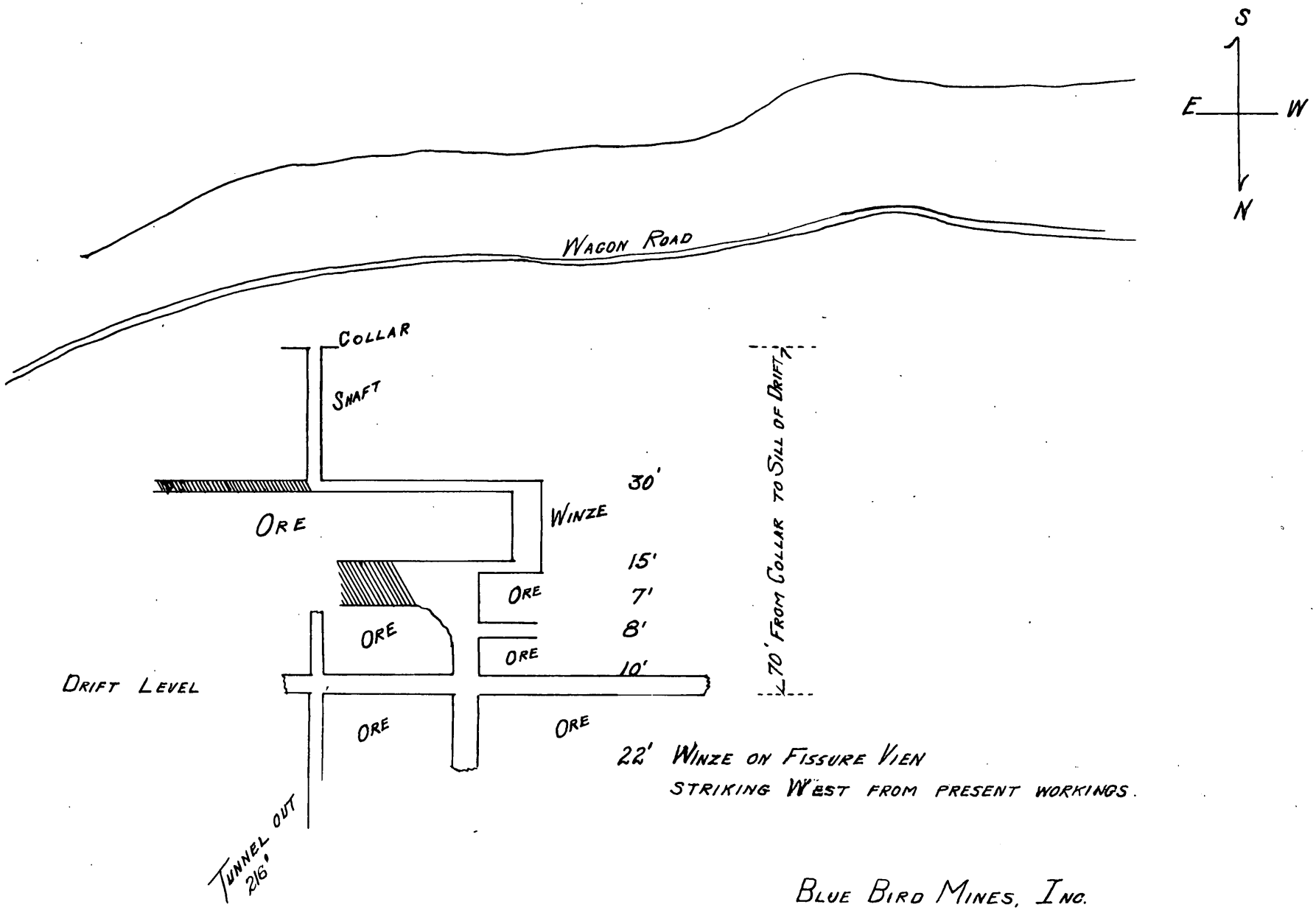
Sulphuric acid	0.1 lbs per ton
Sodium Cyanide	0.13 lbs per ton
Zinc Sulphate	0.50 lbs per ton
Z05	0.10 lbs per ton
Cresylic Acid	0.08 lbs per ton
Copper Sulphate	1.50 lbs per ton
Lime	1.50 lbs per ton

The lead concentrate was heavy with pyrite which apparently carries the gold values in the above test.

COPY


INDIAN CREEK
T6N.R No. 1 E
T6N.R No. 1 W
SEC. 6
5411
IRON POST
SEC. 7
SEC 12
D
IRON POST
IRON POST
400'
2677'
N 89°59' E
STONE
C
BLUE BIRD MINES, INC.
A
SEC. 13
B
SEC. 18
TO RAIDERSBURG

MAP #1



BLUE BIRD MINES, INC.

BOX 557 TOWNSEND, MONT.

X ORIGINAL SHAFT

O CAMP + PESENT WORKINGS

T PROPOSED TUNNEL

BUNK HOUSES + ORE BIN

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 1509X

Date received 6-1-51

Participation

Blue Bird Mines, Inc.,
Box 557

Townsend, Montana

Name and address of applicant

Date May 22, 1951

FILL IN THIS BLOCK

Date of application May 22, 1951

Estimated cost $10,000.00

Mineral or metal Silver-Lead-Zinc

Percentage of Government participation

Location of mine Broadwater County, Mont.

Hassel Mining District

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?
*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?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is 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.

Blue Bird Mines, Inc. (Name of company) By Howard W. Steward (Signature of authorized official)

May 24 1951 (Date) Secty - Treas. (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

[illegible] 1950

Form IF - 103
(April 1951)

1.

2.

(These questions answered on Form IF - 100)

3.

4.

5.

6. None

7. None

8. See form 100, 8 & 9.

9. Whatever is required of the corporation to match the Government's spending.

10. See item 10 on form 100.

11.

12.

13.

(These questions answered on Form IF - 100)

14.

15. The ore can be shipped to a custom mill in Salt Lake City, Utah there being no custom mills in our area and therefore it will have to be shipped to be shipped to Salt Lake.

16.

17.

18. (These questions answered on Form IF - 100

19.

THE EXPLORATION

20. Lead and zinc. Zinc predominating.

21. Approximately five months

22. See report of the U. S. Bureau of Mines andthe U. S. Geological Survey accompanying this application.

THE [illegible] AND COSTS

23. a. Labor
b. Supervisors
c. Cost of necessary repairs — none
d. Cost of necessary installation
e. Cost of items of equipment
f. Cost of rental of equipment
g. Rental value of items of equipment
h. Cost of materials and supplies
i. Cost of utilities

$ 10,000 Total

24. Time schedule: 5 mos

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

No. 157 Howard Street
Spokane 8, Washington

May 29, 1951

Memorandum

To: Lead-Zinc Committee, DMA, Washington, D. C.

From: Field Team, Region II

Subject: Bluebird mine, Broadwater County, Montana

The report transmitted herewith discusses the application of the Bluebird Mines, Inc., which is for an exploration loan.

This property has not previously submitted an application for an exploration loan. However, inasmuch as we had an examination team in the area we visited the mine and prepared the enclosed report. Since the report has been in preparation the applicant has submitted an application for a $10,000 exploration loan which is enclosed herewith.

It was the opinion of the examining team that the prospects for commercial ore were nil, and that further consideration of this application is unwarranted.

By Field Team, Region II

A. [illegible] Weissenborn, Geo. Officer
(U. S. Geological Survey)

M. E. Volin, Member
(U. S. Bureau of Mines)

Enclosure

cc: U.S.B.M.

[illegible]ste

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

DEFENSE MINERALS ADMINISTRATION

REPORT BY EXAMINATION TEAM
Region II

UMA- , Bluebird Mines, Inc., Bluebird Mine

Broadwater County, Montana

E. T. Ruppel, Geologist
U. S. Geological Survey

T. E. Howard, Mining Engineer
U. S. Bureau of Mines

May 24, 1951

DMA Examination Team Report
Bluebird Mines, Inc.

By E. T. Ruppel, USGS, and
T. E. Howard, USBM

RECOMMENDATIONS

The DMA Examination Team recommends that the application of the Bluebird Mines, Inc. for an exploration loan of $4,500 be denied.

APPLICANT

The applicant is the Bluebird Mines, Inc. of Townsend, Montana, incorporated under the laws of the State of Montana, April 25, 1947. Its directors are Hilbert Anderson of Boise, Idaho, M. A. Ellis of Townsend, Montana, and Howard E. Steward of Boise, Idaho. Mr. Anderson is president of the corporation, Mr. Ellis is vice-president, and Mr. Steward is secretary-treasurer. Five hundred shares of non-assessable stock, par value $100 per share, are authorized; 16 shares are owned by Frank Ellis of Spokane, Washington, 45 shares by M. A. Ellis, 72 shares by Mr. Steward, 82 shares by Mr. Anderson, and the remaining 285 are held in the treasury of the corporation.

Mr. Steward, who accompanied the Examination Team during part of the examination, will be in charge of the proposed program.

LOCATION OF DEPOSIT

The property consists of 18 claims, the Bluebird No. 1 through No. 18, located in secs. 6, 7, and 18, T. 6 N., R. 1 E., Hassel mining district, Broadwater County, Montana.

OWNERSHIP

A check of Broadwater County records revealed that the surface rights on all of the claimed land are owned by Alfred Doughty, a local rancher. The applicant states that he has legal advice to the effect that a release from Mr. Doughty is not necessary.

The claims are not staked to conform to the mineral deposit but rather to the land survey. Claims Nos. 1 through 6 were located in 1945 by Mr. Steward and Mr. Anderson. These 6 claims were relocated and the 12 additional claims located by Mr. Steward and Mr. Anderson in March 1946. Mr. Steward stated that location work consisted of cleaning out and retimbering the old workings on No. 6 claim. The required excavation was not done on any of the other claims. New excavation on the property consists of a 12-foot extension of the winze on No. 6 claim, done in 1947, and a trench also on No. 6 from which approximately 800 cubic feet of material was taken in 1950.

HISTORY AND PRODUCTION

The work on No. 6 claim was done between 1915 and 1920. No record of production exists, but the size of the workings indicates that not more than 100 tons of ore could have been shipped. It is reported locally that gold ore worth $20,000 was taken from the workings on claim 16. Although the property contains a number of other old pits and shafts, it is doubtful that commercial ore was produced from them.

DESCRIPTION OF PROPOSAL

The applicant proposes an exploration program to cost $9,000, half the cost to be borne by a Government Exploration Loan in the amount of $4,500. This program was to consist of extending the present winze 50 feet and drifting 100 feet west from its bottom to explore the vein.

Preparatory work, which must be done before actual exploration can be started was to consist of the enlarging of about 40 feet of the present adit to provide an adequate haulageway, enlarging and timbering the section of drift over the winze to provide a hoisting station, and retimbering the existing 25 feet of winze.

TECHNICAL FEASIBILITY

Geologic Setting of the Deposit

Mineralization in the Bluebird mine has been in a fault zone (the Bluebird vein) which trends N. 60° - 70° W., 50° S., and along which there has been about 2 feet of stratigraphic displacement. The mine is essentially on the contact of upper Cretaceous sedimentary rocks, principally fine- to medium-grained sandstones and black, fissile shale, and upper Cretaceous volcanic rocks, mainly andesite. The sedimentary rocks and volcanic rocks both strike about N. 10° - 30° W. and dip 30° to 50° W. The contact between the two rock types is apparently conformable; it strikes N. 10° W. and dips about 55° W.

Three prominent veins are present in the area claimed by Bluebird Mines, Inc., the Bluebird vein, Mike vein, and Copper vein (see sketch map). This report is concerned only with the Bluebird vein, the vein on which the applicant proposes further exploration. The Mike vein, a 2-inch quartz vein containing sparse galena and sphalerite, may intersect the Bluebird vein, but the possible zone of intersection, located about 1200 feet west of the present Bluebird workings, cannot be explored economically from the present workings. The Copper vein, a 6-inch quartz vein with sparse malachite, probably does not intersect the Bluebird vein (see sketch map).

The Bluebird vein is exposed in surface pits and workings for about 1200 feet along its strike and is exposed for about 90 feet down the dip in the Bluebird mine. The vein is exposed in surface and underground workings for a vertical range of about 300 feet. It ranges from 6 inches to 4-1/2 feet in thickness. The vein consists of fault gouge that has been silicified and sporadically mineralized with pyrite, sphalerite, and galena where andesite is the host rock, but apparently only silicified and very sparsely mineralized with pyrite where sandstone or siltstone is the host rock. The Bluebird vein has been explored to a depth of about 90 feet in the main Bluebird workings but, as the lower 25 feet of the workings - a winze on the vein - is flooded, the Examination Team could observe only the upper 65 feet. Little mineralization is apparent in the vein above the 65-foot tunnel

level, but on this level there is a minor split in the fault zone. In the zone of intersection of these two splits the content of sulfide minerals, principally sphalerite, is greater than elsewhere in the vein, but not enough of the zone could be seen to estimate percentages of sulfides present; only the top of the intersection zone is exposed. The applicant states that the mineralized zone thins with depth in the winze.

Two samples, taken in 1947 in the winze by K. D. Lynne, Field representative of the Montana Bureau of Mines and Geology for mineral dressing tests, assayed as follows:

Sample No.	Au	Ag	Pb	Zn
2	.036	0.50	1.4	3.3
3	.025	0.30	0.3	1.75

Sample No. 2 represents 7.4 feet of channel sampling across the bottom of the winze. Sample No. 3 represents 6 feet of channel sampling from the sill of the drift in the vicinity of the winze.

The mineralized zone has a strike length of about 40 feet, extends down the dip of the fault not more than 25 feet, and has a maximum thickness of about 3 feet; none of the exposed ore appears to contain more than 10 percent sulfides.

Samples were cut by the Examination Team at four places on the Bluebird vein, two in the more heavily mineralized area, one near the westernmost exposure of the vein on the tunnel level, and one where the fault zone cuts sedimentary rocks. Assay reports on these samples are not yet available but will be forwarded as soon as possible.

The applicant proposes to further explore the Bluebird vein by sinking the winze an additional 50 feet and drifting from the bottom to the west along the vein. The objectives of this exploration are to attain greater depth on the vein and to explore the intersection zones of possible NE or NW trending fractures.

It is the opinion of the Examination Team that the winze cannot be sunk to a much greater depth without crossing the contact of volcanic and sedimentary rocks. Furthermore, the sedimentary rocks do not appear to be favorable hosts for mineralization. There are no surface indications of prominent fracture zones which might intersect the Bluebird zone in the vicinity of the present or proposed workings. It is the opinion of the Examination Team that no minable bodies of ore are likely to be found on minor splits or fracture intersections encountered underground by drifting on the vein.

Mine Workings

The Bluebird vein has been developed by an adit driven through sedimentary rocks to the sedimentary-volcanic rock contact and then along this contact through its intersection with the vein and by drifts east and west from the adit along the vein. The vein has been stoped for about 15 feet along the strike and 30 feet up the dip from the west drift. The stope is connected by a 5-foot raise with a 35-foot drift driven east from the Bluebird shaft. This shaft is an incline about 30 feet deep. A winze 35 feet deep has been sunk down the vein from the west drift.

The Bluebird mine has been rehabilitated by the applicant and, with the exception of the winze which is flooded, all workings are accessible.

Reserves

There are no ore reserves.

MINING METHODS - COSTS

The small past production has come from open stopes supported by occasional stulls. As the hanging wall appears strong this method probably could be used at depth. However, as the winze was inaccessible at the time of the examination, and the width and character of the ore could not be determined, no definite prediction as to mining methods and costs can be made.

The existing 25-foot winze was sunk using a hand windlass. Therefore, some excavation and timbering must be done to provide headroom for mechanical hoisting. The present adit, because of its small cross-section and sharp curves, is not an adequate haulageway for a producing mine. To provide for efficient ore handling on the present level, either 225 feet of new crosscut or 65 feet of shaft from the surface would be required.

MILLING METHODS - COSTS

Ores of the type the applicant expects to produce cannot be marketed profitably at smelters within a reasonable shipping distance of the property. Therefore, concentration would be necessary.

A report of metallurgical testing by a staff member of the Montana School of Mines made on samples of Bluebird ore indicates that a satisfactory recovery can be obtained by selective flotation. However, this report is not sufficiently detailed to permit an estimate of milling costs.

Available water for metallurgical purposes is limited to that coming from the workings. At the present time the flow is insufficient for even a small concentrator. Although there are no operating mills in the immediate vicinity, a flotation concentrator at the Iron Mask mine about 7 miles north of the property probably could be opened as a custom mill if sufficient ore were developed.

RATE OF PRODUCTION

Present

The property is not producing at present.

Anticipated

The applicant can make no estimate of his anticipated production.

TIME SCHEDULE TO ATTAIN OBJECTIVES

The applicant estimates that the proposed program can be completed in six months.

MARKETING FACILITIES

Lead concentrates can be shipped to the East Helena smelter of the American Smelting and Refining Company, and zinc concentrates can be marketed at the electrolytic zinc plants of the Anaconda Copper Mining Company in Anaconda and Great Falls, Montana.

EQUIPMENT AND FACILITIES

Installed

The applicant has on hand and installed the following equipment and facilities:

1 - 7'x 9' tool house
1 - 12'x 10' bunk house
1 - 16'x 24' compressor and cook house
1 - 10'x 20' ore bin
1 - Sullivan W-315 portable compressor
1 - Hand windlass
1 - Ingersoll-Rand No. 25 sump pump
1 - G-D 55# sinker drill
1 - 16 cu. ft. ore car
2 - sinking buckets
8 - pieces jackhammer steel
150 - Timken drill bits
4 - shovels
1 - sledge hammer
1 - single jack
3 - picks
1 - air blow pipe
1 - mine spoon
22 - hand moils
1 - seal cutter
1 - pipe cutter
1 - pipe wrench
1 - pipe die set
1 - pipe vise
1 - bench vise
1 - crosscut saw
1 - 12# rail bender
1 - Model A 1-1/2 T. Ford truck
200 feet 2" pipe (installed)
125 feet air hose
35 couplings, elbow, etc.
2000 lbs. 12# rail (1000# installed)

Required

The following items of equipment will have to be acquired:

Item	Weight	Cost
Single drum air hoist	200#	$796.00
Drifter	138#	750.00
Blower	120#	240.00
Vent pipe - 150 feet		156.00
Water tank		51.00

LABOR SUPPLY

The labor supply in Townsend and the surrounding region is limited. However, the applicant believes that the small crew required can be obtained from neighboring mining districts. The current wage scale for miners is $12.65 per 8-hour shift.

POWER

Electric power is not available on the property. Mr. Steward states that he will need none for the proposed exploration program.

TRANSPORTATION

The property is 11.7 miles by road west of Townsend, Montana, the nearest rail shipping point. Of this distance, 1.5 miles is paved highway, 9.5 miles is county-maintained secondary road, and 0.7 miles is unimproved road. A local transportation company has quoted to the applicant a price of $1.50 per ton of ore for this haul.

Railroad freight rates obtained from the Northern Pacific Railroad depot in Townsend are as follows:

Value per ton	$15	$35	$100
To East Helena	1.22	1.66	2.12
To Anaconda	2.70	3.33	4.09

Material and supplies can be obtained in Butte or Helena, Montana, which are 36 miles and 35 miles respectively from Townsend. Small tools and supplies may be obtained in Townsend.

Access Road

Some work would be necessary to make the last 3 miles of the present access road adequate for continued ore hauling. Mr. Steward stated that county officials have advised him that the county will be responsible for the necessary improvements and maintenance.

ADEQUACY OF REQUESTED FUNDS

The funds requested should be adequate as shown by the following cost recapitulation. In making the estimate it is assumed that equipment required will be rented and that the applicant will charge rent on his equipment as a cost of the project.

