DMA 2262X

A. TANCIG

Manganese

83-K-27

Return to
Code 400-DMEA
Rm. 3538

file

March 25, 1952

Memorandum

To: Acting Administrator, Defense Minerals Exploration Administration

From: Iron and Ferro-Alloy Division, Defense Minerals Exploration Administration

Subject: Denial of application for exploration assistance in the amount of $36,168.00.
Docket No. DMEA 2262X - Manganese
Mr. A. Tancig
Section 2, T. 138 N., R. 26 W.
Crow Wing County, Minnesota

The subject application was denied for the following reasons:

(1) A magnetometer survey flown at a height of 1,000 feet shows that the land is not even near a magnetic high.

(2) There is no geological evidence present that suggests that drilling is warranted.

(3) Applicant projected structure and ore occurrences two miles to property.

(4) Old map indicating magnetic belt through property is of questionable integrity.

(5) The Field Team of Region V recommended denial and the Division concurs.

George C. Selfridge

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

GCSelfridge:ls

cc: Docket
Admn. Reading File
Field Team, Region V
N. B. Melcher, USBM
M. D. Crittenden, USGS
G. C. Selfridge
Operating Committee

FEB 2 6 1952

Mr. A. R. Needham
Executive Officer
DMEA Field Team, Region V
2908 Colfax Avenue, South
Minneapolis 8, Minnesota

Re: Docket No. DMEA 2262X (Iron-Manganese)
A. Tasaig
Crow Wing County, Minnesota

Dear Mr. Needham:

We have your field team report on the subject property and, on review, find that additional information is necessary.

In your "Recommendations", (2), on page 2, you recommend that the applicant employ a competent engineer for the purpose of making a magnetic survey of the area in question, and that he "reopen" his application by submitting the results of this survey.

According to DO-5, section 7, the obtainment of this geophysical information falls within the definition of "exploration project" and an Exploration Project could be approved in this respect.

The applicant would be required to amend his application by adding the recommended geophysical work as "Step I", to be followed by the presently applied for drilling program, revised to fit the derived geophysical information as "Step II".

However, before suggesting such a revision of the proposal to the applicant we desire to have the opinion of the field team as to the probability of making a significant mineral discovery in the above described manner.

Sincerely yours,

(signed) FRANK E. JOHNSON

Chairman, Operating Committee
Defense Minerals Exploration
Administration

J. H. Hedges
Member, Bureau of Mines

Member, Geological Survey

QLBrewer/FEJohnson/lm/bih
cc to: Docket
Admrds. Reading File
Field Team, Region V
Messrs. NEMelcher - MDCrittenden
DCSelfridge - QLBrewer - FEJohnson

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UNITED STATES
DEPARTMENT OF THE INTERIOR

Oscar L. Chapman, Secretary

2-18-52
(h)

DEFENSE MINERALS EXPLORATION ADMINISTRATION

Report of Examination by Field Team
Region V

DMA-2262x, A. Tancig - Manganese

Iron Deposit, Crow Wing
County, Minn.

DEPARTMENT OF THE INTERIOR
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FEB 14 1952

Dr. G. M. Schwartz, Geologist
U. S. Geological Survey

Walter E. Lewis, Mining Engineer
Emmett J. Martin, Mining Engineer
U. S. Bureau of Mines

February 1952

SUMMARY AND CONCLUSIONS

Technical Feasibility

Due to the lack of geologic evidence, this project is not feasible. In this area, it is not practicable to project structure and ore occurrences some two miles, as the applicant has done. There is considerable doubt as to the engineering integrity and ability of the author of the map submitted by the applicant as evidence of a magnetic belt passing through the applicant's property. This is no reflection on the character of the applicant. The closest available drilling data are 4-1/2 miles to the west, 5-1/2 miles to the east, 6 miles to the south, and 6 miles to the north. All of those data indicate a much greater depth of overburden than that of the applicant.

Availability of Requirements

All drilling would be contracted. All requirements are available.

Competence of Applicant

The applicant is in charge of all mechanical and electrical work for Snyder Bros. and has some 50 years of a mining background, undoubtedly all in the mechanical and electrical end. Mr. Tancig is held in very high esteem by members of the mining fraternity; but when he gets into exploration work, he is evidently out of his field. He would be capable of administering this job, but would need an engineer for correct supervision.

Recommendations

It is recommended:

1. That the request for Government assistance be denied because of a lack of geologic data;

2. That the applicant should be advised that, if he wishes to reopen this application, he must submit the results (i.e., maps and readings) of a magnetic survey. Specifically, this survey is to be made by a competent and recognized engineer with either a super dip or magnetometer, and is to consist of four parallel north-south traverses and approximately evenly spaced on the three quarter-sections pertinent to this application.

Geologic Setting of Section 2, T. 138 N., R. 26 W., Crow Wing County, Minnesota

The land involved in the applications consists of three 40-acre tracts lying along the east side of section 2. This is in a heavily drift covered area, and no rock outcrops are known for more than 20 miles in any direction. There is, therefore, no surface geology that will aid in evaluation of the area. Somewhat hazy information is given in the application about an indefinite area two miles to the south. Inasmuch as the known strike of the formations in the Cuyuna district is northeast-southwest and the indicated strike of a magnetic belt is the same, the supposed location of ore to the south has very little significance for the possibilities in section 2.

The nearest known drilling, aside from that noted above, is in SE1/4, SW1/4 7, T. 138 N., R. 26 W., which is about 4-1/2 miles to the west. There, 5 drill holes passed through from 170 to 196 feet of glacial drift and entered green and red schist.

Eastward in the SE1/4 of sec. 11, T. 138 N., R. 25 W., a distance of about 5-1/2 miles, two drill holes passed through 235 and 265 feet of glacial drift and entered gray, green slate.

In the Emily area, 6 miles south of the proposed exploration, glacial drift ranges from 240 to 340 feet in thickness. It is reported in the application that the drift was only 100 feet thick in the drilling about 2 miles to the south. In view of other definite data, it would be only realistic to expect 200 feet or more in sec. 2, T. 138 N., R. 26 W. There is also a verbal report to us that the glacial drift in sec. 16, T. 138 N., R. 26 W., is 350 feet thick. Another verbal statement was to the effect that drilling 6 miles north of section 2 was in very thick glacial drift and the results negative. Very thick drift was also reported in a drill hole in sec. 35, T. 139 N., R. 26 W. All available data throws great doubt on the statement that the overburden in section 2 is only 100 feet thick.

The map submitted as evidence of a magnetic belt through section 2 is 20 years old, and we were advised by an engineer with many years of experience in the area to disregard it entirely. This was also corroborated by another engineer of 40 years experience in Minnesota.

In summary, it may be said that there is no geological evidence, at present, that would warrant drilling in sec. 2, T. 138 N., R. 26 W.

If the applicant wishes to pursue the matter further, he should have a magnetic survey made of his land by a reputable firm and submit the detailed data in support of the application. As an answer to our request for more information, the applicant submitted a portion of an aeromagnetic map published by the U. S. Geological Survey which clearly shows that the land is not even near the magnetic crest picked up by the magnetometer at a height of 1,000 feet.

Property and Location

The A. Tancig manganese-iron property consists of SE1/4 of NE1/4, NE1/4 of SE1/4, and SE1/4 of SE1/4, all of sec. 2, T. 138 N., R. 26 W., Crow Wing County, Minn. The property is about 1-3/4 miles east of Outing, Minn., and is reached by a County road which bears due east of Outing which is also on Highway 6. See sketch.

Proposed Exploration Work

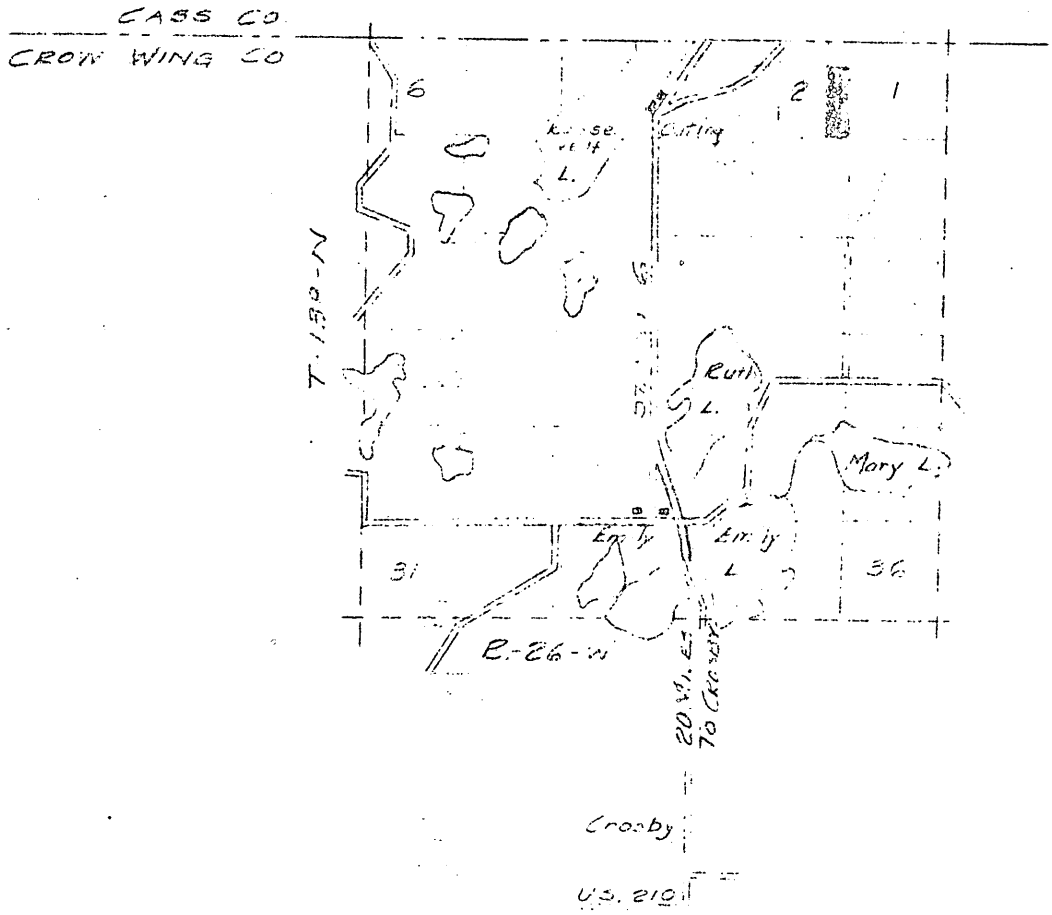
For a total cost of $36,168.00 (Government's share 75 percent, or $27,126.00), the applicant proposes to drill two holes in each of three contigues (north and south) quarters in the S.E. corner, sec. 2, T. 138 N., R. 26 W., to explore this 120-acre tract for a manganese-iron ore. The applicant justifies this project on the basis of an old and unreliable magnetic map by a Mr. George Homes, and what is apparently "hearsay" results of a drilling project two miles or more to the south. Such data do not warrant the expenditure of any money for drilling.

