DMA Form 1

DEFENSE MINERALS ADMINISTRATION
Control Slip Manganese

CONTROLLED DOCUMENT

DMA Docket No. 595

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
An Exploration Project.

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:	P.E.Div.	Date	11/26/51
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402

MAY 9 1952

The Higley Mining Company
Mr. Theodore John, Attorney
517 Kiesel Building
Ogden, Utah

Re: Docket No. DMA 695X - Manganese
Higley Mine
Weber County, Utah

Dear Mr. John:

This is to acknowledge receipt of your letter of April 30, 1952, in which you request an extension of time to June 30 to complete the above mentioned application.

We regret to inform you that in accordance with our letter of March 5, 1952, we removed the subject application from our active file on May 1, 1952. Since we sent you copies of forms MV-100 and MV-103 in our letter of December 14, 1951, along with our request for considerable additional information, supplementing our letter to you of July 3, 1951, we suggest that you file a new application. Where feasible, you can refer to any of the material originally submitted in your application DMA 695X.

Upon receipt of the new application, we shall gladly give it our immediate consideration and assure you that no time will be lost in processing your application even though the number has been changed.

Sincerely yours,

C. O. Mittendorf

Acting Administrator
Defense Minerals Exploration
Administration

GOSelfridge:lm
5/7/52

cc: Admin. Reading File
Docket
Field Team Reg. IV
N. B. Melcher, USBM
D. M. Lemmon, USGS
O. G. Selfridge

Mr. R. E. Adams, Administrative Officer, DMEA April 30, 1952

Iron and Ferro-Alloy Division, DMEA

Removal of applications from active files

Early in March letters were sent to several applicants advising that in order for their applications to be further processed, information which we had requested several times must be forthcoming by May 1, 1952, or we would remove the applications from our active file and thereby close the docket.

The applicants listed below failed to reply and their dockets are transmitted to you herewith.

Docket No. DMA 695X - Manganese
Higley Mining Company
Payday Mine
Weber County, Utah

Docket No. DMA 1347X - Tungsten
Bohad Corporation
Challenge Mine
Inyo County, California

Docket No. DMA 1369X - Cobalt
Coosa Mining & Smelting Company
Ben S. Hosey, Secretary
Talladega County, Alabama

Docket No. DMA 1370X - Manganese
Coosa Mining & Smelting Company
Talledega County, Alabama

Docket No. DMA 1372X - Tungsten
Arthur B. Carton, Attorney
Claims in Rand Mining District
Kern and San Bernardino County, California

Docket No. DMA 1745X - Tungsten
Wilford McClellan
Tungsten Mine 50 miles west of Delta,
Utah

Docket No. DMA 1861X - Manganese
Reed L. Schlieve
Reed and Associates
Johnson County, Wyoming

G. C. Selfridge, Chief
Iron and Ferro-Alloy Division

Attachments

file

MAR 5 1952

1957

Mr. Theodore Bohn
Rigley Mining Company
517 Kiesel Building
Ogden, Utah

Re: Docket No. DMA 695X - Manganese
Dayday Mine
Weber County, Utah

Dear Mr. Bohn:

A review of your application of June 29, 1951, for a $24,580.00 exploration contract reveals that a letter dated December 14, 1951, by Mr. O. C. Selfridge, Chief, Iron and Ferro-Alloy Division of Defense Minerals Exploration Administration requests additional information necessary to process your application. We have not received an answer from you and we assume that you no longer desire to proceed with the application.

We wish to cooperate with you in the matter of allowing ample time, but if the needed data have not been received by May 1, 1952, we will then remove your application from the active file and consider the matter closed.

Sincerely yours,

C. O. Mittendorf

Acting Administrator
Defense Minerals Exploration
Administration

OOGentry:lm
3/3/52

cc: Admn. Reading File
Docket
W. B. Melcher
H. D. Crittenden
Field Team Reg. IV
O. C. Selfridge
G. G. Gentry

July 23, 1951

Mr. Howard L. Lichfield
Higley Mining Corporation
517 Kimel Building
Ogden, Utah

In reply please refer to:
DMA-695-X — Manganese

Dear Mr. Lichfield:

In order to give further consideration to your application for an exploration loan it is necessary that you supply us with the following information to complete questions on your MF 103;

1. Is the applicant a partnership, corporation or individual?

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

3. If a corporation, state names and addresses of officers, directors, and five largest stock holders.

4. Describe 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 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.

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

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

18. b. Submit maps and assay data.

23. e. Suggest you investigate the possibilities of renting a bulldozer and submit findings as 23 g or an explanatory note.

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

We are also interested in receiving the geologists report which you state will be filed at a later date.

Very truly yours,

George B. Holderer

jam

George B. Holderer
Chief, Manganese Branch

CHJacoby:awj

cc:File
Adm. Reading File
Reports & Records Unit
Mr. Holderer

July 12, 1951

Mr. Howard S. Lichfield
517 Kiesel Building
Ogden, Utah

Subject: DMA-695X
Re: Exploration Loan -
Payday Mine

My dear Mr. Lichfield:

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

The application was assigned Docket Number DMA-695X and referred to Mr. George Holderer, Chief, Manganese Branch on July 11, 1951.

In any future correspondence relating to your application, kindly refer to DMA-695X.

Sincerely yours,

LANDON F. STROBEL

Landon F. Strobel
Executive Secretary

L. F. Strobel:jc
cc: Strobel
File
✓ Holderer
Lyon

March 28, 1951

Memorandum

To: L. P. Strobel, Executive Secretary, RFC

Through: Director, Supply Division

From: Manganese Commodity Committee

Subject: MM-695, Bigley Mining Co.
517 Miesel Bldg.
Ogden, Utah

Applicant has requested a loan of $25,000 to equip and develop manganese claims located in Weber County, Utah. This property was examined by both the Bureau of Mines and Geological Survey when the adits were accessible. Reserves are estimated at about 500 tons of ore averaging 20% manganese. Bureau of Mines ore-dressing studies of these ores indicate that a high-grade product can be obtained with satisfactory recoveries by fine grinding and flotation, but the complicated treatment required is not justified by the reserves obtainable.

This application should be rejected because there is no indication that the deposit contains sufficient ore to warrant a loan of the size requested. A letter informing the applicant of this action is attached.

P. K. Bradley, Jr.
Chief, Manganese Branch

Approved:

Director, Supply Division

MDCrittenden:gt: Pbradley:ec

CC. Adm. Reading File
Mr. Strobel
Mr. Bradley
Mr. Crittenden
Regional Field Team - Region IV
Files

Return to
C.R. Bradley - Rm. 3624

March 28, 1951

Mr. Theodore Kohn
Attorney at Law
517 Ideal Bldg.
Ogden, Utah

DMA No. 695

Dear Mr. Kohn:

Your letters of February 6th and February 27th to [illegible] East, Jr. transmitting a request for assistance in the development of manganese properties near Ogden, Utah have been considered by the Defense Minerals Administration. Loans of the type you have requested can only be made if there is ample evidence that the properties in question contain reserves sufficient to pay back the amount of money invested at a reasonable rate per ton.

The Taylor property has been examined by the Bureau of Mines and Geological Survey, and the information available does not indicate that this property warrants a loan in the amount of $25,000. The possibility is suggested that small scale development with relatively little expenditure might enable you to ship this property and sell ore to Kaiser Steel Co. Large scale mechanized operation is not recommended.

Sincerely yours,

Tom Lyon

Tom Lyon,
Director, Domestic Division

MDCrittenden:gt:CRBradley:ec

CC: Adm. Reading File
Mr. Strobel
Mr. Bradley
Mr. Crittenden
Regional Field Team- Region IV
Files

FILE COPY 400
SURNAME:

Selfridge.

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

MAY 9 1952

The Higley Mining Company
Mr. Theodore Bohn, Attorney
517 Kiesel Building
Ogden, Utah

Re: Docket No. DMA 695X - Manganese
Mayday Mine
Weber County, Utah

Dear Mr. Bohn:

This is to acknowledge receipt of your letter of April 30, 1952, in which you request an extension of time to June 30 to complete the above mentioned application.