Enlarging present haulage crosscut	$ 207.00
Cutting hoisting station at top of winze	379.00
Pumping out and retimbering present winze	641.00
Sinking 50' 4x6 winze @ $53.50/ft.	2,675.00
Driving 100' 6x5 drift @ $38.50/ft.	3,850.00
Contingencies	800.00
	$8,552.00

COMPETENCY OF APPLICANT

Mr. Steward is a man 59 years old, whose major occupation for the past thirty years has been commercial photography. He is at present employed by a newspaper in Boise, Idaho. He states that he had three years toward a mining degree prior to World War I and has spent a total of three or four years at various jobs related to mining since then.

In the opinion of the Examination Team, Mr. Steward would be capable of carrying out the simple exploration program he proposes, but it is doubtful if he could operate a producing mine.

DISCUSSION OF PROPOSAL AND SUGGESTED ALTERNATIVES

In the opinion of the Examination Team, the geologic probability of discovering a commercial ore body does not warrant an exploration loan at this time. Therefore, no alternative proposals are suggested.

D. M. A. Docket no. _____

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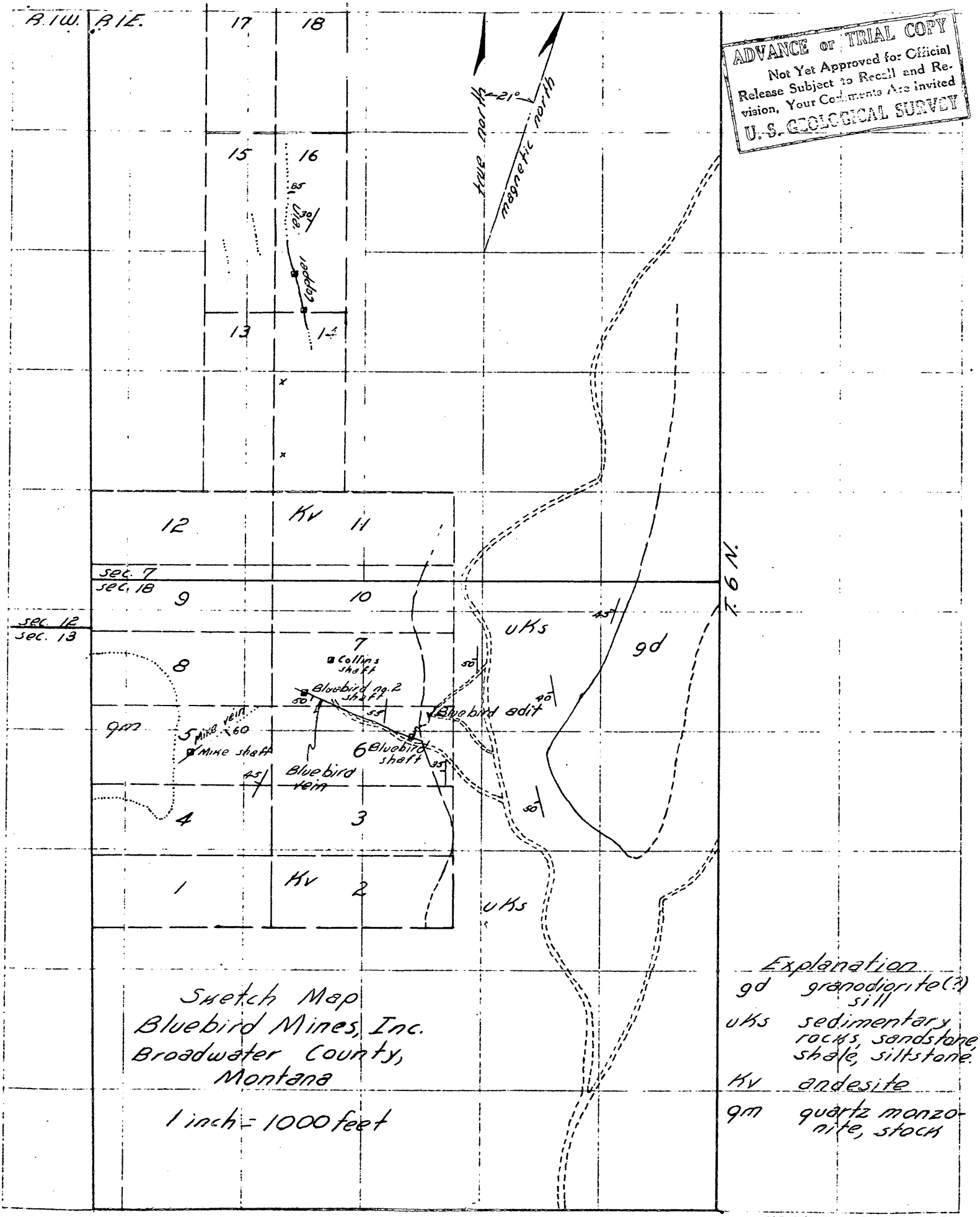
U. S. GEOLOGICAL SURVEY



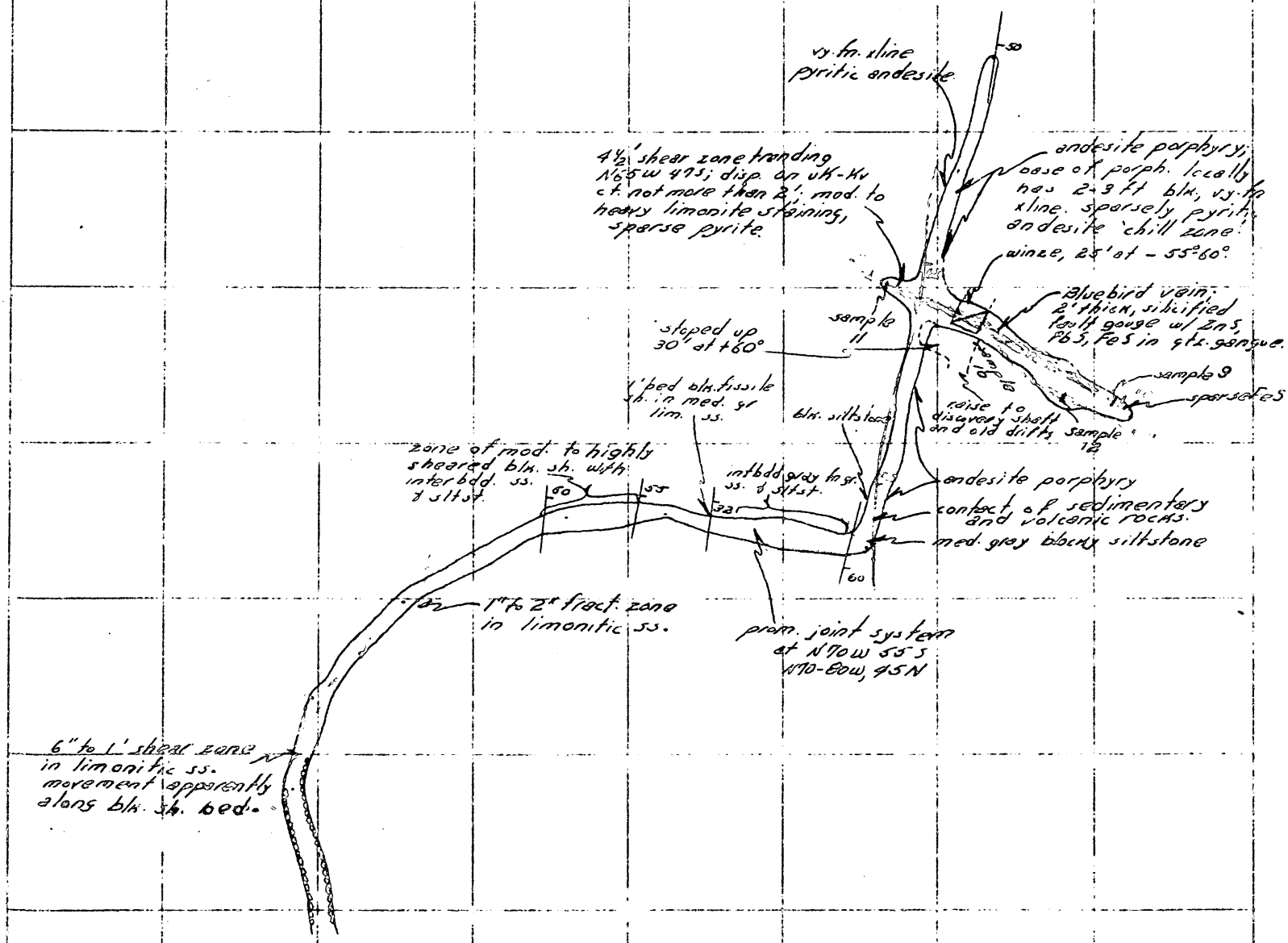
ALBANENE No. 100M K&E Co., N.Y.
REG. U.S. PAT. OFF.

D. M. A. Docket no. _____

Bluebird Mines, Inc.
Bluebird tunnel
ETR and TEH
19 May 1951

1 inch = 40 feet

ADVANCE or TRIAL COPY
Not Yet Approved for Official Release Subject to Recall and Revision. Your Comments Are Invited
U. S. GEOLOGICAL SURVEY



"ALBANENE" No. 106M KAECO., N.Y.
REG. U.S. PAT. OFF.

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. dmd 1509X

Date received 6-1-51

Participation

Blue Bird Mines, Inc.,
Box 557

Townsend, Montana

Name and address of applicant

Date May 22, 1951

FILL IN THIS BLOCK

Date of application May 22, 1951

Estimated cost $10,000.00

Mineral or metal Silver-Lead-Zinc

Percentage of Government participation

Location of mine Broadwater County, Mont.

Hassel Mining District

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?
*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?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is 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.

Blue Bird Mines, Inc. (Name of company)

By Howard W. Steward (Signature of authorized official)

May 24 1951 (Date)

Secty - Treas (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

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

Form MF - 103
(April 1951)

1.

2.

(These questions answered on Form MF - 100)

3.

4.

5.

6. None

7. None

8. See form 100, #8 & 9.

9. Whatever is required of the corporation to match the Government's spending.

10. See item 18 on form 100.

11.

12.

13.

(These questions answered on Form MF - 100)

14.

15. The ore can be shipped to a custom mill in Salt Lake City, Utah there being no custom mills in our area and therefore it will have to be shipped to be shipped to Salt Lake.

16.

17.

18. (These questions answered on Form MF - 100

19.

THE EXPLORATION

20. Lead and zinc. Zinc predominating.

21. Approximately five months

22. See report of the U. S. Bureau of Mines andthe U. S. Geological Survey accompanying this application.

THE REQUIREMENTS AND COSTS

23. a. Labor
b. Supervisors
c. Cost of necessary repairs none
d. Cost of necessary installation
e. Cost of items of equipment
f. Cost of rental of equipment
g. Rental value of items of equipment
h. Cost of materials and supplies
i. Cost of utilities

$ 10,000 Total

24. Time schedule: 5 mos.

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. dmm 1509X

Date received 6-1-51

Participation

Blue Bird Mines, Inc.,
Box 557

Townsend, Montana

Name and address of applicant

Date May 22, 1951

FILL IN THIS BLOCK

Date of application May 22, 1951

Estimated cost $10,000.00

Mineral or metal Silver-Lead-Zinc

Percentage of Government participation

Location of mine Broadwater County, Mont.

Hassel Mining District

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?
*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?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is 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.
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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.

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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.

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*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.

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

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
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(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.

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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:

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(*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.

Blue Bird Mines Inc
(Name of company)

By Howard W. Steward
(Signature of authorized official)

May 24 1951
(Date)

Secty - Treas.
(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

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

Form MF - 103
(April 1951)

1.

2.

(These questions answered on Form MF - 100)

3.

4.

5.

6. None

7. None

8. See form 100, #8 & 9.

9. Whatever is required of the corporation to match the Government's spending.

10. See item 18 on form 100.

11.

12.

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15. The ore can be shipped to a custom mill in Salt Lake City, Utah there being no custom mills in our area and therefore it will have to be shipped to be shipped to Salt Lake.

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20. Lead and zinc. Zinc predominating.

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THE REQUIREMENTS AND COSTS

23. a. Labor
b. Supervisors
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e. Cost of items of equipment
f. Cost of rental of equipment
g. Rental value of items of equipment
h. Cost of materials and supplies
i. Cost of utilities

$ 10,000 Total

24. Time schedule: 5 mos

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/1509X

Date received 6-1-51

Participation

Blue Bird Mines, Inc.,
Box 557

Townsend, Montana

Name and address of applicant

Date May 22, 1951

FILL IN THIS BLOCK

Date of application May 22, 1951

Estimated cost $10,000.00

Mineral or metal Silver-Lead-Zinc

Percentage of Government participation

Location of mine Broadwater County, Mont.

Hassel Mining District

Date of filing MF-100

DMA Docket Number, if available

INSTRUCTIONS

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16—64067-1

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

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(2) Milling				
(3) Shipped or sold				

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(*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.

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(*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.

Blue Bird Mines, Inc. (Name of company)

By Howard W. Steward (Signature of authorized official)

May 24 1951 (Date)

Sectry-Treas. (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

Form IF - 103
(April 1, 1)

1.

2.

(These questions answered on Form IT - 100)

3.

4.

5.

6. None

7. None

8. See form 100, #8 & 9.

9. Whatever is required of the corporation to match the Government's spending.

10. See item 15 on form 100.

11.

12.

13.

(These questions answered on Form IT - 100)

14.

15. The ore can be shipped to a custom mill in Salt Lake City, Utah there being no custom mills in our area and therefore it will have to be shipped to be shipped to Salt Lake.

16.

17.

18. (These questions answered on Form IF - 100

19.

20. Lead and zinc. Zinc predominating.

21. Approximately five months

22. See report of the U. S. Bureau of Mines and the U. S. Geological Survey accompanying this application.

23. a. Labor
b. Supervisors
c. Cost of necessary repairs — none
d. Cost of necessary installation
e. Cost of items of equipment
f. Cost of rental of equipment
g. Rental value of items of equipment
h. Cost of materials and supplies
i. Cost of utilities

$ 16,000 Total

24. Time schedule: 5 mos

Form MF-100
(March 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Form approved.
Budget Bureau No. 42-R1026.

GENERAL TECHNICAL DATA
FOR USE UNDER THE
DEFENSE PRODUCTION ACT OF 1950

NOT TO BE FILLED IN BY APPLICANT

Docket No. dma 1509X

Date received 6-1-51

Blue Bird Mines, Inc.,
Box 557

Townsend, Montana

Name and address of applicant

Date May 22, 1951

INSTRUCTIONS

This form is to be filed with Defense Minerals Administration, Department of the Interior, Washington 25, D. C. It should be accompanied by appropriate application form when a specific type of Government assistance is requested, in the form of (1) loan, (2) purchase contract, (3) Government guarantee of a private loan, (4) Necessity Certificate pursuant to the provisions of Sec. 124-A (Amortization Deduction) of Internal Revenue Code, 1950, (5) priorities or allocation of mining equipment, and maintenance, repair and operating supplies, and (6) other forms of Government assistance that might arise under the Act. Submit four (4) signed copies of the form and accompanying papers. Name and address should be stamped or typed on each sheet of this form and all accompanying papers. *When a question is inapplicable it should be so stated on the form.* Additional sheets may be attached in answering any questions or in supplying additional information. (IF YOU CANNOT ANSWER A QUESTION, SO STATE.) If a question is answered elsewhere indicate where answered. It is not necessary to answer it again.

GENERAL TECHNICAL DATA

Supply the following information on separate sheets, arranged, numbered, and lettered as indicated:

1. Materials produced:
   (*a*) What are the chief mine, mill, or smelter products?
   (*b*) What are the byproducts, if any?
2. Name(s) and type(s) of mine(s), mill(s), smelter(s), refinery(ies), pit(s), quarry (ies), drilling operation(s). Include old names of property, if any. Show extent of workings, including the following:
   (*a*) Linear feet of shafts.
   (*b*) Linear feet of drifts and crosscuts.
   (*c*) Linear feet of tunnels or adits.
   (*d*) Linear feet of other mine openings (explain briefly).

   Indicate whether mine is flooded or not. Describe any pumping problems. Give size or productive capacity.
3. For each operation listed above supply the following:
   (*a*) Distance and direction from nearest town and shipping point.
   (*b*) Mining district.
   (*c*) Township, Section, Range.
   (*d*) County, State.
4. (*a*) State whether or not property is now in operation, and if in operation, by whom operated.
   (*b*) Are you operating this property as:
   - ☐ Owner.
   - ☐ Lessee.
   - ☐ Contractor.
5. Number of years in production _____

   If not in production or operation, estimated date when production will begin _____
6. Experience of operators:

   Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who manage the project.
7. History:
   (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for suspension of operation.
   (*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.

8. Names and addresses of Officers, Directors, or Partners, and in addition thereto, the five largest stockholders if applicant is a corporation.

Name and Address (a)	Official Title (If officer is also director indicate by "D") (b)	Total of Annual Salary, Commissions, Bonuses, Etc., Received From Applicant and Affiliates During Last Fiscal Year (c)	Estimated Net Worth Outside of Interest in Applicant (d)	Number of Shares Held in Applicant Corporation: Common (e)	Number of Shares Held in Applicant Corporation: Preferred (f)	Life Insurance Carried for Benefit of Applicant: Amount (g)	Life Insurance Carried for Benefit of Applicant: Net Cash Surrender Value After Loans (h)
Hilbert Andersen Box 1775 Boise, Idaho	President	None		86			
M. A. Ellis Townsend, Mont.	V. Pres.			45			
Howard W. Steward Box 1775 Boise, Idaho	Sec.- Tres.			72			
Frank Ellis Seattle, Wash.				16			
	Total		x x x x x	219		x x x x x	x x x x x

If more lines are needed continue on separate sheet.

9. Capital Stock Issues:

For Corporate Applicants

Item	Authorized (a)	Outstanding (b)	Par Value (c)	Number of Shares Outstanding (d)	Dividend Rate Last Paid* (e)
Common stock	$50,000	$ 21,900	$ 100.00	219	
Preferred stock	$	$	$		

*Indicate period covered.

10. Production:

Item	Kind of Product (a)	1948 Total (b)	1949 Total (c)	1950 Total (d)	Present Average Monthly (e)
1. Quantity of product mined or quarried (Short, long, metric tons; barrels; pounds; etc.)					
2. Quantity of product processed (specify unit of measure and type of process)					
3. Quantity and grade of product sold or shipped (specify units of measure)					

11. Do you contemplate a change in the present average monthly rate of production? If so, state estimated maximum monthly production and basis of change.

12. Ore or Mineral Reserves:

(a) Describe the ore or mineral deposit briefly. Accompany the application by any available report on the geology and ore reserves.

(*b*) If deposit is other than placer:

(1) Submit assay plans and/or sections showing location and size of proved (measured) and probable (indicated) ore or mineral reserve.

(2) State the tonnage (indicate type of ton) and grade of each class of ore reserve, as above, and show how computed. Tabulated total ore reserve as follows:

TOTAL ORE OR MINERAL RESERVES

Ore or Mineral Reserve	Estimated Tons (a)	Metal or Mineral Content Per Ton (Grade) (b)	Gross Value Per Ton (c)	Recoverable Unit Value Per Ton (d)	Estimated Cost of Production Per Ton (e)
Measured (proved)					
Indicated (probable)					

(*c*) If placer:

(1) Give estimated total yardage and average marketable mineral content of each deposit.

(2) Submit map showing location of placer deposit and surrounding area, with all test holes or pits. Submit logs of each hole and test pit with depth and average value of each.

(3) Describe gravel, stating whether fine, medium or coarse; loose, tight, cemented, or frozen, and whether it contains stumps or boulders more than 1 foot in diameter; if so, how large, and in what proportion.