The applicant's cost estimates are on the high side, but firm bids by drilling contractors and actual expenditures will bring these items in line.

As a guide, Longyear has submitted the following estimates for drilling such holes on the Cuyuna Range. They have a large amount of experience in drilling on all the Minnesota iron ranges. The smallest diameter they would consider is AX.

NX	$11.00 - $13.00
BX	$10.00 - $12.00
AX	$ 9.00 - $11.00

These estimates include reaming and casing, but not road or trail work, nor delays, nor extra water costs if the work should be done in



LOCATION MAP

winter. Competitive bidding should lower these costs, as there are several smaller contracting companies on the Cuyuna who consistently under-bid Longyear by a dollar or more per foot.

447A

JAN 24 1952

Mr. A. Tassig
701 - 3rd Avenue, N.W.
Chisholm, Minnesota

Re: Docket No. DMA 2262X - Manganese-Iron
Crow Wing County, Minnesota

Dear Mr. Tassig:

Your application for exploration assistance (DMA 2262X) has been reviewed by the Iron and Ferro-Alloy Division of the Defense Minerals Exploration Administration and has been referred to Mr. A. B. Needham, Executive Officer, DMEA Field Team, Region V, 2908 Colfax Avenue, South, Minneapolis 5, Minnesota, for a field examination.

The Regional Office will contact you at an early date in regard to your project.

Sincerely yours,

C. O. Mittendorf

Acting Administrator
Defense Minerals Exploration
Administration

TLChapman'lm
1/18/52

cc: Admn. Reading File
Docket
W. N. Melcher, USBM
M. D. Crittenden, USGS
Field Team Reg. V
C. C. Selfridge
T. L. Chapman

I 77A
6/5/51

Defense Minerals Administration

Review of Application for Exploration Assistance

Jun 24

Docket No. 2262

Commodity Iron-Manganese

Total Amount $36,168.00

Govt. Participation $27,126.00
75% for Mn.

1. Name and Address of Applicant A. Tancig
701 - 3rd Avenue
Chisholm, Minnesota

2. Location of Property SE¼ of NE¼; NE¼ of SE¼; SE¼ of SE¼; Section 2
T138N; R26W;
Crow Wing County, Minnesota

3. Mineral or metal Manganese-Iron Is it listed in Section 9 of MO-5?

If not, application will be rejected.

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

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

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Defense Minerals Administration
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a) Good

b) Poor

c) None

d) Don't know—needs field examination Yes

e) Is there an alternative and favorable project? No
(If so, attach an explanation)

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

6. If applicant is a lessee, is a copy of the lease attached? No

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

productive period?

*question numbers are those of MF-103

7. Are subordination agreements necessary? No

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 Yes

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

c) Accessibility (question 12)* Yes

d) Water (question 13)* Water easily available

e) Power (question 13)* Use gasoline engines

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

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

Is a field check needed on this point? Yes

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

a) Is the project adequately described? Not geologically

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? Sketch showing location alright, magnetic points unreadable. Poor print.

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

If not, what part of it is? _____

Is this part a worthwhile exploration project?_____

d) Are the cost estimates detailed? Yes

Can they be summarized, as on page 2 of Procedural Instruction 5-A, from the available data? Yes If so, attach a draft.

e) Are the cost estimates reasonable? Too high

f) Should more information be requested from applicant? Field team should investigate

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

11. Exhibit B (question 23-d)*

a) Is it applicable? Application on amended form MF-103

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

c) Is a field check needed?_____

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

a) Is it applicable?_____

b) Sufficient data?_____ If so, attach a draft.

c) Are rents and charges reasonable?_____

d) Is a field check needed?_____

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

a) Are there sufficient data?_____

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

c) Is the schedule excessive for the work proposed?_____

d) Are the proposed wages and salaries reasonable? Yes

e) Is a field check needed?_____

14. Exhibit E (question 23-c)*

a) Is it applicable? _____

b) Sufficient data? _____

c) Reasonable? _____

d) Field check needed? _____

15. In your judgment, can the proposed work be done in the proposed time? Time not indicated, but should be 6 months or less.

(All exploration must be completed within two years)

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

17. If field examination is needed, do you have any special instructions for the field team not indicated by your answers to the foregoing question? Form MF-103 (June, 1951), Question 2, advises drill holes on property 2-1/2 miles distant shows 35% or better manganese. This is very doubtful and should be investigated.

Question 3. Cost of $12.00 per foot for drilling appears high. Should be about $8.00 per foot.

Number of samples at maximum should not be over 3/4 of number stated.

Hence total costs should not exceed $25,000.00. Tancig advises he is acting for partners. Agreements should be obtained.

Reviewed by: T. L. Chapman

Enclosures:

MF-100 with applicant's answers
MF-103 with applicant's answers
Map of magnetic survey
Crow Wing County map
Memo 12/18/51 M.D. Crittenden to George Selfridge
Letter, 12/26/51 Selfridge to Tancig
Reply to above letter 1/15/52 by Tancig

Date 1/17/52

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

147A

File

DEC 29 1951

Mr. A. Tunsig
701 - 3rd Avenue, N.W.
Chisholm, Minnesota

Re: Docket No. 22621 - Manganese
Crow Wing Co., Minnesota

Dear Mr. Tunsig:

We find that we must request additional information in regard to the above noted application.

The statement given in MF-103, item 2b, that "Magnetic survey showed a high reading through property running from NE to SW" should be supported by maps and/or reports of the said magnetic survey. Item 2b further states "Drilling within a short distance (2-1/2 miles) produced iron ore samples with a manganese content of better than 35%. If available, please favor us with a map or sketch, showing the location of this drill hole; a log of formations encountered; and the geology of the intervening lands.

Your attention is called to question 12 (a) on form MF-100. This information must be furnished us, in considerable detail, as the applicant must demonstrate that his proposed exploratory program is based upon such geologic factors as will logically lead the applicant to succeed to find commercial orebodies.

The review of your application will be held in abeyance until the above requested information is received.

Sincerely yours,

George C. Selfridge

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

GCSelfridge
12/26/51

cc: Admin. Reading File
Mails and Files Br.
C. O. Mittenderf
W. E. Melcher, TSM
M. D. Crittenden, USGS
Field Team Reg. V
Docket
G. C. Selfridge

I-7A

George R. Selfridge

December 18, 1951

M. D. Crittenden, Jr.

DMA_2262 A. Tancig

The Washington office of the Geological Survey has no information on the manganiferous iron ore possibilities of this area. However, the Field Team of Region V has access to a large amount of unpublished information which should enable them to appraise this proposal. It is suggested therefore that the docket be referred to the field for that purpose.

MDCrittenden:gt

DMA Form 1

DEFENSE MINERALS ADMINISTRATION
Control Slip Manganese

CONTROLLED DOCUMENT

DMEA ~~DMA~~ Docket No. 2262

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 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 MR. ~~[illegible]~~
~~[illegible]~~

To: IRON & FERRO-ALLOYS BR. Date 11-29-51

To: Operating Com. Date 2-25-52

To: Operating Com. Date 3-28-52

To: _____ Date _____

To: _____ Date _____

To: _____ Date _____

To: _____ Date _____

To: _____ Date _____

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To: _____ Date _____

To: _____ Date _____

To: _____ Date _____

To: _____ Date _____

To: _____ Date _____

DO NOT DETACH

CONTROLLED DOCUMENT

FILE COPY
SURNAME:

FEJohnson
Thayer
Hedges

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

MAR 31 1952

Mr. A. Tancig
701 Third Avenue, N.W.,
Chisholm, Minnesota

Re: Docket No. DMEA 2262X (Manganese)
Section 2, T. 138 N., R. 26 W.
Crow Wing County, Minnesota

Dear Mr. Tancig:

Your application for assistance for an exploration project and other data relating to the subject area available to us in Washington have been carefully reviewed.

Based upon this information there does not appear to be any geological probability of making a significant mineral discovery by the proposed exploration. We regret, therefore, to inform you that your application is denied.

We wish to thank you for your interest in the Defense Minerals Program and for bringing the property to our attention.

