August 17, 1954

3153
MN

MEMORANDUM

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division

Subject: Denial of application for exploration assistance by Field Team, Region IV
Docket No. DMEA 3153 - Manganese
A. L. Gheen, et al., Gheen Mining claims
Washakie County, Wyoming

The denial of the subject application by the Field Team, Region IV, is based on the following information:

The applicant requested exploration assistance in the amount of $2,885.00 to drive a tunnel about 50 feet to explore beneath a small manganese outcrop.

The property is located on top of a ridge between Canyon Creek and Onion Gulch in the Big Horn mountains in Wyoming.

The area is underlain by Paleozoic and Mesozoic sedimentary rocks. Most of the surface of the Gheen Claims is composed of Big Horn limestone of Ordovician age in which the manganese is found.

On the Gheen Claims, manganese is confined to two small sharply outlined areas. The larger area is 100-feet long and 40-feet wide. A trench across this area 3 to 6 feet in depth exposes a body of pyrolusite and psilomelane in a gangue of quartz and highly silicified limestone.

In 1951, representatives of the Bureau of Mines took three samples which assayed as follows:

Location of sample	%Fe	%S	%SiO2	%Co	%P	%Mn
27' cut across vein	2.7	.02	72.6	.02	.01	5.6
Grab from dump	3.0	.04	66.0	.02	.01	14.0
Selected high grade	3.9	.07	62.4	.02	.01	17.1

In 1941 the property was examined by the Bureau of Mines A winze that penetrated the entire thickness of the body at 10 feet in depth was sampled. An assay of the best material showed:

22.1% - manganese
2.1% - iron
0.01% - phosphorus
58.7% - insolubles

The maximum indicated tonnage in the deposit is estimated at 2,500 tons with an estimated grade of 15 percent manganese.

In view of the small size of the deposit, the low content of manganese, and high content of silica the Field Team recommended that the loan be denied.

The Iron and Ferro-Alloys Division concurs in the denial.

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

JHOPKINS:fcc 8-17-54
cc to: Doclmt
Code 400
Adm. Reading File
Operating Comm.

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

402

COPY

224 New Customhouse
Denver 2, Colorado

July 29, 1954.

review memo written 8/17 WSM

Memorandum

To: Administrator, Defense Minerals Exploration Administration, Attention: Code 200.

From: DMEA Field Team, Region IV

Subject: Report of Examination - DMEA Docket 3153 (Manganese), A. L. Gheen et al., Washakie County, Wyoming.

Enclosed are four copies of the report of examination on the subject property, a copy of the letter of denial to the applicant and two copies of Form 3b.

/s/ W. H. King

/s/ E. N. Harshman for
A. H. Koschmann

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
8-4-54
(date)

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

COPY

224 New Customhouse
Denver 2, Colorado

July 29, 1954

Mr. A. L. Gheen et al.
1113 Grace
Worland, Wyoming

Re: Docket No. DMEA-3153 (Manganese), A. L. Gheen et al., Washakie County, Wyoming

Gentlemen:

Reference is made to your application for Government assistance to explore your Gheen No. 1 to No. 6 claims for manganese.

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

A careful study of your property and data available to this agency reveals that the probability of disclosing mineable reserves of manganese is not considered sufficiently promising to justify Government participation. Under these circumstances, we regret to advise you that your application for exploration aid is denied.

Very truly yours,

/s/ W. H. King
DMEA Field Team, Region IV

/s/ E. N. Harshmann for
A. H. Koschmann
DMEA Field Team, Region IV

RDB:cwm

cc: Docket
Administrator, DMEA
SRWilson
AHKoschmann
Chron.

Reviewed by
DMEA OPERATING COMMITTEE
8-4-54
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

July 29, 1954.

Memorandum

To: DMEA Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Report of Examination - DMEA Docket 3153 (Manganese), A. L. Gheen et al., Washakie County, Wyoming.

Enclosed are the original and eight copies of the engineering report of examination on the above docket.

The applicant requested $2,885.00 to drive an adit under the deposit.

The engineer examiner does not believe that the property has enough merit to justify Government participation in an exploration project and recommends denial of the application.

We concur in this recommendation.

W. H. King

W. H. King

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
8-4-54
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
1600 EAST FIRST SOUTH STREET
SALT LAKE CITY 1, UTAH

Department of the Interior
Defense Minerals Administration
RECEIVED
AUG 3 - 1954

July 19, 1954

Memorandum

To: W. H. King, Executive Officer, DMEA Field Team, Region IV

From: Chief, Minerals Development Branch, Mining Division, Region IV

Subject: Docket No. DMEA 3153 (Manganese), A. L. Gheen et al., Washakie County, Wyoming

Enclosed are the original and eight copies of an engineering report covering examination of the subject property for DMEA loan appraisal. The report was prepared by W. E. Young, who examined the property June 23, 1954, with D. R. MacLaren of the Survey. Also enclosed are a copy of the brochure, three copies of form 6-803 and three copies of form 6-993.

The examining team believes that additional work on the Gheen property is not warranted in view of the apparent small size of anticipated ore bodies, the low content of manganese and the high content of silica in the ore. It is therefore recommended that the loan request be denied. I concur with this recommendation.

Stephen R. Wilson
Stephen R. Wilson

Enclosure

Reviewed by
DMEA OPERATING COMMITTEE
8-4-54
(date)

IN REPLY REFER TO:

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

July 16, 1954

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 3153, Gheen Manganese Mining Company, Washakie County, Wyoming

Enclosed are 9 copies of a geologic report by D. R. MacLaren of the U. S. Geological Survey covering the above docket.

The Gheen Manganese Mining Company has applied for assistance to explore for manganese ore in a deposit on the southwest flank of the Big Horn Mountains, Washakie County, Wyoming. The ore is confined to two small sharply outlined areas, about 50 feet apart, in the Ordovician Big Horn limestone. The larger area is elliptical and measures about 100 by 40 feet. It has been explored by a short trench and a shallow winze. The smaller area has not been explored. Manganese occurs as the minerals psilomelane and pyrolusite. The ore contains from 5% to 22% Mn and more than 50% SiO_2.