We regret to inform you that in accordance with our letter of March 5, 1952, we removed the subject application from our active file on May 1, 1952. Since we sent you copies of forms MF-100 and MF-103 in our letter of December 14, 1951, along with our request for considerable additional information, supplementing our letter to you of July 3, 1951, we suggest that you file a new application. Where feasible, you can refer to any of the material originally submitted in your application DMA 695X.

Upon receipt of the new application, we shall gladly give it our immediate consideration and assure you that no time will be lost in processing your application even though the number has been changed.

GCSelfridge'lm
5/7/52

Sincerely yours,

C. O. Mittendorf (for) P.N. 5-9-52

Acting Administrator
Defense Minerals Exploration
Administration

cc: Admn. Reading File
Docket
Field Team Reg. IV
N. B. Melcher, USBM
D. M. Lemmon, USGS
G. C. Selfridge

THE HIGLEY MINING COMPANY
517 KIESEL BUILDING
OGDEN, UTAH

April 30, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 5 1952

United States Dep't of Interior
Defense Minerals Administration
George B. Holderer
Chief, Manganese Branch
Washington 25, D. C.

Subject: DMA-695x - Manganese

Dear Sir:

In your last letter to the above company, which has been misplaced, we were advised that our application must be completed by sometime in May, 1952. The part of this application to complete the same is a report by a geologist or mining engineer.

At this time it appears that due to the very heavy snows in this area, it will not be possible to have a geologist go on the property until at least the first part of June, of this year. A geologist has been retained for this work for several months for this purpose.

12/15/51 — sent new forms to apply. — no reply.
We wrote on 3/3 — rec'd no reply
4/30 — we sent ultimatum to 7/1 — no reply.

Would it be possible to extend the time for the completion of the above mentioned application and the report of the geologist on our property until the 30th day of June. By that time we could get an expert on the ground and he would have time to formulate his report and recommendations.

Very truly yours,

HIGLEY MINING COMPANY

By- Theodore Bohm
Attorney.

RECEIVED

MAY 2 4 35 PM '52

DEFENSE MATERIALS
PROCUREMENT AGENCY

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Mr. R. E. Adams, Administrative Officer, DMEA DATE: April 30, 1952

FROM : Iron and Ferro-Alloy Division, DMEA

SUBJECT: Removal of applications from active files

Early in March letters were sent to several applicants advising that in order for their applications to be further processed, information which we had requested several times must be forthcoming by May 1, 1952, or we would remove the applications from our active file and thereby close the docket.

The applicants listed below failed to reply and their dockets are transmitted to you herewith.

Docket No. DMA 695X - Manganese
Higley Mining Company
Payday Mine
Weber County, Utah

Docket No. DMA 1347X - Tungsten
Bohad Corporation
Challenge Mine
Inyo County, California

Docket No. DMA 1369X - Cobalt
Coosa Mining & Smelting Company
Ben S. Hosey, Secretary
Talladega County, Alabama

Docket No. DMA 1370X - Manganese
Coosa Mining & Smelting Company
Talledega County, Alabama

Docket No. DMA 1372X - Tungsten
Arthur B. Carton, Attorney
Claims in Rand Mining District
Kern and San Bernardino County, California

Docket No. DMA 1745X - Tungsten
Wilford McClellan
Tungsten Mine 50 miles west of Delta,
Utah

Docket No. DMA 1861X - Manganese
Reed L. Schlieve
Reed and Associates
Johnson County, Wyoming

G. C. Selfridge

G. C. Selfridge, Chief
Iron and Ferro-Alloy Division

Attachments

FILE COPY
SURNAME:

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

Gordon Selfridge

MAR 5 1952

Mr. Theodore Behn
Higley Mining Company
517 Kiesel Building
Ogden, Utah

Re: Docket No. DMA 695X - Manganese
Payday Mine
Weber County, Utah

Dear Mr. Behn:

A review of your application of June 29, 1951, for a $24,580.00 exploration contract reveals that a letter dated December 14, 1951, by Mr. G. C. Selfridge, Chief, Iron and Ferro-Alloy Division of Defense Minerals Exploration Administration requests additional information necessary to process your application. We have not received an answer from you and we assume that you no longer desire to proceed with the application.

We wish to cooperate with you in the matter of allowing ample time, but if the needed data have not been received by May 1, 1952, we will then remove your application from the active file and consider the matter closed.

Sincerely yours,

E.L. 3/5/52

C. O. Mittendorf (fw)

Acting Administrator
Defense Minerals Exploration
Administration

GGGentry'lm
3/3/52

cc: Admn. Reading File
Docket
N. B. Melcher
M. D. Crittenden
Field Team Reg. IV
G. C. Selfridge
G. G. Gentry

FILE COPY
SURNAME:

Robertson
Schroder
F E Johnson

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

DEC 14 1951

AIR MAIL

P.A.

Mr. Theodore Bohn
Bigley Mining Company
517 Kiesel Building
Ogden, Utah

Re: Docket No. DMA-695
Exploration Project-Manganese
Bigley Mining Company
(Howard S. Lichfield)
517 Kiesel Bldg.
Ogden, Utah

Dear Mr. Bohn:

This is in reply to your letter of November 13, 1951 in reference to the exploration application for the Bigley Mining Company which was signed by Howard S. Lichfield as agent.

The information submitted was wholly inadequate to enable us to pass on the project from any angle. As pointed out in our letter dated July 23, 1951 to Mr. Howard S. Lichfield, there remain many essential questions unanswered in the application.

A number of the items in the total estimated cost of $24,500 are unrealistic; for example, the large fees for geologist and engineer, and the item for the purchase of a new bulldozer when a rented machine would be sufficient for the short period involved.

Your letter indicates that you now wish to re-examine the scope of the exploration project with the aid of geological advice which you say is available to you. We therefore are sending you 6 copies of our new revised form MF-103 which is shorter and simpler to understand than the first one.

It is important to remember that the project is definite in scope, definite in land area and legal description, and definite in proposed amount of work and total cost. A breakdown should be made of the costs into major items such as - labor and supplies, rentals, contracts, purchases of tools & machinery, outlays for improvements and building, etc.

Small sketch maps are most helpful. They should indicate location of proposed work and show boundaries of claims and other tracts included in the project.

Enclosed please find the following forms for your convenience:-

1 DMA Release - Questions and Answers on Mineral Exploration Program
5 Copies of DMA form 183 (Send us four copies)
1 Copy Mineral Order MO-5 (As Amended)
5 Copies of DMA form 108 (Send us four copies)

We would appreciate having four copies of maps and technical estimates whenever possible.

Sincerely yours,

SIGNED S.H. 12-14

George C. Selfridge, Acting Chief
Iron and Ferro-Alloy Division
Defense Minerals Exploration Administration

Enclosures - 12

JTRobertson/jem/hmj
12-10-51
cc to: Adm. Reading File
Mails & Files
Mr. Mittendorf
Melcher
Thayer
Robertson
Field Team, Reg. IV (2)
Docket

IRON ~ FERRO-ALLOYS

THE HIGLEY MINING COMPANY
517 KIESEL BUILDING
OGDEN, UTAH

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D. C.
Nov 15 4 05 PM '51

November 13, 1951

DEPARTMENT OF THE INTERIOR
RECEIVED
NOV 19 1951
Defense Minerals Administration,
Production Expansion Division.

United States Dep't of Inrerior
Defense Minerals Administration
George B. Holderer
Cheif Manganese Branch
Washington 25, D. C.

Subject: DMA-695x - Manganese

Dear Sir:

Our application for a government loan was not finished for the reason that we were not able to secure the services of a geologist. Finally we have found a geologist who will be ab le to check over our property and make a suitable report.

Is it possible to complete our application and forward the report of the geologist at this time?

We have your letter of July 23, 1951, directed to Mr. Lichfield, one of the partners of our mining partnership. Upon the completion of the several matters set forth therein together with the report of a geologist completes our application.

Your early reply on this question will be sincerely appreciated.

Very truly yours,

HIGLEY MINING COMPANY

By Theodore Baker

Higley Mining Company
505-6, Eccles Bldg.
Ogden, Utah.

