DMA Form 1

DEFENSE MINERALS ADMINISTRATION
Control Slip

CONTROLLED DOCUMENT

DMA Docket No. 1861

DO NOT DETACH THIS SLIP

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

This document has been recorded as

EXPLORATION LOAN

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:	Manganese Br.	Date	7-23-51
To:	U.S.G.S.	Date	8-1-51
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CONTROLLED DOCUMENT

COPY

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 comply and their dockets are transmitted to you herewith.

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

Docket No. D A 1347X - Tungsten
Mohawk Corporation
Challenge Mine
Inyo County, California

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

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

Docket No. DMA 1372X - Tungsten
Arthur D. Carter, Attorney
Chalco 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 1201X - Manganese
Reed L. Gallaher
Reed and Associates
Johnson County, Wyoming

/S/ O. C. Selfridge

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

Attachments

FILE COPY
SURNAME:

Gentry
Selfridge

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

MAR 5 1952

Mr. Reed L. Schlieve
Reed and Associates
120 Grand Avenue, West
Eau Claire, Wisconsin

Re: Docket No. DMA 1861X - Manganese
Mead Manganese Properties
Johnson County, Wyoming

Dear Mr. Schlieve:

A review of your application of July 19, 1951, for an exploration contract reveals that a letter dated January 25, 1952, 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 (for)

Acting Administrator
Defense Minerals Exploration
Administration

GGGentry'lm
3/3/52

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

FILE COPY
SURNAME:

400
Brewer
Selfridge
Mitt

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

JAN 25 1952

Mr. Reed L. Schlieve
Reed and Associates
120 Grand Avenue, West
Eau Claire, Wisconsin

Re: Docket No. DMA 1861-X - Manganese
Mead Manganese Properties
Johnson County, Wyoming

Dear Mr. Schlieve:

Our files show that certain information was requested in regard to the above-noted application by letter dated August 17, 1951, and that no answer has as yet been received.

Please favor us with the requested information if you wish to continue your application. If you do not desire to continue, please so inform us.

Sincerely yours,

SIGNED

cc 1-25-52

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

QLBrewer:ls
1-24-52

Copy to: Admn. Reading File
Docket
N.B.Melcher, USBM
M. D. Crittenden, USGS
Field Team, Region IV
G. C. Selfridge
Q. L. Brewer

A Form 2

FENSE MINERALS ADMINISTRATION
Status Change Notice

DMA Docket No. ~~1861~~ To Field Team about aug 17 -?

Reed & Hom to

To: Reports and Records Branch

From: Manganese Branch--DMA

Date: August 1, 1951

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

Forwarded to Max Crittenden--USC

Type of request changed to:

Denied ☐ Withdrawn ☐

Approved in amount of $

Other action, specify:

Field Team

Through: Director, Supply Division
Operating Committee

Dear

Attached find DMA docket 422, an appraisal of the Wyoming Manganese Company to operate manganese properties located in Johnson County, Wyoming. Manganese deposits located in secs. 30 and 32, T. 47 N., Range 83 W. have been described by Thomas Gwynn, P.O. Box 4156, Washington, D. C. Neither the Geological Survey or the Bureau of Mines has sufficient information to determine the extent of the reserves which may be present in this area and the feasibility of the present proposal. For this reason it is recommended that the property be examined in the field by representatives of the Geological Survey and the Bureau of Mines to determine the following:

(1) Tonnage and grade of ore reserves
(2) Character of material in the ground and of washed nodules
(3) Feasibility and cost of strip mining operations of the character proposed.

The area is snow-covered until about May 1, but at that time the owner has indicated his willingness to undertake churn or auger drilling at his own expense whenever the ground is clear. It is suggested that the field team take advantage of this and time their visit so as to coordinate with this exploration. This should be arranged by communicating directly with Mr. Gwynn.

Sincerely yours,

Phil Bradley

This letter is Re 422 (Some Property as 1861)

No date

Mr. Thomas A. Gwynn
Box 4156
Washington, D. C.

Dear Mr. Gwynn:

Your proposal to produce and sell 300,000 tons of manganese ore from properties in Johnson County, Wyoming, has been considered by the Defense Minerals Administration. There is not sufficient information available here to verify your estimates of ore reserves, and to determine whether an acceptable product can be produced by simple washing of the nodular material. In view of the need for manganese, representatives of the Bureau of Mines and Geological Survey have been asked to visit the property later in the spring as soon as the snow is melted sufficiently to make it accessible. On the basis of your conversations with Mr. Crittenden in Washington, the field representatives have been asked to contact you directly, and to arrange their visit to coincide with exploratory drilling you indicated your willingness to undertake. This will greatly facilitate their sampling and appraisal of the property.

Your request for a loan of approximately $900,000 to equip and develop this property will be considered further when the results of this examination are complete.

Sincerely yours,

Gordon Boutwell

S. H. Williston, Director
Supply Division

Note 422 - withdrawn on Oct 9 - (Holden)

This letter is 422 some area or 186?

340

FILE COPY
SURNAME:

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

Holderer
Gooding

AUG 17 1951

Mr. Reed L. Schlieve
Reed and Associates
120 Grand Avenue, West
Eau Claire, Wisconsin

In reply please refer to
DMA 1861

Dear Mr. Schlieve:

In reviewing your application for an exploration loan we need additional information. The following questions must be answered before further action can be taken:

Question 4
" 6
" 7
" 8
" 9
" 12 You say, "contained in report", but we have no report from you.
Question 15
" 16
" 18
" 19
" 20
" 21
" 22
" 23
" 24

You say that you have leased the property but you have failed to attach a copy of your lease agreement. From the names of the mining claims and their locations, we might guess that they belong to Mr. Norman W. Mead, Francis Drake Hotel, Minneapolis, Minnesota. If this is the case, we still need additional information on question 18e. No estimation of tonnage has been given. Also question 21, asking a description of the proposed work and estimated time to complete it. We would also like to know what part Mr. Thomas Guyan is playing in your project.

Upon receipt of the requested information we will give your application careful consideration.

Very truly yours,

George B. Holderer

George B. Holderer
Chief, Manganese Branch

CHJacoby:bl 8/16/51

CC: Adm. Reading File
Reports & Records Unit
Files Mr. Holderer

Note - 11/2/51 Critchlow to Report on this area - if necessary to be used PBJ.

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

AUG 17 1951

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George B. Holderer

George B. Holderer
Chief, Manganese Branch

CHJacoby:bl 8/16/51

CC: Adm. Reading File
Reports & Records Unit
Files Mr. Holderer

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George B. Holderer

George B. Holderer
Chief, Manganese Branch

CHJacobytbl 8/16/51

CC: Adm. Reading File
Reports & Records Unit
Files Mr. Holderer

FILE COPY
SURNAME:

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

Reed + Lawsiter

July 23, 1951

G.E.C.

Mr. Reed L. Schlieve
120 Grand Avenue, West
Eau Claire, Wisconsin

Subject: DMA-1861
Re: Exploration Loan -
Mead Manganese

My dear Mr. Schlieve:

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-1861 and referred to Mr. George Holderer, Chief, Manganese Branch on July 20, 1951.

In any future correspondence relating to your application, kindly refer to DMA-1861.

Kindly furnish the following information: the amount requested in the exploration loan.

Sincerely yours,

LANDON F. STROBEL
Mot 7/23

Landon F. Strobel
Executive Secretary

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

July 23, 1951

Mr. Reed L. Schlieve
120 Grand Avenue, West
Eau Claire, Wisconsin

Subject: DMA-1861
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Mead Manganese

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Executive Secretary

L. F. Strobel:jc
cc: ✓ Strobel
File
Holderer
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Landon F. Strobel
Executive Secretary

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

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 1861

Date received 7-20-51

Participation

Reed L. Schlieve
Reed & Associates
120 Grand Ave. West
Eau Claire, Wisconsin

Name and address of applicant

Date 19 July 1951

FILL IN THIS BLOCK

Date of application 19 July 1951

Mineral or metal Manganese

Location of mine Johnson County, Wyoming

Mining district: not named

Estimated cost

Percentage of Government participation

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
JUL 20 1951
Executive Secretary

Date of filing MF-100

DMA Docket Number, if available 1861

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? Individuals at the present time.

*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. Both factors will have experienced persons in charge.

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

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

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

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

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

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

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

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property. Township: 47 North, Range: 83 West, Sections: 29, 30, 31, 32

(*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. Mead Manganese

*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. Contained in report.

*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. A creek is availiable thru property.

*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work. None

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

*16. History: Contained in report.

(*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.) The following contained in report.

(*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.

Tonage should run way over estimated tonage due to new exploration.

THE EXPLORATION

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

21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it. Time element is very short.

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.

Contained in report.

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.