(4) Describe bedrock, giving type (granite, sandstone, shale, etc.) and state whether it is hard or soft, smooth, uneven or rough.

(5) Describe overburden, stating whether loose, tight, or cemented; fine or coarse textured; furnish estimate of average thickness and total amount.

(6) Tabulate the reserves using the form outlined above for ore or mineral reserves.

13. Access Roads:

Give road distances to shipping, supply and residence points, stating kind and condition of roads.

14. Water Supply:

State source and quantity of water available for operations and whether sufficient for all seasons of year.

15. Power:

State amount of power used, rate per hour, and source thereof.

16. Labor:

State number and classes (miners, muckers, millmen, etc.) of men employed during a recent representative payroll period.

17. Equipment and Facilities:

Describe present equipment on the property, including buildings. (State condition.) List major pieces of equipment now owned or controlled and in serviceable condition available for this operation.

18. Are there any particular conditions or circumstances affecting your operations that are not described above? If so, explain.

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.

Blue Bird Mines, Inc.
(Name of company)

By Howard W. Steward
(Signature of authorized official)

May 24, 1951
(Date)

Secty - Treas.
(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.

U. S. GOVERNMENT PRINTING OFFICE 16—63792-1

General Technic[redacted] Data
For Use Under the
Defense Production Act of 1950

Form MF -100

GENERAL TECHNICAL DATA

1. a. Silver, lead, and zinc
   b. None

2. a. Original location name "Moonbeam of The Mine"; the new name is The Blue Bird Mines, Inc.
   a,b,c,d. See map #1.

3. a. Distance is 11 miles due West from Townsend, Montana.
   b. Hassel Mining District
   c. T6NRNo. 1 E
   d. Broadwater County, Montana

4. a. No
   b. No

5. Three years on the original location it produced ore, then it lay idle for 26 years until the present ownership took it over. Production is expected at the consummation of this application.

6. See item three, last paragraph on page 2.

7. a. See item 3 pages 1 and 2.
   b. There are no adjoining properties closer than four miles to the South, none to the East, none to the West. To the North there is a patened claim (The St. Louis) which was worked in late 1899, been idle ever since. It is a copper claim.
   c. There are no written reports other than the Montana School of Mines report of June 5, 1947 which is included in this application. The Montana Bureau of mines sent one L. B. Lynn, M. E., over to help us with our exploration work in 1947. His report was verbal to us, but we were at liberty to quote him as saying it was a very likely property and had good possibilities.

8. (Answered on the form (MF-100) table)

9. (Answered on the form (MF-100) table)

10.

11. (10, 11, & 12 not applicable to our application)

12.

13. There is a well-maintained County highway up Indian Creek for nine miles, a County road branching off from this goes within a half mile of the mine. It is good, as a dirt road goes. We have been assured by the county commission that they would be very happy to cooperate in maintaining an accesible road to the mine under all weather conditions.

14. To the best of our knowledge the water situation is completely satisfactory.

15. We do not have electric power at the mine. Seven miles to the South a high-tension power line could be contacted and power brought to the mine if and when needed.

16. There has been no activity other than the stockholders' work.

17. See list. Detailed mining equipment.

18. We have a winze sunk 25 feet on this Fissure-Vein. ~~The ore has~~ gone from a four-inch high-grade vein on the sill to 2½ feet of good milling ore. Our mineral dressings show that this vein will widen to the full Fissure which is six feet, in another 25 to 50 feet. Our thought is to sink an additional 50 feet, then drift from winze on the Fissure for a hundred feet. This should give a very accurate picture of what the ore is doing or might contemplate doing on further depth. Like-

W ise this draft will contact a fracture zone and piercing into this z one we will be drifting from the winze along the Fissure and if the ore possibilities justify further exploration, we should drift along the Fissure until contact is made with some well-defined veins (See map #1) that, in my estimation, are cut by the Fissure. That is to be decided later.

MONTANA SCHOOL OF MINES
Butte
June 5, 1947

MEMORANDUM REPORT: Mineral Dressing Tests - H. W. Stewart, Bluebird Mine, Hassel Mining District

TO: Director, Montana Bureau of Mines and Geology, Montana School of Mines, Butte, Montana.

INTRODUCTION

Two samples of gold, silver, lead and zinc bearing material were collected by K. D. Lynn, Field Representative, Montana Bureau of Mines and Geology, and submitted for Mineral Dressing tests by Mr. H. W. Stewart, Townsend, Montana. These samples represented material from the Bluebird Mine, Hassel Mining District.

The Bluebird Mine is in the development stage and the material submitted for Mineral Dressing tests is from a winze and a drift. Sample No. 2 (Mr. Stewart's designation for sample numbers) represents 7.4 ft. of channel sampling across the bottom of a winze. The depth of this winze is 17 feet. Sample No. 3 represents six feet of channel sampling from the sill of a drift and in the vicinity of the winze from which Sample No. 2 was taken.

SUMMARY

Mineral Dressing tests indicate that:

1. The samples submitted assayed:

Sample No.	GOLD oz. per ton	SILVER oz. per ton	LEAD per cent	ZINC per cent
2	o.035	0.50	1.4	3.3
3	0.025	0.3	0.3	1.75

2. By flotation, an over-all recovery of 26.5 per cent of the gold, 91.9 per cent of the silver, 92.4 per cent of the lead and 96.9 per cent of the zinc was obtained in Test No. 1. The tailing assayed o.01 oz. Gold per ton, 0.1 oz. silver per ton, o.1 per cent lead and 0.1 per cent zinc.

3. By flotation, an over-all recovery of 97.5 per cent of the gold, 84.9 per cent of the silver, 98.3 per cent of the lead and 97.2 per cent of the zinc was obtained in Test No. 2 The tailing assayed 0.01 oz. Gold per ton, 0.1 oz. silver per ton 0.3 per cent lead and 0.1 per cent zinc.

COPY

SUGGESTIONS

In the event that satisfactory grade and tonnage of material result from development, it is suggested that after thorough sampling detailed laboratory tests be conducted for determination of milling requirements. Ascertainment of the adequacy of grade and tonnage of ore reserves should precede further Mineral Dressing tests and expenditure for milling plant equipment.

The low mineral content of the material as represented by the samples submitted and the present high cost index demand careful evaluation of all factors concerned. It is recognized that the Bluebird Mine is in the development stage, but the economic considerations must be evaluated concurrently with development. Satisfactory recovery of the valuable mineral constituents can be anticipated by the application of modern Mineral Dressing methods.

(Signed)
Donald W. McLachlan
Assistant Research Professor
Department of Mineral Dressing

DWM/mm:v

COPY

Mineral Dressing Tests: Bluebird Mine

Head Assay of Sample

	ozs Au per ton	ozs Ag per ton	%Pb	%Zn
Sample No. 2	0.035	0.50	1.40	3.30
Sample No. 3	0.025	0.30	0.30	1.75

Sample No. 2 was taken from bottom of Winze - weight 70 lbs
Sample No. 3 was taken from sill of drift - weight 60 lbs
Samples No. 1 and No. 4 were hand samples for microscopic work.

Sample Preparation:

The samples were air dried and then crushed to 1/4 inch. Each sample was split, one half being held in reserve: the remaining half was put thru the rolls until minus 20 mesh. The head samples were split from the minus 20 mesh and sent to Lewis and Walker, Butte, for assays.

Microscopic Examination:

Examination of hand specimens under the binocular microscope revealed the following minerals: altered andesite, quartz, calcite, sphalerite, galena, limonite, chalcopyrite and bornite.

Grinding:

For flotation tests, 600 gram portions were further reduced in size by grinding with 600 grams of water in an Abbé laboratory pebble mill.

Flotation:

The object of the flotation was to find if the material was amenable to selective flotation.

Test No. 1

Products	Weight %	Assays ozs Gold	ozs Silver	%Lead	%Zinc	Distribution Percent Gold	Silver	Lead	Zinc
Lead Concentrate	5.0	0.04	12.2	21.5	24.5	16.5	62.6	90.4	41.8
Zinc Concentrate	6.0	0.02	4.6	0.4	26.9	10.0	28.3	2.0	55.1
Tailings	89.0	0.01	0.1	0.1	0.1	73.5	9.1	7.6	3.1
						100.0	100.0	100.0	100.0

The above test was batch ground for 20 minutes in the pebble mill, conditioned for 5 minutes, lead flotation for 10 minutes, zinc conditioning for 10 minutes and zinc flotation for 5 minutes. The pH of lead circuit was 8.0 and zinc circuit was 10.1 using the following reagents. No attempt was made to clean the lead or zinc from either concentrate.

Sodium Cyanide	0.06 lbs per ton
Zinc Sulphate	0.30 lbs per ton
Aeroflout 31	0.04 lbs per ton
Cresylic Acid	0.10 lbs per ton
Copper Sulphate	1.50 lbs per ton
Lime	1.50 lbs per ton
Pine Oil	0.05 lbs per ton

COPY

Test No. 2

Products	Weight %	Assays ozs gold	ozs silver	% lead	% zinc	Distribution Percent gold	silver	lead	zinc
Lead Concentrate	16.2	0.14	2.1	6.5	6.5	79.9	69.1	87.6	41.3
Zinc Concentrate	9.8	0.06	0.8	1.3	14.5	17.6	15.8	10.7	55.9
Tailings	74.0	0.01	0.1	0.3	0.1	2.5	15.1	1.7	2.8
						100.0	100.0	100.0	100.0

The above test was batch ground for 20 minutes in the pebble mill, conditioned 8 minutes, lead flotation for 4 minutes, zinc conditioning 10 minutes and flotation 5 minutes. The pH was 6.9 for the lead flotation and 10.4 for zinc flotation using the following reagents. No attempt was made to clean concentrates.

Sulphuric acid	0.1 lbs per ton
Sodium Cyanide	0.13 lbs per ton
Zinc Sulphate	0.50 lbs per ton
R35	0.10 lbs per ton
Cresylic Acid	0.08 lbs per ton
Copper Sulphate	1.50 lbs per ton
Lime	1.50 lbs per ton

The lead concentrate was heavy with pyrite which apparently carries the gold values in the above test.

COPY

Mining Didcription

Map # 1

A, The fissure vein on which all work is being done on, is some 3000 feet long striking East and West. The native rock is Andesite and very firm, the foot and hanging walls are not shattered. The U.S.Bureau of Mines show this district from Winston, Mont. to Raidersburg as capped with this Andesite, varying in depth from 30 to 1200 feet. The " Ohio Keating " at Raidersburg broke through this capping on the 1200 foot level years ago and on doing so, their Copper values shot up, but not mining Copper they closed down. At the East Pacific, Winston, Mont. the mine has broken through the Andesite at various levels. The Iron Mask, about half way between the two above described properties, stoped work on the 900 foot level. At that time, they were working an ore almost a duplicate of the Ore found in the botton of our Winze. (Report of K.D.Lynn)
You will please note from this map that the veins south of the Fissure strike NE and the one north strike SE, this is trure of a veins systems on the Blue Bird Group, even the small stringers follow this pattern.
In the case of Vein " D ", this is a Gold, Lead, Zinc and Copper Vein. It was worked to great extent on the surface by a man named Mexican John (still alive) some 25 years ago. He took out $ 20,000. mostly in Gold and Lead and by drifting along the vein to the grass roots, at one point, his shaft, he went down on the vein to see what the Copper was doing. This is the only hole I hav'nt examined as I have previously stated. He told me another man sank his shaft down to 100 foot level and quit because he could not finance it. I call your attention now to the Pat. Claim 5411 on what is locally known as Copper Mt. this property was patented in 1899 and is being held by the original filer it is copper and his vein runs parallel with vein " A " of our Group. There are many smaller veins that follow this pattern and as above stated they are all cut by the Fissure Vein " A "
Mr. Andersen, Pres. of the Blue Bird Mines, Inc. was one of the three owners in the Indian Creek Placers and while that ground was being worked I had the opportunity of studying their bed rock and noting the various veins that crossed Indian Creek and that strikes to the SE toward the Blue Bird. It is no wonder that the old timers called it " Treasure Hill ".
Vein " B ", we have named the Mike, it is a 2 inch vein of High Grade with values in Lead, Gold Silver and Zinc and at the present price of metals, assays $ 96. per ton. It carries 39% ZINC.
To summerize this and to point out that nothing has ever been done to bring about depth. I have arrived at the conclusion that depth is all that is needed to bring in a good body of Ore. By driving a tunnel from dwon the hill we can follow this Fissure Vein to the point of Contact to some of these other veins and prove that the original ore increases in width, on depth, as well as get rid of

the water and have plenty of stoping ground over head,as we gain length, we will gain depth abruptly for these hills are quit steep. On contact, if it does, with Vein " B " there should be some excellent values. All these veins carry Copper values and it is not to much assumption to says they will gain on depth, for the Ohio Keating to the south of us, proved that point. Mr. Lynn was very definite on the same conclusion.

Our request for financial aid is for that expressed purpose, namely, to drive this drift in some 300 to 500 feet and by CONTRACT only, this will do away with any waste or unneccessary enxpense will bring us to 100 feet below our present lowest works, the winze, where the ore has widened from 4 inches to 2 feet in 22 feet of sinking. It will be exploration work on a vein that has present milling values and possibly shipping values on depth. In other words it is not money spent in Wildcatting for there is Ore on the dump from this work not waste.

COPY

a. The Blue Bird Mines as now known, was first discover -ed 35 years ago by an Italian prospector and called the Moonbeam.
The original discovery is located in Broadwater County, Hassel Mining District, State of Montana. The mine portal is on the NE¼ of Section 18 T 6 N R No. 1 E, on a hill known to the oldtimers as " Treasure Mt. "
This man sunk a incline shaft 30 feet on a Fissure Vein and then drifted east about 35 feet stoping up to the grass roots and almost to the surface on the hill side. He then drifted west from the incline 30 feet and then went down 15 feet with a incline and ceased work there along side of a fracture. The Ore he extracted was an Oxide, with values in Gold and Lead. From the best informed sources I could obtain, I learned that he shipped one car of Ore that grossed him $ 5000.
He interested a Merchant and a Doctor in Townsend, Mont. and sold them the property and then took a Shift Boss job of driving a tunnel to tap his upper workings and gain depth on the vein. This tunnel is 216 feet to the vein and 45 feet along the vein and some 25 feet below the winze sunk in the upper works. The Ore was carrying considerable Zinc now, with Silver values.
This 45 feet of drift faced the frature and they made no effort to cross it, but the sank a Winze 12 feet and the Zinc values shot upwards so they ceased work.
In 1945 we (Ellis, Andersen and myself) filed on the property and started right in to clean out the old workings, retimber and lay a new 12# steel track. As soon as this work was completed, we cleaned out the uppe upper workings and opened the original Incline Shaft for ventilation and safty measures. We timbered the old raises and then pumped the water out of the Winze and cleaned it out, retimbered and sank it 12 feet more in order to get a look at FRESH ORE. From the sill of the drift the ore body has shifted from the Oxide to a Sulphide, from a 4 inch High Grade vein it has shifted to Grey Quartz vein 2 feet wide and all indications are for a full eight feet of the Fissure vein on more depth.
I personally spent two months with my examination of surface leads and old workings on the Treasure Mt. examining them and assaying all values and tracing this Fissure vein east some 3000 feet, all other veins contact or interlace this Fissure and it was on this findings that I established an Apex system and staked 18 claims on this system to cover the complete mineralization.
The Montana School of Mines sent one of their M E (K.D.Lynn) over to help with the examination and and development of this property as well as to get some underground knowledge of that district, which they did not have.

Mr. Lynn was very much pleased with the findings and sampled the mine and expressed his opinion that it was a very promising property. His next visit was after I had cleaned out the Winze and sank it 12 foot deeper. He was of the same opinion and I, that on further depth we would have 8 feet of fine Milling ore. At this time he cross sampled the mine and the School of Mines ran a Mill test for us showing a free Floation extraction with good recovery.
Up to this time we (Ellis, Andersen and myself) had financed this development between us. I now thought we should get the property into shape for future development so we Incooperated for $ 50,000. under the State of Montana laws.
My Ellis's son was permitted to buy $ 1600 worth of Stock, the rest of the stock is in the hands of the three of us, except what we assigned back to the Treasure of " The Blue Bird Mines, Inc. " .

My personal back ground in the Mining field is;
I had three years on a Mining degree but World War 1 cut it short and I did not have the finance to complete it after the War. I took up Photography and have been following that profession ever since with exceptions. 3½ years with Kennecott Copper at Latouche and Kennecott, Alaska. The Engel Copper Co of Plumas, Calif. U.S. Smelting & Refining at Rainbow, Ore. I have been incharge of the development of the Blue Bird and am Sectr. Treas. of the Cooperation as such, I have done every thing with a view that we have a producer and every cent expended was with a future outlook, such as arranging the camp so that no unneccessary money would have to be spent if and when it came into production. At present I am a staff Cameraman for the Idaho Daily Statesman in Boise and also do Commercial Photo work on the side. If this Loan is approved I will be on hand to see that it is expended to the best of the value for the MINE and not in salary or traveling and other expenses as I have seen in so many other places where Stock was sold to promote a property. We are free of debt, own our equipment and are ready to mine. But private capital is not interested, unless you get out and sell STOCK and that we have not and will not do.