Sincerely yours,

C. O. Mittendorf (for) S.N. 3-31-52

Acting Administrator
Defense Minerals Exploration
Administration

GCSelfridge/FEJohnson/ls/bih
3/28/52
cc to: Docket
Admr's. Reading File
Region V (2)
N.B.Melcher
M.D.Crittenden
G.C.Selfridge
FEJohnson
Operating Committee

FILE COPY
SURNAME:

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

Selfridge
Nedelec
Thayer
Hodges

MAR 3 1 1952

Mr. A. Tancig
701 Third Avenue, N. W.
Chisholm, Minnesota

Re: Docket No. DMEA 2262X - Manganese
Section 2, T. 138 N., R. 26 W.
Crow Wing County, Minnesota

Dear Mr. Tancig:

Your application for assistance for an exploration project and other data relating to the subject area available to us in Washington have been carefully reviewed.

The information does not include any checkable geological evidence that suggests the possibility of making a significant mineral discovery by the proposed exploration. We regret, therefore, to inform you that your application is denied.

We wish to thank you for your interest in the Defense Minerals Program and for bringing the property to our attention.

Sincerely yours,

Acting Administrator
Defense Minerals Exploration
Administration

GCSelfridge:ls
3/25/52

cc: Docket
Admn. Reading File
Field Team, Region V
G. C. Selfridge
N. B. Melcher, USBM
M. D. CRittenden, USGS
Operating Committee

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

March 25, 1952

Memorandum

To: Acting Administrator, Defense Minerals Exploration Administration

From: Iron and Ferro-Alloy Division, Defense Minerals Exploration Administration

Subject: Denial of application for exploration assistance in the amount of $36,168.00.
Docket No. DMEA 2262X - Manganese
Mr. A. Tancig
Section 2, T. 138 N., R. 26 W.
Crow Wing County, Minnesota

The subject application was denied for the following reasons:

(1) A magnetometer survey flown at a height of 1,000 feet shows that the land is not even near a magnetic high.

(2) There is no geological evidence present that suggests that drilling is warranted.

(3) Applicant projected structure and ore occurrences two miles to property.

(4) Old map indicating magnetic belt through property is of questionable integrity.

(5) The Field Team of Region V recommended denial and the Division concurs.

G. C. Selfridge

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

FILE COPY
SURNAME:

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

Selfridge.
Mulcahy

March 25, 1952

Memorandum

To: Acting Administrator, Defense Minerals Exploration Administration

From: Iron and Ferro-Alloy Division, Defense Minerals Exploration Administration

Subject: Denial of application for exploration assistance in the amount of $36,168.00.
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(5) The Field Team of Region V recommended denial and the Division concurs.

George C. Selfridge

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

P.S. in R. R.

GCSelfridge:ls

cc: Docket
Admn. Reading File
Field Team, Region V
N. B. Melcher, USBM
M. D. Crittenden, USGS
G. C. Selfridge
Operating Committee

OF THE ADMINISTRATOR

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
~~WASHINGTON 25, D.C.~~
Region V
2908 Colfax Avenue South
Minneapolis 8, Minnesota

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
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MAR 19 1952

March 17, 1952

Memorandum

To: Frank E. Johnson, Chairman, Operating Committee, Defense Minerals Exploration Administration, Interior Building, Washington 25, D. C.

From: Executive Officer, Field Team, Region V

Subject: Docket DMEA-2262x, A. Tancig, Chisholm, Minn. (Crow Wing County, Minn.)

Reference is made to your memorandum of February 26, 1952, relative to geophysical work required on the subject docket.

The field team fully realizes geophysical work can come within the province of the exploration program, but it appears there should be the same geologic probability of discovering ore by that method as by any other. In other words, any referral, whether for drilling, underground work, or geophysical surveys, should be weighed by the same criteria and one of them is the geological probability of finding ore.

In the case of Tancig, the geophysical work done to date and the probability of finding ore is so small the field team is not inclined to reverse their opinion. We are of the opinion, further, that criterion "e" in DMEA Order 1 might also apply, as well as criterion "b". Section 4 of DMEA Order 1 permits the administrator to require filing of additional information, if deemed necessary. In this case, it is necessary.

The field team reaffirms its recommendation as set forth in the original report and does not want to go on record as recommending a geophysical project based on information on file at this date.

A. B. Needham
Executive Officer
Field Team, Region V

400

FILE COPY
SURNAME:

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

FEB 26 1952

Mr. A. B. Needham
Executive Officer
DMEA Field Team, Region V
2908 Colfax Avenue, South
Minneapolis 8, Minnesota

Re: Docket No. DMEA 2262X (Iron-Manganese)
A. Tancig
Crow Wing County, Minnesota

Dear Mr. Needham:

We have your field team report on the subject property and, on review, find that additional information is necessary.

In your "Recommendations", (2), on page 2, you recommend that the applicant employ a competent engineer for the purpose of making a magnetic survey of the area in question, and that he "reopen" his application by submitting the results of this survey.

According to MO-5, section 7, the obtainment of this geophysical information falls within the definition of "exploration project" and an Exploration Project could be approved in this respect.

The applicant would be required to amend his application by adding the recommended geophysical work as "Step I", to be followed by the presently applied for drilling program, revised to fit the derived geophysical information as "Step II".

However, before suggesting such a revision of the proposal to the applicant we desire to have the opinion of the field team as to the probability of making a significant mineral discovery in the above described manner.

Sincerely yours,

S.N. 2-26-52

APPROVED:

(SIGNED) FRANK E. JOHNSON (GB)

J. H. Hedges (HB)
Member, Bureau of Mines

Chairman, Operating Committee
Defense Minerals Exploration
Administration

L. P. Shayer (HB)
Member, Geological Survey

QLBrewer/FEJohnson/lm/bih
cc to: Docket
Admr&s. Reading File
Field Team, Region V
Messrs. NBMelcher - MDCrittenden
GCSelfridge - QLBrewer - FEJohnson

FILE COPY
SURNAME:

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

Brewer
Selfridge

FEB 26 1952

Mr. A. B. Needham
Executive Officer, Region V
2908 Colfax Avenue, South
Minneapolis 8, Minnesota

Re: Docket No. DMEA 2262X - Iron and Manganese
A. Tanzig
Crow Wing County, Minnesota

Dear Mr. Needham:

We have your field team report on the subject property and, on review, find that additional information is necessary.

In your "Recommendations", (2), on page 2, you recommend that the applicant employ a competent engineer for the purpose of making a magnetic survey of the area in question, and that he "reopen" his application by submitting the results of this survey.

According to MO-5, section 7, the obtainment of this geophysical information falls within the definition of "exploration project" and a loan may be granted in this respect.

We may propose that the applicant amend his application by adding the recommended geophysical work as "Step I", to be followed by the presently applied for drilling program, revised to fit the derived geophysical information as "Step II".

However, before making such a proposal to the applicant herein, we request an additional report from Region V as to the probability of making a significant mineral discovery in the above described manner. In this respect, it is to be observed that the Government participates in whatever costs are to be incurred and that the criteria of judgment used should consider possible similar future applications.

QLBrewer'lm
2/20/52

Sincerely yours,

Acting Administrator
Defense Minerals Exploration
Administration

cc: Admn. Reading File
Docket
N. B. Melcher, USBM
M. D. Crittenden, USGS
Field Team Reg. V
G. C. Selfridge
Q. L. Brewer

OFFICE OF THE ADMINISTRATOR

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS ADMINISTRATION

~~WASHINGTON 25, D.C.~~

Region V
2908 Colfax Avenue South
Minneapolis 8, Minnesota

February 12, 1952

Memorandum

To: Operating Committee, Defense Minerals Exploration Administration, Interior Building, Washington 25, D. C.

From: Executive Officer, Field Team, Region V

Subject: Docket DMA-2262x, A. Tancig, Chisholm, Minn.

Returned are the application, technical data, review of application, and other supporting data, together with the field team report on the subject docket for exploration assistance.

The field team's report denies the application on the basis of information submitted, but recommends the applicant have made a magnetic survey of the area in question and re-submit for further study and reconsideration.

A. B. Needham
Executive Officer
Field Team, Region V

Attachments

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
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UNITED STATES
DEPARTMENT OF THE INTERIOR

Oscar L. Chapman, Secretary

Reviewed by
DMEA OPERATING COMMITTEE
2-18-52
(date) (KL)

DEFENSE MINERALS EXPLORATION ADMINISTRATION

Report of Examination by Field Team
Region V

DMA-2262x, A. Tancig - Manganese

Iron Deposit, Crow Wing
County, Minn.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 14 1952

Dr. G. M. Schwartz, Geologist
U. S. Geological Survey

Walter E. Lewis, Mining Engineer
Emmett J. Martin, Mining Engineer
U. S. Bureau of Mines

February 1952

SUMMARY AND CONCLUSIONS

Technical Feasibility

Due to the lack of geologic evidence, this project is not feasible. In this area, it is not practicable to project structure and ore occurrences some two miles, as the applicant has done. There is considerable doubt as to the engineering integrity and ability of the author of the map submitted by the applicant as evidence of a magnetic belt passing through the applicant's property. This is no reflection on the character of the applicant. The closest available drilling data are 4-1/2 miles to the west, 5-1/2 miles to the east, 6 miles to the south, and 6 miles to the north. All of those data indicate a much greater depth of overburden than that of the applicant.

Availability of Requirements

All drilling would be contracted. All requirements are available.

Competence of Applicant

The applicant is in charge of all mechanical and electrical work for Snyder Bros. and has some 50 years of a mining background, undoubtedly all in the mechanical and electrical end. Mr. Tancig is held in very high esteem by members of the mining fraternity; but when he gets into exploration work, he is evidently out of his field. He would be capable of administering this job, but would need an engineer for correct supervision.