Reed & Associates
(Name of company)

By [signature]
(Signature of authorized official)

19 July 1951
(Date)

Owner
(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-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 1861

Date received 7-20-51

Participation

Reed L. Schlieve
Reed & Associates
120 Grand Ave. West
Eau Claire, Wisconsin

Name and address of applicant

Date 19 July 1951

FILL IN THIS BLOCK

Date of application 19 July 1951

Estimated cost

Mineral or metal Manganese

Percentage of Government participation

Location of mine Johnson County, Wyoming

Mining district: not named

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration

JUL 20 1951
LANDON F. ...
Executive Secretary

Date of filing MF-100

DMA Docket Number, if available 1861

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? Individuals at the present time.
*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. Both factors will have experienced persons in charge.
*5. Are you the owner or the lessee of the property? Lessee.
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is in good standing.

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

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

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

16—64067-1

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(*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

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

*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. Contained in report.

*13. State source and quantity of water available for operations and its sufficiency at all seasons. A creek is availiable thru property.
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. None

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(*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.

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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.

Reed & Associates
(Name of company)

By [signature]
(Signature of authorized official)

19 July 1951
(Date)

Owner
(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.

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

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Date received 7-20-51

Participation

Reed L. Schlieve
Reed & Associates
120 Grand Ave. West
Eau Claire, Wisconsin

Name and address of applicant

Date 19 July 1951

FILL IN THIS BLOCK

Date of application 19 July 1951

Mineral or metal Manganese

Location of mine Johnson County, Wyoming

Mining district: not named

Estimated cost

Percentage of Government participation

DEPARTMENT OF THE INTERIOR
Defense [illegible]
JUL 20 1951
LANDON F. STAUGEL
Executive Secretary

Date of filing MF-100

DMA Docket Number, if available 1861

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? Individuals at the present time

*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. Both factors will have experienced persons in charge.

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

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

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

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

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

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

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

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property. Township: 47 North, Range: 83 West, Sections: 29, 30, 31, 32

(*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. Mead Manganese

*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. Contained in report.

*13. State source and quantity of water available for operations and its sufficiency at all seasons. A creek is availiable thru property
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. None

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

*16. History: Contained in report

(*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.) The following, contained in report.

(*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.

Tonage should run way over estimated tonage due to new exploration.

THE EXPLORATION

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

21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it. Time element is very short.

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.

Contained in report.

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.

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(*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.

(*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.

(*i*) Cost of power, water, utilities, and any other items not provided for above.

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

CERTIFICATION

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

Reed & Associates
(Name of company)

By [signature]
(Signature of authorized official)

19 July 1951
(Date)

Owner
(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-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 1861

Date received 7-20-51

Participation

Reed L. Schlieve
Reed & Associates
120 Grand Ave. West
Eau Claire, Wisconsin

Name and address of applicant

Date 19 July 1951

FILL IN THIS BLOCK

Date of application 19 July 1951

Estimated cost

Mineral or metal Manganese

Percentage of Government participation

Location of mine Johnson County, Wyoming

Mining district: not named

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
JUL 20 1951
LANDON F. [illegible]
Executive Secretary

Date of filing MF-100

DMA Docket Number, if available 1861

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19 July 1951
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*Same as footnote on page 1.

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

1861

May 21, 1951

BRIEF REPORT

NAME OF PROPERTY:
Mead Manganese Properties

KIND OF ORE:
Manganese

Owned by: Norman W. Mead, et al
Francis Drake Hotel
Minneapolis, Minnesota

Location of Property: Big Horn Mountains

State: Wyoming
County: Johnson
Mining District: Not named

Township: 47 North
Range: 83 West
Sections: 29, 30, 31, 32

Railroad Shipping Points:
Buffalo, Wyoming on east side of mountains. If old Wyoming railroad is revived, or Clearmont, Wyoming on the Burlington railroad. Worland, Wyoming on the west side of the mountains.

Haulage road Distance, Mine to railroad shipping points:
Mine to Buffalo approximately 45 miles. Mine to Clearmont approximately 73 miles. Mine to Worland approximately 75 miles.

Type and Condition of Haulage Roads:
From the mine 10 miles of good dirt surface mountain road, then five miles of county improved road, to U.S.Highway #16 a black top main highway.

Brief History of Property:
Held as mining claims since 1942. No actual mining has been done; no shipments of ore except for experimental and analyses purposes.

Workings:
Work done on the property consisted of pitting, trenching and five short bulldozer cuts in one area, also some experimental diamond core drilling in another area.

Number of Claims:
Seven lode mining claims, also covered by seven placer mining claims - approximately 280 acres.

Brief Description of Deposits:
Geology and Topography: The origin of the manganese is not known. The manganese was apparently deposited in the deadwood formation at the time of its deposition or was deposited in it later by circulating waters or solutions, thereby filling interstices between the grains of sand, filling crevices between the strata, filling sills and/or just making a place for itself by force of bulk.

Name of Property: Mead Manganese Properties.

The Deadwood formation is of middle Cambrian age. It is said to vary in thickness from 900 feet to 1150 feet. It is composed of thin and thick layers or strata of sandstone, quartzite, shales, limestone and conglomerate, owing to its unconsolidated nature and the large amount of shale it contains. The formation is easily eroded and readily forms deep depressions or saddles. It is broken, faulted and deroded. Its dip and strike is at various angles throughout the property. The Deadwood formation, like the other formation of the area, has a high angle plunge to the east. Beyond its survace exposure, the Deadwood formation would continue in its natural stratagraphical position beneath the Bighorn limestone formation of Ordovician age down the front range of the mountains. The Deadwood formation is the lowest member of the sediamentary series of the Bighorn mountains. Therefore it overlies the Pre-Cambrian granites. Pendants or outcrops of these grainites are in evidence along the west side of the Deadwood surface exposures. The granites show a sharp dip to the east. A deep surficial mantle of the Tiertiary age consisting of sandy, limey clay, sparcely scattered, partially decayed boulders and some small gravel and broken fragments of crystalline rocks is in places upon or flanks the Deadwood formation. This mantle catches up the erosion of the Deadwood formation and is inter-mixed with it. In this inter-mixture of clay and Deadwood formation, the Manganese is liberated and has apparently formed Manganese nodule areas throughout the property. These Manganese nodules are in evidence scattered abundantly about the surface in numerous places. Manganese nodules are exposed in the pits, excavations, etc. These excavations have been shallow - 10 feet or less. A pit about ten feet deep on the north end of the property shows a very heavy deposit of nodules in clay. The nodules are packed as closely together as they can get with a coating of clay between them. There is only one foot of over-burden; then the nodule mass extends to the bottom of the pit. A trench was dug from this pit about 200 feet in length and exposed the nodules t throughout its length. The nodules in size are from a fraction of an inch to several inches in their longest dimensions. The ratio of nodules in this pit is probably 5 to 1, of clay.

The five shallow bulldozer cuts were made to the southwest of this pit in the same area; 3 cuts exposed the nodules; the two farther-erest up the hill apparently didn't get deep enough through the over-burden to strike the nodules. In this same area, some diamond core drilling was attempted. Considerable experimenting was done in an attempt to recover cores, but due to the force of the water necessary for functioning of the drill, the crushing of the Manganese by the bit, the size of the core barrel and the ready washing and dissolving of the clay surrounding the nodules, it was impossible to obtain satisfactory results. It was then determined to use the drilling merely for the purpose of indicating the presence of Manganese where it could not be seen on the surface. This proved quite successful and thereby the area containing Manganese and particularly the Manganese Nodules was proven to extend beyond the previously exposed Manganese Nodules. However, the area drilled was only a small part of the deposit. Drilling was done only on a small part of the "Lucky Strike" claim and on the "Hidden Fortune" claim.

BRIEF REPORT #3

Name of Property: Mead Manganese Properties

Drilling was done with a "Longyear Pioneer straight line Diamond Core Drill" with twin Hydraulic head, powered by a Waukesha gasoline engine and with E.X.drill rods and 2" fishtail and diamond bits - 10' and 5' core barrels taking about 7/8" cores. Separate pumping unit Nova A.V.-164 N gasoline powered delivering 16 G.P.M. at 125 H.S.I.

On the "Lucky Strike" claims the drilling data according to the drilling report was:

Date of drilling - Aug. 10 to Aug 22, 1949
Number of days of drilling - 10
Number of holes drilled - 21
Number of holes drilled per day - 2.1
Total number of feet drilled - 302
Number of feet drilled per day - 30.2
Greatest depth of any hole drilled - 31 feet
The shallowest drill hole - 3½ ft.
Average number of feet drilled per hole - 14.38
Average overburden per drill hole showing Manganese - 9.65 ft.
Number of drill holes not showing Manganese -8 or 38%
Average depth of drill holes not showing Manganese - 11.68 ft.
Number of holes showing Manganese - 13 or 62%
Average number of feet of Manganese per drill hole - 6.85

All the drilling was done in an irregular area approximately 500' S.W. - E - N.E. and 1000 feet S.E.-S. The holes were drilled approximately 6 feet to 193 feet 9 inches apart. The drill holes were all marked as drilled by a numbered stake driven into the hole. They probably will be there for you to observe.