Detailed listing of Min[illegible] equipment

I	Sullivan WK314 Compressor # 15072
I	Hand Windlass
I	Ingersol-Rand # 25 Sump Pump
I	G-D # 55 Jackhammer
	125 feet Air Hose
I	16 CF Ore Car
2	Ore Buckets
8	Pieces Jackhammer Steel
150	Timkin Drill Bits
4	Shovels
1	Sledge Hammer
1	Single Jack
3	Picks
1	Air Blow Pipe
1	Cap Crimper
1	Mine Spoon
2	Hand Moils
200	Feet 2" Air Pipe
35	Couplings, Elbows, etc.
1	Seal Cutter
1	Pipe Cutter
1	Pipe Wrench
1	Pipe Die Set
1	Pipe Vise
1	Bench Vise
1	Timbermans Saw
2000	lbs. # 12 Mine Rail
100	Rail Joiners
200	lbs Rail Spikes
75	lbs. Rail Joint Bolts
1	# 12 Jim Crow
2	V Switches
300	Mine Ties
2	Carbide Lamps
200	Mine Wedges
22	8x8x8 Mine Timbers
1	8x8x16 Mine Timber
1	7 by 9 Tool House
1	12 by 10 Bunk House
1	16 by 24 Compressor and Cook House
1	10 by 20 Ore Bin
2	Heating Stoves
1	Model AA1½ Ton Ford Truck # 715902
	Assorted Oil Drums
6	Gals Compressor Oil

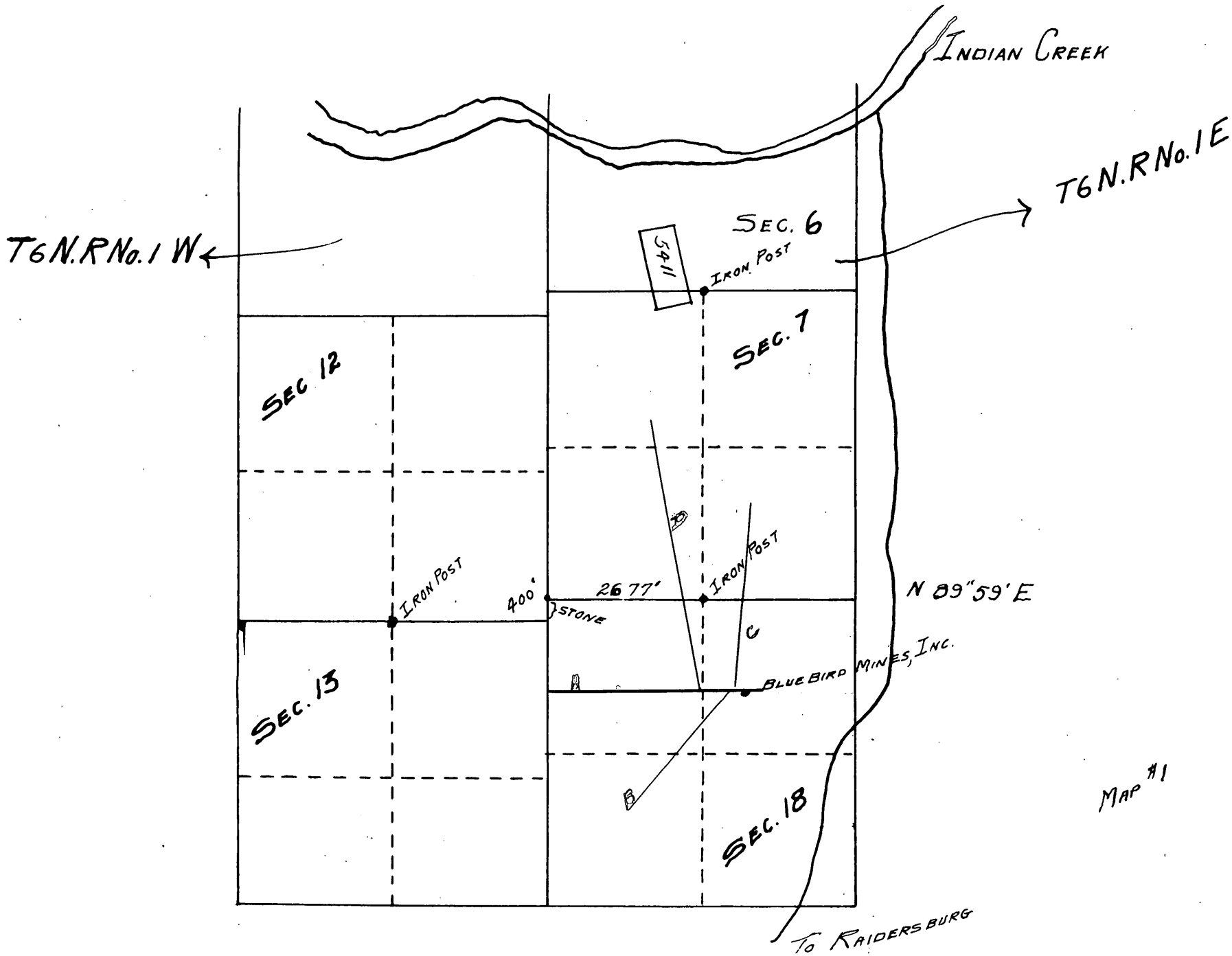
Numerous other small items that are found around all Mining Camps.

X ORIGINAL SHAFT

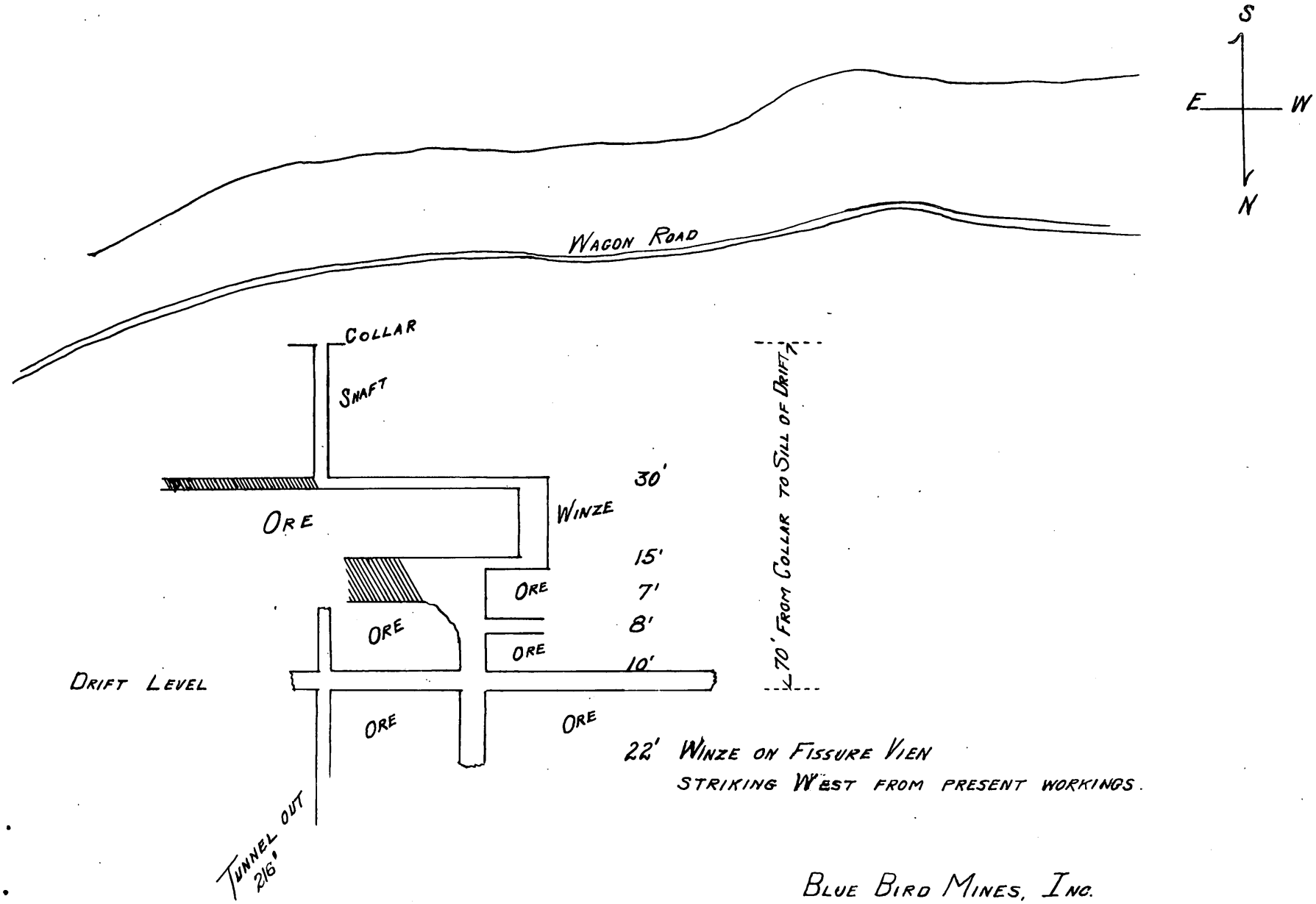
O CAMP + PRESENT WORKINGS

T PROPOSED TUNNEL

BUNK HOUSES + ORE BIN


INDIAN CREEK
T6N.R No. 1 E
T6N.R No. 1 W
SEC. 6
5411
IRON POST
SEC. 7
SEC 12
IRON POST
400'
STONE
2677'
IRON POST
N 89°59' E
SEC. 13
BLUE BIRD MINES, INC.
SEC. 18
TO RAIDERSBURG

MAP #1



BLUE BIRD MINES, INC.

BOX 557 TOWNSEND, MONT.

Form MF-100
(March 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Form approved.
Budget Bureau No. 42-R1026.

GENERAL TECHNICAL DATA
FOR USE UNDER THE
DEFENSE PRODUCTION ACT OF 1950

NOT TO BE FILLED IN BY APPLICANT

Docket No. dma 1509X

Date received 6-1-51

Blue Bird Mines, Inc.,
Box 557

Townsend, Montana

Name and address of applicant

Date May 22, 1951

INSTRUCTIONS

This form is to be filed with Defense Minerals Administration, Department of the Interior, Washington 25, D. C. It should be accompanied by appropriate application form when a specific type of Government assistance is requested, in the form of (1) loan, (2) purchase contract, (3) Government guarantee of a private loan, (4) Necessity Certificate pursuant to the provisions of Sec. 124-A (Amortization Deduction) of Internal Revenue Code, 1950, (5) priorities or allocation of mining equipment, and maintenance, repair and operating supplies, and (6) other forms of Government assistance that might arise under the Act. Submit four (4) signed copies of the form and accompanying papers. Name and address should be stamped or typed on each sheet of this form and all accompanying papers. *When a question is inapplicable it should be so stated on the form.* Additional sheets may be attached in answering any questions or in supplying additional information. (IF YOU CANNOT ANSWER A QUESTION, SO STATE.) If a question is answered elsewhere indicate where answered. It is not necessary to answer it again.

GENERAL TECHNICAL DATA

Supply the following information on separate sheets, arranged, numbered, and lettered as indicated:

1. Materials produced:
   (*a*) What are the chief mine, mill, or smelter products?
   (*b*) What are the byproducts, if any?
2. Name(s) and type(s) of mine(s), mill(s), smelter(s), refinery(ies), pit(s), quarry (ies), drilling operation(s). Include old names of property, if any. Show extent of workings, including the following:
   (*a*) Linear feet of shafts.
   (*b*) Linear feet of drifts and crosscuts.
   (*c*) Linear feet of tunnels or adits.
   (*d*) Linear feet of other mine openings (explain briefly).

   Indicate whether mine is flooded or not. Describe any pumping problems. Give size or productive capacity.
3. For each operation listed above supply the following:
   (*a*) Distance and direction from nearest town and shipping point.
   (*b*) Mining district.
   (*c*) Township, Section, Range.
   (*d*) County, State.
4. (*a*) State whether or not property is now in operation, and if in operation, by whom operated.
   (*b*) Are you operating this property as:
   - ☐ Owner.
   - ☐ Lessee.
   - ☐ Contractor.
5. Number of years in production _____

   If not in production or operation, estimated date when production will begin _____
6. Experience of operators:

   Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who manage the project.
7. History:
   (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for suspension of operation.
   (*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.

8. Names and addresses of Officers, Directors, or Partners, and in addition thereto, the five largest stockholders if applicant is a corporation.

Name and Address (a)	Official Title (If officer is also director indicate by "D") (b)	Total of Annual Salary, Commissions, Bonuses, Etc., Received From Applicant and Affiliates During Last Fiscal Year (c)	Estimated Net Worth Outside of Interest in Applicant (d)	Number of Shares Held in Applicant Corporation: Common (e)	Number of Shares Held in Applicant Corporation: Preferred (f)	Life Insurance Carried for Benefit of Applicant: Amount (g)	Life Insurance Carried for Benefit of Applicant: Net Cash Surrender Value After Loans (h)
Hilbert Andersen Box 1775 Boise, Idaho	President	None		86			
M. A. Ellis Townsend, Mont.	V. Pres.			45			
Howard W. Steward Box 1775 Boise, Idaho	Sec.-Tres.			72			
Frank Ellis Seattle, Wash.				16			
	Total		x x x x x	219		x x x x x	x x x x x

If more lines are needed continue on separate sheet.

9. Capital Stock Issues:

For Corporate Applicants

Item	Authorized (a)	Outstanding (b)	Par Value (c)	Number of Shares Outstanding (d)	Dividend Rate Last Paid* (e)
Common stock	$50,000	$21,900	$100.00	219	
Preferred stock	$	$	$		

*Indicate period covered.

10. Production:

Item	Kind of Product (a)	1948 Total (b)	1949 Total (c)	1950 Total (d)	Present Average Monthly (e)
1. Quantity of product mined or quarried (Short, long, metric tons; barrels; pounds; etc.)					
2. Quantity of product processed (specify unit of measure and type of process)					
3. Quantity and grade of product sold or shipped (specify units of measure)					

11. Do you contemplate a change in the present average monthly rate of production? If so, state estimated maximum monthly production and basis of change.

12. Ore or Mineral Reserves:

(a) Describe the ore or mineral deposit briefly. Accompany the application by any available report on the geology and ore reserves.

(*b*) If deposit is other than placer:

(1) Submit assay plans and/or sections showing location and size of proved (measured) and probable (indicated) ore or mineral reserve.

(2) State the tonnage (indicate type of ton) and grade of each class of ore reserve, as above, and show how computed. Tabulated total ore reserve as follows:

TOTAL ORE OR MINERAL RESERVES

Ore or Mineral Reserve	Estimated Tons (a)	Metal or Mineral Content Per Ton (Grade) (b)	Gross Value Per Ton (c)	Recoverable Unit Value Per Ton (d)	Estimated Cost of Production Per Ton (e)
Measured (proved)					
Indicated (probable)					

(*c*) If placer:

(1) Give estimated total yardage and average marketable mineral content of each deposit.

(2) Submit map showing location of placer deposit and surrounding area, with all test holes or pits. Submit logs of each hole and test pit with depth and average value of each.

(3) Describe gravel, stating whether fine, medium or coarse; loose, tight, cemented, or frozen, and whether it contains stumps or boulders more than 1 foot in diameter; if so, how large, and in what proportion.

(4) Describe bedrock, giving type (granite, sandstone, shale, etc.) and state whether it is hard or soft, smooth, uneven or rough.

(5) Describe overburden, stating whether loose, tight, or cemented; fine or coarse textured; furnish estimate of average thickness and total amount.

(6) Tabulate the reserves using the form outlined above for ore or mineral reserves.

13. Access Roads:

Give road distances to shipping, supply and residence points, stating kind and condition of roads.

14. Water Supply:

State source and quantity of water available for operations and whether sufficient for all seasons of year.

15. Power:

State amount of power used, rate per hour, and source thereof.

16. Labor:

State number and classes (miners, muckers, millmen, etc.) of men employed during a recent representative payroll period.

17. Equipment and Facilities:

Describe present equipment on the property, including buildings. (State condition.) List major pieces of equipment now owned or controlled and in serviceable condition available for this operation.

18. Are there any particular conditions or circumstances affecting your operations that are not described above? If so, explain.

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.

Blue Bird Mines, Inc
(Name of company)

By Howard W. Steward
(Signature of authorized official)

May 24 1951
(Date)

Secty - Treas
(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.

U. S. GOVERNMENT PRINTING OFFICE 16—63792-1

General Technical Data
for Use under the
Defense Production Act of 1950

Form [illegible]-100

[illegible]

1. a. Silver, lead, and zinc
   b. None

2. a. Original location name "Moonbeam of the Mine"; the new name is The Blue Bird Mines, Inc.
   a,b,c,d. See map #1.

3. a. Distance is 12 miles due West from Townsend, Montana.
   b. Russel Mining District
   c. Township 1 [illegible]
   d. Broadwater County, Montana

4. a. No
   b. No

5. Three years on the original location it produced ore, then it lay idle for 2[illegible] years until the present ownership took it over. Production is expected at the conclusion of this application.

6. See item three, last paragraph on page 2.

7. a. See item 3 pages 1 and 2.
   b. There are no adjoining properties closer than four miles to the South, none to the East, none to the West. To the North there is a patented claim (The St. Louis) which was worked in late 1899, been idle ever since. It is a copper claim.
   c. There are no written reports other than the Montana School of Mines report of June 5, 1947 which is included in this application. The Montana Bureau of mines sent one L. B. Lynn, M. E., over to help us with our exploration work in 1947. His report was verbal to us, but we were at liberty to quote him as saying it was a very likely property and had good possibilities.

8. (Answered on the form (IF-100) table)

9. (Answered on the form (IF-100) table)

10.

11. (10, 11, & 12 not applicable to our application)

12.

13. There is a well-maintained County highway up Indian Creek for nine miles, a County road branching off from this goes within a half mile of the mine. It is good, as a dirt road goes. We have been assured by the county commission that they would be very happy to cooperate in maintaining an accessible road to the mine under all weather conditions.

14. To the best of our knowledge the water situation is completely satisfactory.

15. We do not have electric power at the mine. Seven miles to the South a high-tension power line could be contacted and power brought to the mine if and when needed.

16. There has been no activity other than the stockholders' work.

17. See list. Detailed mining equipment.

18. We have a winze sunk 25 feet on this Fissure-Vein. The ore has gone from a four-inch high-grade vein on the sill to 2 feet of good milling ore. Our mineral dressing show that this vein will [illegible] the first fissure which is six feet, in another [illegible] feet from the shaft [illegible] feet, then drift [illegible] measure for a [illegible] feet. This should give a very complete picture [illegible] pinch or that contemplate doing on further depth. Also-

W ise this draft will contact a fracture zone and piercin into this z one we will be drifting from the winze along the Fissure and if the ore possibilities justify further exploration, we should drift along the Fissure until contact is made with some well-defined veins (See map #1) that, in my estimation, are cut by the Fissure. That is to be decided later.

BUNK HOUSES + ORE BIN

X ORIGIANAL SHAFT

O CAMP + PRESENT WORKINGS

T PROPOSED TUNNEL

Detailed listing of Mining equipment

I	Sullivan WK314 Compressor # 15072
I	Hand windlass
I	Ingersol-Rand # 25 Sump Pump
I	G-D # 55 Jackhammer
	125 feet Air Hose
I	16 CF Ore Car
2	Ore Buckets
8	Pieces Jackhammer Steel
150	Timkin Drill Bits
4	Shovels
1	Sledge Hammer
1	Single Jack
3	Picks
1	Air Blow Pipe
1	Cap Crimper
1	Mine Spoon
2	Hand Mails
300	Feet 2" Air Pipe
30	Couplings, Elbows, etc.
1	Seal Cutter
1	Pipe Cutter
1	Pipe Wrench
1	Pipe Die Set
1	Pipe Vise
1	Bench Vise
1	Timbermens Saw
2000	lbs. # 18 Mine Rail
100	Rail Joiners
200	lbs Rail Spikes
75	lbs. Rail Joint Bolts
1	# 12 Jim Crow
2	V Switches
300	Mine Ties
2	Carbide Lamps
800	Mine Wedges
22	8x8x8 Mine Timbers
1	8x8x16 Mine Timber
1	7 by 9 Tool House
1	12 by 10 Bunk House
1	16 by 24 Compressor and Cook House
1	10 by 30 Ore Bin
2	Heating Stoves
1	Model AA1½ Ton Ford Truck # 715902
	Assorted Oil Drums
6	Gals Compressor Oil

Numerous other small items that are found around all Mining Camps.

COPY

MONTANA SCHOOL OF MINES
Butte
June 5, 1947

MEMORANDUM REPORT: Mineral Dressing Tests - H. W. Stewart, Bluebird Mine, Hassel Mining District

TO: Director, Montana Bureau of Mines and Geology, Montana School of Mines, Butte, Montana.

INTRODUCTION

Two samples of gold, silver, lead and zinc bearing material were collected by K. D. Lynn, Field Representative, Montana Bureau of Mines and Geology, and submitted for Mineral Dressing tests by Mr. H. W. Stewart, Townsend, Montana. These samples represented material from the Bluebird Mine, Hassel Mining District.

The Bluebird Mine is in the development stage and the material submitted for Mineral Dressing tests is from a winze and a drift. Sample No. 2 (Mr. Stewart's designation for sample numbers) represents 7.4 ft. of channel sampling across the bottom of a winze. The depth of this winze is 17 feet. Sample No. 3 represents six feet of channel sampling from the sill of a drift and in the vicinity of the winze from which Sample No. 2 was taken.

SUMMARY

Mineral Dressing tests indicate that:

1. The samples submitted assayed:

Sample No.	GOLD oz. per ton	SILVER oz. per ton	LEAD per cent	ZINC per cent
2	o.035	0.50	1.4	3.3
3	0.025	0.3	0.3	1.75

2. By flotation, an over-all recovery of 26.5 per cent of the gold, 91.9 per cent of the silver, 92.4 per cent of the lead and 96.9 per cent of the zinc was obtained in Test No. 1. The tailing assayed o.01 oz. Gold per ton, 0.1 oz. silver per ton, o.1 per cent lead and 0.1 per cent zinc.