Recommendations

It is recommended:

1. That the request for Government assistance be denied because of a lack of geologic data;

2. That the applicant should be advised that, if he wishes to reopen this application, he must submit the results (i.e., maps and readings) of a magnetic survey. Specifically, this survey is to be made by a competent and recognized engineer with either a super dip or magnetometer, and is to consist of four parallel north-south traverses and approximately evenly spaced on the three quarter-sections pertinent to this application.

Geologic Setting of Section 2, T. 138 N., R. 26 W., Crow Wing County, Minnesota

The land involved in the applications consists of three 40-acre tracts lying along the east side of section 2. This is in a heavily drift covered area, and no rock outcrops are known for more than 20 miles in any direction. There is, therefore, no surface geology that will aid in evaluation of the area. Somewhat hazy information is given in the application about an indefinite area two miles to the south. Inasmuch as the known strike of the formations in the Cuyuna district is northeast-southwest and the indicated strike of a magnetic belt is the same, the supposed location of ore to the south has very little significance for the possibilities in section 2.

The nearest known drilling, aside from that noted above, is in SE1/4, SW1/4 7, T. 138 N., R. 26 W., which is about 4-1/2 miles to the west. There, 5 drill holes passed through from 170 to 196 feet of glacial drift and entered green and red schist.

Eastward in the SE1/4 of sec. 11, T. 138 N., R. 25 W., a distance of about 5-1/2 miles, two drill holes passed through 235 and 265 feet of glacial drift and entered gray, green slate.

In the Emily area, 6 miles south of the proposed exploration, glacial drift ranges from 240 to 340 feet in thickness. It is reported in the application that the drift was only 100 feet thick in the drilling about 2 miles to the south. In view of other definite data, it would be only realistic to expect 200 feet or more in sec. 2, T. 138 N., R. 26 W. There is also a verbal report to us that the glacial drift in sec. 16, T. 138 N., R. 26 W., is 350 feet thick. Another verbal statement was to the effect that drilling 6 miles north of section 2 was in very thick glacial drift and the results negative. Very thick drift was also reported in a drill hole in sec. 35, T. 139 N., R. 26 W. All available data throws great doubt on the statement that the overburden in section 2 is only 100 feet thick.

The map submitted as evidence of a magnetic belt through section 2 is 20 years old, and we were advised by an engineer with many years of experience in the area to disregard it entirely. This was also corroborated by another engineer of 40 years experience in Minnesota.

In summary, it may be said that there is no geological evidence, at present, that would warrant drilling in sec. 2, T. 138 N., R. 26 W.

If the applicant wishes to pursue the matter further, he should have a magnetic survey made of his land by a reputable firm and submit the detailed data in support of the application. As an answer to our request for more information, the applicant submitted a portion of an aeromagnetic map published by the U. S. Geological Survey which clearly shows that the land is not even near the magnetic crest picked up by the magnetometer at a height of 1,000 feet.

Property and Location

The A. Tancig manganese-iron property consists of SE1/4 of NE1/4, NE1/4 of SE1/4, and SE1/4 of SE1/4, all of sec. 2, T. 138 N., R. 26 W., Crow Wing County, Minn. The property is about 1-3/4 miles east of Outing, Minn., and is reached by a County road which bears due east of Outing which is also on Highway 6. See sketch.

Proposed Exploration Work

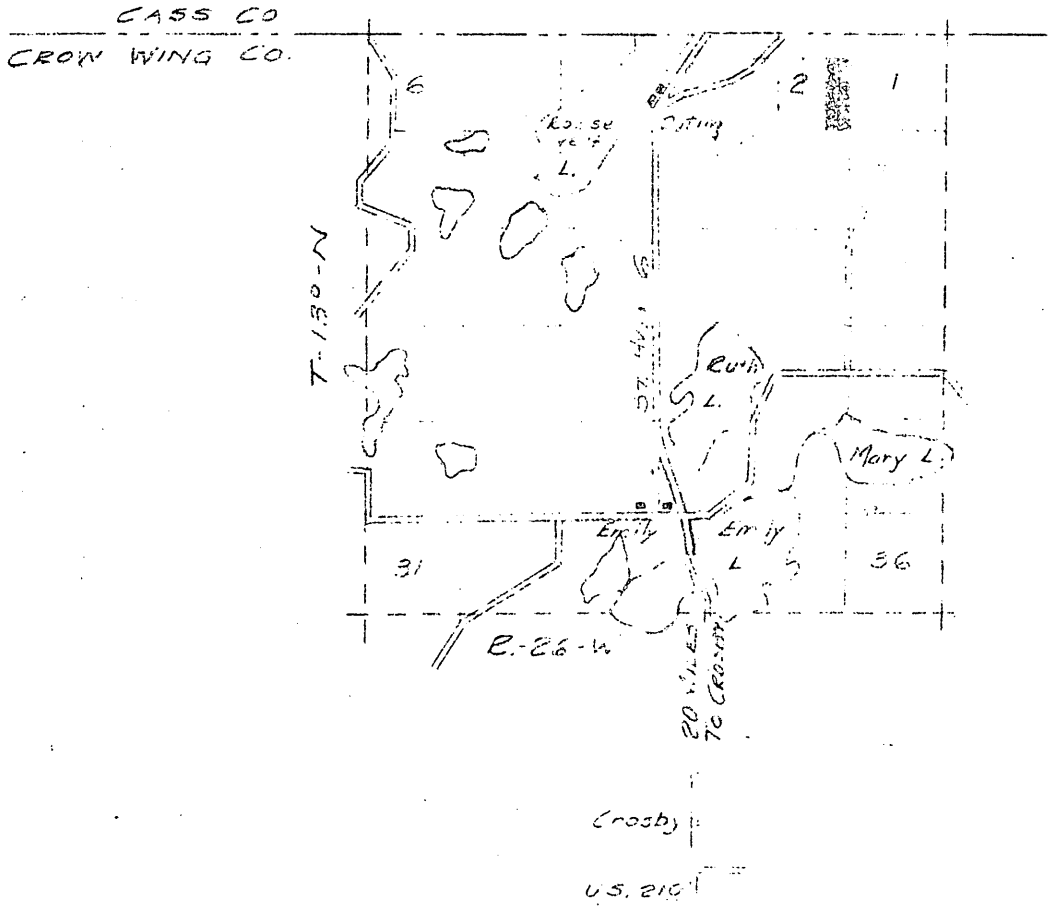
For a total cost of $36,168.00 (Government's share 75 percent, or $27,126.00), the applicant proposes to drill two holes in each of three contiguos (north and south) quarters in the S.E. corner, sec. 2, T. 138 N., R. 26 W., to explore this 120-acre tract for a manganese-iron ore. The applicant justifies this project on the basis of an old and unreliable magnetic map by a Mr. George Homes, and what is apparently "hearsay" results of a drilling project two miles or more to the south. Such data do not warrant the expenditure of any money for drilling.

The applicant's cost estimates are on the high side, but firm bids by drilling contractors and actual expenditures will bring these items in line.

As a guide, Longyear has submitted the following estimates for drilling such holes on the Cuyuna Range. They have a large amount of experience in drilling on all the Minnesota iron ranges. The smallest diameter they would consider is AX.

NX	$11.00 - $13.00
BX	$10.00 - $12.00
AX	$ 9.00 - $11.00

These estimates include reaming and casing, but not road or trail work, nor delays, nor extra water costs if the work should be done in



LOCATION MAP

winter. Competitive bidding should lower these costs, as there are several smaller contracting companies on the Cuyuna who consistently under-bid Longyear by a dollar or more per foot.

JAN 2 9 1952

Mr. A. E. Weissenborn
Executive Officer, Region II
South 157 Howard Street
Spokane 8, Washington

Re: Docket No. LMSA 2267X - Tungsten
The West Slope Mining Company
The Birdie Mine
Silver Bow County, Montana

Dear Mr. Weissenborn:

We are enclosing the original and five copies of the above referenced exploration contract signed by this office for the Government, together with Exhibit "A" (4 pages), a subordination agreement and one map.

If the terms and conditions of this contract are satisfactory to you and the Operator, all six copies should be signed by the partners. One copy is to be given to the Operator, one copy retained by your office, and the original and three copies return to this office.

If any part of this contract does not have either your approval or that of the Operator and cannot be amended within your delegated authority, then the original and all copies of the contract are to be returned to this office together with the proposed changes for consideration.

Originally, an application was drawn up in your office for rehabilitation of 75 feet of drift beyond the ore shoot. Shortly afterward Mr. Maretta came to Washington and cancelled the application and submitted an alternative one which included considerably more rehabilitation of the drift, raising to 40 feet and sinking to 100 feet. As there is ore in the raise and in the bottom of the winze, it was thought that the vein should be explored further in both as outlined in the present contract. No rehabilitation was allowed as it is believed that the final answer lies in opening the vein in the vertical dimension.

The changes made above reduce the cost of the project, as submitted by Mr. Marette, from $14,177.40 to $10,080.00.

Sincerely yours,

(signed) FRANK E. JOHNSON

Chairman, Operating Committee
Defense Minerals Exploration
Administration

Enclosures
Approved:

J. H. Hedges

Member, Bureau of Mines

I P Thayer

Member, Geological Survey

GCSelfridge:ls
1-24-52

Copy to: Admn. Reading File
Docket
R. W. Geehan, USBM
D. Lemmon, USGS
Field Team, Region II
G. C. Selfridge

FILE COPY
SURNAME:

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

Selfridge
Nelson
Thayer
Jackson
Chapman

JAN 24 1952

Mr. A. Tancig
701 - 3rd Avenue, N.W.
Chisholm, Minnesota

Re: Docket No. DMA 2262X - Manganese-Iron
Crow Wing County, Minnesota

Dear Mr. Tancig:

Your application for exploration assistance (DMA 2262X) has been reviewed by the Iron and Ferro-Alloy Division of the Defense Minerals Exploration Administration and has been referred to Mr. A. D. Needham, Executive Officer, DMEA Field Team, Region V, 2908 Colfax Avenue, South, Minneapolis 8, Minnesota, for a field examination.