On the "Hidden Fortune" claim the drilling data according to the drilling report was as follows:

Number of days drilling - 1
Number of holes drilled - 5
Total number of feet drilled - 39' 6"
Average depth of holes drilled - 8'
Number of drill holes showing Manganese - 4
Number of drill holes showing no Manganese - 1
About 6 feet overburden in each hole
Approximately 2 ft. of Manganese showing in each drill hole.

The quantity or ultimate depth of the Manganese was not attempted due to inability of the core drill and its water pressure to obtain a proper core or indicate exact depths due to dissolving and washing of the water. On striking Manganese the water immediately turns black. After that it is very difficult to determine if it comes from the bottom or sides of the hole.

We moved the drill back to another project to finish our work with it there.

BRIEF REPORT #4

Name of Property: Mead Manganese Properties

The "Van Clive Laboratories, Inc." of Minneapolis, made some analyses of samples taken from this deposit. Some of the results reported were as follows:

Manganese Dioxide	73.9%	46% Mn.	Manganese Dioxide	64.6%	40.5% Mn.
Silica	12.0%		Silica	18.2%	
Iron	.95%				
Manganese Dioxide	37.7%	23.6% Mn.	Manganese Dioxide	63.5%	39.8% Mn.
Iron	1.3%		Silica	20.1%	
Silica	23.4%				
Phosphorous	0.2%				
Manganese Dioxide	63.5%	39.8% Mn.			
Silica	19.7%				

These analyses were made on manganese ore samples as taken from the deposits and were without heat drying or benefication. It is believed a crushing and screening or simple gravity concentration is all that would be required if it were desired to further concentrate a large portion of this manganese.

A recent analyses report by a company to which 15 lbs. of samples were sent; as follows -

SiO_2	25.52 %	
CaO	nil	
Fe	1.5	
S	.013	
Mn	32.1	← Mn.
As	.014	
Zn	.01	

SUMMARY:

The large extent and numbers of surface exposures of manganese throughout the property, together with results obtained in exposing manganese, when excavation is done, seems to warrant an extensive program of development. At present no tonnages of possible production of manganese from this property can be fairly or accurately arrived at, due to the large area in which the manganese exposures are in evidence and the small amount of exploratory excavating. The lateral extent, the depth of the deposit and possible production tonnages can only be obtained by much more excavation on the property. There has been estimates made by various people according to the manganese exposed and in sight of from 50,000 tone to 300,000 tons and from 1-1/2 million to several million tons potential production.

Production can be had within 24 hours of manganese that is now available and has been declared acceptable to buyers of manganese to whom samples have been submitted.

Norman W. Mead

Norman W. Mead
Francis Drake Hotel
Minneapolis, Minnesota

Everywhere West

St. Louis-St. Paul-Minneapolis

Burlington Route

Table No. 7

NORTHBOUND—READ DOWN SOUTHBOUND—READ UP

For Equipment of these trains see page 10.

		11 Ex. Sun. Motor (From Herrin)	47 Daily	Mls.	Stations shown in *italics* indicate connections	48 Daily	12 Ex. Sun. Motor (To Herrin)	
			AM			PM		
......	......	......	9.04	0	Lv...**St. Louis, Mo.,** 4,5,8 🚗 Ar	7.00	......	......
......	......	......	9.12	....	**Washington Ave.**	6.45	......	......
......	......	......	9.22	3	East St. Louis, Ill.	6.35	......	......
......	......	......	10.02	23	East Alton	5.50	......	......
......	......	......	f10.06	25	Alton Hospital	f 5.37	......	......
......	......	......	10.22	35	Brighton	5.22	......	......
......	......		10.30	40	Piasa	5.13		......
......	......		10.40	44	Medora	5.05		......
......	......		10.45	47	Kemper	4.59		......
......	......		10.55	52	Rockbridge	4.52		......
......	......		11.05	57	Greenfield	4.43		......
......	......		11.13	62	Wrights	4.36		......
......	......		11.28	69	Whitehall	4.25		......
......	......		11.35	72	W. Roodhouse	4.11		......
......	......		f11.38	74	Barrow	f 4.08		......
......	......		11.46	78	Alsey	4.02		......
......	......		11.58	84	Winchester	3.52		......
......	......		12.07	89	Riggston	3.42		......
......	......		f12.10	91	Merritt	f 3.38		......
......	......	PM	12.18	94	Chapin	3.32	AM	......
......	......	6 17	12.25	98	**Concord,** 29	3.25	7.13	......
......	......	6 25	12.33	103	Arenzville	3.15	7.04	......
......	......	......	f12.38	107	Hagener	f 3.09	f 6.56	......
......	......	6 45 PM	‖ 1.08	113	Lv....**Beardstown,** 29....Lv	2.58	6.45 AM	......
					Illinois River			
......	......	......	1.18	117	Frederick	2.41	......	......
......	......	......	1.26	122	Browning	2.33	......	......
......	......	......	1.34	126	Bader	2.25	......	......
......	......	......	1.42	130	Astoria	2.18	......	......
......	......	......	2.01	137	**Vermont, 31**	2.05	......	......
......	......	......	2.14	144	Ipava	1.48	......	......
......	......	......	2.38	154	**Lewistown, 22**	1.27	......	......
......	......	......	2.47	160	Bryant	1.13	......	......
......	......	......	2.53	164	St. David	1.08	......	......
......	......	......	3.00	169	Canton	12.59	......	......
......	......	......	3.25	173	Norris	12.38	......	......
......	......	......	3.38	179	Lv......Farmington......Lv	12.29	......	......
......	......	......	a *2.35*	....	Lv.......***Peoria,*** 30.......Ar	h *1.50*	......	......
......	......	......	3.48	185	Ar...**Yates City,** 30, 34...Lv	12.17	......	......
					For local service Yates City to Galesburg, see table 30			
......	......	......	‖ 4.45	208	Ar } **Galesburg,** 1, 3, 30 { Lv	‖11.30	......	......
......	......	......	6.05	208	Lv } **Galesburg,** 1, 3, 30 { Ar	‖11.00	......	......
......	......	......	f 6.15	214	Henderson	10.48	......	......
......	......	......	6.25	220	**Rio, 31**	10.38	......	......
......	......	......	6.40	226	**Alpha, 33**	10.28	......	......
......	......	......	6.46	230	Ophiem	10.17	......	......
......	......	......	6.55	234	Lynn	10.12	......	......
......	......	......	7.03	238	Orion	10.03	......	......
......	......	......	f 7.08	242	Warner	f 9.55	......	......
......	......	......	f 7.19	248	Colona	f 9.45	......	......
					Rock River			
......	......	......	7.35	251	**Barstow,** 21	9.37	......	......
......	......	......	7.50	256	East Moline	9.25	......	......
......	......	......	8.12	259	**Moline** 🚗	9.13	......	......
......	......	......	8.30	263	Ar } **Rock Island, Ill.** 🚗 { Lv	‖ 8.50	......	......
			9.30	263	Lv } *Mississippi River* { Ar	‖ 8.25		
AM	PM	AM	9.41	266	Ar } **Davenport, Ia.** 🚗 { Lv	8.10	PM	PM
■ 7.00	■ 3.10	■11.30	10.00	266	Lv } **Davenport, Ia.** 🚗 { Ar	7.45	■11.15	■ 2.50
......	......	......	10.06	269	Bettendorf	s 7.35	......	......
......	......	......	f10.13	275	Pleasant Valley	7.20	......	......
......	......	......	10.20	280	Le Claire	7.05	......	......
......	......	......	f10.27	286	Princeton	6.55	......	......
......	......	......	f10.39	296	Camanche	6.35	......	......
■ 8.20	■ 4.40	■ 1.05	11.15	301	**Clinton, Ia.,** (Lyons, Ia.) 🚗	6.20	■10.00	■ 1.25
					Mississippi River			
■ 8.30	■ 4.55	■ 1.20	11.30	304	Fulton	5.49	■ 9.45	■ 1.10
■ 8.40	■ 5.05	■ 1.30	f11.48	312	Thomson	5.34	■ 9.35	■ 1.00
■ 9.00	■ 5.30	■ 1.50	12.15	323	Ar.......**Savanna,** 2.......Lv	5.12	■ 9.15	■12.40
10.52	6.07	3.17	2.31	323	Lv.......**Savanna**.......Ar	4.47	8.32	12.28
11.45	*7.05*	*4.05*	*3.25*	364	Ar......***Dubuque, Ia.***......Lv	*3.30*	*7.35*	11.15
12.08	7.23	......	4.21	417	Prairie du Chien, Wis.	2.52	7.05	11.02
12.52	8.07	5.21	5.23	475	**La Crosse, Wis.**	2.00	6.23	10.20
1.30	*8.50*	*6.05*	*6.15*	505	***Winona, Minn.***	......	*5.38*	9.38
3.00	10.15	7.45	8.15	605	**St. Paul** 🚗	11.30	4.30	8.25
3.30	10.45	8.25	g 8.50	615	Ar......**Minneapolis** 🚗 ..Lv	j10.40	4.00	8.00

For local service between Savanna and Minneapolis, see page 14

Table No. 8

NORTHBOUND—READ DOWN SOUTHBOUND—READ UP

For Equipment of these trains see page 10.