MacLaren concludes that the deposits are small and that beneficiation will be difficult. He recommends denial of the application for exploration assistance.

I concur in this recommendation.

E. M. Hirschman
for A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (9)

Reviewed by
DMEA OPERATING COMMITTEE
8-4-54
(date)

GREEN MANGANESE MINING COMPANY

WASHAKIE COUNTY, WYOMING

DMEA DOCKET 3153

Geologic Report

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

Reviewed by
DMEA OPERATING COMMITTEE
8-4-54
(date)

GHEEN MANGANESE MINING COMPANY
WASHAKIE COUNTY, WYOMING

INTRODUCTION

The Gheen Manganese Mining Company of Worland, Wyoming, has requested the Defense Minerals Exploration Administration to participate in a program to explore for manganese on the southwest flank of the Big Horn Mountains, T 47 N, R 86 W, 6th Principal Meridian, Washakie County, Wyoming. The applicant proposes to drive a cross-cut tunnel, about 50 feet long, to explore beneath a small manganese outcrop. The applicant estimates the cost of the cross-cut will be $2,885 (Government's share 75% or $2,163.75).

The property, located on top of a ridge between Canyon Creek and Onion Gulch, is reached by turning south from U. S. Highway 16 about fifty-two miles east of Worland and following fair logging trails for ten miles and a poor trail for one mile. An examination was made June 22, 1954, in the company of A. L. Gheen and R. E. Bailey, representing the applicant, and W. E. Young of the U. S. Bureau of Mines. It is concluded that the deposit is small and that the treatment of the ore will be costly because of the high silica content. It is therefore recommended that this application be denied.

GEOLOGY

The geology of the Big Horn Mountains is described by N. H. Darton (1906) in U. S. Geological Survey Professional Paper 51. A thick series of Paleozoic and Mesozoic sedimentary rocks form the southwest flank of a large anticlinal uplift. Deep erosion of the crest of the uplift has exposed pre-Cambrian granite on which the sediments were deposited. Most of the surface of the Gheen claims is composed of Big Horn limestone of

Ordovician age. To the north and east the surface rock is the Deadwood formation of Cambrian age, while to the south and west the surface is the Madison limestone of Missippian age. The three formations, more or less parallel, strike north to N 10° W and dip 7° to 12°W. From a fairly flat area on the top of a ridge three quarters of a mile long and a little less than a quarter of a mile wide, the surface slopes steeply to the northwest and the southeast to the beds of Canyon Creek and Onion Gulch, some nine hundred feet below. The Big Horn limestone, in which the manganese is found, is a hard, massive limestone about three hundred feet thick which includes a series of softer, thin-bedded limestones in the upper one hundred feet, and a sandstone member at the base.

On the Gheen claims, manganese is confined to two small, sharply outlined areas about fifty feet apart (fig. 2). The larger area, more or less elliptical in outline, is about one hundred feet long and forty feet wide. A trench twenty-eight feet long and three to six feet deep exposes the northwest and southeast walls of a body of pyrolusite and psilomelane in a gangue of quartz and highly silicified limestone. At each end of the trench the rock is soft limestone heavily stained and coated with powdery black manganese oxide. The southeast half of the trench has been widened around a winze now full of debris. According to James E. Bell of the U. S. Bureau of Mines who examined the property in 1941, the winze penetrates the entire thickness of the manganese body at a depth of ten feet. Bell took one sample of what he considered the best material. The assay showed: 22.1% manganese; 2.1% iron; 0.04% phosphorus; and 58.7% insolubles. In 1951, M. H. Howes and R. L. Middleton of the U. S. Bureau of Mines took three samples which assayed as follows:

Location of sample	%Fe	%S	%SiO2	%Co	%P	%Mn
27' cut across vein	2.7	.02	72.6	.02	.01	5.6
Grab from dump	3.0	.04	66.0	.02	.01	14.0
Selected high grade	3.9	.07	62.4	.02	.01	17.1

The smaller area of float is about 60 feet long and 20 feet wide. No work has been done in this area, but it is doubtful that the source of the float will be as large as the one just described.

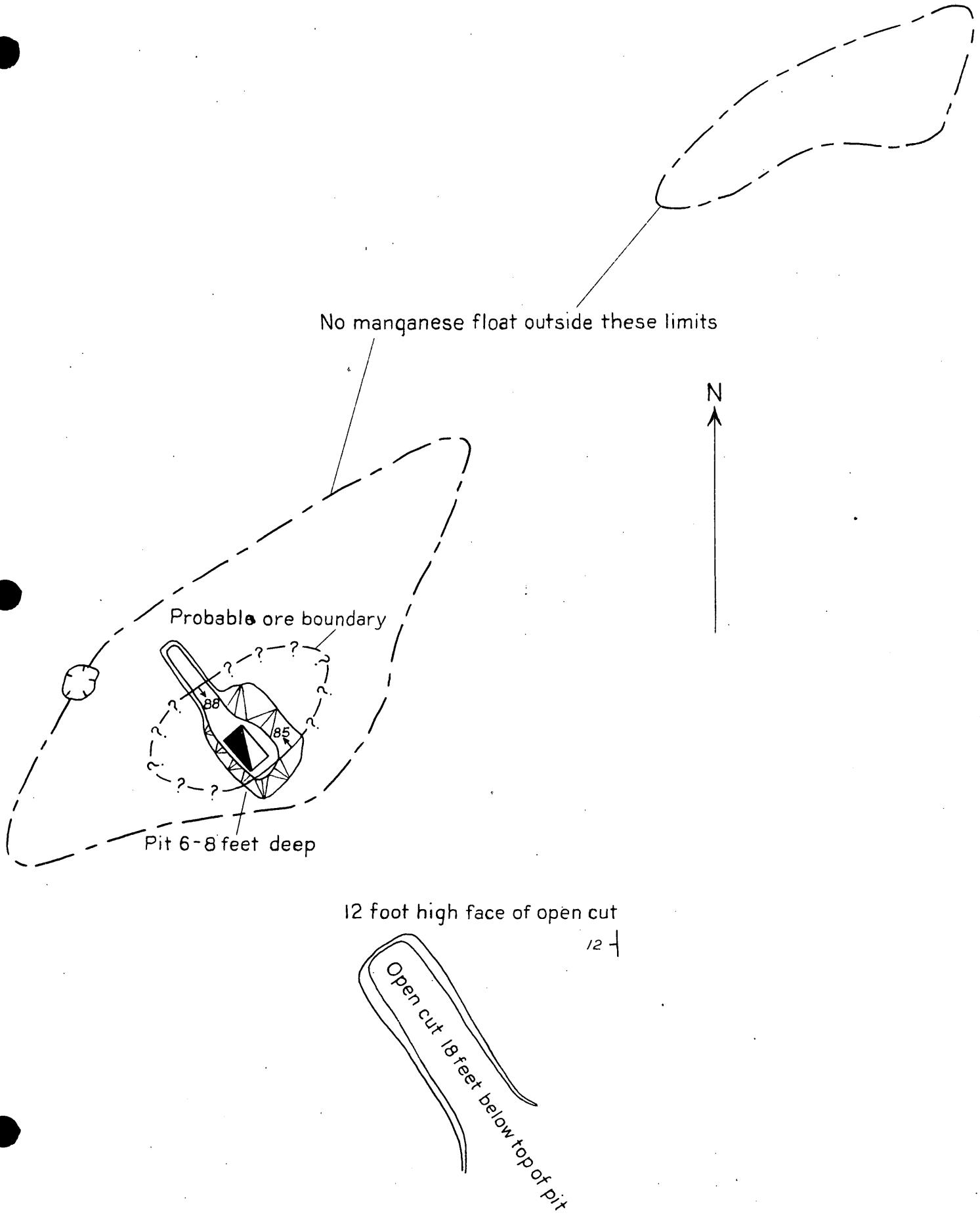
CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the deposit is small, probably containing less than five-hundred tons of ore that will average not more than 20% manganese oxide and more than 50% silica, and that the cost of removing the silica will be extremely high. Therefore it is recommended that this application be denied.