The Regional Office will contact you at an early date in regard to your project.

Sincerely yours,

C. O. Mittendorf (fw)

Acting Administrator
Defense Minerals Exploration
Administration

TLChapman'lm
1/18/52

cc: Admn. Reading File
✓ Docket
N. B. Melcher, USBM
M. D. Crittenden, USGS
Field Team Reg. V
G. C. Selfridge
T. L. Chapman

Memo from Mr. Crittenden, USGS,

recommending a field examination

enclosed with Review of Application

Posted 1-25-52

DMEA-2262

MF-500

1.a.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

REFERENCE SLIP

DATE 1-24-52

REFERRED TO:

1. Mr Chapman
2. Rm 4635
3.
4.

FOR:

..... Action	..... Recommendation
..... Approval	..... Record of .....
..... Comment	..... Referring to .....
..... Conference	..... Reply for signature of .....
..... Consideration	..... Rewriting
..... Filing	..... Signature
..... Instructions	..... Suggestions
..... Investigation	..... Your information
..... Initials	
..... Mailing	
..... Previous correspondence	

REMARKS: .....

Check (X) before the items needing attention.

Initials of sender.

GPO 16—63815-1

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

Jan 24, 1952

Mr. A. B. Needham
Executive Officer, Region V
2908 Colfax Avenue, South
Minneapolis 8, Minnesota

Dear Sir:

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

Applicant A. Tancig

Project No. 2262

Commodity Manganese-Iron

Amount $ 36,168.00

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

Sincerely yours,

(signed) FRANK E. JOHNSON
Chairman, Operating Committee
Defense Minerals Exploration
Administration

APPROVED:

J. H. Hedges
Director, Bureau of Mines

/s/ J P Thayer
Director, Geological Survey

take out 1 copy
for Crittenden usgs on MN
Some Korea units Remain
~~also for~~
~~Melvin~~
sent 12/12 ~~usgs on~~ MN
to US PRM
Rec. 12/20
letter to info written 12/20
effect 12/26

6/5/51

Defense Minerals Administration

Review of Application for Exploration Assistance

Docket No. 2262

Commodity Iron-Manganese

Total Amount $36,168.00

Govt. Participation $27,126.00
75% for Mn.

1. Name and Address of Applicant A. Tancig
701 - 3rd Avenue
Chisholm, Minnesota

2. Location of Property SE¼ of NE¼; NE¼ of SE¼; SE¼ of SE¼; Section 2
T138N; R26W;
Crow Wing County, Minnesota

3. Mineral or metal Manganese-Iron Is it listed in Section 9 of MO-5?

If not, application will be rejected.

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

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

a) Good

b) Poor

c) None

d) Don't know—needs field examination Yes

e) Is there an alternative and favorable project? No
(If so, attach an explanation)

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

6. If applicant is a lessee, is a copy of the lease attached? No

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

productive period?

*question numbers are those of MF-103

7. Are subordination agreements necessary? No

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 Yes

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

c) Accessibility (question 12)* Yes

d) Water (question 13)* Water easily available

e) Power (question 13)* Use gasoline engines

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

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

Is a field check needed on this point? Yes

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

a) Is the project adequately described? Not geologically

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? Sketch showing location alright, magnetic points unreadable. Poor print.

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

If not, what part of it is? _____

Is this part a worthwhile exploration project?_____

d) Are the cost estimates detailed? Yes

Can they be summarized, as on page 2 of Procedural Instruction 5-A, from the available data? Yes If so, attach a draft.

e) Are the cost estimates reasonable? Too high

f) Should more information be requested from applicant? Field team should investigate

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

11. Exhibit B (question 23-d)*

a) Is it applicable? Application on amended form MB-103

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

c) Is a field check needed?_____

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

a) Is it applicable?_____

b) Sufficient data?_____ If so, attach a draft.

c) Are rents and charges reasonable?_____

d) Is a field check needed?_____

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

a) Are there sufficient data?_____

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

c) Is the schedule excessive for the work proposed?_____

d) Are the proposed wages and salaries reasonable? Yes

e) Is a field check needed?_____

14. Exhibit E (question 23-c)*

a) Is it applicable? _____

b) Sufficient data? _____

c) Reasonable? _____

d) Field check needed? _____

15. In your judgment, can the proposed work be done in the proposed time? Time not indicated, but should be 6 months or less.

(All exploration must be completed within two years)

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

17. If field examination is needed, do you have any special instructions for the field team not indicated by your answers to the foregoing question? Form MF-103 (June, 1951). Question 2, advises drill holes on property 2-1/2 miles distant shows 35% or better manganese. This is very doubtful and should be investigated.

Question 3. Cost of $12.00 per foot for drilling appears high. Should be about $8.00 per foot.

Number of samples at maximum should not be over 3/4 of number stated.

Hence total costs should not exceed $25,000.00. Tancig advises he is acting for partners. Agreements should be obtained.

Reviewed by: T. L. Chapman

Enclosures:

MF-100 with applicant's answers
MF-103 with applicant's answers
Map of magnetic survey
Crow Wing County map
Memo 12/18/51 M.D. Crittenden to George Selfridge
Letter, 12/26/51 Selfridge to Tancig
Reply to above letter 1/15/52 by Tancig

Date 1/17/52

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

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

Mr. A. B. Needham
Executive Officer, Region V
2908 Colfax Avenue, South
Minneapolis 8, Minnesota

Dear Sir:

Attached "Review of Application for Exploration Assistance" is

Applicant: A. Tancig

Project No.: 2262

Commodity: Manganese-Iron

Amount: 36,168.00

Amount $

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

Sincerely yours,

Chairman, Operating Committee
Defense Minerals Exploration
Administration

APPROVED:

Director, Bureau of Mines

Director, Geological Survey

6/5/51

Defense Minerals Administration

Review of Application for Exploration Assistance

Docket No. DMA-2262

Commodity Iron-Manganese

Total Amount $36,168.00

Govt. Participation $27,126.00
75% for Mn.

1. Name and Address of Applicant A.Tancig, 701 3rd Ave. NW. Chisholm,Minn.

2. Location of Property SE¼ of NE¼; NE¼ of SE¼; SE¼ of SE¼; Section 2
T. 138N. R. 26W. Crow Wing County, Minn.

3. Mineral or metal Mangan ese-Iron Is it listed in Section 9 of MO-5? yes

If not, application will be rejected.

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

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

a) Good

b) Poor

c) None

d) Don't know—needs field examination Yes

e) Is there an alternative and favorable project? No
(If so, attach an explanation)

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

6. If applicant is a lessee, is a copy of the lease attached? No.

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

productive period?

*question numbers are those of MF-103

7. Are subordination agreements necessary? No.

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 Yes

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

c) Accessibility (question 12)* Yes

d) Water (question 13)* Water easily available

e) Power (question 13)* Use gasoline engines

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

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

Is a field check needed on this point? Yez

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

a) Is the project adequately described? Not geologically

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? Sketch showing location alright, Magnetic points unreadable. Poor print

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

If not, what part of it is?

Is this part a worthwhile exploration project?_____

d) Are the cost estimates detailed? Yes

Can they be summarized, as on page 2 of Procedural Instruction 5-A, from the available data? Yes If so, attach a draft.

e) Are the cost estimates reasonable? To high

f) Should more information be requested from applicant? Field team should investigate

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

11. Exhibit B (question 23-d)*

a) Is it applicable? Application on amended for MF-103.

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

c) Is a field check needed?_____

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

a) Is it applicable?_____

b) Sufficient data?_____ If so, attach a draft.

c) Are rents and charges reasonable?_____

d) Is a field check needed?_____

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

a) Are there sufficient data?_____

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

c) Is the schedule excessive for the work proposed?_____

d) Are the proposed wages and salaries reasonable? Yes

e) Is a field check needed?_____

14. Exhibit E (question 23-c)*

a) Is it applicable? _____

b) Sufficient data? _____

c) Reasonable? _____

d) Field check needed? _____

15. In your judgment, can the proposed work be done in the proposed time? Time not indicated, but should be 6 months or less.

(All exploration must be completed within two years)

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

17. If field examination is needed, do you have any special instructions for the field team not indicated by your answers to the foregoing question? Form MF-103 (June 1951) Question 2. Advises drill holes on property 2½ miles distant shows 35% or better manganese. This is very doubtful and should be investigated.

Question 3. Cost of $12.00 per foot for drilling appears high. should be about $8.00 per foot.

Number of samples at maximum should not be over 3/4 of number stated. Hence total costs should not exceed $25,000.00

Tancig advises he is acting for partners. Agreements should be obtained.

Reviewed by: T.L.Chapman

Enc.

Enclosed.
Form MF-100 with applicants answers
Form MF-103 with applicants answers
Map of magnetic survey
Crow Wing County map.
Letter, 12/26/51 Selfridge to Tancig
Reply to above letter 1/15/52 by Tancig
Memo. 12/18/51. M.D.Crittenden to G.R.Selfridge

Date _____

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

January 17,1952

To. A.B.Needham, Chief, Mining Division, Region V

From

Subject Docket DMA 2262. Application for exploration of Iron-Manganese ores by A.Tancig, in Crow Wing County, Minn.