41 Daily Zephyr 9902	1 Daily Fast Mail	15 Daily Zephyr-Rocket	43 Daily Mark Twain Zephyr	Mls.	Stations shown in *italics* indicate connections.	8 Daily Zephyr-Rocket	12 Daily	44 Daily Mark Twain Zephyr	42 Daily Zephyr 9902
	PM	PM	AM			AM	PM	PM	
......	11.30	5.00	8.45	0	Lv....**St. Louis,** 4, 5, 7 🚗 Ar	7.45	1.43	10.10	......
......	......	5.08	f	......	**Washington Ave.**	f 7.35	f 1.33	f10.00	......
......	......	......	f	15	Spanish Lake	......	f 1.03	......	......
					Missouri River				
......	f12.03	p 5.25	9.15	20	West Alton	d 6.54	......	9.17	......
......	......	......	9.23	27	Machens	......	......	9.07	......
......	......	......	9.31	34	Orchard Farm	......	f	f	......
......	......	......	9.42	43	Peruque	......	f	8.41	......
					Cuivre River				
......	12.35	......	9.53	52	**Old Monroe, 4**	......	12.05	8.30	......
......	......	......	10.00	56	Winfield	6.06	f11.57	8.21	......
......	......	......	f	60	Foley	......	......	f	......
	12.55	6.09	10.21	68	Elsberry	5.50	11.41	8.05	
	......	......	10.32	75	Annada	......	f	f 7.56	
	f 1.13	6.25	10.44	84	Clarksville	5.30	11.15	7.45	
	1.32	6.40	10.59	94	**Louisiana**	5.15	10.59	7.30	
	......	......	11.11	104	Ashburn	......	10.34	7.14	
	......	......	f	107	Busch	......	f	f	
	......	......	f	111	Clemens	......	f	......	
	......	......	f	113	Saverton	......	f10.22	......	
AM	2.14	7.16	11.38	120	Ar } **Hannibal, 3** { Lv	4.30	10.08	6.43	PM
m6.00	2.25	7.25	11.48	120	Lv } **Hannibal, 3** { Ar	4.20	10.00	6.25	10.05
......	......	......	......	134	Mark	......	e	......	......
......	2.56	7.51	12.16	140	Ar } **Quincy, Ill.** 3,23,35,52 { Lv	3.49	9.30	6.00	A
m▲610	3.18	8.06	12.22	140	Lv } **Quincy, Ill.** 3,23,35,52 { Ar	3.34	9.17	5.50	m▲945
m6.19	......	......	......		✚ Quincy (West Station)	......	......	......	m9.40
m#629	f 3.38	......	12.37	150	LaGrange	......	9.01	5.38	m●927
m6.35	3.48	8.26	12.47	156	Canton	3.11	8.51	5.31	m9.21
......	......	......	f	167	Gregory	......	f 8.36	f	......
......	......	......	n 1.06	173	**Alexandria, Mo., 37**	......	t 8.28	f 5.14	......
					Des Moines River				
m7.04	o 4.40	8.52	1.26	178	Ar...**Keokuk, Ia., 37**....Lv	2.45	8.20	5.07	m8.57
......	......	......	1.40	189	Montrose	......	7.52	4.47	......
......	......	......	f 1.48	196	**Viele, 41**	......	......	f 4.40	......
m7.31	5.28	9.47	2.03	202	**Ft. Madison, 41 42**	2.05	7.31	4.33	m8.30
......	......	......	......	210	Wever	......	......	f	......
m8.01	6.05	10.15	2 35	221	Ar...**Burlington, 1, 36**....Lv	1.35	7.00	4.10	m8.05
11.35	*11.35*	*7.00*	*8.45*	⊙	Ar.....***Chicago,*** 1 🚗.....Lv	*7.50*	*12.30*	*12.45*	m4.40
......	*6.30*	10.40	PM	221	Lv.**Burlington**(C.R.I.& P.)Ar	1.10	......	......	......
......	*9.20*	12.55	......	319	Ar....Cedar Rapids " Lv	10.50	......	......	......
......	*11.35*	2.15	......	371	Waterloo	9.35	......	......	......
......	*11.45*	2.23	......	377	Cedar Falls	9.24	......	......	......
......	*2.00*	3.53	......	445	Manly	8.05	......	......	......
......	*3.46*	4.36	......	473	Albert Lea	7.33	......	......	......
......	*4.19*	5.14	......	505	Owatonna	6.57	......	......	......
......	*8.10*	*9.10*	......	⊙	Ar..***Rochester*** (C.&N.W.)..Lv	......	......	......	......
......	......	5.34	......	521	Faribault	6.38	......	......	......
......	*5.45*	6.55	......	575	Ar....**St. Paul** (C.R.I.& P.)Lv	5.30	......	......	......
......	*6.15*	7.30	......	585	Ar.**Minneapolis** " Lv 🚗	5.00	......	......	......

PARMELEE TRANSFER OF HAND BAGGAGE

Passengers holding through tickets and requiring change of station in Chicago may do away with the problem of taking care of hand baggage between trains. All they need do is present baggage to Parmelee agent in the depot, pay 15c per bag, and Parmelee will arrange transfer to outgoing station, where baggage may be claimed at the parcel check room.

This arrangement applies only when there is at least a 3-hour interval between actual arrival of train in Chicago and scheduled departure time from outbound station.

Parmelee transfer coupon may be used to any hotel or destination in the downtown area.

REFERENCE NOTES

†—Daily, except Sunday.

‖—Meals.

⊙—Connection.

#—Stops to receive revenue passengers for Chicago when notified in advance.

●—Stops to let off revenue passengers from Chicago.

✚—Across Mississippi River from Quincy.

▲—Connecting bus from and to Fourth and Maine Sts.

■—Scenic Stage Line Buses between Davenport and Savanna, CB&Q RR tickets honored on these buses.

a—On Sunday leaves Peoria 3.00 p.m. by Burlington Bus.

b—Stops to receive revenue passengers for west of Minneapolis.

d—Stops to let off revenue passengers from Hannibal and beyond.

e—Stops to let off revenue passengers from north of La Grange or to receive for south of Hannibal.

f—Flag stop.

g—Coach passengers arrive Minneapolis 9.15 a.m.

h—On Sunday arrives Peoria 12.40 p.m. by Burlington Bus.

j—Coach passengers leave Minneapolis 10.05 p.m.

m—Checked baggage not handled on these trains.

n—Stops to let off revenue passengers or to receive for points north of Keokuk.

p—Stops to receive revenue passengers for St. Paul when notified at St. Louis.