OGDEN
NOV 13
3 PM
1951
UTAH

AIR MAIL
6¢
U.S. POSTAGE

VIA AIR MAIL

U. S. Department of Interior
Defense Minerals Administration
George B. Holderer
Chief-Manganese Branch
WASHINGTON, 25, D. C.

FILE COPY
SURNAME:

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

Holden
Jacoby

July 23, 1951

Mr. Howard L. Lichfield
Bigley Mining Corporation
517 Kisel Building
Ogden, Utah

In reply please refer to:
DMA-695-X — Manganese

Dear Mr. Lichfield:

In order to give further consideration to your application for an exploration loan it is necessary that you supply us with the following information to complete questions on your MF 103;

1. Is the applicant a partnership, corporation or individual?

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

3. If a corporation, state names and addresses of officers, directors, and five largest stock holders.

4. Describe 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 lessee of the property?

6. If owner, state what claims, leins, 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.

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

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

18. b. Submit maps and assay data.

File 695

23. e. Suggest you investigate the possibilities of renting a bulldozer and submit findings as 23 g or an explanitory note.

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

We are also interested in receiving the geologists report which you state will be filed at a later date.

Very truly yours,

George B. Holderer

gam

George B. Holderer
Chief, Manganese Branch

CHJacoby:awj

cc:File
Adm. Reading File
Reports & Records Unit
Mr. Holderer

FILE COPY
SURNAME:

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

July 12, 1951

Mr. Howard S. Lichfield
517 Kiesel Building
Ogden, Utah

Subject: DMA-695X
Re: Exploration Loan -
Payday Mine

My dear Mr. Lichfield:

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

The application was assigned Docket Number DMA-695X and referred to Mr. George Holderer, Chief, Manganese Branch on July 11, 1951.

In any future correspondence relating to your application, kindly refer to DMA-695X.

Sincerely yours,

LANDON F. STROBEL

Landon F. Strobel
Executive Secretary

L. F. Strobel:jc
cc: Strobel
File
Holderer
Lyon

DMA 695

858

FILE COPY
SURNAME:

Bradley

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

March 28, 1951

Memorandum

To: L. F. Strobel, Executive Secretary, DMA

Through: Director, Supply Division

From: Manganese Commodity Committee

Subject: DMA-695, Higley Mining Co.
517 Kiesel Bldg.
Ogden, Utah

Applicant has requested a loan of $25,000 to equip and develop manganese claims located in Weber County, Utah. This property was examined by both the Bureau of Mines and Geological Survey when the adits were accessible. Reserves are estimated at about 500 tons of ore averaging 20% manganese. Bureau of Mines ore-dressing studies of these ores indicate that a high-grade product can be obtained with satisfactory recoveries by fine grinding and sintering, but the complicated treatment required is not justified by the reserves obtainable.

This application should be rejected because there is no indication that the deposit contains sufficient ore to warrant a loan of the size requested. A letter informing the applicant of this action is attached.

P. R. Bradley mem
P. R. Bradley, Jr.
Chief, Manganese Branch

Approved:

Tom Lyon
ad
Director, Supply Division

MDCrittenden:gt:PRbradley:ec

CC. Adm. Reading File
Mr. Strobel
Mr. Bradley
Mr. Crittenden
Regional Field Team - Region IV
Files

FILE COPY
SURNAME:

Bradley

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

March 28, 1951

Mr. Theodore Bohn
Attorney at Law
517 Kiesel Bldg.
Ogden, Utah

DMA No. 695

Dear Mr. Bohn:

Your letters of February 6th and February 27th to J. H. East, Jr. transmitting a request for assistance in the development of manganese properties near Ogden, Utah have been considered by the Defense Minerals Administration. Loans of the type you have requested can only be made if there is ample evidence that the properties in question contain reserves sufficient to pay back the amount of money involved at a reasonable rate per ton.

The Payday property has been examined by the Bureau of Mines and Geological Survey, and the information available does not indicate that this property warrants a loan in the amount of $25,000. The possibility is suggested that small scale development with relatively little expenditure might enable you to operate this property and sell ore to Geneva Steel Co. Large scale mechanized operation is not recommended.

Sincerely yours,

Tom Lyon,
Director, Supply Division

DMA-695

History of Mines & Co

MDCrittenden:gt:PRBradley:ec

CC: Adm. Reading File
Mr. Strobel
Mr. Bradley
Mr. Crittenden
Regional Field Team- Region IV
Files

DMA-695

8956

Mr. Bradley

DEFENSE MINERALS ADMINISTRATION

Referral of Applications for Government Aid

Docket No. DMA-695

Commodity: Manganese

Name of Applicant: Higley Mining Company

Address of Applicant: 517 Kiesel Building, Ogden, Utah

Name of Property: Payday Mine

Location of Property: South Ogden Canyon, Utah

Nature of Application: Loan of $25000.00

Action Dates

Application: 2/6/51

Received: 2/22/51

Acknowledged:

Referred to Manganese Committee: 2/26/51

dma 695

THEODORE BOHN
ATTORNEY AT LAW
517 KIESEL BUILDING
OGDEN, UTAH
PHONE 3-1248

February 6, 1951

REGIONAL ... OFFICE
REGION IV
FEB 13 1951
FUNDING ... DENVER, COLORADO

J. H. East, Jr.
Regional Director, Region IV
Bureau of Mines
224 New Customhouse
Denver 2, Colorado

Dear Sir:

Herewith are submitted proposals for Government Loan under Section 302 of Defense Production Act of 1950, in accordance with a bulletin on loans for metal mining industry, as quoted by letter from Assistant Secretary of the Interior, C. C. Dabdson:

1. Payday mine. Higley Mining Company, 517 Kiesel Building, Ogden, Utah.
   Previous operators: Trotter & Son, same name of mine.

2. Approximately 50 tons; No production at the present time. During war 1 three cars of high grade ore taken out, by a Mr. Bacon. Information from Pete Olson, this ore averaged 50 per cent.
3. See Engineer's Report attached hereto.

4. See Engineer's Report; See maps enclosed;

5. Government report on mine enclosed herewith. No. Rl 4524 Sept. 1949.

6. E. C. Ecklund - 20 years experience in mine operation, Hibbing, Minn., two years experience mine operation in Tooele, Utah. George H. Higley since 1915 has operated claims in northern, Utah. Howard S. Lichfield, sampler and cardigrapher; construction crew foreman, since 1934. Member of Great American Prospector's Ass.

7. Extensive manganese mineralization under location by the above named company, adjacent to the Payday mine. A number of cuts on these properties show high grade ore.

   A two ton mill report was made at the Bureau of Mines at Salt Lake City, Utah, a copy of report given to Mr. George H. Higley, was mislaid and cannot be found.

8. Yes, but have been unable to secure any finance from any other source.

Note: Large map and report No. R. I. 4524, Sept. 1949, U. S. Dep't of Interior, Bureau of Mines, "Concentration of Oxide Manganese Ores from Payday No. 1 & Newcomb properties in Weber County, Utah--Mailed by separate cover.

Very truly yours,

Higley Mining Company

By Theodore Bohn

Acknowledged 4/13/51

F. STROBEL

dmu 695

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

REGION IV

OFFICE OF
REGIONAL DIRECTOR

224 NEW CUSTOMHOUSE
DENVER 2, COLORADO

February 27, 1951

Dr. James Boyd
Administrator
Defense Minerals Administration
Interior Building
Washington 25, D. C.

Dear Doctor Boyd:

We are enclosing a map, which includes the report to the Defense Minerals Administration, received from Mr. Theodore Bohn, attorney for Higley Mining Company. The loan application for the Higley Mining Company was forwarded to Washington on February 13 and it is requested that this information be made a part of the application.

Sincerely yours,

J. H. East, Jr.
(lm)
J. H. East, Jr.
Regional Director

Enclosure

DRAINAGE
WATER RIGHTS
IRRIGATION
WATER SUPPLY

DAVID I. GARDNER
CONSULTING ENGINEER
MIDVALE, UTAH

TELEPHONE
MID. 412-W

February 2, 1951

Mr. Theodore Bohne, Attorney at law
517 Kiesel Bldg.
Ogden, Utah

Dear Mr. Bohne:

At the request of your partners I have examined the manganese deposits on your leases and claims in South Ogden Canyon. These claims are located in Sec. 34, 35, 36, T7N, R5E, SLB&M, consisting of the Lanida, Black Joe 1, 2, 3, 4; G.I. Joe 1, 2, 3; Howard 1, 2, 3; S. R. Paul 1, 2, 3, 4; Lost Sheep 1 and 2 and Stear; also an 80 acre lease of State Land.