Enclosed.

Applicants answers to form MF.100

Applicants answers to form MF-103

Crow Wing County Map.

Map of Magnetic Survey compiled by Geo.Holmes, E.M. Crosby, Minn. Poor print, practically unreadable.

Letter of 12/26/51 . Selfridge to Tancig

Reply to above letter 1/15/52 by Tancig

Memo. 12/18/51. M.D.Crittenden to G.R.Selfridge

Remarks.

Form MF-100. Little or no geology.

Form M.F.-103. Question 2. Advises drill holes on property 2½ miles distant shows 35 percent or better manganese. This is very doubtful

Question 3. Cost of $12.00 per foot for drilling appears to be to high.

Number of samples would be 25 percent less or more.

Hence cost should not be much above $25,000.00

MN - (Min) DMA 2262

$36,168=

Abstract 12/20/1951

M7103 - Crow Wing Co Min. [SE¼NE¼; NE¼SE¼, SE¼SE¼ Sec 2 - T 138N; R 26W;]

2-b- Mag. Survey showed high reading thru property - → drilling 2½ mi distant produced iron ore with 35% Mn. content. —

no geology given

?

3-a cost outline needs more detail —

(4) says see inclosed map, which is only a County map for land location purposes. —
also says map shows location of drill holes, which cannot find -

5, 6, 7, 8, 9 says not applicable

M7100 - mostly not answered, or marked "not applicable". — Question 12 - Not answered.

Either - ask Field team exam

or (better) ask appl for more data, especially Magnetic Survey of area + reasons for drilling this area. —

January 15, 1952

Mr. G. C. Selfridge, Acting Chief
Iron and Ferro Alloy Division
Defense Minerals Administration
Department of The Interior
Washington 25, D.C.

Re: Docket No. 2262X Manganese
Crow Wing Co., Minnesota

Dear Sir:

With reference to your letter of December 29, 1951, 2nd and 3rd paragraphs.

The magnetic survey referred to was made and plotted by Mr. Geo. Holmes, Engineer, Crosby, Minnesota. The magnetic survey shown on this map is the most accurate and worthwhile of any made, in that it checks with the active mining areas on the Cuyuna Range in and around Crosby, Minn. A copy of the Holmes map is enclosed. The copy was made from a negative that isn't too clear but it does accurately show the results of the magnetic survey. A very good large scale blue print of this Holmes survey is on file in the office of Mr. C. J. Calvin, Vice President of the Great Northern Ore Properties.

The exploration drilling I mentioned in my letter of application was done by one of the prominent mining companies. Because negotiations are underway as to royalties and minimum concerning the mineral disclosed by the drilling, I was asked not to reveal the company name or exact analysis at this time. I have their permission to tell the following:

a - Drill holes are in the area circled on the enclosed copy of Holmes map.

b - Over-burden or glacial drift - 100 feet thick.

c - Thin taconite caping over the ore encountered in a few of the holes.

d - Thickness of ore body varies from 50 to 200 feet. Deposit is sedimentary.

e - Ore body is definitely manganiferous.

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D.C.
JAN 16 10 58 AM '52

From my interview with an official of the company that did the drilling near my property, I was told much in confidence, but was free to give you the above information. The drill core analysis were not disclosed except to say that if the mineral wasn't there they would not be negotiating to obtain control.

Mr. G.C. Selfridge, Acting Chief January 15, 1952

I am sorry that the necessary information you would like is confidential at this time. I can only refer you to any official of the iron mining industry in Minnesota as to my standing in the business.

Please let me know if you need any further information.

Yours very truly,

A. Tancig

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

January

Chapman
minutes mailed Copies

Jan 16

[illegible] 11[illegible]

[illegible] mail

FILE COPY
SURNAME:

Brewer
Selfridge
Mitt

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

DEC 29 1951

Mr. A. Tancig
701 - 3rd Avenue, N.W.
Chisholm, Minnesota

Re: Docket No. 2262X - Manganese
Crow Wing Co., Minnesota

Dear Mr. Tancig:

We find that we must request additional information in regard to the above noted application.

The statement given in MF-103, item 2b, that "Magnetic survey showed a high reading through property running from NE to SW" should be supported by maps and/or reports of the said magnetic survey. Item 2b further states "Drilling within a short distance (2-1/2 miles) produced iron ore samples with a manganese content of better than 35%. If available, please favor us with a map or sketch, showing the location of this drill hole; a log of formations encountered; and the geology of the intervening lands.

Your attention is called to question 12 (a) on form MF-100. This information must be furnished us, in considerable detail, as the applicant must demonstrate that his proposed exploratory program is based upon such geologic factors as will logically lead the applicant to expect to find commercial orebodies.

The review of your application will be held in abeyance until the above requested information is received.

Sincerely yours,

George C. Selfridge

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

J.N. 12-29

BY

GCSelfridge
12/26/51

cc: Admn. Reading File
Mails and Files Br.
G. O. Mittendorf
N. B. Melcher, USBM
M. D. Crittenden, USGS
Field Team Reg. V
Docket
G. C. Selfridge

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

(MN)

TO : George R. Selfridge DATE: December 18, 1951

FROM : M. D. Crittenden, Jr.

SUBJECT: DMA_2262 A. Tancig

The Washington office of the Geological Survey has no information on the manganiferous iron ore possibilities of this area. However, the Field Team of Region V has access to a large amount of unpublished information which should enable them to appraise this proposal. It is suggested therefore that the docket be referred to the field for that purpose.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 19 1951

Mark Crittenden Jr.

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

NOV 14 1951

Mr. A. Tancig
701 3rd Avenue, N.E.
Chisholm, Minnesota

Dear Mr. Tancig:

This will acknowledge your letter dated October 3, 1951, relative to your Grow Ring County, Minnesota manganese unit.

We do not have any information on file in this office concerning this particular deposit. However, if you wish to apply for an exploration loan, it will be necessary to file the required forms, which were mailed to you in our previous letter, before we can take any further action.

Sincerely yours,

(signed) FRANK E. JOHNSON

Acting Administrator

TJBallard:sc
Nov 9, 1951

CC: Adm. Reading File
Reports and Records Unit
Mr. Holderer
Mr. Lyon
Mr. Nesonen - Room 2877

DMCA 2262
MN
Crow Wing Co
MINN

Mr Crittenden :-
Please favor us with a summary of your data in regard to the area noted in the attached application

Geo Selfridge
by P.F.B.
12/12

Mr. A. Francis
701 3rd Avenue, N.W.
Chisholm, Minnesota

Dear Mr. Francis:

This will acknowledge your letter dated October 3, 1951, relative to your Crow Wing County, Minnesota mineral deed.

We do not have any information on file in this office concerning this particular deed. However, if you wish to apply for an exploration lease, it will be necessary to file the required forms, which were mailed to you in our previous letter, before we can take any further action.

Sincerely yours,

Acting Administrator

TJBallard:ac
Nov 7, 1951

CC: Adm. Reading File
Reports and Records Unit
Mr. Holderer
Mr. Lyon
Mr. Tessonen - Room 2877

DEPARTMENT OF THE INTERIOR
RECEIVED
NOV 29 1951
Defense Minerals Administration,
Production Expansion Division.

2262

November 26, 1951

Mr. Frank E. Johnson
Acting Administrator
Defense Materials Administration
Department of the Interior
Washington 25, D. C.

Dear Mr. Johnson:

I have today mailed to you under separate cover, material and information you requested in regard to my request for a grant in exploring for iron ore with a high manganese content.

The maps of Crow Wing County show the property in question is due north of Cuyuna Range mines and not very far from the Mesaba Range. Drilling done by one of the major mine operators two or three miles south of our property disclosed iron ore with an analysis of 40% manganese. There have been magnetic surveys made over this property and the indications are every bit as good as on the Cuyuna Range.

I have been authorized to act for all of the owners.

Your early action in this matter will be appreciated. Any additional information you require will be gladly furnished.

Yours very truly,

A. Tancig

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Subject: DMEA-2262
Re: Exploration Loan

Mr. A. Tancig
701 - 3rd Avenue, N. W.
Chisholm, Minnesota

My dear Mr. Tancig:

This will acknowledge receipt of your application dated November 26, 1951 for a loan under the Defense Production Act of 1950.

Your application was assigned Docket Number DMEA-2262 and referred to the Iron & Ferro-Alloys Branch.

Kindly refer to DMEA-2262 in any future correspondence relating to your application.

Sincerely yours,

ROBERT E. ADAMS

Robert E. Adams, Chief
Reports & Records Unit

7862

Form MF-103
(Revised June 1951)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.1.

MF-103 Should Be Filed With General Technical Data Form MF-100

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

Not To Be Filled in by Applicant

Docket No. D.M.E.R. 2262
Metal or Mineral
Date Received 11-28-51
Amount $
Participation (Government %)

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D. C. NOV 28 2 14 PM '51

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Name and address of applicant

Date November 26, 1951

If you have already filed MF-100, give date filed _____, type of assistance requested Exploration,

DMA Docket Number (if available) _____

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four copies each, of the signed application form, General Technical Data Form MF-100, and answers to questions as specified, to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive office thereof, with your name and address on each sheet of the application and all accompanying papers. If you have previously filed MF-100, it is not necessary to file it again. However, you should indicate in space provided above the type of assistance previously applied for (loans, procurement contracts, etc.) and DMA Docket Number, if available. *When a question is inapplicable it should be so stated in the form.* Additional sheets should be attached in answering any questions or in supplying additional information. IF YOU CANNOT ANSWER A QUESTION, SO STATE.