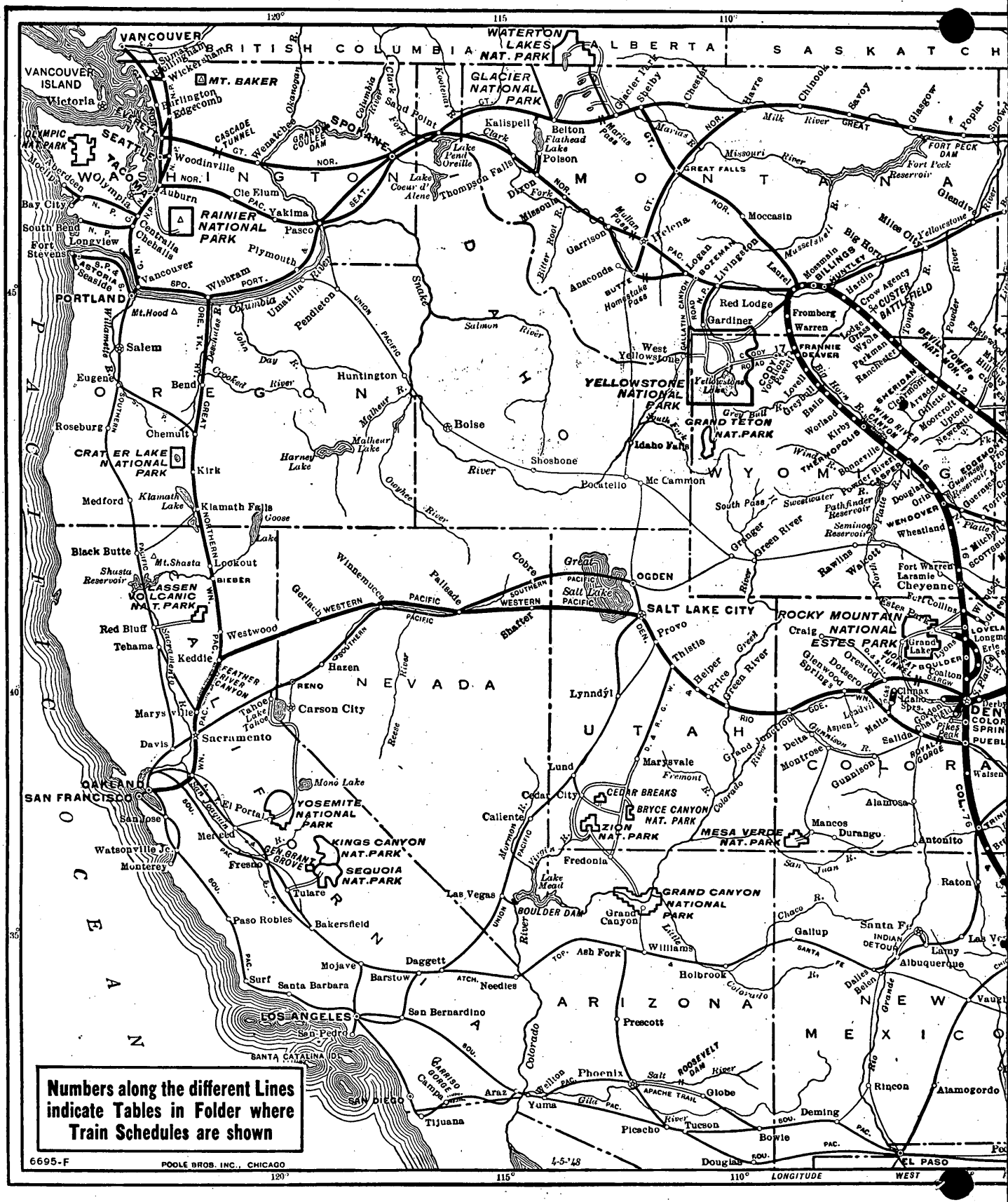
s—Stops to let off passengers.

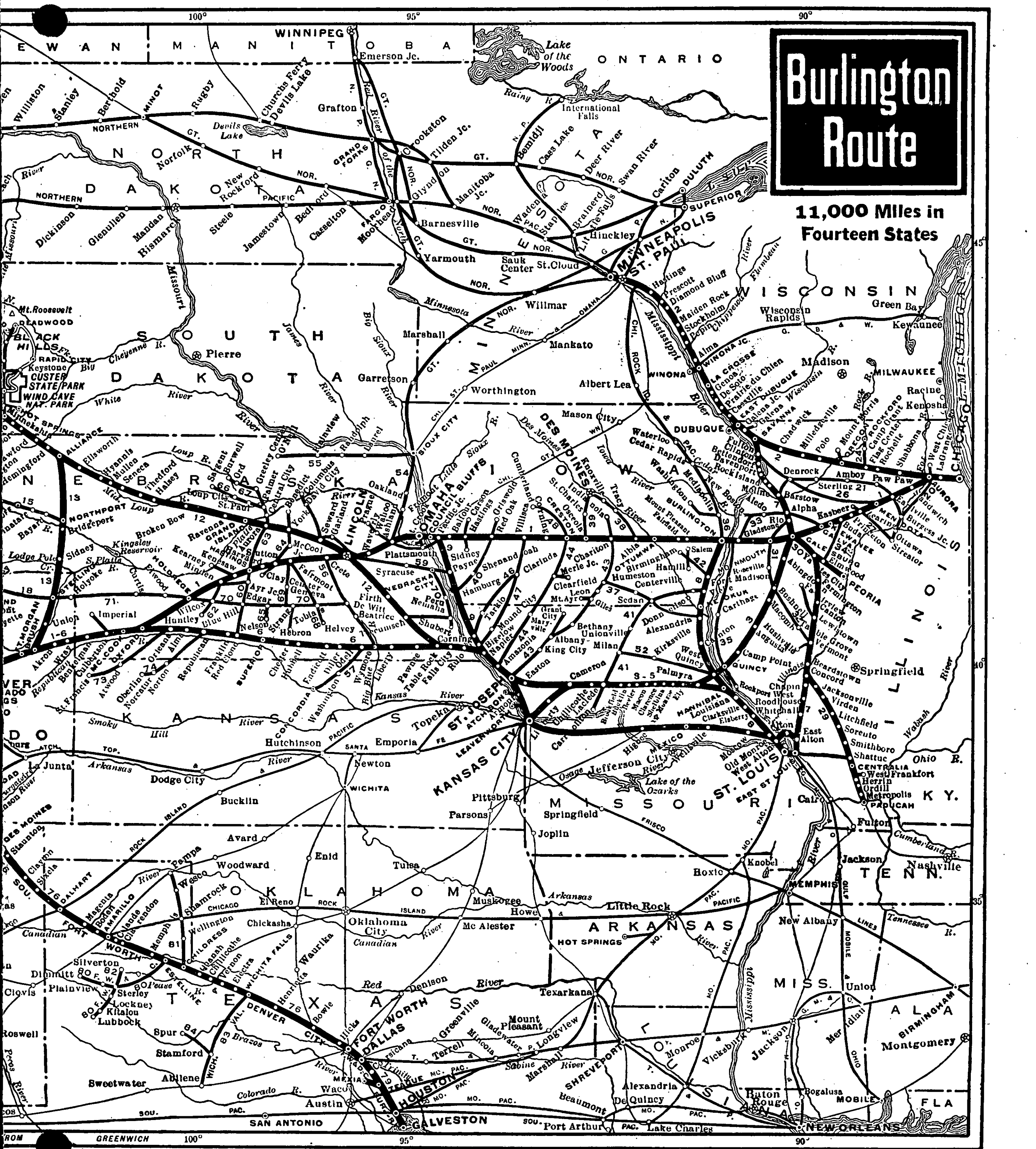
t—Stops to receive revenue passengers for Quincy and beyond.

A—Connecting bus leaves Fourth & Maine Sts. at 9.35 p.m.

🚗—Train-Auto Service available at this point.

NOTE—Additional daily train leaves Quincy 10.15 a.m., arrives Hannibal 10.45 a.m: leaves Hannibal 6.30 p.m; arrives Quincy 7.07 p.m.


Numbers along the different Lines indicate Tables in Folder where Train Schedules are shown
6695-F
POOLE BROS. INC., CHICAGO
4-5-'48
LONGITUDE WEST
120°
115°
110°
45°
40°
35°
BRITISH COLUMBIA
ALBERTA
SASKATCH
VANCOUVER
VANCOUVER ISLAND
Victoria
MT. BAKER
WATERTON LAKES NAT. PARK
GLACIER NATIONAL PARK
OLYMPIC NAT. PARK
RAINIER NATIONAL PARK
YELLOWSTONE NATIONAL PARK
GRAND TETON NAT. PARK
CRATER LAKE NATIONAL PARK
LASSEN VOLCANIC NAT. PARK
ROCKY MOUNTAIN NATIONAL ESTES PARK
YOSEMITE NATIONAL PARK
KINGS CANYON NAT. PARK
SEQUOIA NAT. PARK
GEN. GRANT GROVE
CEDAR BREAKS
BRYCE CANYON NAT. PARK
ZION NAT. PARK
MESA VERDE NAT. PARK
GRAND CANYON NATIONAL PARK
BOULDER DAM
ROOSEVELT DAM
FORT PECK DAM
SANTA CATALINA ID.
PACIFIC OCEAN
WASHINGTON
OREGON
IDAHO
MONTANA
WYOMING
NEVADA
UTAH
COLORADO
ARIZONA
NEW MEXICO
CALIFORNIA
SEATTLE
TACOMA
SPOKANE
PORTLAND
SALEM
EUGENE
BEND
ROSEBURG
MEDFORD
KLAMATH FALLS
BLACK BUTTE
REDDING
RED BLUFF
SACRAMENTO
OAKLAND
SAN FRANCISCO
SAN JOSE
MONTEREY
FRESNO
BAKERSFIELD
LOS ANGELES
SAN DIEGO
TIJUANA
BOISE
IDAHO FALLS
SALT LAKE CITY
OGDEN
PROVO
CHEYENNE
DENVER
PUEBLO
GRAND JUNCTION
ALBUQUERQUE
SANTA FE
TUCSON
PHOENIX
YUMA
EL PASO
LAS VEGAS
RENO
CARSON CITY
PRESCOTT
FLAGSTAFF
GALLUP
DURANGO
GREAT FALLS
HELENA
BILLINGS
BUTTE
MISSOULA
SPOKANE
LONGITUDE WEST