Mineral showings are evident on many of these claims and there has been some excavation to expose veins of manganese ore. The most extensive development that I visited was on the State Lease in Sec. 34, T. N, R E, SLB&M. This particular claim was called the Payday in former reports. At this location there is exposed a vein of manganese ore with a face of 14x12 feet. Although slightly covered with debris at the lower levels, it appears as a vein in the lime. Reports of Mr. Higley and others of the partners was to the effect that a tunnel was first driven into this vein at this point and the face of this tunnel was in manganese ore. At a later date an attempt was made to work the area with a bulldozer. The tunnel was caved in and the exposure now showing was made. Shortly after this work was started the bulldozer was accidently rolled off the hill and lost with such financial loss to the operators that the project was abandoned.

On my visit to this area a horizontal and vertical cut sample of the exposed face on the Payday was taken. The results of this sample are as follows:

SiO_2	27.40
Fe	4.0
Mn	37.3
As	.01
Zn	.10
Pb	.06

In 1949 the U. S. Bureau of Mines sampled this same face and prepared a report on the ore therefrom. This report, No. RI 4524, September 1949 by J. A. McAllister and Walter J. Long, Jr. shows on page 3 under Payday No. 1, the following results from their chemical analysis.

Mn	39.5
SiO_2	17.2
Al_2O_3	3.6
Insol.	20.0
Fe	0.8
P	0.137
Ba	6.1
CaO	3.1
Zn	Nil

Bohne #2
2/1/51

On pages 4 and 5 of the above report, there is various tables showing the result of mill concentration of the Payday ore. From these tables it is evident that the ore lends itself readily to concentration with low cost milling methods.

From surface indications and from development work that has been accomplished on the State Lease and on the adjoining claims, it is evident that there is a very large mineralized zone covered by these claims. Manganese is the chief mineral showing in the area and when formed in concentrated veins the percentage is high. The predominate country rock in the area is limestone overlain with silica boulders in the Tertiary gravels. Manganese ore appears on the surface or is exposed by shallow excavations on several of the claims in this area. Geological indications are that the manganese ore has been deposted in the limestone by ascending solutions from some deep seated intrusive rock and that weathering of the limestone has sorted and concentrated the manganese from these veins in the Tertiary gravel. The vein on the Payday claim seems to substantiate this theory because there is a well-exposed vein in the lime bedding. Immediately above this vein the gravels show heavy concentration of manganese. There are several acres where manganese showings are indicated on the surface.

Production could be had at the Payday quicker than at any other point, first, because the ore is exposed and second, it is readily accessible to loading into trucks and to good highways.

The only other sample taken was on the S. R. Paul claim. On this sample the entire exposed face was cut sampled for a distance of 14 feet. The results of this sample were as follows:

SiO_2	73.65
Fe	4.7
Mn	10.6
As	.01
Zn	.05
Pb	.01

This ore is very soft in texture and although the results are low in manganese, the cost of mining should not be great, and with the proper roads equipment and milling facilities, this area could be profitably worked.

In conclusion, it is my opinion that the Payday can be profitably worked at the present price paid for manganese ore by the Geneva Steel Co.; i. e. 45¢ per unit at 37% — $16.00 per ton. If it can be mined with care, ore of sufficient concentration of manganese would be made available to the Strategic Metals Division of the U. S. Government. With the proper mining methods and proper equipment, the output of the Payday alone should be 50 ton per day. With the nature of the ore and the ease with which it could be mined, there would be a profit to be made in this venture.

Yours very truly,

David I. Gardner

DIG:mg

David I. Gardner

DRAINAGE
WATER RIGHTS
IRRIGATION
WATER SUPPLY

DAVID I. GARDNER
CONSULTING ENGINEER
MIDVALE, UTAH

TELEPHONE
MID. 412-W

January 22, 1951.

Theodore Bohne, Attorney at law
517 Kiesel Bldg.
Ogden, Utah

Dear Mr. Bohne:

Following the suggestion in your most recent letter, I have prepared some estimates of what will be needed to start operations at the Payday claim. I have talked these over with Mr. Lichfield, who seems to be in accord with me.

You have a copy of the Mine Association letter dated August 27, 1950, which I sent you. Below are answers to the questions under paragraph 3 as they are listed in the above letter:

(a) I will await the maps
(b) Equipment available - none.
(c) Construction of 5000 ft. road, Est. 5000 cu.yd. excavation @70¢ $3500.00
Purchase of equipment (compressor, hammers, steel hose, etc. 8465.00
Construction of tool & supply house 500.00
Purchase of air line, 1000 ft. 3" @69¢ 690.00
1000 ft. 2" @33.8¢ 338.00
Supplies (Mine car, rails, small tools, etc) 1500.00
Construction of loading bins & chute 1500.00
Labor (miners) 10 men 6 months 6000.00
Engineer & supervisor, 6 months 2507.00
$25000.00
(d) None
(e) 10 employees which are available in the area
(f) Milling of ore not necessary
(g) 50 ton per day
(h) Estimated time of completion of work -- 3 months
Time required to reach production shown in (g) -- 6 months.
(i) Accessibility to mine very good. It is within 3 miles of a main State paved Highway and within 1000 ft. of a very good canyon road. The construction of the first 1000 ft. of road to the first claim would be simple construction; the additional 4000 ft. to more remote claims would become more difficult. It is the proposal to begin mining operations on the first claim, to which their now exists some old workings.
(j) The present price of Manganese as set by the Strategic Metals Division would be sufficient to operate the mine on the grade of ore now sampled and in sight.

Bohne #2
1/22/51

Paragraph 4
(a) 1000 ton
(b) Indicated ore - 100,000 ton
(c) This would require extensive geological study to determine. Surface indications are that deposits are large.

Two samples taken at the claims have been submitted to Geneva Steel and I have an appointment with Mr. Sam Sargess tomorrow morning, January 23. I understand the ore from the Payday is of shipping grade but the ore from the claim farther east is not. I would prefer to wait until I have talked with Mr. Sargess before answering questions in Paragraph 5.

Paragraph 6, 7, and 8. You who are more familiar with the property would have to answer these questions.

I hope to be in Ogden in the near future and will call at your office to more thoroughly discuss the points mentioned in this letter. It may be that the estimated cost as I have set it up will not meet with your group's approval, and we can discuss this item. There is a possibility that if Geneva Steel would purchase the material, operations could begin fairly soon with financing arranged locally or through leasers.

Yours very truly,

DIG:mg

C
O
P
Y

GENEVA STEEL COMPANY
January 18, 1951.

TO: E. R. Richards

FROM: G. W. Madsen

SUBJECT: Manganese Ore

Following are the analyses of two manganese ore samples submitted by you on January 16, 1951.

	No. 1	No. 2
SiO_2	73.65	27.40
Fe	4.7	4.0
Mn	10.6	37.3
As	.01	.01
Zn	.05	.10
Pb	.01	.06

/s/ G. W. MADSEN

Chief Chemist

GWM:hk

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 69-X

Date received 7-2-51

Participation

Name and address of applicant

Higley Mining Corp.
Room 517 Kesler Bldg
Ogden Ut
Howard L. Litchfield

Date

FILL IN THIS BLOCK

Date of application June 29, 1951

Estimated cost $

Mineral or metal manganese

Percentage of Government participation 75%

Location of mine 20 miles east of Ogden, Utah, in Ogden Canyon. South Fork of Ogden Canyon.

Date of filing MF-100

DMA Docket Number, if available 69-X

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)?

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 2 1951
LANDON F. STROBEL
Executive Secretary

*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.