REFERENCES

Darton, N. H. (1906) Geology of the Big Horn mountains; U. S. Geol. Survey Prof. Paper 51. 129 pp., 47 pls. 1906.

Misc. U. S. Bureau of Mines reports by Bell, James E., Jan 16, 1941; Sharp, Earnest H., June 14, 1941; Howes, M. H. and Middleton, R. L., Aug. 6, 1951.



By D.R. MacLaren July 1954

FIG. 2 PLAN SHOWING AREAS OF MANGANESE FLOAT, EXISTING WORKINGS, AND PROBABLE OUTLINE OF ORE, GHEEN CLAIMS, WASHAKIE COUNTY, WYOMING

GREEN PROPERTY
WASHAKIE COUNTY, WYOMING
DMEA-3153
Manganese

Engineering Report

By W. E. Young
Mining engineer
Bureau of Mines

Reviewed by
DMEA OPERATING COMMITTEE
8-4-54
(date)

GHEEM PROPERTY
WASHAKIE COUNTY, WYOMING

CONTENTS

	Page
Engineering report	
Summary	2
Introduction	2
Location, topography and physical features	3
History and production	3
Description of the deposits	3
Ore reserves	4
Project proposals	5
Conclusions and recommendations	5

ILLUSTRATIONS

Fig. 1 Location map, Gheem manganese property, Washakie County, Wyo.

SUMMARY

The Gheen manganese deposit was examined June 23, 1954, in response to a request for Government assistance in exploration. The examination disclosed a small deposit of low-grade manganese ore. The proposed work is more in the nature of development of the outcropping deposit than exploratory work. No alternate proposal is made for exploration because of geologic conditions observed in the area.

It is estimated the deposit may contain 2,500 tons of ore averaging 15 percent manganese. The deposit is too small and too low in grade to be economic at this time.

It is recommended that the application for a loan be denied.

INTRODUCTION

The Gheen manganese deposit, Washakie County, Wyoming, was examined June 23, 1954, by personnel of the Geological Survey and Bureau of Mines. The examination was made at the request of the Regional Field Team in response to an application from A. L. Gheen, owner, for Government assistance in exploration. The applicant proposes to drive an adit under the deposit. The estimated cost of the work is $2,885, of which the Government participation would be $2,163.75.

LOCATION, TOPOGRAPHY AND PHYSICAL FEATURES

The property, consisting of six unpatented lode mining claims, situated in Secs. 15 and 22, T. 47 N., R. 86 W., lies on a high plateau of the Big Horn Mountains, 68 miles northeast of Worland, Wyoming. The area is 12 miles south of U. S. Highway 16, over rough, ungraded dirt road.

HISTORY AND PRODUCTION

The original claims were located in 1940. Additional claims surrounding the area were located in 1953. There has been no production. Work to date consists of a trench across the deposit, a shaft, now caved, in the center of the deposit, and an adit portal location, collared 18 feet below the outcrop. Existing development was done in performing annual assessment work.

DESCRIPTION OF THE DEPOSIT

The deposit occurs in a thin, flat-lying limestone which caps a long, gently sloping ridge. Lower formations are poorly exposed in the area, but float and weathered soils indicate a sequence of alternate red shales and limestones. Manganese, in the form of pyrolusite, psilomelane and braunite, occurs as replacement of the limestone in a zone approximately 25 feet by 100 feet in extent. The shaft was sunk in the center of the deposit and exposes the best mineralization. The shaft is now caved, but is approximately 20 feet deep, as indicated by the size of the dump. This depth roughly coin-

cides with the thickness of limestone and possibly indicates the vertical extent of the most intense mineralization.

Zones of jasper, zones of chalcedony and agate, and solution cavities devoid of mineralization, indicate spring action in the area.

ORE RESERVES

Exposures of float in conjunction with existing development indicates a deposit approximately 25 feet wide by 100 feet long by 20 feet deep. It is estimated that a maximum of 2,500 tons could be mined from this deposit. A considerable amount of the material is silicious breccia and unreplaced limestone. Analyses of samples taken on a previous Bureau of Mines examination are as follows:

Sample No.	Length	Percent					
		Mn	Fe	SiO_2	P	S	Co
G1	27 feet	5.6	2.7	72.6	.01	.02	.02
G2	Grab	14.0	3.0	66.0	<.01	.04	.02
G3	Select	17.1	3.9	62.4	<.01	.07	.02

As indicated by sampling, the deposit contains a low content of manganese and a high silica content.