3. By flotation, an over-all recovery of 97.5 per cent of the gold, 84.9 per cent of the silver, 98.3 per cent of the lead and 97.2 per cent of the zinc was obtained in Test No. 2 The tailing assayed 0.01 oz. Gold per ton, 0.1 oz. silver per ton 0.3 per cent lead and 0.1 per cent zinc.

Mining Discription

Map # 1

A, The fissure vein on which all work is being done on, is some 3000 feet long striking East and West. The native rock is Andesite and very firm, the foot and hanging walls are not shattered. The U.S.Bureau of Mines show this district from Winston, Mont. to Raidersburg as capped with this Andesite, varying in depth from 30 to 1200 feet. The " Ohio Keating " at Raidersburg broke through this capping on the 1200 foot level years ago and on doing so, their Copper values shot up, but not mining Copper they closed down. At the East Pacific, Winston, Mont. the mine has broken through the Andesite at various levels. The Iron Mask, about half way between the two above described properties, stoped work on the 900 foot level. At that time, they were working an ore almost a duplicate of the Ore found in the botton of our Winze. (Report of K.D.Lynn)
You will please note from this map that the veins south of the Fissure strike NE and the one north strike SE, this is trure of a veins systems on the Blue Bird Group, even the small stringers follow this pattern.
In the case of Vein " D ", this is a Gold, Lead, Zinc and Copper Vein. It was worked to great extent on the surface by a man named Mexican John (still alive) some 25 years ago. He took out $ 20,000. mostly in Gold and Lead and by drifting along the vein to the grass roots, at one point, his shaft, he went down on the vein to see what the Copper was doing. This is the only hole I hav'nt examined as I have previously stated. He told me another man sank his shaft down to 100 foot level and quit because he could not finance it. I call your attention now to the Pat. Claim 5411 on what is locally known as Copper Mt. this property was patented in 1899 and is being held by the original filer it is copper and his vein runs parallel with vein " A " of our Group. There are many smaller veins that follow this pattern and as above stated they are all cut by the Fissure Vein " A "
Mr. Andersen, Pres. of the Blue Bird Mines, Inc. was one of the three owners in the Indian Creek Placers and while that ground was being worked I had the opportunity of studying their bed rock and noting the various veins that crossed Indian Creek and that strikes to the SE toward the Blue Bird. It is no wonder that the old timers called it " Treasure Hill ".
Vein " B ", we have named the Mike, it is a 2 inch vein of High Grade with values in Lead, Gold Silver and Zinc and at the present price of metals, assays $ 96. per ton. It carries 39% ZINC.
To summerize this and to point out that nothing has ever been done to bring about depth. I have arrived at the conclusion that depth is all that is needed to bring in a good body of Ore. By driving a tunnel from dwon the hill we can follow this Fissure Vein to the point of Cohtact to some of these other veins and prove that the original ore increases in width, on depth, as well as get rid of

the water and have plenty of stoping ground over head, as we gain length, we will gain depth abruptly for these hills are quit steep. On contact, if it does, with Vein " B " there should be some excellent values. All these veins carry Copper values and it is not to much assumption to says they will gain on depth, for the Ohio Keating to the south of us, proved that point. Mr. Lynn was very definite on the same conclusion.

Our request for financial aid is for that expressed purpose, namely, to drive this drift in some 300 to 500 feet and by CONTRACT only, this will do away with any waste or unneccessary enxpense will bring us to 100 feet below our present lowest works, the winze, where the ore has widened from 4 inches to 2 feet in 22 feet of sinking. It will be exploration work on a vein that has present Milling values and possibly shipping values on depth. In other words it is not money spent in Wildcatting for there is Ore on the dump from this work not waste.

a. The Blue Bird Mines as now known, was first discover -ed 35 years ago by an Italian prospector and called the Moonbeam.
The original discovery is located in Broadwater County, Hassel Mining District, State of Montana. The mine portal is on the NE¼ of Section 18 T 6 N R No. 1 E, on a hill known to the oldtimers as " Treasure Mt. "
This man sunk anincline shaft 30 feet on a Fissure Vein and then drifted west about 35 feet stopping up to the grass roots and almost to the surface on the hill side. He then drifted west from the incline 30 feet and then went down 18 feet with a incline and ceased work there along side of a fracture. The Ore he extracted was an Oxide, with values in Gold and Lead. From the best informed sources I could obtain, I learned that he shipped one car of Ore that grossed him $ 5000.
He interested a Merchant and a Doctor in Townsend, Mont. and sold them the property and then took a Shift Boss job of driving a tunnel to tap his upper workings and gain depth on the vein. This tunnel is 216 feet to the vein and 45 feet along the vein and some 25 feet below the winze sunk in the upper works. The Ore was carrying considerable Zinc now, with Silver values.
This 45 feet of drift faced the frature and they made no effort to cross it, but the sank a Winze 12 feet and the Zinc values shot upwards so they ceased work.
In 1945 we (Ellis, Andersen and myself) filed on the property and started right in to clean out the old workings, retimber and lay a new 18 steel track. As soon as this work was completed, we cleaned out the uppe upper workings and opened the original Incline Shaft for ventilation and safty measures. We timbered the old raises and then pumped the water out of the Winze and cleaned it out, retimbered and sank it 12 feet more in order to get a look at FRESH ORE. From the sill of the drift the ore body has shifted from the Oxide to a Sulphide, from a 4 inch High Grade vein it has shifted to Grey Quartz vein 2 feet wide and all indications are for a full eight feet of the Fissure vein on more depth.
I personally spent two months with my examination of surface leads and old workings on the Treasure Mt. examining them and assaying all values and tracing this Fissure vein east some 3000 feet, all other veins contact or interlace this Fissure and it was on this findings that I established an Apex system and staked 18 claims on this system to cover the complete mineralization.
The Montana School of Mines sent one of their M E (K.D.Lynn) over to help with the examination and and development of this property as well as to get some underground knowledge of that district, which they did not have.

Mr. Lynn was very much pleased with the findings and sampled the mine and expressed his opinion that it was a very promising property. His next visit was after I had cleaned out the Winze and sank it 12 foot deeper. He was of the same opinion and I, that on further depth we would have 8 feet of fine Milling ore. At this time he cross sampled the mine and the School of Mines ran a Mill test for us showing a free Floation extraction with good recovery.
Up to this time we (Ellis, Andersen and myself) had financed this development between us. I now thought we should get the property into shape footfuture development so we Incooperated for $ 50,000. under the State of Montana laws.
My Ellis's son was permitted to buy $ 1000 worth of Stock, the rest of the stock is in the hands of the three of us, except what we assigned back to the Treasure of " The Blue Bird Mines, Inc. ".

My personal back ground in the Mining field is;
I had three years on a Mining degree but World war 1 cut it short and I did not have the finance to complete it after the War. I took up Photography and have been following that profession ever since with exceptions. 3½ years with Kennecott Copper at Latouche and Kennecott, Alaska. The Engel Copper Co of Plumas, Calif. U.S. Smelting & Refining at Rainbow, Ore. I have been incharge of the development of the Blue Bird and am Sectr. Treas. of the Cooperation as such, I have done every thing with a view that we have a producer and every cent expended was with a future outlook, such as arranging the camp so that no unnecessary money would have to be spent if and when it came into production. At present I am a staff Cameraman for the Idaho Daily Statesman in Boise and also do Commercial Photo work on the side. If this Loan is approved I will be on hand to see that it is expended to the best of the value for the MINE and not in salary or traveling and other expenses as I have seen in so many other places where Stock was sold to promote a property. We are free of debt, own our equipment and are ready to mine. But private capital is not interested, unless you get out and sell STOCK and that we have not and will not do.

Detailed listing of Mining Equipment

1	Sullivan WA514 Compressor # 15072
1	Hand Windlass
1	Ingersol-Rand # 25 Sump Pump
1	G-D # 55 Jackhammer
	125 feet Air Hose
1	16 CF Ore Car
2	Ore Buckets
18	Pieces Jackhammer Steel
150	Timkin Drill Bits
4	Shovels
1	Sledge Hammer
1	Single Jack
3	Picks
1	Air Blow Pipe
1	Cap Crimper
1	Mine Spoon
2	Hand Moils
300	Feet 2" Air Pipe
30	Couplings, Elbows, etc.
1	Seal Cutter
1	Pipe Cutter
1	Pipe Wrench
1	Pipe Die Set
1	Pipe Vise
1	Bench Vise
1	Timbermans Saw
2000	lbs. # 18 Mine Rail
100	Rail Joiners
200	lbs Rail Spikes
75	lbs. Rail Joint Bolts
1	# 18 Jim Crow
2	V Switches
300	Mine Ties
2	Carbide Lamps
200	Mine Wedges
22	6x6x8 Mine Timbers
1	8x8x16 Mine Timber
1	7 by 9 Tool House
1	12 by 10 Bunk House
1	16 by 24 Compressor and Cook House
1	10 by 30 Ore Bin
2	Heating Stoves
1	Model AA1½ Ton Ford Truck # 715902
	Assorted Oil Drums
6	Gals Compressor Oil

Numerous other small items that are found around all Mining Camps.

COPY

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Butte
June 5, 1947

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TO: Director, Montana Bureau of Mines and Geology, Montana School of Mines, Butte, Montana.

INTRODUCTION

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The Bluebird Mine is in the development stage and the material submitted for Mineral Dressing tests is from a winze and a drift. Sample No. 2 (Mr. Stewart's designation for sample numbers) represents 7.4 ft. of channel sampling across the bottom of a winze. The depth of this winze is 17 feet. Sample No. 3 represents six feet of channel sampling from the sill of a drift and in the vicinity of the winze from which Sample No. 2 was taken.

SUMMARY

Mineral Dressing tests indicate that:

1. The samples submitted assayed:

Sample No.	GOLD oz. per ton	SILVER oz. per ton	LEAD per cent	ZINC per cent
2	o.035	0.50	1.4	3.3
3	0.025	0.3	0.3	1.75

2. By flotation, an over-all recovery of 26.5 per cent of the gold, 91.9 per cent of the silver, 92.4 per cent of the lead and 96.9 per cent of the zinc was obtained in Test No. 1. The tailing assayed o.01 oz. Gold per ton, 0.1 oz. silver per ton, o.1 per cent lead and 0.1 per cent zinc.

3. By flotation, an over-all recovery of 97.5 per cent of the gold, 84.9 per cent of the silver, 98.3 per cent of the lead and 97.2 per cent of the zinc was obtained in Test No. 2 The tailing assayed 0.01 oz. Gold per ton, 0.1 oz. silver per ton 0.3 per cent lead and 0.1 per cent zinc.

SUGGESTIONS

In the event that satisfactory grade and tonnage of material result from development, it is suggested that after thorough sampling detailed laboratory tests be conducted for determination of milling requirements. Ascertainment of the adequacy of grade and tonnage of ore reserves should precede further Mineral Dressing tests and expenditure for milling plant equipment.

The low mineral content of the material as represented by the samples submitted and the present high cost index demand careful evaluation of all factors concerned. It is recognized that the Bluebird Mine is in the development stage, but the economic considerations must be evaluated concurrently with development. Satisfactory recovery of the valuable mineral constituents can be anticipated by the application of modern Mineral Dressing methods.

(Signed)

Donald W. McGlashan
Assistant Research Professor
Department of Mineral Dressing

McG/mn:v

Mineral Dressing Tests: Bluebird Mine

Head Assay of Sample

	ozs Au per ton	ozs Ag per ton	%Pb	%Zn
Sample No. 2	0.035	0.50	1.40	3.30
Sample No. 3	0.025	0.30	0.30	1.75

Sample No. 2 was taken from bottom of Winze - weight 70 lbs
Sample No. 3 was taken from sill of drift - weight 60 lbs
Samples No. 1 and No. 4 were hand samples for microscopic work.

Sample Preparation:

The samples were air dried and then crushed to 1/4 inch. Each sample was split, one half being held in reserve: the remaining half was put thru the rolls until minus 20 mesh. The head samples were split from the minus 20 mesh and sent to Lewis and Walker, Butte, for assays.

Microscopic Examination:

Examination of hand specimens under the binocular microscope revealed the following minerals: altered andesite, quartz, calcite, sphalerite, galena, limonite, chalcopyrite and bornite.

Grinding:

For flotation tests, 600 gram portions were further reduced in size by grinding with 600 grams of water in an Abbé laboratory pebble mill.

Flotation:

The object of the flotation was to find if the material was amenable to selective flotation.

Test No. 1

	weight	Assays				Distribution Percent			
Products	%	ozs gold	ozs silver	%lead	%zinc	Gold	Silver	Lead	Zinc
Lead Concentrate	5.0	0.04	12.2	21.5	24.5	16.5	62.6	90.4	41.8
Zinc Concentrate	6.0	0.02	4.6	0.4	26.9	10.0	28.3	2.0	55.1
Tailings	89.0	0.01	0.1	0.1	0.1	73.5	9.1	7.6	3.1
						100.0	100.0	100.0	100.0

The above test was batch ground for 20 minutes in the pebble mill, conditioned for 5 minutes, lead flotation for 10 minutes, zinc conditioning for 10 minutes and zinc flotation for 5 minutes. The pH of lead circuit was 8.0 and zinc circuit was 10.1 using the following reagents. No attempt was made to clean the lead or zinc from either concentrate.

Sodium Cyanide	0.06 lbs per ton
Zinc Sulphate	0.30 lbs per ton
Aerofloat 31	0.04 lbs per ton
Cresylic Acid	0.10 lbs per ton
Copper Sulphate	1.50 lbs per ton
Lime	1.50 lbs per ton
Pine Oil	0.05 lbs per ton

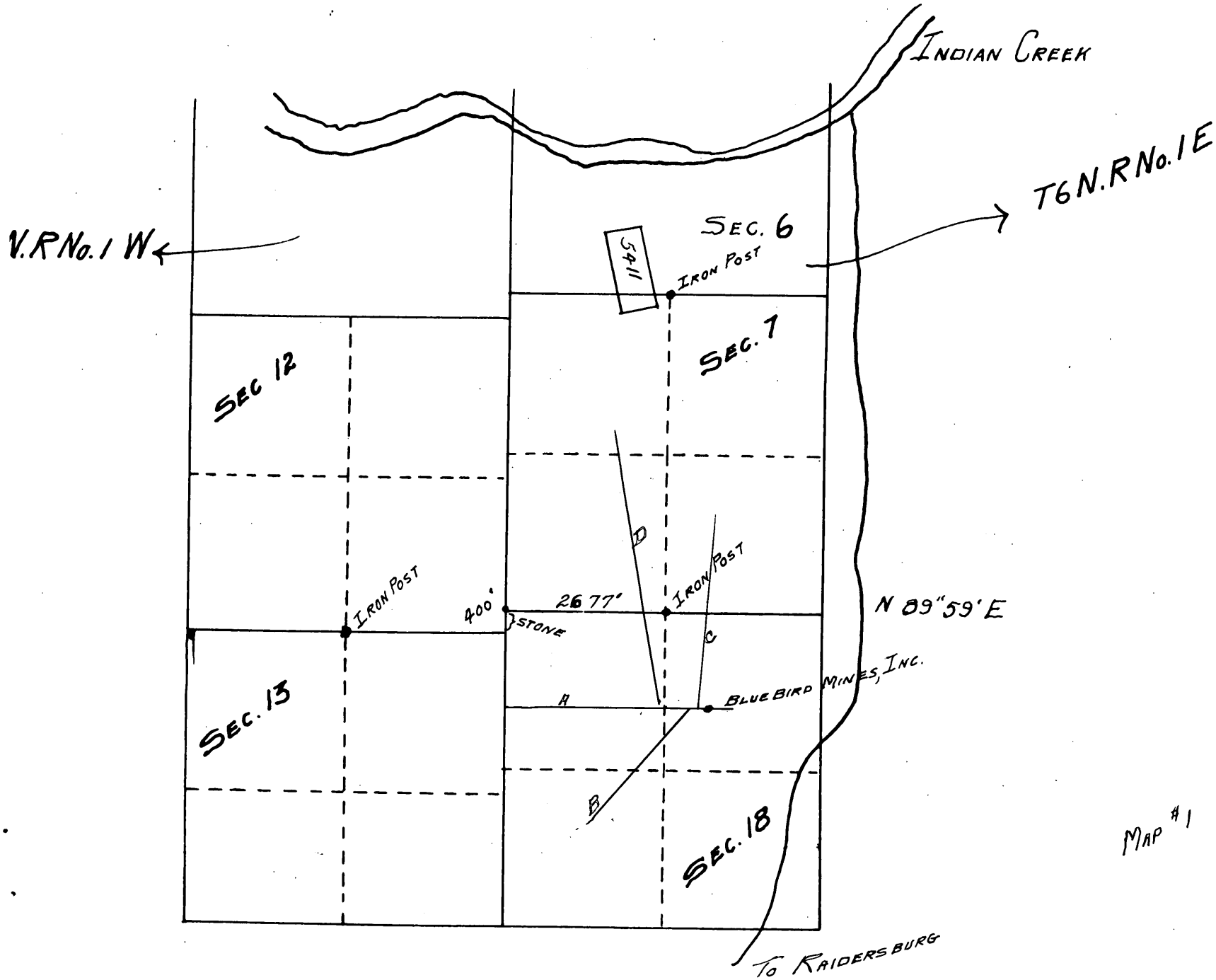
Test No. 2

Products	Weight %	Assays ozs gold	ozs silver	% lead	% zinc	Distribution Percent gold	silver	lead	zinc
Lead Concentrate	16.2	0.14	2.1	6.5	6.5	79.9	69.1	87.6	41.3
Zinc Concentrate	9.8	0.06	0.8	1.3	14.5	17.6	15.8	10.7	55.9
Tailings	74.0	0.01	0.1	0.3	0.1	2.5	15.1	1.7	2.8
						100.0	100.0	100.0	100.0

The above test was batch ground for 20 minutes in the pebble mill, conditioned 8 minutes, lead flotation for 4 minutes, zinc conditioning 10 minutes and flotation 5 minutes. The pH was 6.9 for the lead flotation and 10.4 for zinc flotation using the following reagents. No attempt was made to clean concentrates.

Sulphuric acid	0.1 lbs per ton
Sodium Cyanide	0.13 lbs per ton
Zinc Sulphate	0.50 lbs per ton
Z05	0.10 lbs per ton
Cresylic Acid	0.08 lbs per ton
Copper Sulphate	1.50 lbs per ton
Lime	1.50 lbs per ton

The lead concentrate was heavy with pyrite which apparently carries the gold values in the above test.