Hagley Mining Co. Pardee — (Name of company)

By Howard S. Lichfield — (Signature of authorized official)

June 29, 1951 — (Date)

(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 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. DMA695X

Date received 7-2-51

Wigley Mining Co
Ogden 517 Reed
Ogden Building Utah

Name and address of applicant

Date

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? Manganese
   (*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. 75 feet deep.
   (*d*) Linear feet of other mine openings (explain briefly). Open cuts (4) into the ore vein.
   Indicate whether mine is flooded or not. Describe any pumping problems. Give size or productive capacity. no water.
3. For each operation listed above supply the following:
   (*a*) Distance and direction from nearest town and shipping point. 25 miles east of Ogden, Utah.
   (*b*) Mining district. Weber County.
   (*c*) Township, Section, Range. Sections 34,35,36,26-Twp 7 N. R. 3 East.
   (*d*) County, State. Weber County, Utah.
4. (*a*) State whether or not property is now in operation, and if in operation, by whom operated. No.
   (*b*) Are you operating this property as:
   ☒ Owner. (except NE¼ NE¼ of sec. 34, Twp. 7 N. R. 3 East- Leased.)
   ☒ Lessee. Above part of Sec. 34 leased from State of Utah.
   ☐ Contractor.
5. Number of years in production six months, at various times during last world war.
   If not in production or operation, estimated date when production will begin September 1st, 1951.
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)
	Total		x x x x x			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	$	$	$		
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.) 500 Tons	Manganese	500T (1946)	none	none	none
2. Quantity of product processed (specify unit of measure and type of process)	Manganese	2 T. See	R. I. 4117	Sept.	1947.
3. Quantity and grade of product sold or shipped (specify units of measure) mine run	500T				

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. Not in production at this time.

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: Improved road passes through property;hardsurfaced 3 miles away 25 miles to railroad.
Give road distances to shipping, supply and residence points, stating kind and condition of roads.

14. Water Supply: Stream flows through property and is abailable through year.
State source and quantity of water available for operations and whether sufficient for all seasons of year.

15. Power: Utah Power & Light line crosses property.Available-none yet used.
State amount of power used, rate per hour, and source thereof.

16. Labor: Only day laborers used under present ownership, for exploration.
State number and classes (miners, muckers, millmen, etc.) of men employed during a recent representative payroll period.

17. Equipment and Facilities: No equipment on property at present time.

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.

Kigley Mining Corp. Pardoneros By Howard S Lichfield
(Name of company) (Signature of authorized official)

June 29, 1951 Gen Agent
(Date) (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

10. Sec. 34, S½ of Sec. 26 in Township 7 North, Range 3 East of Salt Lake Base and Meridian. Property lies 25 miles East of Ogden, Utah, near an improved road and within three miles of a hard surfaced highway, in a region called"baldy". The property is embraced in a mountaines area, lying between two creeks, to-wit: Causey Creek and the Narrows.

11. Present name "Baldy Mountain", an extension of the Payday mine. This mine was formerly known as the Payday. See R. I. 452 U. S. Department of interior, Report on investigations of Payday and Newcomb properties.

12. Located 25 miles east of Ogden, Utah, on an improved road and three miles from a hard surfaced highway leading to Ogden, shipping point. Union Pacific Railroad Co.

13. Ample water for operations. Property lies between two streams wh ch run continuously throughout the year. Power line passes within half mile of claim. This can be used for operation purposes. Not sure what amount of power may be used.

14. No buildings or equipment or other facilities.

15. Ore will be mined in an open pit fashion as it lies with less than five feet of oberburden. See bulletin R. I. 4524-Concentration of Oxide Manganese ores from Payday No. 1 Mine, enclosed herewith. Ore could be shipped without milling, that is the higher grades. That ore requiring milling would be milled at or near themining property.

16. Four large cuts have been made into the ore exposing the viens of ore. There are smaller test holes down into the ore also. A shaft driven into the ore at one point a number of years ago has caved in.

The production on this property has been erratic for the reason the mine was only operated during the first and second world wars. There has been some production but as the present ownership is new those figures are not available.

17. Mine is not in production at the present time.

18. Mine is not operating at the present time.

From surface indications and from development work that has been done it is evident that there is a very large mineralized zone covered by the claims embracing the Payday Mine. Manganese is the chies mineral showing in the area and when formed in concentrated veins the percentage is high. The predominant country rock is limestone overlaid with silica boulders in the Tertiary gravels. Manganese ore appears on the surface or is exposed by shallow excavations..

We have no particular report on ore reserves. One report gave the figure of 500 tons of manganese ore reserve, but we shall have a geologist make a detailed report on this property before starting any further exploration.

19.

20. Manganese Oxide and relative minerals

21. We propose to make surface cuts and stripping with a bulldozer, and under the supervision of a geologist drill to determine the depth and grade and extent of the ore bodies. Time to complete same-nine months from commencing work thereon.

22. Geologist report will be filed at a later date. Geologist will be on the property the first part of July of this year.

23. a. 2 bulldozer operators $16 per man per shift-two shift per day.

90 days-Total 360 shifts at $16 per shift	$5,760.00
Geogolist-45 days at $50 per day or total of	2250.00
Field Engineer, 90 days at $30 per day, total	2,700.00
[illegible]	1,080.00

2.

A. (Labor) Greaser & hauler, 90 days at $10 per day-Total	$ 900.00
2 common laborers, 90 days at $8 per day, Total	540.00
C. None, except two bridges, estimated at $200 each	400.00
D. Construction of Field House	500.00
e. Purchase of Bulldozer, D7	$10,000.00
F. ~~Rental of Bulldozer for~~	
G. Touring automobile to haul men to work and pick up light equipment 90 days at $5.00 per day	450.00
~~$ 30.00~~	
24 580.	

Kenneth S Fairfield
Gen Agent -
P.O. Box 330 Hay Ut.
Business address Kirley Mining
Theodore Bolan 517 Heal Bldg
Ogden - Utah -

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

REQUISITION NO. 18913

THIS PACKAGE CONTAINS PHOTOSTAT PAPERS, IF IT SHOULD BE LOST OR MISLAID IN ANY WAY THE FINDER SHOULD RETURN SAME IMMEDIATELY TO THE DUPLICATING SECTION, ROOM 1061, INTERIOR DEPARTMENT BUILDING.

PLEASE RETURN ENVELOPE FOR RE-USE

Auto Heat Oil Co.,

Ridgefield, N. J.

dmd 695

R. I. 4524 SEPTEMBER 1949

UNITED STATES
DEPARTMENT OF THE INTERIOR
J. A. KRUG, SECRETARY

BUREAU OF MINES
JAMES BOYD, DIRECTOR

REGIONAL ... OFFICE
REGION IV
FEB 13 1951
BUREAU OF MINES
DENVER, COLORADO

REPORT OF INVESTIGATIONS

CONCENTRATION OF OXIDE MANGANESE ORES FROM PAYDAY NO. 1 AND NEWCOMB PROPERTIES WEBER AND RICH COUNTIES, UTAH

BY

J. A. M[redacted] AND WALTER J. LONG, JR.

1849 DEPARTMENT OF THE INTERIOR 1949

A Century of Conservation

R. I. 4524,
September 1949.

REPORT OF INVESTIGATIONS

UNITED STATES DEPARTMENT OF THE INTERIOR - BUREAU OF MINES

CONCENTRATION OF OXIDE MANGANESE ORES FROM PAYDAY NO. 1 AND NEWCOMB PROPERTIES, WEBER AND RICH COUNTIES, UTAH[1]

By J. A. McAllister[2] and Walter J. Long, Jr.[2]

CONTENTS

	Page
Introduction	2
Acknowledgments	2
Manganese-marketing specifications	2
Nature of the ores	3
Physical	3
Chemical	3
Size analysis	4
Methods of concentration	4
Payday ore	4
Heavy-media separation of minus 1-inch ore	4
Jigging of minus 6-mesh ore	5
Tabling of minus 20-mesh Payday ore	5
Silica flotation of minus 65-mesh ore	6
General discussion	6
Newcomb ore	7
Jigging and tabling sized fractions of minus 3-mesh ore	7
Tabling of sized fractions of minus 65-mesh ore	8
Flotation	8
Conclusions	8

1/ The Bureau of Mines will welcome reprinting of this paper, provided the following footnote acknowledgment is used: "Reprinted from Bureau of Mines Report of Investigations 4524."