A 1-ton sample tested in the Bureau of Mines laboratory in 1941 yielded unsatisfactory concentration results generally, because of the high silica content and presence of braunite.

PROJECT PROPOSALS

The owner proposes to contract the work. The estimated cost of driving 100 feet of drift, exclusive of powder and transportation, is $1,920. Supervision, clerical work, powder and transportation are estimated at $965. The total estimated cost for driving 100 feet of drift is $2,885, or $28.85 per foot.

CONCLUSIONS AND RECOMMENDATIONS

A small deposit of low-grade manganese ore has been partially developed on the Gheen claims in Washakie County, Wyoming. The maximum indicated tonnage in the deposit is estimated at 2,500 tons, with an estimated grade of 15 percent manganese. The owner proposes to drive an adit to explore the deposit 18 feet below the outcrop. The proposed work would do little more to explore the deposit than the work that has been done. No other type of work is proposed because it is likely the shaft intersected the base of the deposit. In view of the small size of the deposit, the low content of manganese, and high content of silica, it is recommended that the loan be denied.

DOCKET
SURNAME
Hopkins
Martin

August 17, 1954

MEMORANDUM

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division

Subject: Denial of application for exploration assistance by
Field Team, Region IV
Docket No. DMEA 3153 - Manganese
A. L. Gheen, et al., Gheen Mining claims
Washakie County, Wyoming

The denial of the subject application by the Field Team, Region IV, is based on the following information:

The applicant requested exploration assistance in the amount of $2,885.00 to drive a tunnel about 50 feet to explore beneath a small manganese outcrop.

The property is located on top of a ridge between Canyon Creek and Onion Gulch in the Big Horn mountains in Wyoming.

The area is underlain by Paleozoic and Mesozoic sedimentary rocks. Most of the surface of the Gheen Claims is composed of Big Horn limestone of Ordovician age in which the manganese is found.

On the Gheen Claims, manganese is confined to two small sharply outlined areas. The larger area is 100-feet long and 40-feet wide. A trench across this area 3 to 6 feet in depth exposes a body of pyrolusite and psilomelane in a gangue of quartz and highly silicified limestone.

In 1951, representatives of the Bureau of Mines took three samples which assayed as follows:

Location of sample	%Fe	%S	%SiO2	%Ca	%P	%Mn
27' cut across vein	2.7	.02	72.6	.02	.01	5.6
Grab from dump	3.0	.04	66.0	.02	.01	14.0
Selected high grade	3.9	.07	62.4	.02	.01	17.1

In 1941 the property was examined by the Bureau of Mines A winze that penetrated the entire thickness of the body at 10 feet in depth was sampled. An assay of the best material showed:

22.1% - manganese
2.1% - iron
0.04% - phosphorus
58.7% - insolubles

The maximum indicated tonnage in the deposit is estimated at 2,500 tons with an estimated grade of 15 percent manganese.

In view of the small size of the deposit, the low content of manganese, and high content of silica the Field Team recommended that the loan be denied.

The Iron and Ferro-Alloys Division concurs in the denial.

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

JHOPKINS:foc 8-17-54
cc to: Docket
Code 400
Adm. Reading File
Operating Comm.

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

August 17, 1954

MEMORANDUM

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In view of the small size of the deposit, the low content of manganese, and high content of silica the Field Team recommended that the loan be denied.

The Iron and Ferro-Alloys Division concurs in the denial.

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

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

224 New Customhouse
Denver 2, Colorado

July 29, 1954.

Mr. A. L. Gheen et al.
1113 Grace
Worland, Wyoming

Re: Docket No. DMEA-3153 (Manganese), A. L. Gheen et al., Washakie County, Wyoming.

Gentlemen:

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

A careful study of your property and data available to this agency reveals that the probability of disclosing mineable reserves of manganese is not considered sufficiently promising to justify Government participation. Under these circumstances, we regret to advise you that your application for exploration aid is denied.

Very truly yours,

W H King
W. H. King
DMEA Field Team, Region IV

E. N. Harshman
for A. H. Koschmann
DMEA Field Team, Region IV

RDB:cwm

cc: Docket
Administrator, DMEA
SRWilson
AHKoschmann
Chron.

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

Minerals Administration
RECEIVED
AUG 3 - 1954

224 New Customhouse
Denver 2, Colorado

July 29, 1954.

Memorandum

To: Administrator, Defense Minerals Exploration Administration, Attention: Code 200.

From: DMEA Field Team, Region IV

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W. H. King

E. N. Hauchman
for A. H. Koschmann

Enclosures

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DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

OF THE INTERIOR
Minerals Administration
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224 New Customhouse
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E. N. Hauchman
for A. H. Koschmann

Enclosures

UNITED STATES
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BUREAU OF MINES

Mining Division
Region IV

July 29, 1954.

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The engineer examiner does not believe that the property has enough merit to justify Government participation in an exploration project and recommends denial of the application.

We concur in this recommendation.

W. H. King

W. H. King

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
1600 EAST FIRST SOUTH STREET
SALT LAKE CITY 1, UTAH

Minerals Administration
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July 19, 1954

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From: Chief, Minerals Development Branch, Mining Division, Region IV

Subject: Docket No. DMEA 3153 (Manganese), A. L. Gheen et al., Washakie County, Wyoming

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The examining team believes that additional work on the Gheen property is not warranted in view of the apparent small size of anticipated ore bodies, the low content of manganese and the high content of silica in the ore. It is therefore recommended that the loan request be denied. I concur with this recommendation.

Stephen R. Wilson

Stephen R. Wilson

Enclosure

IN REPLY REFER TO:

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Defense Minerals Administration Administration
Denver Federal Center
Denver 2, Colorado

July 16, 1954

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 3153, Gheen Manganese Mining Company, Washakie County, Wyoming

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MacLaren concludes that the deposits are small and that beneficiation will be difficult. He recommends denial of the application for exploration assistance.