INDIAN CREEK
T6N.R No. 1E
V.R No. 1 W
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5411
IRON POST
SEC. 7
SEC 12
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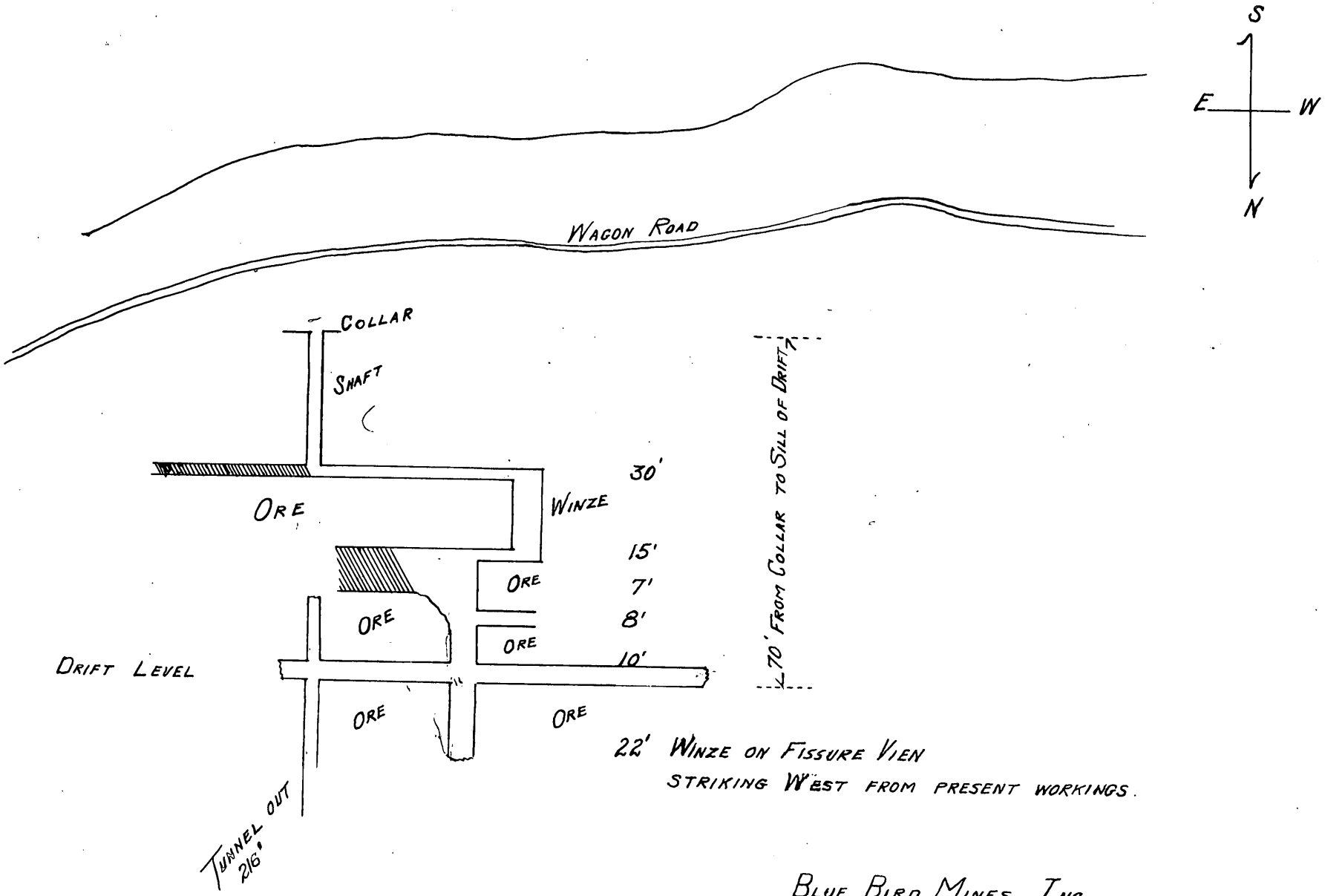
IRON POST
IRON POST
400'
2677'
STONE
N 89°59' E
C
SEC. 13
A
BLUE BIRD MINES, INC.
B
SEC. 18
TO RAIDERSBURG

MAP #1



BLUE BIRD MINES, INC.

BOX 557 TOWNSEND, MONT.

Form MF-100
(March 1951)

U.S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Form approved.
Budget Bureau No. 42-R1026.

GENERAL TECHNICAL DATA
FOR USE UNDER THE
DEFENSE PRODUCTION ACT OF 1950

NOT TO BE FILLED IN BY APPLICANT

Docket No. dma/1509X

Date received 6-1-51

Blue Bird Mines, Inc.,
Box 557

Townsend, Montana

Name and address of applicant

Date May 22, 1951

INSTRUCTIONS

This form is to be filed with Defense Minerals Administration, Department of the Interior, Washington 25, D. C. It should be accompanied by appropriate application form when a specific type of Government assistance is requested, in the form of (1) loan, (2) purchase contract, (3) Government guarantee of a private loan, (4) Necessity Certificate pursuant to the provisions of Sec. 124–A (Amortization Deduction) of Internal Revenue Code, 1950, (5) priorities or allocation of mining equipment, and maintenance, repair and operating supplies, and (6) other forms of Government assistance that might arise under the Act. Submit four (4) signed copies of the form and accompanying papers. Name and address should be stamped or typed on each sheet of this form and all accompanying papers. *When a question is inapplicable it should be so stated on the form.* Additional sheets may be attached in answering any questions or in supplying additional information. (IF YOU CANNOT ANSWER A QUESTION, SO STATE.) If a question is answered elsewhere indicate where answered. It is not necessary to answer it again.

GENERAL TECHNICAL DATA

Supply the following information on separate sheets, arranged, numbered, and lettered as indicated:

1. Materials produced:
   (*a*) What are the chief mine, mill, or smelter products?
   (*b*) What are the byproducts, if any?
2. Name(s) and type(s) of mine(s), mill(s), smelter(s), refinery(ies), pit(s), quarry (ies), drilling operation(s). Include old names of property, if any. Show extent of workings, including the following:
   (*a*) Linear feet of shafts.
   (*b*) Linear feet of drifts and crosscuts.
   (*c*) Linear feet of tunnels or adits.
   (*d*) Linear feet of other mine openings (explain briefly).

   Indicate whether mine is flooded or not. Describe any pumping problems. Give size or productive capacity.
3. For each operation listed above supply the following:
   (*a*) Distance and direction from nearest town and shipping point.
   (*b*) Mining district.
   (*c*) Township, Section, Range.
   (*d*) County, State.
4. (*a*) State whether or not property is now in operation, and if in operation, by whom operated.
   (*b*) Are you operating this property as:
   - ☐ Owner.
   - ☐ Lessee.
   - ☐ Contractor.
5. Number of years in production _____

   If not in production or operation, estimated date when production will begin _____
6. Experience of operators:

   Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who manage the project.
7. History:
   (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for suspension of operation.
   (*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.

8. Names and addresses of Officers, Directors, or Partners, and in addition thereto, the five largest stockholders if applicant is a corporation.

Name and Address (a)	Official Title (If officer is also director indicate by "D") (b)	Total of Annual Salary, Commissions, Bonuses, Etc., Received From Applicant and Affiliates During Last Fiscal Year (c)	Estimated Net Worth Outside of Interest in Applicant (d)	Number of Shares Held in Applicant Corporation: Common (e)	Number of Shares Held in Applicant Corporation: Preferred (f)	Life Insurance Carried for Benefit of Applicant: Amount (g)	Life Insurance Carried for Benefit of Applicant: Net Cash Surrender Value After Loans (h)
Hilbert Andersen Box 1775 Boise, Idaho	President	None		86			
M. A. Ellis Townsend, Mont.	V. Pres.			45			
Howard W. Steward Box 1775 Boise, Idaho	Sec.-Tres.			72			
Frank Ellis Seattle, Wash.				16			
	Total		x x x x x	219		x x x x x	x x x x x

If more lines are needed continue on separate sheet.

9. Capital Stock Issues:

For Corporate Applicants

Item	Authorized (a)	Outstanding (b)	Par Value (c)	Number of Shares Outstanding (d)	Dividend Rate Last Paid* (e)
Common stock	$50,000	$21,900	$100.00	219	
Preferred stock	$	$	$		

*Indicate period covered.

10. Production:

Item	Kind of Product (a)	1948 Total (b)	1949 Total (c)	1950 Total (d)	Present Average Monthly (e)
1. Quantity of product mined or quarried (Short, long, metric tons; barrels; pounds; etc.)					
2. Quantity of product processed (specify unit of measure and type of process)					
3. Quantity and grade of product sold or shipped (specify units of measure)					

11. Do you contemplate a change in the present average monthly rate of production? If so, state estimated maximum monthly production and basis of change.

12. Ore or Mineral Reserves:

(a) Describe the ore or mineral deposit briefly. Accompany the application by any available report on the geology and ore reserves.

(*b*) If deposit is other than placer:

(1) Submit assay plans and/or sections showing location and size of proved (measured) and probable (indicated) ore or mineral reserve.

(2) State the tonnage (indicate type of ton) and grade of each class of ore reserve, as above, and show how computed. Tabulated total ore reserve as follows:

TOTAL ORE OR MINERAL RESERVES

Ore or Mineral Reserve	Estimated Tons (a)	Metal or Mineral Content Per Ton (Grade) (b)	Gross Value Per Ton (c)	Recoverable Unit Value Per Ton (d)	Estimated Cost of Production Per Ton (e)
Measured (proved)					
Indicated (probable)					

(*c*) If placer:

(1) Give estimated total yardage and average marketable mineral content of each deposit.

(2) Submit map showing location of placer deposit and surrounding area, with all test holes or pits. Submit logs of each hole and test pit with depth and average value of each.

(3) Describe gravel, stating whether fine, medium or coarse; loose, tight, cemented, or frozen, and whether it contains stumps or boulders more than 1 foot in diameter; if so, how large, and in what proportion.

(4) Describe bedrock, giving type (granite, sandstone, shale, etc.) and state whether it is hard or soft, smooth, uneven or rough.

(5) Describe overburden, stating whether loose, tight, or cemented; fine or coarse textured; furnish estimate of average thickness and total amount.

(6) Tabulate the reserves using the form outlined above for ore or mineral reserves.

13. Access Roads:

Give road distances to shipping, supply and residence points, stating kind and condition of roads.

14. Water Supply:

State source and quantity of water available for operations and whether sufficient for all seasons of year.

15. Power:

State amount of power used, rate per hour, and source thereof.

16. Labor:

State number and classes (miners, muckers, millmen, etc.) of men employed during a recent representative payroll period.

17. Equipment and Facilities:

Describe present equipment on the property, including buildings. (State condition.) List major pieces of equipment now owned or controlled and in serviceable condition available for this operation.

18. Are there any particular conditions or circumstances affecting your operations that are not described above? If so, explain.

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.

Blue Bird Mines Inc.
(Name of company)

By Howard W. Stewart
(Signature of authorized official)

May 24 1951
(Date)

Sectry - Treas
(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.

U. S. GOVERNMENT PRINTING OFFICE 16—63792-1

General Technical Data
For Use Under the
Defense Production Act of 1950

Form MF -100

GENERAL TECHNICAL DATA

1. a. Silver, lead, and zinc
   b. None

2. a. Original location name "Moonbeam of The Mine"; the new name is The Blue Bird Mines, Inc.
   a,b,c,d. See map #1.

3. a. Distance is 11 miles due West from Townsend, Montana.
   b. Hassel Mining District
   c. T6NR1W. 1 E
   d. Broadwater County, Montana

4. a. No
   b. No

5. Three years on the original location it produced ore, then it lay idle for 25 years until the present ownership took it over. Production is expected at the consummation of this application.

6. See item three, last paragraph on page 2.

7. a. See item 3 pages 1 and 2.
   b. There are no adjoining properties closer than four miles to the South, none to the East, none to the West. To the North there is a patened claim (The St. Louis) which was worked in late 1899, been idle ever since. It is a copper claim.
   c. There are no written reports other than the Montana School of Mines report of June 5, 1947 which is included in this application. The Montana Bureau of mines sent one L. B. Lynn, M. E., over to help us with our exploration work in 1947. His report was verbal to us, but we were at liberty to quote him as saying it was a very likely property and had good possibilities.

8. (Answered on the form (MF-100) table)

9. (Answered on the form (MF-100) table)

10.

11. (10, 11, & 12 not applicable to our application)

12.

13. There is a well-maintained County highway up Indian Creek for nine miles, a County road branching off from this goes within a half mile of the mine. It is good, as a dirt road goes. We have been assured by the county commission that they would be very happy to cooperate in maintaining an accesible road to the mine under all weather conditions.

14. To the best of our knowledge the water situation is completely satisfactory.

15. We do not have electric power at the mine. Seven miles to the South a high-tension power line could be contacted and power brought to the mine if and when needed.

16. There has been no activity other than the stockholders' work.

17. See list. Detailed mining equipment.

18. We have a winze sunk 25 feet on this Fissure-Vein. ~~The ore has~~ gone from a four-inch high-grade vein on the sill to 2½ feet of good milling ore. Our mineral dressings show that this vein will widen to the full Fissure which is six feet, in another 25 to 30 feet. Our thought is to sink an additional 50 feet, then drift from on the Fissure for a hundred feet. This should give a very accurate picture of what the ore is doing or might contemplate doing on further depth. Like-

W ise this draft will contact a fracture zone and piercin into this z one we will be drifting from the winze along the Fissure and if the ore possibilities justify further exploration, we should drift along the Fissure until contact is made with some well-defined veins (See map "1) that, in my estimation, are cut by the Fissure. That is to be decided later.

MONTANA SCHOOL OF MINES
Butte
June 5, 1947

MEMORANDUM REPORT: Mineral Dressing Tests H. W. Stewart, Bluebird Mine, Hassel Mining District

TO: Director, Montana Bureau of Mines and Geology, Montana School of Mines, Butte, Montana.

INTRODUCTION

Two samples of gold, silver, lead and zinc bearing material were collected by K. D. Lynn, Field Representative, Montana Bureau of Mines and Geology, and submitted for Mineral Dressing tests by Mr. H. W. Stewart, Townsend, Montana. These samples represented material from the Bluebird Mine, Hassel Mining District.

The Bluebird Mine is in the development stage and the material submitted for Mineral Dressing tests is from a winze and a drift. Sample No. 2 (Mr. Stewart's designation for sample numbers) represents 7.4 ft. of channel sampling across the bottom of a winze. The depth of this winze is 17 feet. Sample No. 3 represents six feet of channel sampling from the sill of a drift and in the vicinity of the winze from which Sample No. 2 was taken.

SUMMARY

Mineral Dressing tests indicate that:

1. The samples submitted assayed:

Sample No.	GOLD oz. per ton	SILVER oz. per ton	LEAD per cent	ZINC per cent
2	o.035	0.50	1.4	3.3
3	0.025	0.3	0.3	1.75

2. By flotation, an over-all recovery of 26.5 per cent of the gold, 91.9 per cent of the silver, 92.4 per cent of the lead and 96.9 per cent of the zinc was obtained in Test No. 1. The tailing assayed o.01 oz. Gold per ton, 0.1 oz. silver per ton, o.1 per cent lead and 0.1 per cent zinc.

3. By flotation, an over-all recovery of 97.5 per cent of the gold, 84.9 per cent of the silver, 98.3 per cent of the lead and 97.2 per cent of the zinc was obtained in Test No. 2 The tailing assayed 0.01 oz. Gold per ton, 0.1 oz. silver per ton 0.3 per cent lead and 0.1 per cent zinc.

COPY

SUGGESTIONS

In the event that satisfactory grade and tonnage of material result from development, it is suggested that after thorough sampling detailed laboratory tests be conducted for determination of milling requirements. Ascertainment of the adequacy of grade and tonnage of ore reserves should precede further Mineral Dressing tests and expenditure for milling plant equipment.

The low mineral content of the material as represented by the samples submitted and the present high cost index demand careful evaluation of all factors concerned. It is recognized that the Bluebird Mine is in the development stage, but the economic considerations must be evaluated concurrently with development. Satisfactory recovery of the valuable mineral constituents can be anticipated by the application of modern Mineral Dressing methods.

(Signed)
Donald W. McGlashan
Assistant Research Professor
Department of Mineral Dressing

McG/mn:v

COPY

Mineral Dressing Tests: Bluebird Mine

Head Assay of Sample

	ozs Au per ton	ozs Ag per ton	%Pb	%Zn
Sample No. 2	0.035	0.50	1.40	3.30
Sample No. 3	0.025	0.30	0.30	1.75

Sample No. 2 was taken from bottom of Winze - weight 70 lbs
Sample No. 3 was taken from sill of drift - weight 60 lbs
Samples No. 1 and No. 4 were hand samples for microscopic work.

Sample Preparation:

The samples were air dried and then crushed to 1/4 inch. Each sample was split, one half being held in reserve: the remaining half was put thru the rolls until minus 20 mesh. The head samples were split from the minus 20 mesh and sent to Lewis and Walker, Butte, for assays.

Microscopic Examination:

Examination of hand specimens under the binocular microscope revealed the following minerals: altered andesite, quartz, calcite, sphalerite, galena, limonite, chalcopyrite and bornite.

Grinding:

For flotation tests, 600 gram portions were further reduced in size by grinding with 600 grams of water in an Abbé laboratory pebble mill.

Flotation:

The object of the flotation was to find if the material was amenable to selective flotation.

Test No. 1

Products	Weight %	Assays ozs gold	ozs silver	%Lead	%Zinc	Distribution Percent Gold	Silver	Lead	Zinc
Lead Concentrate	5.0	0.04	12.2	21.5	24.5	16.5	62.6	90.4	41.8
Zinc Concentrate	6.0	0.02	4.6	0.4	26.9	10.0	28.3	2.0	55.1
Tailings	89.0	0.01	0.1	0.1	0.1	73.5	9.1	7.6	3.1
						100.0	100.0	100.0	100.0

The above test was batch ground for 20 minutes in the pebble mill, conditioned for 5 minutes, lead flotation for 10 minutes, zinc conditioning for 10 minutes and zinc flotation for 5 minutes. The pH of lead circuit was 8.0 and zinc circuit was 10.1 using the following reagents. No attempt was made to clean the lead or zinc from either concentrate.

Sodium Cyanide	0.06 lbs per ton
Zinc Sulphate	0.30 lbs per ton
Aeroflout 31	0.04 lbs per ton
Cresylic Acid	0.10 lbs per ton
Copper Sulphate	1.50 lbs per ton
Lime	1.50 lbs per ton
Pine Oil	0.05 lbs per ton

COPY

Test No. 2

Products	Weight %	Assays ozs gold	Assays ozs silver	Assays % lead	Assays % zinc	Distribution Percent gold	Distribution Percent silver	Distribution Percent lead	Distribution Percent zinc
Lead Concentrate	16.2	0.14	2.1	6.5	6.5	79.9	69.1	87.6	41.3
Zinc Concentrate	9.8	0.06	0.8	1.3	14.5	17.6	15.8	10.7	55.9
Tailings	74.0	0.01	0.1	0.3	0.1	2.5	15.1	1.7	2.8
						100.0	100.0	100.0	100.0

The above test was batch ground for 20 minutes in the pebble mill, conditioned 8 minutes, lead flotation for 4 minutes, zinc conditioning 10 minutes and flotation 5 minutes. The pH was 6.9 for the lead flotation and 10.4 for zinc flotation using the following reagents. No attempt was made to clean concentrates.

Sulphuric acid	0.1 lbs per ton
Sodium Cyanide	0.13 lbs per ton
Zinc Sulphate	0.50 lbs per ton
Z05	0.10 lbs per ton
Cresylic Acid	0.08 lbs per ton
Copper Sulphate	1.50 lbs per ton
Lime	1.50 lbs per ton

The lead concentrate was heavy with pyrite which apparently carries the gold values in the above test.