1. (*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*) If you are not the owner of the property, submit a copy of the lease, purchase option, or other agreements under which you are authorized to operate the property with each copy of your application.

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

   NOTE: (1) 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 (*c*) 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.

   (2) If applicant is not the owner of the property or if there are any liens or encumbrances against the property, copy of agreements of claimants, lienors, encumbrances, and lessors subordinating their interests in the property to the interest of the Government under the Exploration Project Contract will be required for attachment to the Contract.

2. (*a*) What metals or minerals do you expect to find?

   (*b*) Furnish statement of the geologic features of your property, giving type of ore deposit and reasons for expecting to find commercial ore bodies. Illustrate with maps or sketches. If you have a geologic or engineering report, or assay maps showing width and grade, please send them with application, stating whether or not you wish to have them returned.

The information requested in questions 3, 4, 5, 6, 7, 8, and 9 below should be answered specifically and in detail, as this information will be attached to and incorporated as part of the Exploration Project Contract, if such contract is entered into with you by the Government.

ANSWER EACH QUESTION ON SEPARATE SHEETS OF PAPER AND SUBMIT A COPY OF EACH ANSWER FOR EACH COPY OF YOUR APPLICATION.

3. (*a*) Describe fully the proposed work and give the total cost of the project.

   (*b*) State the time required to start the project and to complete it.

4. Submit a map or sketch of the property involved showing a plan (and cross section, if needed) of the present mine workings and the *location of the proposed exploration work* as related to geologic features, such as contacts, veins, ore-bearing beds, etc.

5. Furnish an itemized list of existing facilities, buildings, installations, and fixtures with a statement of the cost of any necessary rehabilitation or repairs to put into useful and operable condition.

6. Furnish a detailed list of additional facilities, buildings, and fixtures to be purchased, installed, or erected by you, with the estimated cost of each item.

7. Furnish a detailed list of operating equipment, separated into items to be—

   (*a*) Rented

   (*b*) Purchased

   (*c*) Furnished by you

   with the rental, purchase price, or depreciation of each item, as the case may be, to be charged as a cost of the project.

8. Furnish an itemized schedule of labor, by numbers and classes (miners, muckers, etc.) and of supervisors by numbers and positions, with the maximum wages or salaries to be paid to each.

9. Furnish a detailed list with estimated cost of each item for materials, supplies, engineering, assaying, accounting, power, water, utilities, and any other items not provided for above.

10. (*a*) How much are you prepared to invest in the proposed project?

    (*b*) Is this amount sufficient to pay your part of the cost of the project, in accordance with the regulations on Government participation (Sec. 9 of MO–5)?

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

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.

(Name of company)	By H. Tansey (Signature of authorized official)
Nov. 26, 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.

U. S. GOVERNMENT PRINTING OFFICE 16—64067-2

Applicable to Form MF-103

Question 1

(a) See answer to (c).

(b) Inapplicable

(c) Crow Wing County, Minnesota
SE of NE, NE of SE, SE of SE, Section 2
Town ~~130~~, Range 26.W
138N

Question 2

(a) Iron ore of merchant grade and quantity assaying high in manganese.

(b) Magnetic survey showed a high reading through property running from NE to SW. Drilling within a short distance ($2\frac{1}{2}$ miles) produced iron ore samples with a manganese content of better than 35%.

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Applicable to Form MF-103 Questions 3,4,5,6,7,8,9,10,11

Question 3

(a) It is proposed to drill six exploration holes (Churn and Diamond drill) in the 120 acre tract. The idea is to put down two drill holes in each 40 acre tract. The maximum depth of each hole to be 400 feet - vertical depth.

The estimated cost of the total project is as follows:

Engineering & Maps	750.00
General Labor	200.00
Trucking & Freight	250.00
Drilling 2400 ft. @ 12.00	28,800.00
Chemical Analysis	
480 samples @ 4 determinations @ 1.50 each	2,880.00
	32,880.00
Supervision - 10% of above	3,288.00
	$36,168.00

(b) Exploratory drilling can be done as soon as funds are available.

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Question 4 Form MF-103

Attached hereto is map showing location of the property, also the proposed location of the drill holes.

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Questions 5,6,7,8,9

Not applicable.

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Question 10

(a) $9,000.00 or 25% of total cost of $36,168.00

(b) Yes

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Question 11 Form MF-103

Not applicable.

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Form MF-100
(May 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. D.M.E.A. 2262

Date received 11-28-51

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Name and address of applicant

Date November 26, 1951

INSTRUCTIONS

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

GENERAL TECHNICAL DATA

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

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

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

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

   Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who manage the project.
7. History:
   (*a*) Give a statement, as complete as possible, of previous exploration, development, operation and production of property, with reasons for suspension of operation.
   (*b*) State briefly the known history and production of adjoining and neighboring properties.
   (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 1 1952

Questions

Form MF-100

1, 2, 3, 4, 5, 6, 7

Not applicable

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Question 8

A. Tancig 701 - 3rd Ave. N.W. Chisholm, Minnesota

Mrs. E.H. Loofbourrow 303 Elm Street Northfield, Minnesota

Mr. Fred Ritchell 418 - 3rd St. N.W. Chisholm, Minnesota

Mrs. A. C. Ritchell Scandia Hotel, Hibbing, Minnesota

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Questions Form MF-100

9, 10, 11, 12, 13, 14, 15, 16, 17, 18

Not applicable

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Form MF-103
(Revised June 1951)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.1.

MF-103 Should Be Filed With General Technical Data Form MF-100

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

Not To Be Filled in by Applicant

Docket No. D.M.E.A. 2262
Metal or Mineral
Date Received 11-28-51
Amount $
Participation (Government %)

Name and address of applicant

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Date November 26 1951

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D.C.
NOV 29 2 14 PM '51

If you have already filed MF-100, give date filed ....., type of assistance requested Exploration,

DMA Docket Number (if available) .....

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   with the rental, purchase price, or depreciation of each item, as the case may be, to be charged as a cost of the project.

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9. Furnish a detailed list with estimated cost of each item for materials, supplies, engineering, assaying, accounting, power, water, utilities, and any other items not provided for above.

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

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.

(Name of company)	By A. Tancig (Signature of authorized official)
Nov. 26, 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.

U. S. GOVERNMENT PRINTING OFFICE 16—64067-2

Applicable to Form MF-103

Question 1

(a) See answer to (c).

(b) Inapplicable

(c) Crow Wing County, Minnesota
SE of NE, NE of SE, SE of SE, Section 2
Town ~~130~~, Range 26.W
138N

Question 2

(a) Iron ore of merchant grade and quantity assaying high in manganese.

(b) Magnetic survey showed a high reading through property running from NE to SW. Drilling within a short distance (2½ miles) produced iron ore samples with a manganese content of better than 35%.

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Applicable to Form MF-103 Questions 3,4,5,6,7,8,9,10,11

Question 3

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(b) Exploratory drilling can be done as soon as funds are available.

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Question 4 Form MF-103

Attached hereto is map showing location of the property, also the proposed location of the drill holes.

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Questions 5,6,7,8,9

Not applicable.

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Question 10

(a) $9,000.00 or 25% of total cost of $36,168.00

(b) Yes

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Question 11 Form MF-103

Not applicable.

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Form MF-100
(May 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. D.M.E.A. 2262

Date received 11-28-51

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Name and address of applicant

Date ~~November 26, 1951~~

INSTRUCTIONS

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   (*c*) Township, Section, Range.
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Questions

Form MF-100

1, 2, 3, 4, 5, 6, 7

Not applicable

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

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A. Tancig 701 - 3rd Ave. N.W. Chisholm, Minnesota

Mrs. E.H. Loofbourrow 303 Elm Street Northfield, Minnesota

Mr. Fred Ritchell 418 - 3rd St. N.W. Chisholm, Minnesota

Mrs. A. C. Ritchell Scandia Hotel, Hibbing, Minnesota

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Questions Form IF-100

9, 10, 11, 12, 13, 14, 15, 16, 17, 18

Not applicable

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Form MF-103
(Revised June 1951)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.1.

MF-103 Should Be Filed With General Technical Data Form MF-100

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

Not To Be Filled in by Applicant

Docket No. O.M.E.A. 2262
Metal or Mineral
Date Received 11-28-51
Amount $
Participation (Government %)

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D.C.
Nov 28 4 PM '51

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Name and address of applicant

Date November 26 1951

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DMA Docket Number (if available) .....

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   (*b*) State the time required to start the project and to complete it.

4. Submit a map or sketch of the property involved showing a plan (and cross section, if needed) of the present mine workings and the *location of the proposed exploration work* as related to geologic features, such as contacts, veins, ore-bearing beds, etc.

5. Furnish an itemized list of existing facilities, buildings, installations, and fixtures with a statement of the cost of any necessary rehabilitation or repairs to put into useful and operable condition.

6. Furnish a detailed list of additional facilities, buildings, and fixtures to be purchased, installed, or erected by you, with the estimated cost of each item.

7. Furnish a detailed list of operating equipment, separated into items to be—

   (*a*) Rented

   (*b*) Purchased

   (*c*) Furnished by you

   with the rental, purchase price, or depreciation of each item, as the case may be, to be charged as a cost of the project.

8. Furnish an itemized schedule of labor, by numbers and classes (miners, muckers, etc.) and of supervisors by numbers and positions, with the maximum wages or salaries to be paid to each.

9. Furnish a detailed list with estimated cost of each item for materials, supplies, engineering, assaying, accounting, power, water, utilities, and any other items not provided for above.

10. (*a*) How much are you prepared to invest in the proposed project?