I concur in this recommendation.

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

Enclosures (9)

Lands Minerals Administration
RECEIVED
AUG 3 - 1954

GHEEN MANGANESE MINING COMPANY

WASHAKIE COUNTY, WYOMING

DMEA DOCKET 3153

Geologic Report

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

GHEEN MANGANESE MINING COMPANY
WASHAKIE COUNTY, WYOMING

INTRODUCTION

The Gheen Manganese Mining Company of Worland, Wyoming, has requested the Defense Minerals Exploration Administration to participate in a program to explore for manganese on the southwest flank of the Big Horn Mountains, T 47 N, R 86 W, 6th Principal Meridian, Washakie County, Wyoming. The applicant proposes to drive a cross-cut tunnel, about 50 feet long, to explore beneath a small manganese outcrop. The applicant estimates the cost of the cross-cut will be $2,885 (Government's share 75% or $2,163.75).

The property, located on top of a ridge between Canyon Creek and Onion Gulch, is reached by turning south from U. S. Highway 16 about fifty-two miles east of Worland and following fair logging trails for ten miles and a poor trail for one mile. An examination was made June 22, 1954, in the company of A. L. Gheen and R. E. Bailey, representing the applicant, and W. E. Young of the U. S. Bureau of Mines. It is concluded that the deposit is small and that the treatment of the ore will be costly because of the high silica content. It is therefore recommended that this application be denied.

GEOLOGY

The geology of the Big Horn Mountains is described by N. H. Darton (1906) in U. S. Geological Survey Professional Paper 51. A thick series of Paleozoic and Mesozoic sedimentary rocks form the southwest flank of a large anticlinal uplift. Deep erosion of the crest of the uplift has exposed pre-Cambrian granite on which the sediments were deposited. Most of the surface of the Gheen claims is composed of Big Horn limestone of

Ordovician age. To the north and east the surface rock is the Deadwood formation of Cambrian age, while to the south and west the surface is the Madison limestone of Missippian age. The three formations, more or less parallel, strike north to N 10° W and dip 7° to 12°W. From a fairly flat area on the top of a ridge three quarters of a mile long and a little less than a quarter of a mile wide, the surface slopes steeply to the northwest and the southeast to the beds of Canyon Creek and Onion Gulch, some nine hundred feet below. The Big Horn limestone, in which the manganese is found, is a hard, massive limestone about three hundred feet thick which includes a series of softer, thin-bedded limestones in the upper one hundred feet, and a sandstone member at the base.

On the Gheen claims, manganese is confined to two small, sharply outlined areas about fifty feet apart (fig. 2). The larger area, more or less elliptical in outline, is about one hundred feet long and forty feet wide. A trench twenty-eight feet long and three to six feet deep exposes the northwest and southeast walls of a body of pyrolusite and psilomelane in a gangue of quartz and highly silicified limestone. At each end of the trench the rock is soft limestone heavily stained and coated with powdery black manganese oxide. The southeast half of the trench has been widened around a winze now full of debris. According to James E. Bell of the U. S. Bureau of Mines who examined the property in 1941, the winze penetrates the entire thickness of the manganese body at a depth of ten feet. Bell took one sample of what he considered the best material. The assay showed: 22.1% manganese; 2.1% iron; 0.04% phosphorus; and 58.7% insolubles. In 1951, M. H. Howes and R. L. Middleton of the U. S. Bureau of Mines took three samples which assayed as follows:

Location of sample	%Fe	%S	%Si02	%Co	%P	%Mn
27' cut across vein	2.7	.02	72.6	.02	.01	5.6
Grab from dump	3.0	.04	66.0	.02	.01	14.0
Selected high grade	3.9	.07	62.4	.02	.01	17.1

The smaller area of float is about 60 feet long and 20 feet wide. No work has been done in this area, but it is doubtful that the source of the float will be as large as the one just described.

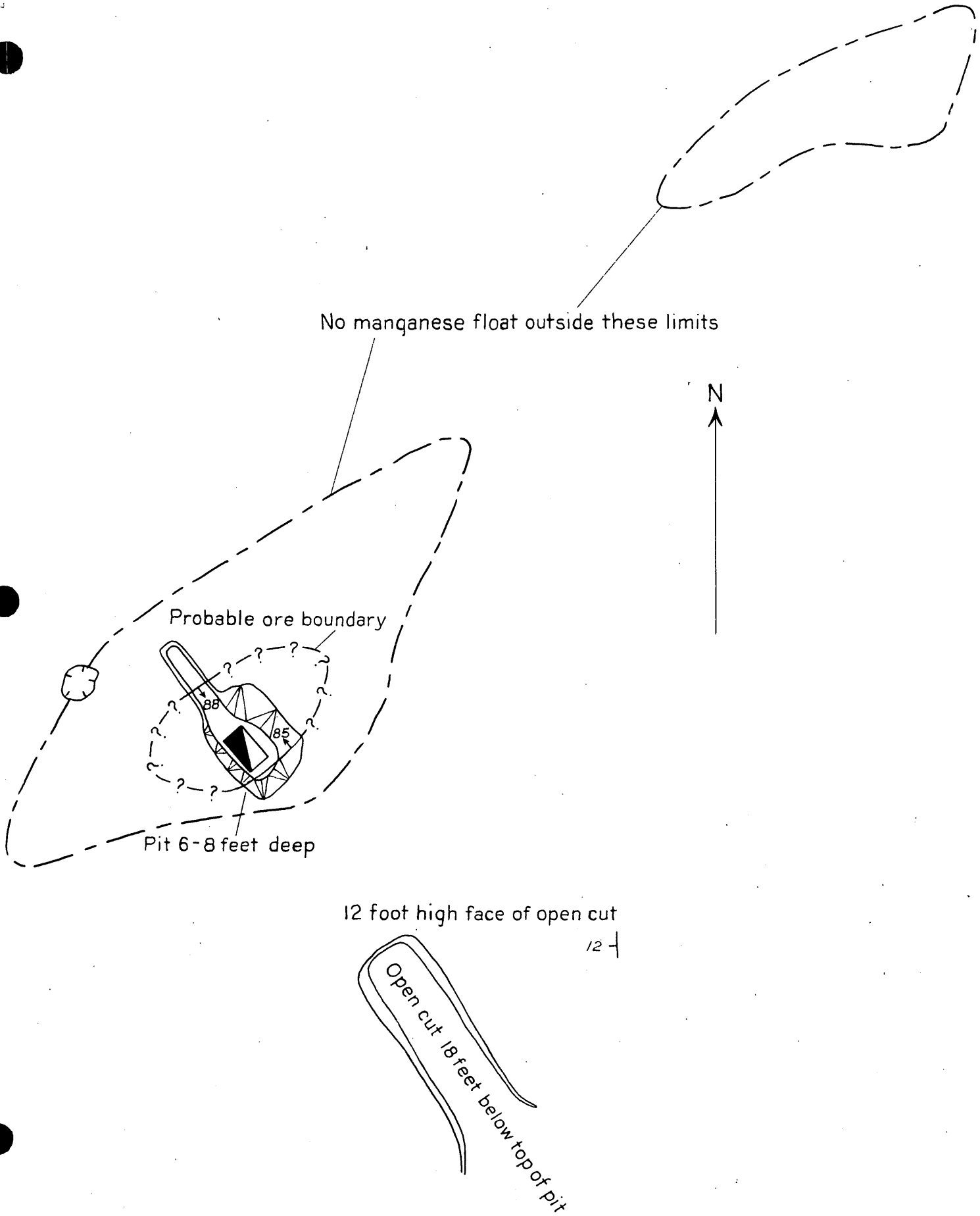
CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the deposit is small, probably containing less than five-hundred tons of ore that will average not more than 20% manganese oxide and more than 50% silica, and that the cost of removing the silica will be extremely high. Therefore it is recommended that this application be denied.