COPY

Mining Discription

Map # 1

A, The fissure vein on which all work is being done on, is some 3000 feet long striking East and West. The native rock is Andesite and very firm, the foot and hanging walls are not shattered. The U.S.Bureau of Mines show this district from Winston, Mont. to Raidersburg as capped with this Andesite, varying in depth from 30 to 1200 feet. The " Ohio Keating " at Raidersburg broke through this capping on the 1200 foot level years ago and on doing so, their Copper values shut up, but not mining Copper they closed down. At the Last Pacific, Winston, Mont. the mine has broken through the Andesite at various levels. The Iron Mask, about half way between the two above described properties, stoped work on the 900 foot level. At that time, they were working on ore almost a duplicate of the Ore found in the botton of our Winze. (Report of K.D.Lynn)
You will please note from this map that the veins south of the Fissure strike NE and the one north strike SE, this is trure of a veins systems on the Blue Bird Group, even the small stringers follow this pattern.
In the case of Vein " D ", this is a Gold,Lead, Zinc and Copper Vein. It was worked to great extent on the surface by a man named Mexican John (still alive) some 25 years ago. He took out $ 20,000. mostly in Gold and Lead and by drifting along the vein to the grass roots, at one point, his shaft, he went down on the vein to see what the Copper was doing. This is the only hole I havent examined as I have previously stated. He told me another man sank his shaft down to 100 foot level and quit because he could not finance it. I call your attention now to the Pat. Claim 5411 on what is locally known as Copper Mt. this property was patented in 1899 and is being held by the original filer it is copper and his vein runs parallel with vein " A " of our Group. There are many smaller veins that follow this pattern and as above stated they are all cut by the Fissure Vein " A "
Mr. Andersen, Pres. of the Blue Bird Mines, Inc. was one of the three owners in the Indian Creek Placers and while that ground was being worked I had the opportunity of studying their bed rock and noting the various veins that crosses Indian Creek and that strikes to the SE toward the Blue Bird. It is no wonder that the old timers called it " Treasure Hill ".
Vein " B ", we have named the Mike, it is a 2 inch vein of High Grade with values in Lead, Gold Silver and Zinc and at the present price of metals, assays $ 00. per ton. It carries 39% ZINC.
To summerize this and to point out that nothing has ever been done to bring about depth. I have arrived at the conclusion that depth is all that is needed to bring in a good body of Ore. By driving a tunnel from dwon the hill we can follow this Fissure Vein to the point of Contact to some of these other veins and prove that the original ore increases in width, on depth, as well as get rid of

the water and have plenty of stoping ground over head,as we gain length, we will gain depth abruptly for these hills are quit steep. On contact, if it does, with Vein " B " there should be some excellent values. All these veins carry Copper values and it is not to much assumption to says they will gain on depth, for the Ohio Keating to the south of us, proved that point. Mr. Lynn was very definite on the same conclusion.

Our request for financial aid is for that expressed purpose, namely, to drive this drift in some 300 to 500 feet and by CONTRACT only, this will do away with any waste or unneccessary enxpense will bring us to 100 feet below our present lowest works, the winze, where the ore has widened from 4 inches to 2 feet in 22 feet of sinking. It will be exploration work on a vein that has present Milling values and possibly shipping values on depth. In other words it is not money spent in Wildcatting for there is Ore on the dump from this work not waste.

Detailed listing of Mining Equipment

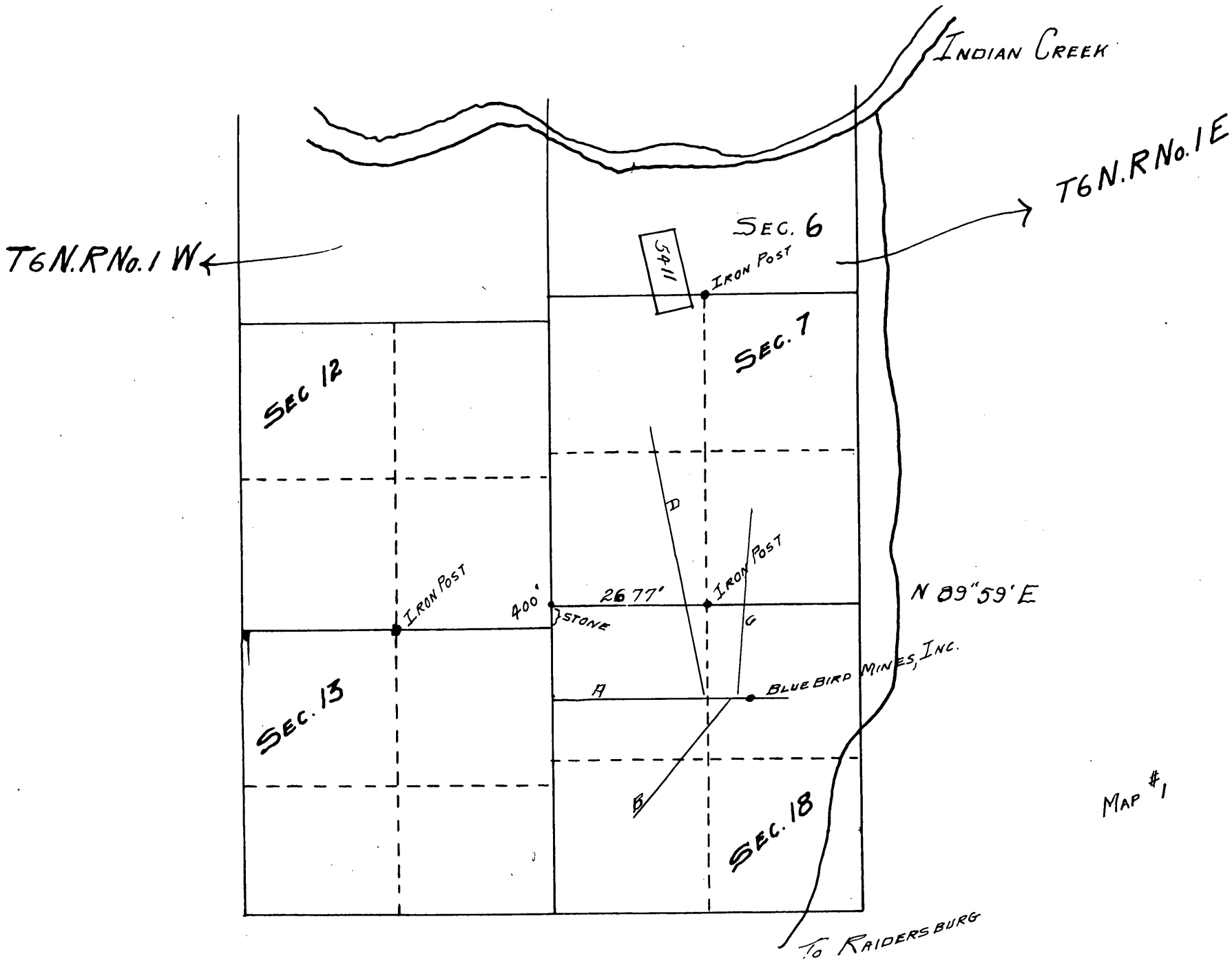
I	Sullivan WK314 Compressor # 15072
I	Hand Windlass
I	Ingersol-Rand # 15 Sump Pump
I	G-D # 55 Jackhammer
	125 feet Air Hose
I	10 CF Ore Car
2	Ore Buckets
3	Pieces Jackhammer Steel
150	Tinkin Drill Bits
4	Shovels
1	Sledge Hammer
1	Single Jack
3	Picks
1	Air Blow Pipe
1	Cap Crimper
1	Mine Spoon
2	Hand Drills
200	Feet 3" Air Pipe
30	Couplings, Elbows, etc.
1	Seal Cutter
1	Pipe Cutter
1	Pipe Wrench
1	Pipe Die Set
1	Pipe Vise
1	Bench Vise
1	Timbermans Saw
2000	lbs. 12 Wire Nail
100	Nail Joiners
200	lbs Nail Spikes
75	lbs. Nail Joint Bolts
1	12 Jim Crow
2	V Switches
500	Mine Ties
1	Carbide Lamps
200	Mine Wedges
28	8x8x10 Mine Timbers
1	8x8x10 Mine Sill Bar
1	7 by 8 Tool House
1	12 by 10 Dark House
1	10 by 24 Compressor and Cook House
1	10 by 20 Ore Bin
2	Heating Stoves
1	Model Mill, Tom Ford Engine 7190 M
	Assorted Oil Drums
6	Gals Compressor Oil
	Numerous other small items that are found around all Mining Camps.

COPY

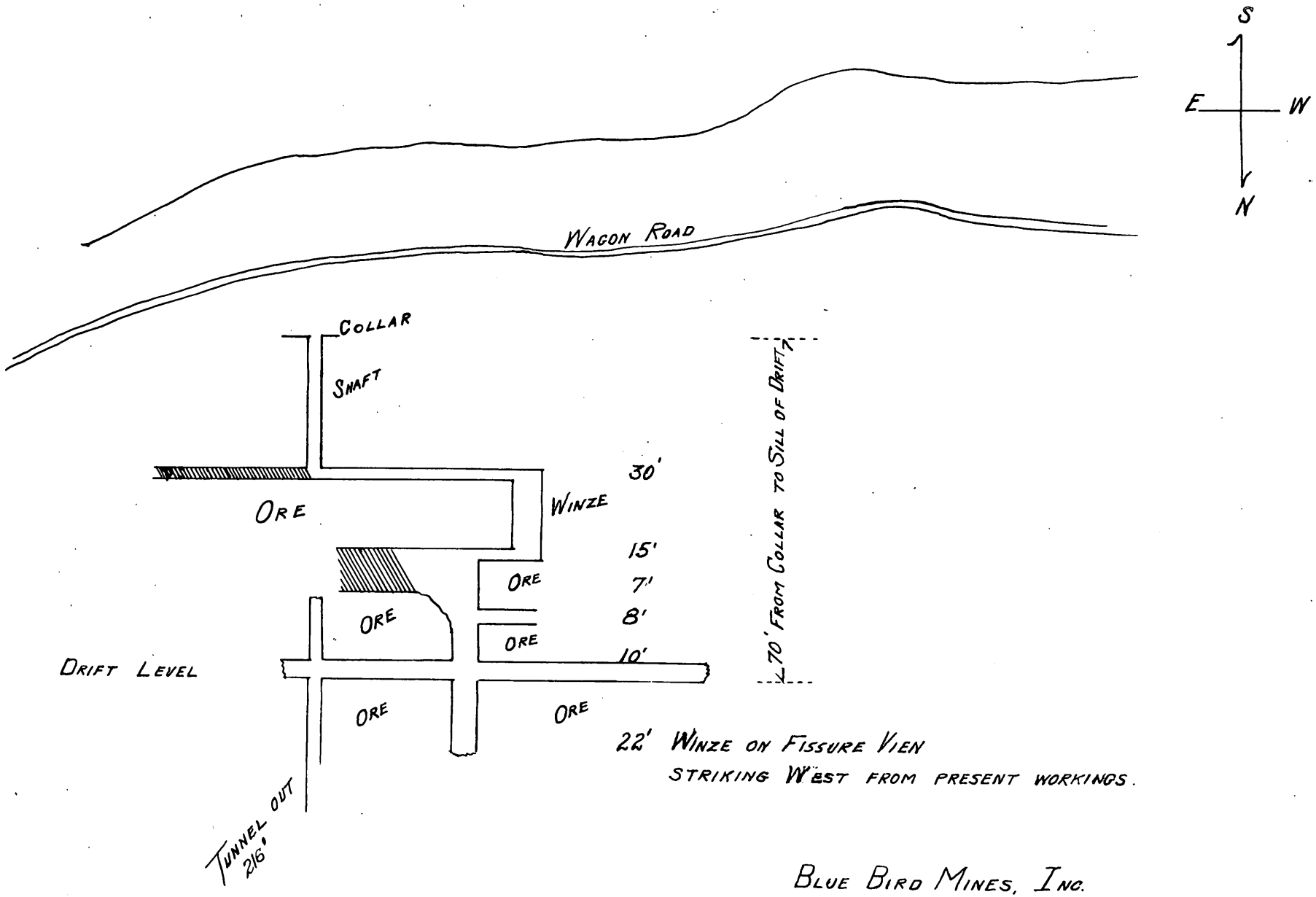
a. The Blue Bird Mines as now known, was first discover-ed 35 years ago by an Italian prospector and called the Moonbea .
The original discovery is located in Broadwater County, Hassel Mining District, State of Montana. The mine portal is on the NE¼ of Section 18 T 6 N R No. 1 E, on a hill known to the oldtimers as " Treasure Mt. "
This man sunk an incline shaft 30 feet on a Fissure Vein and then drifted east about 35 feet stoping up to the grass roots and almost to the surface on the hill side. He then drifted west from the incline 30 feet and then went down 15 feet with a incline and ceased work there along side of a fracture. The Ore he extracted was an Oxide, with values in Gold and Lead. From the best informed sources I could obtain, I learned that he shipped one car of Ore that grossed him $ 5000.
He interested a Merchant and a Doctor in Townsend, Mont. and sold them the property and then took a Shift Boss job of driving a tunnel to tap his upper workings and gain depth on the vein. This tunnel is 210 feet to the vein and 45 feet along the vein and some 25 feet below the winze sunk in the upper works. The Ore was carrying considerable Zinc now, with Silver values.
This 45 feet of drift faced the frature and they made no effort to cross it, but the sank a winze 12 feet and the Zinc values shot upwards so they ceased work.
In 1945 we (Ellis, Andersen and myself) filed on the property and started right in to clean out the old workings, retimber and lay a new 12# steel track. As soon as this work was completed, we cleaned out the uppe upper workings and opened the original Incline Shaft for ventilation and safty measures. We timbered the old raises and then pumped the water out of the Winze and cleaned it out, retimbered and sank it 12 feet more in order to get a look at FRESH ORE. From the sill of the drift the ore body has shifted from the Oxide to a Sulphide, from a 4 inch High Grade vein it has shifted to Grey Quartz vein 2 feet wide and all indications are for a full eight feet of the Fissure vein on more depth.
I personally spent two months with my examination of surface leads and old workings on the Treasure Mt. examining them and assaying all values and tracing this Fissure vein east some 3000 feet, all other veins contact or interlace this Fissure and it was on this findings that I established an Apex system and staked 13 claims on this system to cover the complete mineralization.
The Montana School of Mines sent one of their M E (A.D.Lynn) over to help with the examination and and development of this property as well as to get some underground knowledge of that district, which they did not have.

Mr. Lynn was very much pleased with the findings and sampled the mine and expressed his opinion that it was a very promising property. His next visit was after I had cleaned out the Winze and sank it 12 foot deeper. He was of the same opinion and I, that on further depth we would have 8 feet of fine Milling ore. At this time he cross sampled the mine and the School of Mines ran a Mill test for us showing a free Floation extraction with good recovery.
Up to this time we (Ellis, Andersen and myself) had financed this development between us. I now thought we should get the property into shape footfuture development so we Incooperated for $ 50,000. under the State of Montana laws.
My Ellis's son was permitted to buy $ 1000 worth of Stock, the rest of the stock is in the hands of the three of us, except what we assigned back to the Treasure of " The Blue Bird Mines, Inc. ".

My personal back ground in the Mining field is;
I had three years on a Mining degree but World War 1 cut it short and I did not have the finance to complete it after the war. I took up Photography and have been following that ~~pro~~profession ever since with exceptions. 3½ years with Kennecott Copper at Latouche and Kennecott, Alaska. The Engel Copper Co of Plumas, Calif. U.S. Smelting & Refining at Rainbow, Ore. I have been incharge of the development of the Blue Bird and am Sectr. Treas. of the Cooperation as such, I have done every thing with a view that we have a producer and every cent expended was with a future outlook, such as arranging the camp so that no unnecessary money would have to be spent if and when it came into production. At present I am a staff Cameraman for the Idaho Daily Statesman in Boise and also do Commercial Photo work on the side. If this Loan is approved I will be on hand to see that it is expended to the best of the value for the MINE and not in salary or traveling and other expenses as I have seen in so many other places where Stock was sold to promote a property. We are free of debt, own our equipment and are ready to mine. But private capital is not interested, unless you get out and sell STOCK and that we have not and will not do.


INDIAN CREEK
T6N.R No. 1 E
T6N.R No. 1 W
SEC. 6
5411
IRON POST
SEC. 7
SEC 12
D
IRON POST
IRON POST
400'
2677'
N 89°59' E
STONE
G
BLUE BIRD MINES, INC.
A
SEC. 13
B
SEC. 18
TO RAIDERSBURG

MAP #1



BLUE BIRD MINES, INC.

BOX 557 TOWNSEND, MONT.

T.

X ORIGINAL SHAFT

O CAMP + PRSENT WORKINGS

T. PROPOSED TUNNEL

Bunk Houses + Ore Bin

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

So. 157 Howard Street
Spokane 8, Washington

May 29, 1951

Memorandum

To: Lead-Zinc Committee, DMA, Washington, D. C.

From: Field Team, Region II

Subject: Bluebird mine, Broadwater County, Montana

The report transmitted herewith discusses the application of the Bluebird Mines, Inc., which is for an exploration loan.

This property has not previously submitted an application for an exploration loan. However, inasmuch as we had an examination team in the area we visited the mine and prepared the enclosed report. Since the report has been in preparation the applicant has submitted an application for a $10,000 exploration loan which is enclosed herewith.

It was the opinion of the examining team that the prospects for commercial ore were nil, and that further consideration of this application is unwarranted.

By Field Team, Region II

A. E. Weissenborn

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

Glenn A. Reed for:

M. E. Volin, Member
(U. S. Bureau of Mines)

Enclosure

cc: U.S.B.M.

UNITED STATES
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GEOLOGICAL SURVEY
So. 157 Howard Street
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By Field Team, Region II

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

M. E. Volin, Member
(U. S. Bureau of Mines)

Enclosure

cc: U.S.B.M.

:to

dma 1509X

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

So. 157 Howard Street
Spokane 8, Washington

May 29, 1951

Defense Minerals Administration

Postmarked May 29-1951 7pm.

JUN 1 - 1951

Executive Secretary

Mr. Landon F. Strobel
Executive Secretary
Defense Minerals Administration
Department of Interior
Washington 25, D. C.

Dear Mr. Strobel:

Enclosed herewith is an application for an exploration loan submitted by Bluebird Mines, Inc., on the Bluebird mine, Broadwater County, Montana. Also enclosed is a report on the Bluebird mine prepared by the DMA examining team, together with a memorandum from the field team to the Lead-Zinc Committee.

It is the opinion of the examining team and the field team that further consideration of this property for an exploration loan is unwarranted.

Yours very truly,

Thor H. Kiilsgaard

Thor H. Kiilsgaard
For: A. E. Weissenborn
Executive Officer, DMA
Field Team, Region II

Enclosures

cc: U.S.B.M.

JUN 7 1951

5

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

DEFENSE MINERALS ADMINISTRATION

REPORT BY EXAMINATION TEAM
Region II

DMA-1509X, Bluebird Mines, Inc., Bluebird Mine

Broadwater County, Montana

E. T. Ruppel, Geologist
U. S. Geological Survey

T. E. Howard, Mining Engineer
U. S. Bureau of Mines

May 24, 1951

BUREAU OF MINES May 24, 1951

DMA Examination Team Report
Bluebird Mines, Inc.

By E. T. Ruppel, USGS, and
T. E. Howard, USBM

RECOMMENDATIONS

The DMA Examination Team recommends that the application of the Bluebird Mines, Inc. for an exploration loan of $4,500 be denied.

APPLICANT

The applicant is the Bluebird Mines, Inc. of Townsend, Montana, incorporated under the laws of the State of Montana, April 25, 1947. Its directors are Hilbert Anderson of Boise, Idaho, M. A. Ellis of Townsend, Montana, and Howard W. Steward of Boise, Idaho. Mr. Anderson is president of the corporation, Mr. Ellis is vice-president, and Mr. Steward is secretary-treasurer. Five hundred shares of non-assessable stock, par value $100 per share, are authorized; 16 shares are owned by Frank Ellis of Spokane, Washington, 45 shares by M. A. Ellis, 72 shares by Mr. Steward, 82 shares by Mr. Anderson, and the remaining 285 are held in the treasury of the corporation.

Mr. Steward, who accompanied the Examination Team during part of the examination, will be in charge of the proposed program.

LOCATION OF DEPOSIT

The property consists of 18 claims, the Bluebird No. 1 through No. 18, located in secs. 6, 7, and 18, T. 6 N., R. 1 E., Hassel mining district, Broadwater County, Montana.