Burlington Route
11,000 Miles in Fourteen States
100°
95°
90°
45°
40°
35°
MANITOBA
WINNIPEG
Emerson Jc.
ONTARIO
Lake of the Woods
Rainy R.
International Falls
NORTH DAKOTA
Williston
Stanley
Berthold
MINOT
Rugby
Churchs Ferry
Devils Lake
NORTHERN
Norfolk
New Rockford
Grafton
GRAND FORKS
Crookston
Tilden Jc.
Bemidji
Cass Lake
Deer River
Swan River
Carlton
DULUTH
SUPERIOR
Dickinson
Glenullen
Mandan
Bismarck
Steele
Jamestown
Bedford
Casselton
FARGO
Moorhead
Glyndon
Manitoba Jc.
Barnesville
Yarmouth
Waden
Staples
Brainerd
Little Falls
Hinckley
Sauk Center
St. Cloud
MINNEAPOLIS
ST. PAUL
MINNESOTA
Willmar
Minnesota River
Marshall
Mankato
Garretson
Worthington
Albert Lea
Hastings
Prescott
Diamond Bluff
Maiden Rock
Stockholm
Pepin
Alma
WINONA JC.
WINONA
LA CROSSE
Genoa
De Soto
Prairie du Chien
Cassville
EAST DUBUQUE
Galena Jc.
Galena
SAVANNA
WISCONSIN
Wisconsin Rapids
Green Bay
Kewaunee
Madison
MILWAUKEE
Racine
Kenosha
L. MICHIGAN
SOUTH DAKOTA
Mt. Roosevelt
DEADWOOD
BLACK HILLS
RAPID CITY
Keystone
CUSTER STATE PARK
WIND CAVE NAT. PARK
HOT SPRINGS
Minnekahta
Pierre
Cheyenne R.
White River
Missouri
James River
Big Sioux River
NEBRASKA
ALLIANCE
Ellsworth
Hyannis
Mullen
Seneca
Thedford
Halsey
NORTHPORT
Bridgeport
Sidney
Broken Bow
Sargent
Burwell
Ord
Loup City
St. Paul
Ravenna
GRAND ISLAND
Kearney
HOLDREGE
Greeley Center
O'Neill
Palmer
Central City
Aurora
York
Benedict
Columbus
David City
Seward
Garland
LINCOLN
Wahoo
Ashland
Oakland
Fremont
SIOUX CITY
OMAHA
COUNCIL BLUFFS
Plattsmouth
NEBRASKA CITY
Crete
Fairmont
Geneva
Beatrice
Wymore
Tecumseh
McCook
Imperial
Akron
Wray
Benkelman
Culbertson
OXFORD
Orleans
Alma
Republican
Franklin
Red Cloud
SUPERIOR
Hebron
Helvey
DES MOINES
Mason City
Waterloo
Cedar Rapids
Washington
Mount Pleasant
Fairfield
BURLINGTON
IOWA
Creston
Osceola
Knoxville
Chariton
Albia
OTTUMWA
Clarinda
Red Oak
Hastings
Shenandoah
Hamburg
DUBUQUE
Fulton
Clinton
Bettendorf
Davenport
Rock Island
Moline
Aledo
New Boston
Fort Madison
KEOKUK
Carthage
MONMOUTH
GALESBURG
Kewanee
Princeton
Mendota
AURORA
CHICAGO
Rochelle
OREGON
ROCKFORD
Denrock
Amboy
Sterling
Paw Paw
Streator
Ottawa
PEORIA
ILLINOIS
Quincy
Springfield
Beardstown
Jacksonville
Virden
Litchfield
Centralia
West Frankfort
Herrin
Metropolis
PADUCAH
Ohio R.
Wabash River
KY.
ST. JOSEPH
ATCHISON
LEAVENWORTH
KANSAS CITY
Cameron
Palmyra
HANNIBAL
Louisiana
Alton
East Alton
ST. LOUIS
EAST ST LOUIS
MISSOURI
Jefferson City
Lake of the Ozarks
Mexico
Springfield
Joplin
Pittsburg
Parsons
KANSAS
Topeka
Emporia
Hutchinson
Newton
WICHITA
Dodge City
La Junta
Arkansas River
Smoky Hill River
Bucklin
OKLAHOMA
Avard
Enid
Woodward
Tulsa
El Reno
Oklahoma City
Muskogee
Chickasha
Mc Alester
Canadian River
ARKANSAS
Little Rock
HOT SPRINGS
Texarkana
Hoxie
Knobel
Cairo
Fulton
MEMPHIS
TENN.
Jackson
Nashville
Cumberland R.
Tennessee R.
MISS.
New Albany
Union
Jackson
Vicksburg
Meridian
ALA
BIRMINGHAM
Montgomery
MOBILE
FLA
LOUISIANA
SHREVEPORT
Monroe
Alexandria
Baton Rouge
Bogalusa
NEW ORLEANS
Lake Charles
De Quincy
Beaumont
Port Arthur
TEXAS
Dalhart
AMARILLO
Clarendon
Memphis
CHILDRESS
Wellington
Shamrock
Wesco
Pampa
Quanah
Vernon
Electra
WICHITA FALLS
Henrietta
Bowie
FORT WORTH
DALLAS
Lubbock
Plainview
Silverton
Dimmitt
Clovis
Roswell
Spur
Stamford
Abilene
Sweetwater
Waco
Austin
SAN ANTONIO
HOUSTON
GALVESTON
Longview
Marshall
Mount Pleasant
Red River
Denison
Colorado R.
Brazos
Pecos River
DENVER
FROM GREENWICH

Burlington Route

Kansas City-St. Joseph-Council Bluffs-Omaha-Lincoln

For equipment of these trains, see page 9.

Everywhere West

NORTHBOUND—READ DOWN / SOUTHBOUND—READ UP

43 Daily	41 Daily	23 Daily	21 Daily	27 Daily	Mls.	Table No. 9	Mls.	20 Daily	26 Daily	22 Daily	44 Daily	42 Daily
PM	AM	PM	PM	AM				PM	PM	AM	AM	PM
6.00	10.00	k11.58	4.00	9.00	0	Lv . **Kansas City, Mo.,** 3, 4, 5 🚌 Ar	250	12.59	9.25	7.00	7.20	6.35
						Missouri River						
	10.20	g12.21			12	Parkville	238			6.22		6.03
	f10.29				19	Waldron	231			f 6 12		
						Platte River						
	f10.35				23	Farley	227			f 6.04		f 5 47
	f10.38				27	East Leavenworth	223					5 42
6.38	10.45		4.31	9.40	29	Lv . **Beverly, Mo.** . Lv	221	12.20			b 6 25	5 37
♀7.05	♀11.05		♀ 4.48	♀10.00	35	Ar } **Leavenworth, Kan.** { Lv	227	♀12.01				♀ 5.10
♀6.10	♀10.25		♀ 4.10	♀ 9.20	35	Lv } **Leavenworth, Kan.** { Ar	227	♀12.40				♀ 5 55
	10.51	c12.50			33	Weston	217			5.50		5.27
	f				39	Iatan	211					f 5.19
7.00	11.13		4.48	10.01	46	Ar . **Armour** . Lv	206	12 02				5.10
♀7.16	♀11.28		♀5.20	♀10.20	50	Ar } **Atchison, Kan.** { Lv	210	♀11.40			♀ 5.45	♀ 4.35
♀6.35	♀10.56		♀4.35	♀ 9.40	50	Lv } **Atchison, Kan.** { Ar	210	♀12.16			♀ 6 20	♀ 5.20
7.00	11.13		4.48	10.01	46	Lv . **Armour** . Ar	206	12.02			6.04	5.10
	f11.17				48	Rushville	202					f 4.53
					53	Halls	197					f 4 50
	f11.36				61	South St. Joseph	189					4 38
7.30	‖11.50	1.43	5.14	10.30	64	Ar . **St. Joseph** . Lv	186	11.38	7.55	4.55	5.30	4 25
7.42	12.14	2.00	5.22	10.45	64	Lv . 3, 6, 12 . Ar	186	11.30	7.40	4.30	5.00	4.10
		2.16			73	**Amazonia,** 44	177					
	f12.38	f 2.23			77	Nodaway	173			f 4.01		f 3.50
						Nodaway River						
	f12.47	f 2.32			84	Forbes	166			f 3.53		f 3.41
	1.00	2.45		e11.17	92	Forest City	158			f 3.40		3.30
	1.10	2.57		j11.22	98	Ar . **Napier,** 6 . Lv	152			f 3.31		
		2.57		j11.22	98	Lv . **Napier,** 6 . Ar	152			f 3.31		
		3.03		11.30	102	**Bigelow,** 47	148			3.26		
		3.15		11.42	110	Craig	140		6.44	3.15		
		a 3.24		11.53	115	**Corning,** 46	135	10.35		f 2.55		
				f11.58	120	Nishnabotna	130			f 2.48		
		3.40	6.16	12.08	125	**Langdon**	125	10.24	6.25	f 2.40		
				f12.14	129	Phelps	121			f 2.32		
		a 3.56		12.24	134	Watson, Mo.	116			f 2.22		
						Nishnabotna River						
		4.10	6.36	12.38	142	**Hamburg, Ia.,** 40	108	10.06	6.03	2.10		
		4.30	c 6.46	12.51	150	Ar . **Payne, Ia.** . Lv	100	9.55	5.46	1.48		
				† 1.10	156	Ar . **Nebraska City, Neb.** . Lv	106	† 9.35	† 5.15			
				†12.30	156	Lv . **Nebraska City** . Ar	106	†10.10	† 6.10			
		4.30		12.51	150	Lv . **Payne, Ia.** . Ar	100	9.55	5.46	1.48		
				1.02	156	Percival	94			f 1.37		
		5.00		1.10	161	McPaul	89			f 1.28		
				1.17	166	Bartlett	84			f 1.20		
		5.30		1.30	175	Ar . **Pacific Junction,** 1	75		5.11	1.07		
		6.10	7.29	1.58	191	Ar . **Council Bluffs,** 1	59	9.14	4.48	12.25		
		6.40	7.50	2.15	192	Ar . Council Bluffs Transfer, Ia., 1	58	9.10	4.42	12.20		
						Missouri River						
		7.00	8.00	2 30	195	Ar } **Omaha, Neb.,** 1 🚌 { Lv	55	9.00	4.30	m11 45		
		8.30	8.15	4.45	195	Lv }	55	8.25				
10.58	4.45	9.55	9.10	5.55	250	Ar . **Lincoln,** 1; 12 🚌 . Lv	0	7 30			p12.30	11.45