REFERENCES

Darton, N. H. (1906) Geology of the Big Horn mountains; U. S. Geol. Survey Prof. Paper 51. 129 pp., 47 pls. 1906.

Misc. U. S. Bureau of Mines reports by Bell, James E., Jan 16, 1941; Sharp, Earnest H., June 14, 1941; Howes, M. H. and Middleton, R. L., Aug. 6, 1951.



By D.R. MacLaren July 1954

FIG. 2 PLAN SHOWING AREAS OF MANGANESE FLOAT, EXISTING WORKINGS, AND PROBABLE OUTLINE OF ORE, GHEEN CLAIMS, WASHAKIE COUNTY, WYOMING

GHEEN PROPERTY
WASHAKIE COUNTY, WYOMING
DMEA-3153
Manganese

Engineering Report

By W. E. Young
Mining engineer
Bureau of Mines

GHEEN PROPERTY
WASHAKIE COUNTY, WYOMING

CONTENTS

	Page
Engineering report	
Summary	2
Introduction	2
Location, topography and physical features	3
History and production	3
Description of the deposits	3
Ore reserves	4
Project proposals	5
Conclusions and recommendations	5

ILLUSTRATIONS

Fig. 1 Location map, Gheen manganese property, Washakie County, Wyo.

SUMMARY

The Gheen manganese deposit was examined June 23, 1954, in response to a request for Government assistance in exploration. The examination disclosed a small deposit of low-grade manganese ore. The proposed work is more in the nature of development of the outcropping deposit than exploratory work. No alternate proposal is made for exploration because of geologic conditions observed in the area.

It is estimated the deposit may contain 2,500 tons of ore averaging 15 percent manganese. The deposit is too small and too low in grade to be economic at this time.

It is recommended that the application for a loan be denied.

INTRODUCTION

The Gheen manganese deposit, Washakie County, Wyoming, was examined June 23, 1954, by personnel of the Geological Survey and Bureau of Mines. The examination was made at the request of the Regional Field Team in response to an application from A. L. Gheen, owner, for Government assistance in exploration. The applicant proposes to drive an adit under the deposit. The estimated cost of the work is $2,885, of which the Government participation would be $2,163.75.

LOCATION, TOPOGRAPHY AND PHYSICAL FEATURES

The property, consisting of six unpatented lode mining claims, situated in Secs. 15 and 22, T. 47 N., R. 86 W., lies on a high plateau of the Big Horn Mountains, 68 miles northeast of Worland, Wyoming. The area is 12 miles south of U. S. Highway 16, over rough, ungraded dirt road.

HISTORY AND PRODUCTION

The original claims were located in 1940. Additional claims surrounding the area were located in 1953. There has been no production. Work to date consists of a trench across the deposit, a shaft, now caved, in the center of the deposit, and an adit portal location, collared 18 feet below the outcrop. Existing development was done in performing annual assessment work.

DESCRIPTION OF THE DEPOSIT

The deposit occurs in a thin, flat-lying limestone which caps a long, gently sloping ridge. Lower formations are poorly exposed in the area, but float and weathered soils indicate a sequence of alternate red shales and limestones. Manganese, in the form of pyrolusite, psilomelane and braunite, occurs as replacement of the limestone in a zone approximately 25 feet by 100 feet in extent. The shaft was sunk in the center of the deposit and exposes the best mineralization. The shaft is now caved, but is approximately 20 feet deep, as indicated by the size of the dump. This depth roughly coin-

cides with the thickness of limestone and possibly indicates the vertical extent of the most intense mineralization.

Zones of jasper, zones of chalcedony and agate, and solution cavities devoid of mineralization, indicate spring action in the area.

ORE RESERVES

Exposures of float in conjunction with existing development indicates a deposit approximately 25 feet wide by 100 feet long by 20 feet deep. It is estimated that a maximum of 2,500 tons could be mined from this deposit. A considerable amount of the material is silicious breccia and unreplaced limestone. Analyses of samples taken on a previous Bureau of Mines examination are as follows:

		Percent					
Sample No.	Length	Mn	Fe	SiO_2	P	S	Co
G1	27 feet	5.6	2.7	72.6	.01	.02	.02
G2	Grab	14.0	3.0	66.0	<.01	.04	.02
G3	Select	17.1	3.9	62.4	<.01	.07	.02

As indicated by sampling, the deposit contains a low content of manganese and a high silica content.