OWNERSHIP

A check of Broadwater County records revealed that the surface rights on all of the claimed land are owned by Alfred Doughty, a local rancher. The applicant states that he has legal advice to the effect that a release from Mr. Doughty is not necessary.

The claims are not staked to conform to the mineral deposit but rather to the land survey. Claims Nos. 1 through 6 were located in 1945 by Mr. Steward and Mr. Anderson. These 6 claims were relocated and the 12 additional claims located by Mr. Steward and Mr. Anderson in March 1946. Mr. Steward stated that location work consisted of cleaning out and retimbering the old workings on No. 6 claim. The required excavation was not done on any of the other claims. New excavation on the property consists of a 12-foot extension of the winze on No. 6 claim, done in 1947, and a trench also on No. 6 from which approximately 200 cubic feet of material was taken in 1950.

HISTORY AND PAST PRODUCTION

The work on No. 6 claim was done between 1915 and 1920. No record of production exists, but the size of the workings indicates that not more than 100 tons of ore could have been shipped. It is reported locally that gold ore worth $20,000 was taken from the workings on claim 16. Although the property contains a number of other old pits and shafts, it is doubtful that commercial ore was produced from them.

DESCRIPTION OF PROPOSAL

The applicant proposes an exploration program to cost $9,000, half the cost to be borne by a Government Exploration Loan in the amount of $4,500. This program was to consist of extending the present winze 50 feet and drifting 100 feet west from its bottom to explore the vein.

Preparatory work, which must be done before actual exploration can be started was to consist of the enlarging of about 40 feet of the present adit to provide an adequate haulageway, enlarging and timbering the section of drift over the winze to provide a hoisting station, and retimbering the existing 25 feet of winze.

TECHNICAL FEASIBILITY

Geologic Setting of the Deposit

Mineralization in the Bluebird mine has been in a fault zone (the Bluebird vein) which trends N. 60° - 70° W., 50° S., and along which there has been about 2 feet of stratigraphic displacement. The mine is essentially on the contact of upper Cretaceous sedimentary rocks, principally fine- to medium-grained sandstones and black, fissile shale, and upper Cretaceous volcanic rocks, mainly andesite. The sedimentary rocks and volcanic rocks both strike about N. 10° - 30° W. and dip 30° to 50° W. The contact between the two rock types is apparently conformable; it strikes N. 10° W. and dips about 55° W.

Three prominent veins are present in the area claimed by Bluebird Mines, Inc., the Bluebird vein, Mike vein, and Copper vein (see sketch map). This report is concerned only with the Bluebird vein, the vein on which the applicant proposes further exploration. The Mike vein, a 2-inch quartz vein containing sparse galena and sphalerite, may intersect the Bluebird vein, but the possible zone of intersection, located about 1200 feet west of the present Bluebird workings, cannot be explored economically from the present workings. The Copper vein, a 6-inch quartz vein with sparse malachite, probably does not intersect the Bluebird vein (see sketch map).

The Bluebird vein is exposed in surface pits and workings for about 1200 feet along its strike and is exposed for about 90 feet down the dip in the Bluebird mine. The vein is exposed in surface and underground workings for a vertical range of about 300 feet. It ranges from 6 inches to 4-1/2 feet in thickness. The vein consists of fault gouge that has been silicified and sporadically mineralized with pyrite, sphalerite, and galena where andesite is the host rock, but apparently only silicified and very sparsely mineralized with pyrite where sandstone or siltstone is the host rock. The Bluebird vein has been explored to a depth of about 90 feet in the main Bluebird workings but, as the lower 25 feet of the workings - a winze on the vein - is flooded, the Examination Team could observe only the upper 65 feet. Little mineralization is apparent in the vein above the 65-foot tunnel

level, but on this level there is a minor split in the fault zone. In the zone of intersection of these two splits the content of sulfide minerals, principally sphalerite, is greater than elsewhere in the vein, but not enough of the zone could be seen to estimate percentages of sulfides present; only the top of the intersection zone is exposed. The applicant states that the mineralized zone thins with depth in the winze.

Two samples, taken in 1947 in the winze by K. D. Lynne, Field representative of the Montana Bureau of Mines and Geology for mineral-dressing tests, assayed as follows:

Sample No.	Au	Ag	Pb	Zn
2	.035	0.50	1.4	3.3
3	.025	0.30	0.3	1.75

Sample No. 2 represents 7.4 feet of channel sampling across the bottom of the winze. Sample No. 3 represents 6 feet of channel sampling from the sill of the drift in the vicinity of the winze.

The mineralized zone has a strike length of about 40 feet, extends down the dip of the fault not more than 25 feet, and has a maximum thickness of about 3 feet; none of the exposed ore appears to contain more than 10 percent sulfides.

Samples were cut by the Examination Team at four places on the Bluebird vein, two in the more heavily mineralized area, one near the westernmost exposure of the vein on the tunnel level, and one where the fault zone cuts sedimentary rocks. Assay reports on these samples are not yet available but will be forwarded as soon as possible.

The applicant proposes to further explore the Bluebird vein by sinking the winze an additional 50 feet and drifting from the bottom to the west along the vein. The objectives of this exploration are to attain greater depth on the vein and to explore the intersection zones of possible NE or NW trending fractures.

It is the opinion of the Examination Team that the winze cannot be sunk to a much greater depth without crossing the contact of volcanic and sedimentary rocks. Furthermore, the sedimentary rocks do not appear to be favorable hosts for mineralization. There are no surface indications of prominent fracture zones which might intersect the Bluebird zone in the vicinity of the present or proposed workings. It is the opinion of the Examination Team that no minable bodies of ore are likely to be found on minor splits or fracture intersections encountered underground by drifting on the vein.

Mine Workings

The Bluebird vein has been developed by an adit driven through sedimentary rocks to the sedimentary-volcanic rock contact and then along this contact through its intersection with the vein and by drifts east and west from the adit along the vein. The vein has been stoped for about 15 feet along the strike and 30 feet up the dip from the west drift. The stope is connected by a 5-foot raise with a 35-foot drift driven east from the Bluebird shaft. This shaft is an incline about 30 feet deep. A winze 25 feet deep has been sunk down the vein from the west drift.

The Bluebird mine has been rehabilitated by the applicant and, with the exception of the winze which is flooded, all workings are accessible.

Reserves

There are no ore reserves.

MINING METHODS - COSTS

The small past production has come from open stopes supported by occasional stulls. As the hanging wall appears strong this method probably could be used at depth. However, as the winze was inaccessible at the time of the examination, and the width and character of the ore could not be determined, no definite prediction as to mining methods and costs can be made.

The existing 25-foot winze was sunk using a hand windlass. Therefore, some excavation and timbering must be done to provide headroom for mechanical hoisting. The present adit, because of its small cross-section and sharp curves, is not an adequate haulageway for a producing mine. To provide for efficient ore handling on the present level, either 225 feet of new crosscut or 65 feet of shaft from the surface would be required.

MILLING METHODS - COSTS

Ores of the type the applicant expects to produce cannot be marketed profitably at smelters within a reasonable shipping distance of the property. Therefore, concentration would be necessary.

A report of metallurgical testing by a staff member of the Montana School of Mines made on samples of Bluebird ore indicates that a satisfactory recovery can be obtained by selective flotation. However, this report is not sufficiently detailed to permit an estimate of milling costs.

Available water for metallurgical purposes is limited to that coming from the workings. At the present time the flow is insufficient for even a small concentrator. Although there are no operating mills in the immediate vicinity, a flotation concentrator at the Iron Mask mine about 7 miles north of the property probably could be opened as a custom mill if sufficient ore were developed.

RATE OF PRODUCTION

Present

The property is not producing at present.

Anticipated

The applicant can make no estimate of his anticipated production.

TIME SCHEDULE TO ATTAIN OBJECTIVES

The applicant estimates that the proposed program can be completed in six months.

MARKETING FACILITIES

Lead concentrates can be shipped to the East Helena smelter of the American Smelting and Refining Company, and zinc concentrates can be marketed at the electrolytic zinc plants of the Anaconda Copper Mining Company in Anaconda and Great Falls, Montana.

EQUIPMENT AND FACILITIES

Installed

The applicant has on hand and installed the following equipment and facilities:

1 - 7'x 9' tool house
1 - 12'x 10' bunk house
1 - 16'x 24' compressor and cook house
1 - 10'x 20' ore bin
1 - Sullivan W-315 portable compressor
1 - Hand windlass
1 - Ingersoll-Rand No. 25 sump pump
1 - G-D 55# sinker drill
1 - 16 cu. ft. ore car
2 - sinking buckets
8 - pieces jackhammer steel
150 - Timken drill bits
4 - shovels
1 - sledge hammer
1 - single jack
3 - picks
1 - air blow pipe
1 - mine spoon
22 - hand moils
1 - seal cutter
1 - pipe cutter
1 - pipe wrench
1 - pipe die set
1 - pipe vise
1 - bench vise
1 - crosscut saw
1 - 12# rail bender
1 - Model AA 1-1/2 T. Ford truck
200 feet 2" pipe (installed)
125 feet air hose
35 couplings, elbow, etc.
2000 lbs. 12# rail (1000# installed)

Required

The following items of equipment will have to be acquired:

Item	Weight	Cost
Single drum air hoist	200#	$796.00
Drifter	138#	750.00
Blower	220#	240.00
Vent pipe - 150 feet		156.00
Water tank		51.00

LABOR SUPPLY

The labor supply in Townsend and the surrounding region is limited. However, the applicant believes that the small crew required can be obtained from neighboring mining districts. The current wage scale for miners is $12.65 per 8-hour shift.

POWER

Electric power is not available on the property. Mr. Steward states that he will need none for the proposed exploration program.

TRANSPORTATION

The property is 11.7 miles by road west of Townsend, Montana, the nearest rail shipping point. Of this distance, 1.5 miles is paved highway, 9.5 miles is county-maintained secondary road, and 0.7 miles is unimproved road. A local transportation company has quoted to the applicant a price of $1.50 per ton of ore for this haul.

Railroad freight rates obtained from the Northern Pacific Railroad depot in Townsend are as follows:

Value per ton	$15	$35	$100
To East Helena	1.22	1.66	2.12
To Anaconda	2.70	3.33	4.09

Material and supplies can be obtained in Butte or Helena, Montana, which are 96 miles and 35 miles respectively from Townsend. Small tools and supplies may be obtained in Townsend.

Access Road

Some work would be necessary to make the last 3 miles of the present access road adequate for continued ore hauling. Mr. Steward stated that county officials have advised him that the county will be responsible for the necessary improvements and maintenance.

ADEQUACY OF REQUESTED FUNDS

The funds requested should be adequate as shown by the following cost recapitulation. In making the estimate it is assumed that equipment required will be rented and that the applicant will charge rent on his equipment as a cost of the project.

Enlarging present haulage crosscut	$ 207.00
Cutting hoisting station at top of winze	379.00
Pumping out and retimbering present winze	641.00
Sinking 50' 4x6 winze @ $53.50/ft.	2,675.00
Driving 100' 6x5 drift @ $38.50/ft.	3,850.00
Contingencies	800.00
	$8,552.00

COMPETENCE OF APPLICANT

Mr. Steward is a man 59 years old, whose major occupation for the past thirty years has been commercial photography. He is at present employed by a newspaper in Boise, Idaho. He states that he had three years toward a mining degree prior to World War I and has spent a total of three or four years at various jobs related to mining since then.

In the opinion of the Examination Team, Mr. Steward would be capable of carrying out the simple exploration program he proposes, but it is doubtful if he could operate a producing mine.

DISCUSSION OF PROPOSAL AND SUGGESTED ALTERNATIVES

In the opinion of the Examination Team, the geologic probability of discovering a commercial ore body does not warrant an exploration loan at this time. Therefore, no alternative proposals are suggested.

D. M. A. Docket no. _____

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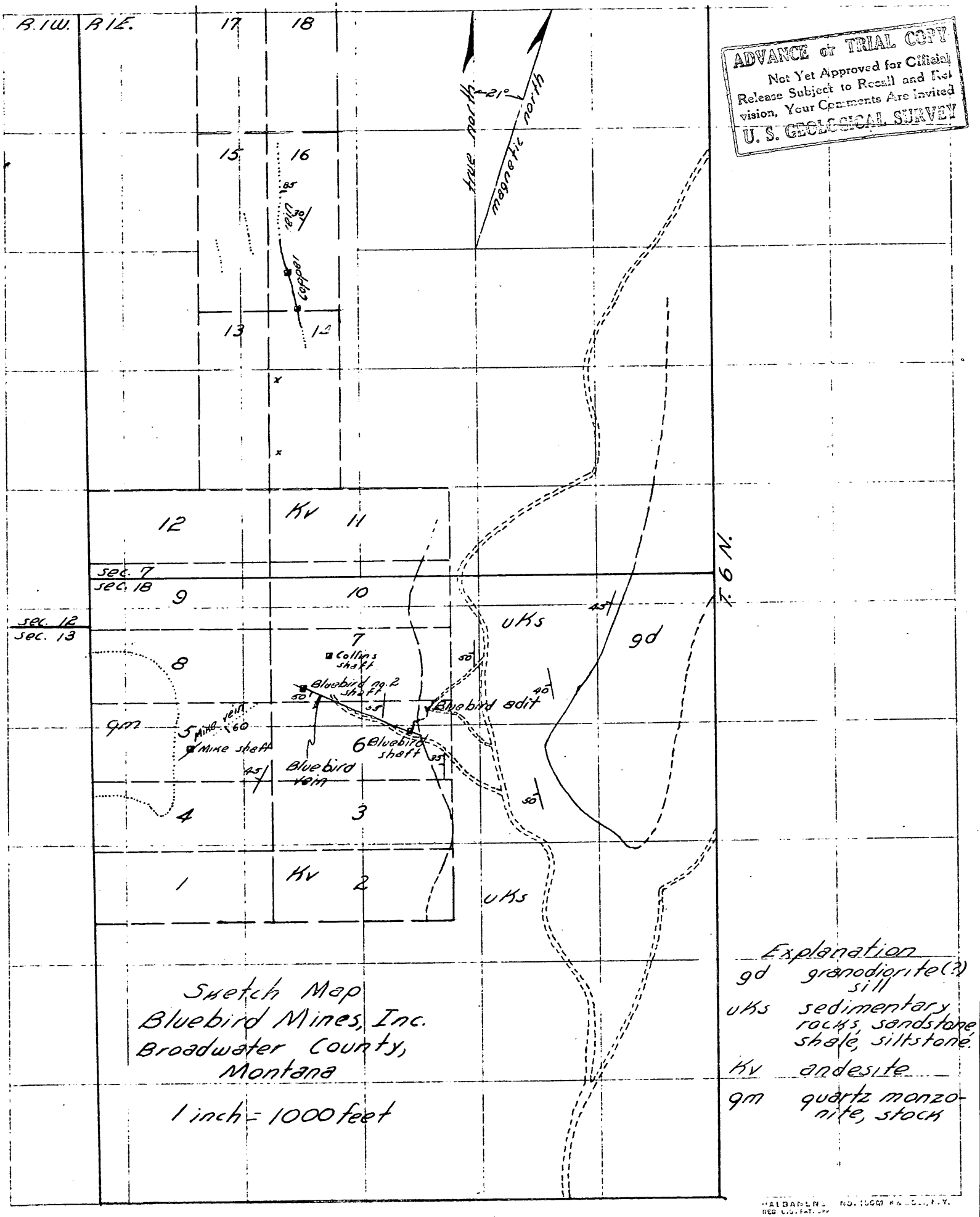

Sketch Map
Bluebird Mines, Inc.
Broadwater County,
Montana

1 inch = 1000 feet

Explanation

gd	granodiorite(?) sill
uKs	sedimentary rocks, sandstone shale, siltstone
Kv	andesite
gm	quartz monzonite, stock

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Bluebird Mines, Inc.
Bluebird tunnel
ETB and TEH
19 May 1951

1 inch = 40 feet

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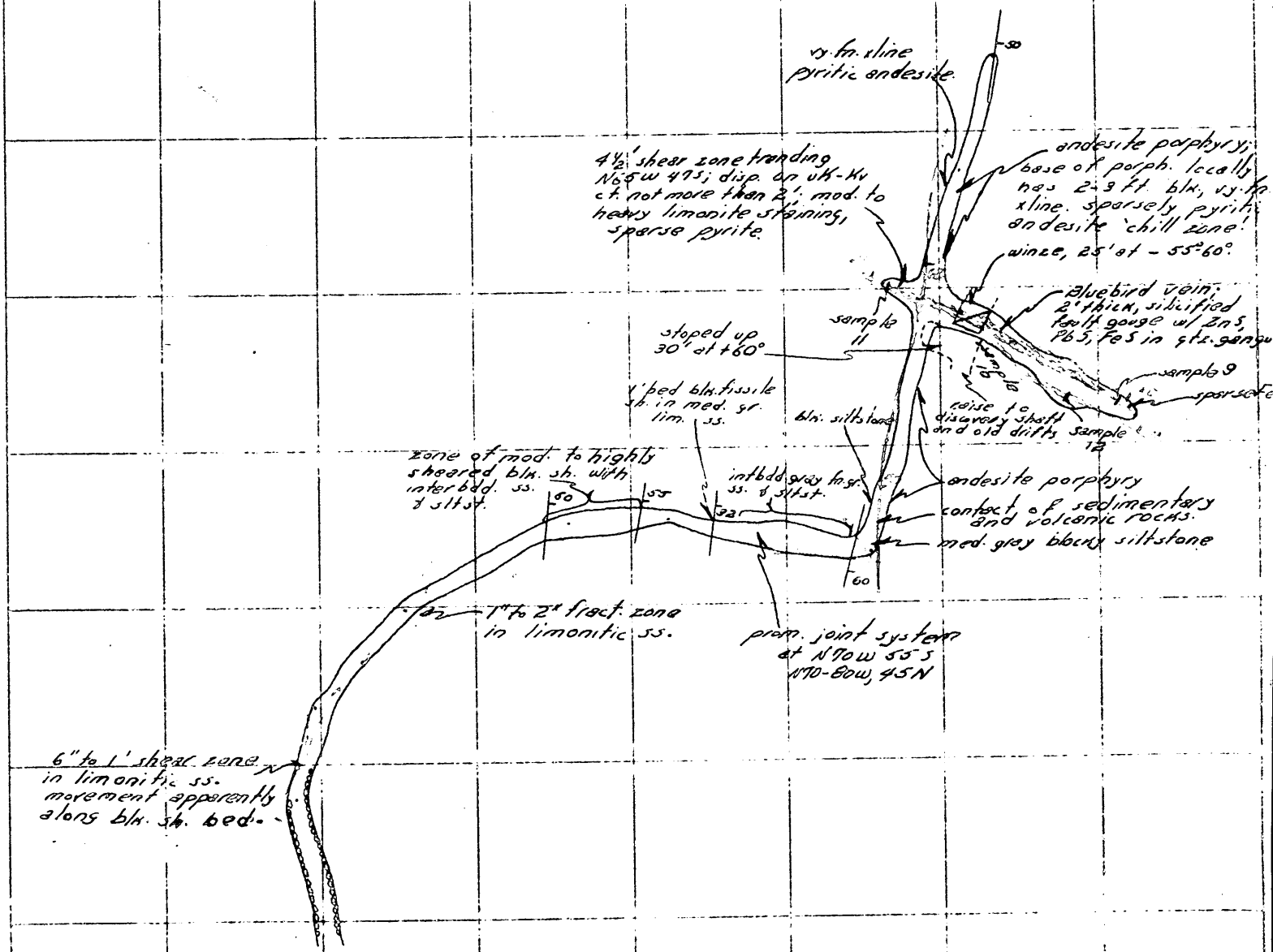

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