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INTRODUCTION

In the course of a study of domestic manganese resources, 2-ton representative samples of ore were taken by Bureau of Mines' engineers from the Payday claim, Weber County, and the Newcomb claims, Rich County, Utah.

The Payday No. 1 deposit is situated 13 miles northeast of Huntsville, Weber County, Utah. The manganese ore is a replacement deposit in limestone and consists of manganese oxides imbedded in clay and also as the cementing agent consolidating small pebbles and pieces of quartz and limestone.

The Newcomb property (also known as the Lakeview claims) is situated in Rich County, Utah, about 6 miles from Laketown. The deposit has been formed by replacement in brecciated limestone and in a quartz conglomerate dike. The ore consists of manganese oxides with a gangue of calcite and quartz. Two lots of ore were submitted for test work, sample A representing the limestone replacement and sample B the dike area.

ACKNOWLEDGMENTS

The authors acknowledge the assistance of R. S. Dean, former assistant director of the Bureau of Mines, under whose supervision the manganese program was initiated in 1940, and the valuable suggestions made to them by S. R. Zimmerley, now chief of the Salt Lake City Branch, Metallurgical Division.

Acknowledgment also is made to H. G. Poole and C. H. Schack for their suggestions and contributions to the organization and prosecution of the work of the Ore Dressing Section. Microscopic work on the ores and many ore-dressing products was done by L. G. Evans and the late R. E. Head. Our appreciation is extended also to H. E. Peterson, chief chemist, and members of the analytical staff for the many analyses of ores and ore-dressing products. For information obtained on the deposits and for various ore samples received, acknowledgment is made to Ernest H. Sharp, formerly mining engineer of the Mining Division staff.

MANGANESE-MARKETING SPECIFICATIONS

At the beginning of the investigation of manganese-ore beneficiation in December 1940, the only product marketable to Metals Reserve Company was ferro-grade manganese, grade B, the requirements for which follow: Mn, min., 48 percent; Fe, max., 7 percent; SiO_2, max., 10 percent; P, max., 0.18 percent; Al_2O_3, max., 6 percent; Zn, max., 1 percent.

Later, the specifications were modified gradually. As of May 15, 1943, manganese products were acceptable if they contained over 35 percent manganese and less than 3 percent zinc and 1 percent phosphorus. Prices were based upon material containing 48 percent manganese, 6 percent iron, and 11 percent silica plus alumina. Premiums were paid for manganese content in excess of 48 percent and iron content below 6 percent, penalties being imposed upon products containing less than 48 percent manganese or more

than 6 percent iron or more than 11 percent silica plus alumina. The specifications for commercial manganese further required that maximum particle size be 12 inches and that 75 percent of the product be coarser than 20 mesh. Therefore, fine material, such as table and flotation concentrates, had to be nodulized or sintered. In addition, carbonate manganese ores were not acceptable unless calcined.

After the close of World War II, the Metals Reserve Company ceased purchasing manganese ores and concentrates. Therefore, the specifications given here, although correct at the time of the laboratory investigations, are no longer in effect.

NATURE OF THE ORES

Physical

The Payday ore contained psilomelane and pyrolusite as the chief manganese minerals, silica being the major impurity. Two distinct mineral associations were noted during microscopic examination:

1. Relatively coarse, dense masses of psilomelane containing scattered fragments of sandstone.

2. Granular and spongelike ore containing intermixed hard psilomelane and soft pyrolusite associated with uniformly distributed fine quartz particles and soft red clayey material.

The first type of association predominates in the ore.

In the Newcomb ore, the principal manganese minerals were psilomelane and pyrolusite coarsely disseminated, for the most part, through a calcite and quartz gangue. In portions of the deposit, however, the manganese was very intimately associated with the gangue material, particularly calcite.

Chemical

Chemical analyses of the three lots of ore are given in table 1.

TABLE 1. - Analysis of Payday and Newcomb ore

Ore	Assay, percent								
	Mn	SiO_2	Al_2O_3	Insol.	Fe	P	Ba	CaO	Zn
Payday No. 1.	39.5	17.2	3.6	20.0	0.8	0.137	6.1	3.1	Nil.
Newcomb A....	21.3	24.9	1.9	26.4	.7	.105	.6	19.0	do
Newcomb B....	20.7	31.2	1.7	33.2	.7	.092	1.2	16.6	do

It will be noted that the Payday ore meets the Metals Reserve minimum specifications for manganese ore. Both samples of Newcomb ore are similar in chemical composition and differ only slightly in silica and lime contents.

Size Analysis

A sample of each of the ores was crushed to minus 10-mesh and sieve-sized wet into fractions, which were dried, weighed, and assayed for manganese. The results were similar for all three ores; therefore, only the results for the Newcomb A ore are given in table 2.

TABLE 2. - Size distribution of Newcomb ore A

Size	Weight distribution, percent	Assay, percent Mn	Distribution Mn, percent
-10+20-mesh.....	42.6	20.0	39.2
-20+35-mesh.....	20.2	20.5	19.0
-35+65-mesh.....	10.9	20.2	10.1
-65+100-mesh....	4.2	21.7	4.2
-100+200-mesh...	4.9	20.6	4.7
-200-mesh sand..	4.7	25.6	5.6
Slime.....	12.5	29.8	17.2
Head.....	100.0	21.7	100.0

The data in table 2 show that there is a tendency for the manganese to be concentrated in the minus 200-mesh material.

METHODS OF CONCENTRATION

Payday Ore

The chemical analysis and physical nature of the ore indicated the ore-dressing problem to be rejection of silica at low enough cost so that treatment of the ore would be preferable to direct marketing. Coarse gravity methods appeared to have possibilities in view of the nature of the ore. The testing program, therefore, included heavy-media separation, jigging, and tabling, and, for the sake of completeness, a silica flotation test.

Heavy-Media Separation of Minus 1-inch Ore

A sample of the ore was crushed to minus 1-inch and screened on 6 mesh. The plus 6-mesh material was separated into heavy and light fractions by means of an aqueous suspension of galena adjusted to a specific gravity of 2.75. The heavy fraction was retreated at a specific gravity of 3.4. Results are given in table 3.

Table 3 shows that 11.7 percent of the original weight was rejected in a product containing 35.5 percent of the insoluble material and only 4.3 percent manganese; 95.7 percent of the manganese was recovered in a combined product that assayed 40.3 percent manganese and 13.4 percent insoluble material. It is doubtful that the limited liberation and rejection of waste material were adequate to justify commercial application of this method to ore of this size range. Consequently, gravity treatment at finer sizes was investigated.

TABLE 3. - Heavy-media separation of minus 1-inch Payday ore

Product	Weight distribution, percent	Assay, percent		Distribution, percent	
		Mn	Insol.	Mn	Insol.
Sink product, 3.4 S.G.	27.9	46.6	6.4	34.9	9.4
Float product, 3.4 S.G.	35.6	36.8	14.6	35.0	27.2
Float product, 2.75 S.G.	11.7	13.6	57.8	4.3	35.5
-6-mesh fraction	24.8	38.3	21.2	25.8	27.9
Calculated head	100.0	37.2	19.0	100.0	100.0
Combined sink at S.G. of 2.75 and minus 6-mesh fraction	88.3	40.3	13.4	95.7	64.5

Jigging of Minus 6-mesh Ore

A sample of ore was crushed to minus 6 mesh and screened on 20 mesh. The minus 20-mesh fraction was not treated. The plus 20-mesh fraction was jigged in a laboratory hydraulic jig. Results are given in table 4.

TABLE 4. - Jigging of minus 6-mesh Payday ore

Product	Weight distribution percent	Assay, percent		Distribution, percent	
		Mn	Insol.	Mn	Insol.
Jig concentrate	45.6	43.4	7.7	55.5	18.5
Jig tailing	13.0	20.4	40.6	7.4	27.8
-20-mesh fraction	41.4	32.1	24.6	37.1	53.7
Calculated head	100.0	35.8	17.0	100.0	100.0
Combined concentrate and -20-mesh fractions	87.0	38.1	15.8	92.6	72.2

The data in table 4 show that by combining the jig concentrate and the minus 20-mesh size fraction, 92.6 percent of the manganese was recovered in a product that assayed 38.1 percent manganese and 15.8 percent insoluble. As is evident, no better results were obtained at minus 6 mesh than at 1 inch, which indicates that even finer grinding would be required to obtain liberation.