A 1-ton sample tested in the Bureau of Mines laboratory in 1941 yielded unsatisfactory concentration results generally, because of the high silica content and presence of braunite.

PROJECT PROPOSALS

The owner proposes to contract the work. The estimated cost of driving 100 feet of drift, exclusive of powder and transportation, is $1,920. Supervision, clerical work, powder and transportation are estimated at $965. The total estimated cost for driving 100 feet of drift is $2,885, or $28.85 per foot.

CONCLUSIONS AND RECOMMENDATIONS

A small deposit of low-grade manganese ore has been partially developed on the Gheen claims in Washakie County, Wyoming. The maximum indicated tonnage in the deposit is estimated at 2,500 tons, with an estimated grade of 15 percent manganese. The owner proposes to drive an adit to explore the deposit 18 feet below the outcrop. The proposed work would do little more to explore the deposit than the work that has been done. No other type of work is proposed because it is likely the shaft intersected the base of the deposit. In view of the small size of the deposit, the low content of manganese, and high content of silica, it is recommended that the loan be denied.

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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

Not to be filled in by applicant

Docket No. DMEA-3153
Metal or Mineral
Date Received 8/31/53
Estimated Cost
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: A. L. Gheen, C. A. Gheen, I. F. McCann, M. J. Christoffersen, June Gibbons, Myron Tolman and R. E. Bailey, at 1113 Grace, Worland, Wyoming, a partnership, each having one seventh equity.

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

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

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract Attached herewith.

(*b*) State any mine name by which the property is known. Gheen Manganese Mining Company

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

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

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

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

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

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

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

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

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

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

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

(*c*) The work will start within 30 days and be completed within 12 months from the date of an exploration project contract.

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

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

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

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

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

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

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

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

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

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

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

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

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

[x] Money [ ] Use of equipment owned by you [ ] Other

Explain in detail on acompanying paper.

CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief.

Dated August 22, 1953

A. L. Gheen
A. L. Gheen

Clara A. Gheen
C. A. Gheen

(Applicant)

By I. F. McCann, M. J. Christofferson and June Gibbons
By: A. L. Gheen
Attorney in fact.

R. E. Bailey
R. E. Bailey

Myron Tolman
Myron Tolman

Title 18, U. S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

U. S. GOVERNMENT PRINTING OFFICE 16—66551-1

3. Description of Lode Claim locations.

Gheen No. 1. Beginning at Corner No. 4 of Gheen No. 1 lode, said corner No. 4 being N. 75 degrees, 30' 2.53" W., 11,246 feet from the East quarter corner of section 12, T. 47 N., R 86 W. of the sixth principal Meridan, thence N. 73 degrees, 35'W., 600 feet to corner No. 1, thence S. 16 degrees,25' W., 1500 feet to corner No. 2, thence S. 73 degrees, 35' E., 600 feet to corner No. 3, thence N. 16 degrees, 25' e., 1500 feet to the place of beginning.

Gheen No. 2. Beginning at Corner No. 4 of Gheen No. 2 Lode Claim, aid corner No. 4 being N. 67 degrees 52' 26" W., 11, 295 feet from the East quarter corner of Section 12, T. 47 N., R. 86 W of the Sixth Principal Meridian thence N. 73 degrees, 35' W., 600 feet to corner No. 1, thence S. 16 degrees, 25' W., 1500 feet to corner No. 2, thence S. 73 degrees, 35' E., 600 feet to corner No. 3, thence N. 16 degrees, 25' E., 1500 feet to corner No. 4, the place of beginning.

Gheen No. 3. Beginning at Corner No. 4 of Gheen No. 3 Lode; said Corner No. 4 being located N. 75 degrees, 24' W. 11,845 feet from the East ¼ Corner of Section 12, 47-86 West of the 6th P. M. thence South 16 degrees, 25' W. 1500 feet to the Corner No. 3, thence N. 73 degrees,35' W. 600 feet to Corner No. 2, thence N. 73 degrees, 35' W. 600 feet to Corner No. 2, thence N. 16 degrees, 25' E. 1500 feet to Corner No. 1 thence S. 73 degrees, 35' E. 600 feet to the point of beginning.

Gheen No. 4. Beginning at Corner No. 4 of Gheen No. 4 Lode; said Corner No. 4 being located N. 75 degrees, 24' W., 11845 feet from the East ¼ Corner of Section 12, 47-86, W. of 6th P. M. thence N. 73 degrees, 35' W., 1500 feet to Corner No. 3, thence N. 16 degrees, 25' E., 600 feet to Corner No. 2 thence S. 73 degrees, 35' E., 1500 feet to Corner No. 1, thence S. 16 degrees, 25' W., 600 feet to Corner No. 4, the point of beginning.

Gheen No. 5. Beginning at Corner No. 2 of Gheen No. 5 Lode; said Corner No. 2 being located N. 75 degrees, 30' W., 11,246 feet from the East ¼ Corner Section 12, 47-86, 6th P. M., thence S. 73 degrees, 35' E., 1500 feet, thence S. 16 degrees, 25'W., 600 feet, thence N. 73 degrees, 35' W., 1500 feet, thence N. 16 degrees, 25' E., 600 feet to Corner No. 2 which is the point of beginning.

Gheen No. 6. Beginning at Corner No. 3 of Gheen No. 6 Lode; said Corner No. 3 being located N. 75 degrees, 30' W., 11,246 feet from the East ¼ Corner o Section 12, 47-86 W. of the 6th P. M., thence N. 16 degrees, 25' E., 1500 feet, thence S. 73 degrees, 35' E., 600 feet, thence S. 16 degrees, 25' W., 1500 feet, thence N. 73 degrees, 35' W., 600 feet to Corner No. 3 which is the point of beginning.