Operates via Table Rock—See Table No. 12 (northbound, Mls. 0–250)

Operates via Table Rock—See Table No. 12 (northbound, Mls. 64–250)

Silver Streak Zephyr (northbound, Mls. 64–250)

Silver Streak Zephyr (southbound, Mls. 64–250)

Operates via Table Rock—See Table No. 12 (southbound, Mls. 64–250)

Operates via Table Rock—See Table No. 12 (southbound, Mls. 64–250)

WESTBOUND—READ DOWN

Omaha-Ashland-Lincoln

Mls.	Table No. 10	1 Daily	3 Daily	17 Daily Motor	7 Daily	21 Daily	11 Daily	5 Daily	39 Daily
		AM	AM		PM	PM	PM	PM	PM
0	**Omaha,** 1, 9 🚌 . Lv	1.15	8.30	From Sioux City	4.45	8.15	9.40	10.20	10.35
4	South Omaha		f 8.38						
8	Ralston		f 8.43						
15	Chalco		f 8.52						
21	Gretna		f 9.02						
	Platte River								
31	**Ashland,** 53, 54		9.20	5.30	5.24				n
38	Greenwood		f 9.29	f 5.40					
43	Waverly		f 9.37	f 5.50					
50	Havelock		h 9.45	f 6.00					
55	**Lincoln,** 12, 54, 56, 58 🚌 . Ar	2.12	9.55	6.10	5.55	9.10	10.40	11.25	11.59
		AM	AM	PM	PM	PM	PM	PM	PM

Denver Zephyr (Note 1) (Mls. 0–55)

Silver Streak Zephyr (Mls. 31–55)

Nebraska Zephyr (Mls. 31–55)

Exposition Flyer (Mls. 31–55)

EASTBOUND—READ DOWN

Lincoln-Ashland-Omaha

Mls.	Table No. 11	20 Daily	6 Daily	16 Daily Motor	12 Daily	14 Daily	30 Daily	40 Daily	10 Daily
		AM	AM	AM	AM	PM	PM	PM	PM
0	**Lincoln,** 1, 9, 12, 54, 56, 58 🚌 . Lv	7.30	7.45	8.30	11.00	4.30	9.00	11.30	11.43
4	Havelock			8.40					
12	Waverly			8.50					
17	Greenwood			8.58					
24	**Ashland,** 1, 53, 54			9.07		4.56			
	Platte River								
33	Gretna			To Sioux City		f 5.13			
40	Chalco					f 5 20			
47	Ralston					f 5 27			
51	South Omaha								
55	**Omaha,** 1, 9 🚌 . Ar	8.25	8.55		11.59	5.40	10.10	12.35	12.40

Silver Streak Zephyr (Mls. 0–55)

Nebraska Zephyr (Mls. 0–55)

Ak-Sar-Ben (Mls. 0–55)

Exposition Flyer (Mls. 0–55)

Denver Zephyr (Note 1) (Mls. 0–55)

The **SILVER STREAK** *Zephyr*

Daily between

Kansas City • St. Joseph
Council Bluffs • Omaha
Lincoln

CHAIR CARS PARLOR CAR
DINING CAR SERVICE

NO EXTRA FARE

REFERENCE NOTES

†—Daily except Sunday. ♀—Motor Train.

‖—Meal stop.

♦—Burlington Bus.

a—Stops to let off revenue passengers from Kansas City or St. Joseph or receive for Council Bluffs or Omaha.

🚌—Train-Auto Service available at this point.

b—Stops to let off revenue passengers from Lincoln or beyond.

c—Stops to let off revenue passengers from Kansas City and beyond.

d—Stops to receive revenue passengers for Omaha and beyond.

e—Stops to receive revenue passengers for Council Bluffs or beyond.

f—Flag stop.

g—Stops to let off revenue passengers from Kansas City or beyond and to receive for St. Joseph or beyond.

h—Stops only to let off revenue passengers.

j—Stops only to receive revenue passengers.

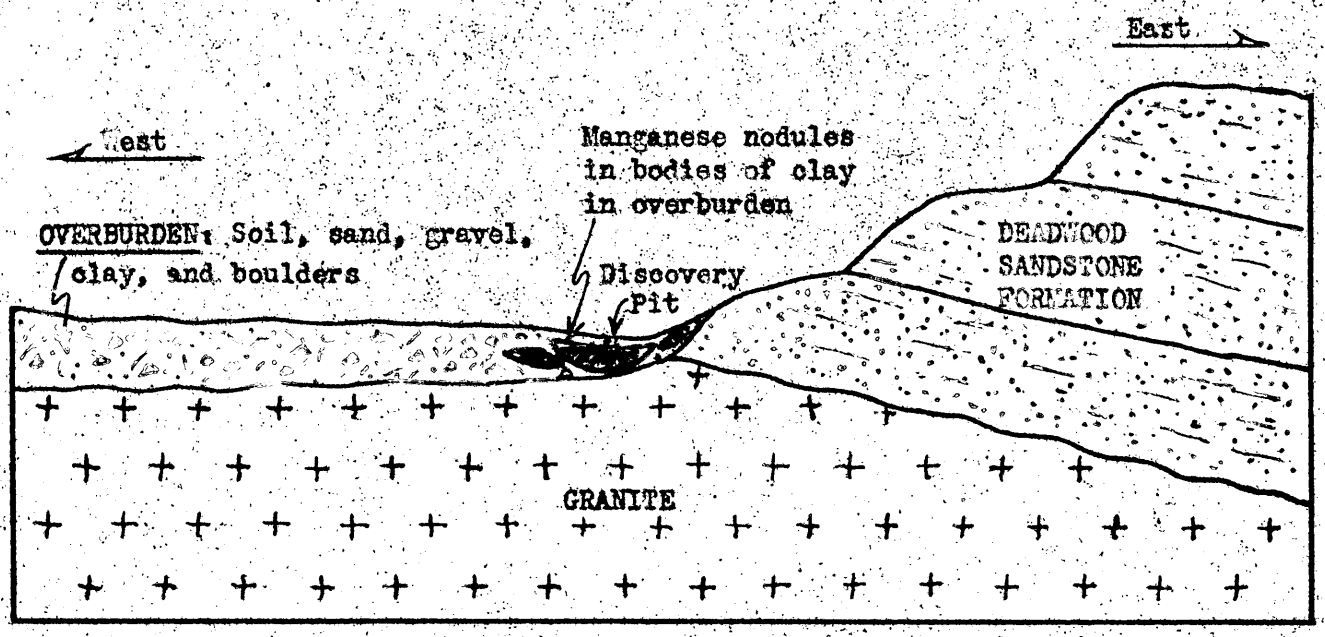
k—Sleepers ready at 10:00 p.m; may be occupied at Omaha until 8:00 a.m.

m—Sleepers ready at 9:00 p.m.