Tabling of Minus 20-mesh Payday Ore

A sample of the ore was roll-crushed to minus 20-mesh and tabled unsized to make a finished concentrate. The combined middling and tailing was stage-ground to minus 48 mesh and deslimed; the sands were tabled to produce a concentrate and a tailing. Results are given in table 5, and analysis of the sinter made from combined concentrates and primary slimes is given in table 6, together with the Metals Reserve base-price specifications for manganese ore.

TABLE 5. - Tabling of minus 20-mesh Payday ore

Product	Weight distribution percent	Assay, percent		Distribution, Mn percent
		Mn	Insol.	
-20-mesh concentrate.....	17.8	50.8	4.4	23.1
-48-mesh concentrate.....	29.1	48.8	4.7	36.2
Slimes.....	33.0	41.3	16.0	34.7
Tailings.....	20.1	11.7	57.8	6.0
Calculated head.....	100.0	39.3	19.0	100.0
Combined concentrates and slimes.....	79.9	46.2	9.3	94.0

TABLE 6. - Results of sintering combined table products

	Assay, percent						
	Mn	Fe	SiO_2	P	Zn	Ba	SiO_2+ Al_2O_3
Sinter.....	51.2	1.7	7.8	0.154	Nil.	7.2	10.9
MRC base-price marketing specifications....	48.0	7.0	-	1.0	3.0	-	11.0

The results given in table 6 show that 94.0 percent of the manganese was recovered in a combined product, which, when sintered, assayed 51.2 percent manganese and 10.9 percent silica plus alumina. These results indicate that grinding is necessary for the production of high-grade concentrates and low-grade tailings from Payday ore.

Silica Flotation of Minus 65-mesh Ore

The chemical analysis of Payday ore shows removal of silica to be the major ore-dressing problem. Accordingly, attempts were made to beneficiate the ore by floating with cationic reagents to reject silica. As the ore was so readily amenable to tabling, it was realized that excellent results must be obtained to justify flotation. Optimum flotation results were obtained by the following method.

A sample of minus 65-mesh ore was sized, and the silica was floated from each fraction separately, using 0.31 pound of the cationic reagent laurylamine hydrochloride per ton of ore. Eighty-seven and two tenths percent of the manganese was recovered in a flotation-tailing product that, when sintered, assayed 49.1 percent manganese and 11.4 percent silica plus alumina. As the results were inferior to those obtained by tabling more coarsely ground ore as described in the preceding section, details of the test are not given here. However, the possibility of employing cationic flotation on sizes of ore not so efficiently treated by tables is apparent.

General Discussion

The results of test work done on the ore showed the metallurgical efficiency of the silica rejection to be optimum in the minus 20-mesh size

range of ore. The possibility of using a combination of tabling and cationic flotation on ore ground to minus 20-mesh or finer is indicated. Sintering of final product will be required in order to meet physical marketing requirements.

Newcomb Ore

The principal impurities to be removed from this ore are calcite and silica. Concentration of the manganese at coarse sizes appeared applicable here, also. The tendency of manganese to concentrate in the slime fraction of the ore imposed a practical limit on the extent to which the ore could be ground. The methods of concentration tried involved gravity concentration at both coarse and intermediate sizes. A little work was done on the flotation of silica and manganese.

Test work was done on both samples of the ore received. As test procedures and results were virtually parallel throughout, only the details of the treatment for ore B are included in this report.

Jigging and Tabling Sized Fractions of Minus 3-mesh Ore

A sample of ore was crushed through 3-mesh and screen-sized, wet, into plus 6-, plus 10-, plus 14-, plus 28-, plus 48-, plus 100-, and minus 100-mesh fractions. The minus 100-mesh fraction was deslimed. Each size fraction was treated separately, the coarsest fraction being jigged and the remaining sand fractions being tabled. The middling product from each of the plus 48-mesh fractions was crushed or ground through the next finer size for re-treatment. Results are given in table 7, and chemical analysis of the product obtained by sintering the combined concentrates plus slime fraction is given in table 8.

TABLE 7. - Gravity concentration of sized fractions of minus 3-mesh Newcomb B ore

Product	Weight distribution, percent	Assay, percent		Distribution Mn, percent
		Mn	Insol	
Combined jig concentrate	19.3	51.8	6.9	46.2
Combined table concentrate	11.9	46.0	9.9	25.3
Tailings	57.3	5.3	48.1	14.0
Slime	11.5	27.2	16.5	14.5
Calculated head	100.0	21.6	32.0	100.0
Combined concentrate plus slimes	42.7	43.6	10.3	86.0

TABLE 8. - Results of sintering

	Assay, percent									
	Mn	Fe	SiO_2	Al_2O_3	Insol.	P	Zn	Ba	CaO	SiO_2+ Al_2O_3
Combined product..	50.8	0.30	9.8	1.3	12.5	0.147	Tr.	2.2	6.2	11.1
Base-price specifications.....	48.0	6.0		-	-	Max. 1.0	Max. 3.0	-	-	11.0

Table 7 shows that 86.0 percent of the total manganese was recovered in a combined product that, when sintered, assayed 50.8 percent manganese and 11.1 percent silica plus alumina. The jig concentrates, amounting to 45 percent of the total combined product, met size specifications and therefore could be left out of the sinter charge if desired. The combined finished product would then assay about 47.8 percent manganese and less than 11 percent silica plus alumina.

The final sintered product obtained from similar treatment of the Newcomb A sample contained 86.8 percent of the total manganese assaying 50.0 percent manganese and 10.4 percent silica plus alumina.

Tabling of Sized Fractions of Minus 65-mesh Ore

Tabling of sized fractions of minus 65-mesh stage-ground ore recovered only 34 percent of the manganese in a combined concentrate assaying 48.3 percent manganese and 7.5 percent insoluble; 55 percent of the total manganese was lost in a low-grade slime fraction. These results definitely indicate the undesirability of crushing Newcomb ores beyond the minimum required amount.

Flotation

Because of the excellent results obtained by gravity methods, flotation investigations were limited to a few preliminary tests. These tests indicated that it would be possible to remove most of the calcite from ore ground to minus 65-mesh size with a small loss of manganese. However, the separation of the manganese minerals from silica, either by flotation of the manganese with oleic acid or by flotation of the silica using a cationic collector, was not as effective as that obtained by gravity methods.

CONCLUSIONS

1. Oxide manganese ores from both the Payday and Newcomb properties responded readily to ore-dressing treatment.

2. The ore from the Payday No. 1 claim could be marketed without treatment under minimum Metals Reserve Company specifications.

3. Grinding finer than 20-mesh was required on Payday ore for liberation. Best results were obtained by tabling sized fractions of minus 20-

mesh ore and combining the high-grade slimes with the table concentrates. Ninety-four percent of the total manganese was recovered in a product that, when sintered, assayed 51.2 percent manganese and 10.9 percent silica plus alumina.

4. Concentration of sized fractions of minus 3-mesh Newcomb B ore by gravity methods, with regrinding and re-treatment of middlings, recovered 85 percent of the total manganese in a combined product that, when sintered, assayed 50 percent manganese and 11 percent silica plus alumina.

5. Similar treatment of Newcomb A sample gave almost identical results, indicating that both types of ore would respond to the same treatment flow sheet.