3.(f)	Filing Number	Date Filed	Book Number	Page Number.
Gheen No. 1	67879	7-27-40	1	484
Gheen No. 2	67878	7-27-40	1	483-484
Gheen No. 3	129225	8-18-53	44	546-547
Gheen No. 4	129226	8-18-53	44	548-549
Gheen No. 5	129224	8-18-53	44	544-545
Gheen No. 6	129223	8-18-53	44	542-543

4.(a). Preliminary assessment work only.

(b). No previous production.

(c). See Stephen R. Wilson letter of August 3, 1953, attached.

(d). Lode Claim location is approximately eleven miles South of U. S. #16, 10 miles of which is a logging road. There is one mile that is only a trail, which a passenger car can transverse.

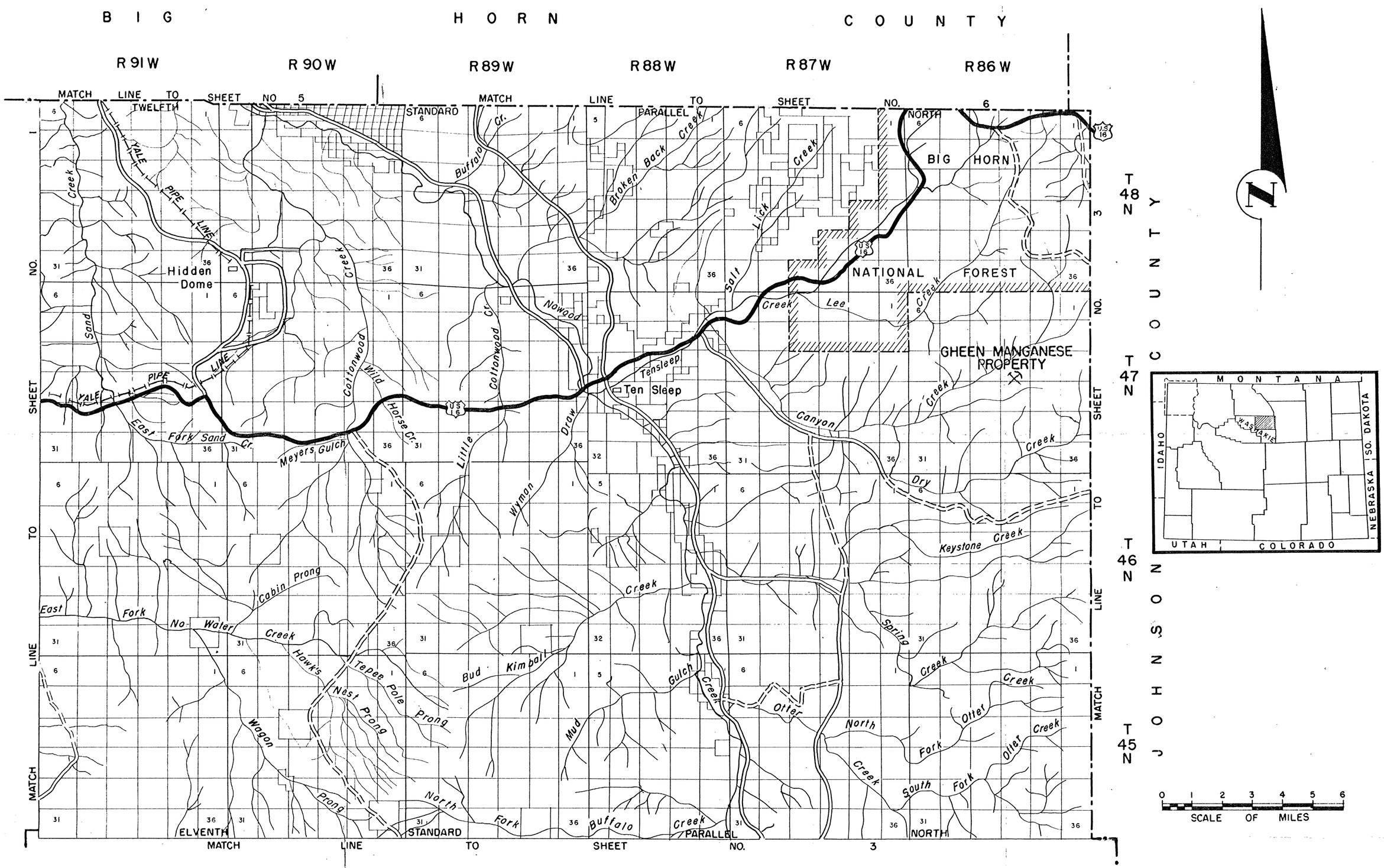
(e). Manpower is available, materials and supplies are no problem, contractor to furnish all equipment. Canyon Creek flows sufficient water to operate a turbine. It appears Canyon Creek can either be pumped or by gravity up the canyon be brought down to a point 800 feet above Onion Gulch at a point directly above where an ideal mill turbine for power could be located. 800 feet fall plus .4# gives pressure of 320 pounds. Water rights for Canyon Creek and Onion Gulch is being processed now.

5.(d) Mr. A. L. Gheen has had over 30 years mining experience, from Mucker to Assistant Supt. He will direct the contractor on the tunnel, be the powder man and in charge of the entire operation.

6. (a) Contractor to fu rnish air compressor, compressor operator and helper at rate of $8.00 per hour for estimated 240 hours or $1,920.00

(b)	Mr. A. L. Gheen, supervisor - estimated amount of	$ 400.00
(c)	Furnished by contractor, except feed, small tools & powder	165.00
(d)	Furnished by contractor, EXCEPT TRANSPORTATION	300.00
(e)	None	
(f)	None	
(g)	Clerical	100.00
		$2885.00

7. We propose to fufnish one fourth of the actual expenses. The above list is an estimate only. In addition to this we have small tools, mining cart and other miscellaneous pieces of equipment. We are in a position to deposit up to $1,000.00 in cash for this venture to take care of any unexpected contingicies that may arise.



U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Fig. 1 DMEA Docket No. 3153

STATE:- WYOMING
COUNTY:- WASHAKIE
Sheet 2 of 3
Location Map

ENGINEER:- W. E. Young	DATE:- JULY 2, 1952
TRACED:- JULY, 54; BY:- A.P.T.S.	700-190-C
CHECKED:-	