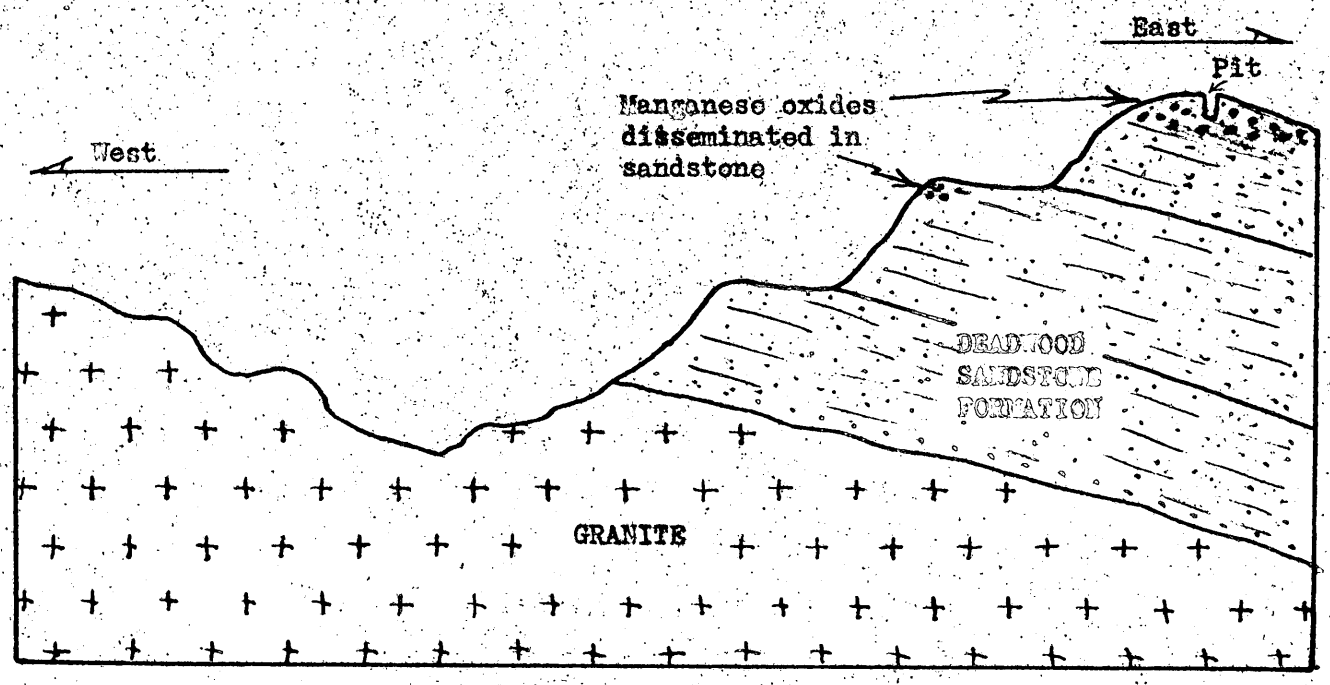
n—Stops to let off revenue passengers from east of Omaha.

p—Sleeper ready at 10:00 p.m.

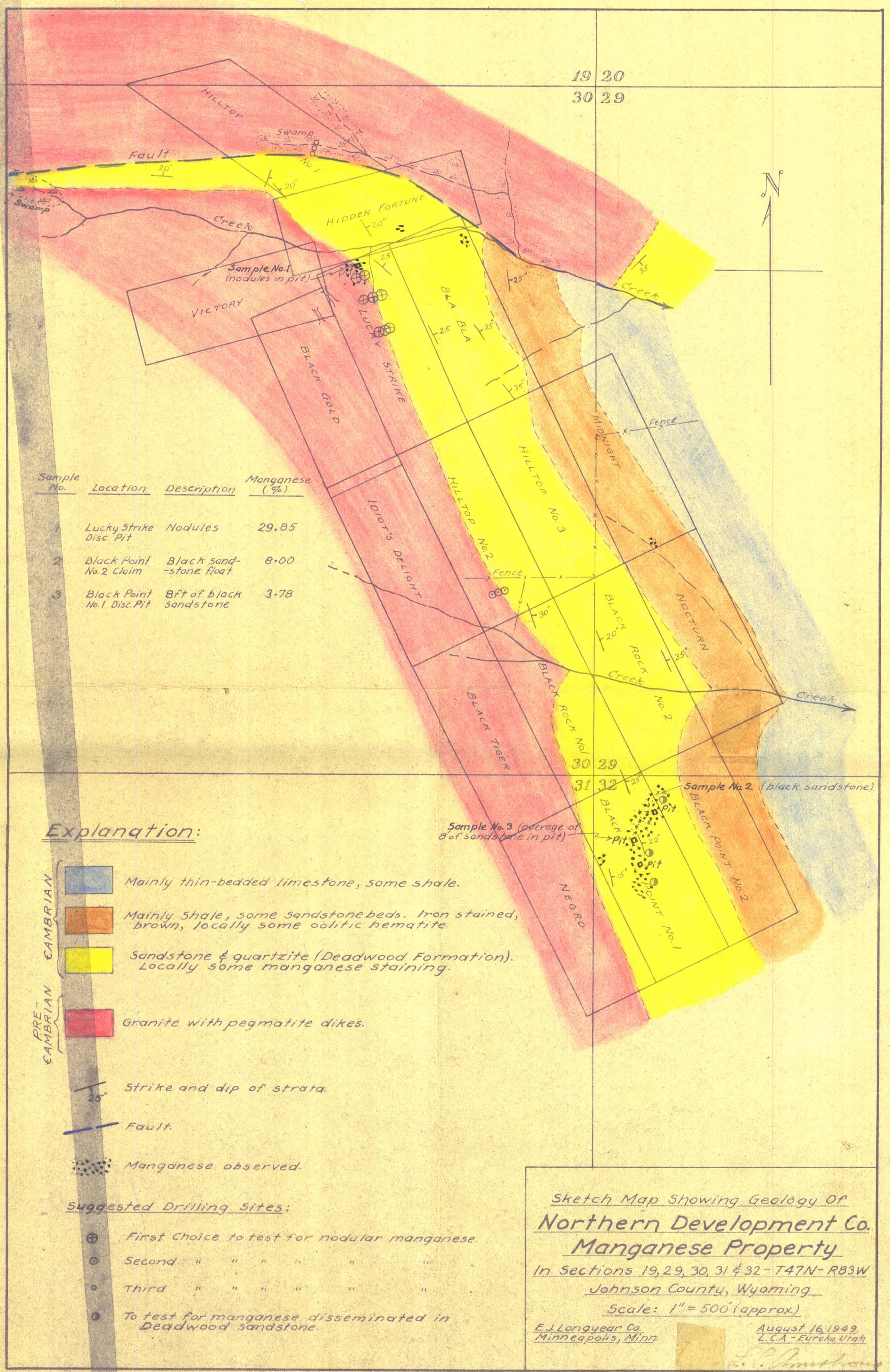
Note 1—All space on the Denver Zephyrs—both COACH and PULLMAN —is RESERVED and SPECIFICALLY assigned in advance, reservations for trips under 300 miles not being made prior to date of departure. Coach seat reservation must be claimed at train gate at Chicago by 5:25 p. m. or Denver by 3:55 p. m. Checked baggage is carried only for through movement between Chicago and Denver and not to or from intermediate points. No extra fare on any Burlington train.



CROSS SECTIONAL SKETCH
Through
LUCKY STRIKE DISCOVERY
Scale: Diagrammatic



CROSS SECTIONAL SKETCH
Through
BLACK POINT No. 1 DISCOVERY
Scale: Diagrammatic



Sample No.	Location	Description	Manganese (%)
1	Lucky Strike Disc. Pit	Nodules	29.85
2	Black Point No. 2 Claim	Black sand--stone float	8.00
3	Black Point No. 1 Disc. Pit	8 ft of black sandstone	3.78

Explanation:

CAMBRIAN

- Mainly thin-bedded limestone, some shale.
- Mainly shale, some sandstone beds. Iron stained, brown, locally some oölitic hematite.
- Sandstone & quartzite (Deadwood Formation). Locally some manganese staining.

PRE-CAMBRIAN

- Granite with pegmatite dikes.

25° Strike and dip of strata.

Fault.

Manganese observed.

Suggested Drilling Sites:

- First Choice to test for nodular manganese.
- Second " " " " " " .
- Third " " " " " " .
- To test for manganese disseminated in Deadwood sandstone.

Sketch Map Showing Geology Of

Northern Development Co. Manganese Property

In Sections 19, 29, 30, 31 & 32 - T47N - R83W

Johnson County, Wyoming

Scale: 1" = 500' (approx.)

E. J. Longyear Co.
Minneapolis, Minn.

August 16, 1949
L. C. A. - Eureka, Utah