7. Are subordination agreements necessary?_____

   a) MF-201?_____

   b) MF-202?_____

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

   a) Available manpower_____

   b) Equipment and supplies_____
      (question 14 plus general knowledge of availability)*

   c) Accessibility (question 12)*_____

   d) Water (question 13)*_____

   e) Power (question 13)*_____

   Is a field check needed on any of these points?_____

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

   _____

   Is a field check needed on this point?_____

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

   a) Is the project adequately described?_____

      If not, are there sufficient data given so that you can describe the project?_____ If so, attach a draft.

   b) Is there an adequate map or sketch of the proposed work?_____

      _____

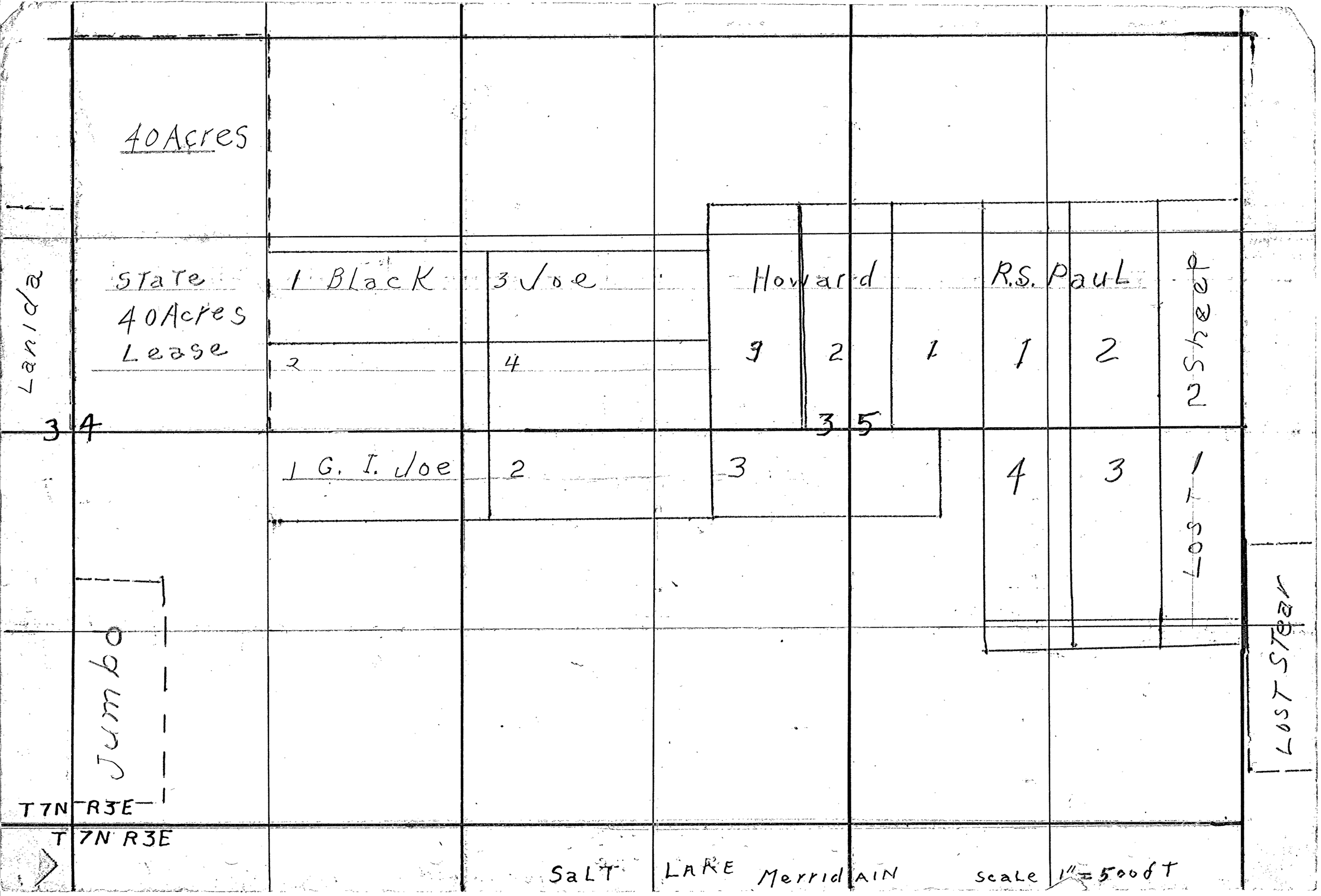
   c) Is the proposed work "exploration" under the definition of Section 8, MO-5?_____

      If not, what part of it is?_____

      _____

      _____

      _____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3 Joe
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Howard
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Sheet 2
1 G. I. Joe
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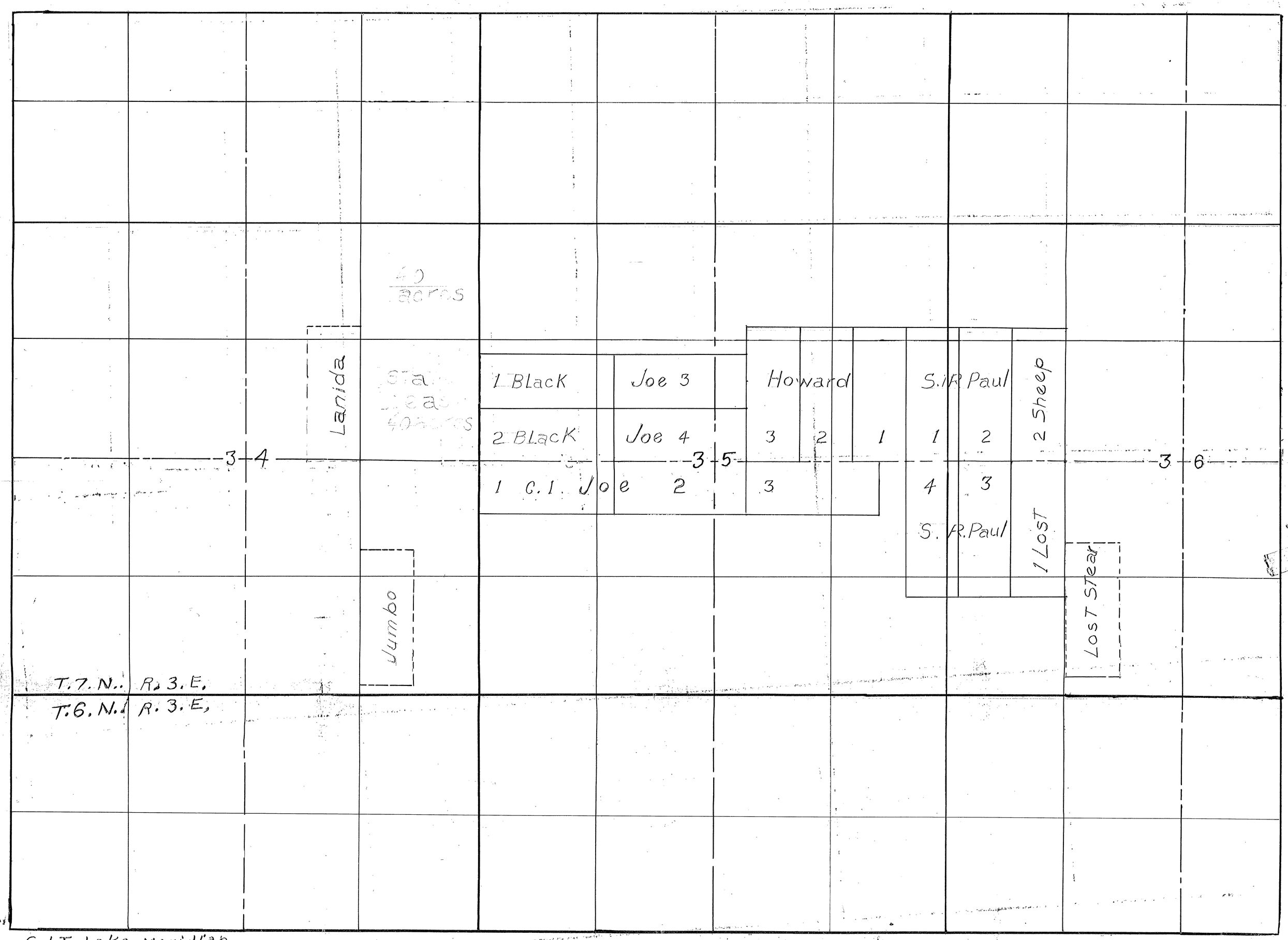
T 7N R3E
Salt Lake Merridian
Scale 1" = 500 ft



Salt Lake Meridian
T.6.N. R.3.E.

Scale 1" = 500 ft