    (*b*) Is this amount sufficient to pay your part of the cost of the project, in accordance with the regulations on Government participation (Sec. 9 of MO–5)?

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

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.

(Name of company)	By A. Tarney (Signature of authorized official)
Nov. 26, 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.

U. S. GOVERNMENT PRINTING OFFICE 16—64067-2

Applicable to Form MF-103

Question 1

(a) See answer to (c).

(b) Inapplicable

(c) Crow Wing County, Minnesota
SE of NE, NW of SE, SE of SE, Section 2
Town ~~130~~, Range 26. W
138N

Question 2

(a) Iron ore of merchant grade and quantity assaying high in manganese.

(b) Magnetic survey showed a high reading through property running from NE to SW. Drilling within a short distance (2½ miles) produced iron ore samples with a manganese content of better than 35%.

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Applicable to Form MF-103 Questions 3,4,5,6,7,8,9,10,11

Question 3

(a) It is proposed to drill six exploration holes (Churn and Diamond drill) in the 120 acre tract. The idea is to put down two drill holes in each 40 acre tract. The maximum depth of each hole to be 400 feet - vertical depth.

The estimated cost of the total project is as follows:

Engineering & Maps	750.00
General Labor	200.00
Trucking & Freight	250.00
Drilling 2400 ft. @ 12.00	28,800.00
Chemical Analysis	
480 samples @ 4 determinations @ 1.50 each	2,880.00
	32,880.00
Supervision - 10% of above	3,288.00
	$36,168.00

(b) Exploratory drilling can be done as soon as funds are available.

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Question 4 Form MF-103

Attached hereto is map showing location of the property, also the proposed location of the drill holes.

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Questions 5,6,7,8,9

Not applicable.

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Question 10

(a) $9,000.00 or 25% of total cost of $36,160.00

(b) Yes

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Question 11 Form MF-103

Not applicable.

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Form MF-100
(May 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. DMEA 2262

Date received 11-28-51

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Name and address of applicant

Date November 26, 1951

INSTRUCTIONS

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

GENERAL TECHNICAL DATA

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

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

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

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

   Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who manage the project.
7. History:
   (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for suspension of operation.
   (*b*) State briefly the known history and production of adjoining and neighboring properties.
   (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

Questions

Form MP-100

1, 2, 3, 4, 5, 6, 7

Not applicable

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Question 8

A. Tancig 701 - 3rd Ave. N.W. Chisholm, Minnesota

Mrs. E.H. Loofbourrow 303 Elm Street Northfield, Minnesota

Mr. Fred Ritchell 418 - 3rd St. N.W. Chisholm, Minnesota

Mrs. A. C. Mitchell Scandia Motel, Hibbing, Minnesota

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Questions Form HF-100

9, 10, 11, 12, 13, 14, 15, 16, 17, 18

Not applicable

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Form MF-103
(Revised June 1951)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.1.

MF-103 Should Be Filed With General Technical Data Form MF-100

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

Not To Be Filled in by Applicant

Docket No. D.M.E.A. 2862
Metal or Mineral
Date Received 11-28-51
Amount $
Participation (Government %)

Name and address of applicant

A. Fancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Date November 26, 1951

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D.C. NOV 28 2 14 PM '51

If you have already filed MF-100, give date filed _____, type of assistance requested Exploration,

DMA Docket Number (if available) _____

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four copies each, of the signed application form, General Technical Data Form MF-100, and answers to questions as specified, to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive office thereof, with your name and address on each sheet of the application and all accompanying papers. If you have previously filed MF-100, it is not necessary to file it again. However, you should indicate in space provided above the type of assistance previously applied for (loans, procurement contracts, etc.) and DMA Docket Number, if available. *When a question is inapplicable it should be so stated in the form.* Additional sheets should be attached in answering any questions or in supplying additional information. IF YOU CANNOT ANSWER A QUESTION, SO STATE.

1. (*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*) If you are not the owner of the property, submit a copy of the lease, purchase option, or other agreements under which you are authorized to operate the property with each copy of your application.

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

   NOTE: (1) 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 (*c*) 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.

   (2) If applicant is not the owner of the property or if there are any liens or encumbrances against the property, copy of agreements of claimants, lienors, encumbrances, and lessors subordinating their interests in the property to the interest of the Government under the Exploration Project Contract will be required for attachment to the Contract.

2. (*a*) What metals or minerals do you expect to find?

   (*b*) Furnish statement of the geologic features of your property, giving type of ore deposit and reasons for expecting to find commercial ore bodies. Illustrate with maps or sketches. If you have a geologic or engineering report, or assay maps showing width and grade, please send them with application, stating whether or not you wish to have them returned.

The information requested in questions 3, 4, 5, 6, 7, 8, and 9 below should be answered specifically and in detail, as this information will be attached to and incorporated as part of the Exploration Project Contract, if such contract is entered into with you by the Government.

ANSWER EACH QUESTION ON SEPARATE SHEETS OF PAPER AND SUBMIT A COPY OF EACH ANSWER FOR EACH COPY OF YOUR APPLICATION.

3. (*a*) Describe fully the proposed work and give the total cost of the project.

   (*b*) State the time required to start the project and to complete it.

4. Submit a map or sketch of the property involved showing a plan (and cross section, if needed) of the present mine workings and the *location of the proposed exploration work* as related to geologic features, such as contacts, veins, ore-bearing beds, etc.

5. Furnish an itemized list of existing facilities, buildings, installations, and fixtures with a statement of the cost of any necessary rehabilitation or repairs to put into useful and operable condition.

6. Furnish a detailed list of additional facilities, buildings, and fixtures to be purchased, installed, or erected by you, with the estimated cost of each item.

7. Furnish a detailed list of operating equipment, separated into items to be—

   (*a*) Rented

   (*b*) Purchased

   (*c*) Furnished by you

   with the rental, purchase price, or depreciation of each item, as the case may be, to be charged as a cost of the project.

8. Furnish an itemized schedule of labor, by numbers and classes (miners, muckers, etc.) and of supervisors by numbers and positions, with the maximum wages or salaries to be paid to each.

9. Furnish a detailed list with estimated cost of each item for materials, supplies, engineering, assaying, accounting, power, water, utilities, and any other items not provided for above.

10. (*a*) How much are you prepared to invest in the proposed project?

    (*b*) Is this amount sufficient to pay your part of the cost of the project, in accordance with the regulations on Government participation (Sec. 9 of MO–5)?

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

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.

(Name of company)	By A. Tancig (Signature of authorized official)
Nov. 26, 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.

U. S. GOVERNMENT PRINTING OFFICE 16—64067-2

Applicable to Form MF-103

Question 1

(a) See answer to (c).

(b) Inapplicable

(c) Crow Wing County, Minnesota
NW of NE, NW of SE, SW of SW, Section 2
Town ~~130~~, Range 26. W
138 N

Question 2

(a) Iron ore of merchant grade and quantity assaying high in manganese.

(b) Magnetic survey showed a high reading through property running from NE to SW. Drilling within a short distance (2½ miles) produced iron ore samples with a manganese content of better than 35%.

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Applicable to Form IP-103 Questions 3,4,5,6,7,8,9,10,11

Question 3

(a) It is proposed to drill six exploration holes (Churn and Diamond drill) in the 120 acre tract. The idea is to put down two drill holes in each 40 acre tract. The maximum depth of each hole to be 400 feet - vertical depth.

The estimated cost of the total project is as follows:

Engineering & Maps	750.00
General Labor	200.00
Trucking & Freight	250.00
Drilling 2400 ft. @ 12.00	28,800.00
Chemical analysis	
480 samples x 4 determinations @ 1.50 each	2,880.00
	32,880.00
Supervision - 10% of above	3,288.00
	$36,168.00

(b) Exploratory drilling can be done as soon as funds are available.

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Question 4 Form MT-103

Attached hereto is map showing location of the property, also the proposed location of the drill holes.

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Questions 5,6,7,8,9

Not applicable.

A. Cancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Question 10

(a) 9,000.00 or 25% of total cost of 36,100.00

(b) Yes

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Question 11 Form IF-103

Not applicable.

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Form MF-100
(May 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. D.M.E.A. 2263

Date received 11-28-51

A. Tonelg
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Name and address of applicant

Date November 26, 1951

INSTRUCTIONS

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

GENERAL TECHNICAL DATA

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

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

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

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

   Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who manage the project.
7. History:
   (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for suspension of operation.
   (*b*) State briefly the known history and production of adjoining and neighboring properties.
   (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

Questions

Form [illegible]-100

1, 2, 3, 4, 5, 6, 7

Not applicable

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Question 8

A. Tancig 701 - 3rd Ave. N.W. Chisholm, Minnesota

Mrs. E.H. Looftourrow 303 Elm Street Northfield, Minnesota

Mr. Fred Ritchell 418 - 3rd St. N.W. Chisholm, Minnesota

Mrs. A. C. Mitchell Scandia Hotel, Hibbing, Minnesota

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

Questions Form T-100

9, 10, 11, 12, 13, 14, 15, 16, 17, 18

Not applicable

A. Tancig
701 - 3rd Ave. N.W.
Chisholm, Minnesota

D.A.E.A. 2262 A. Tancig

SE-NE, NE-SE, SE-SE, Sect. 2, T-138, R-24, Crow Wing Co. Minn.

2-(136-24)

GENERAL HIGHWAY MAP
CROW WING COUNTY
MINNESOTA

PREPARED BY THE
MINNESOTA DEPARTMENT OF HIGHWAYS
IN COOPERATION WITH THE
U.S. DEPARTMENT OF AGRICULTURE
BUREAU OF PUBLIC ROADS

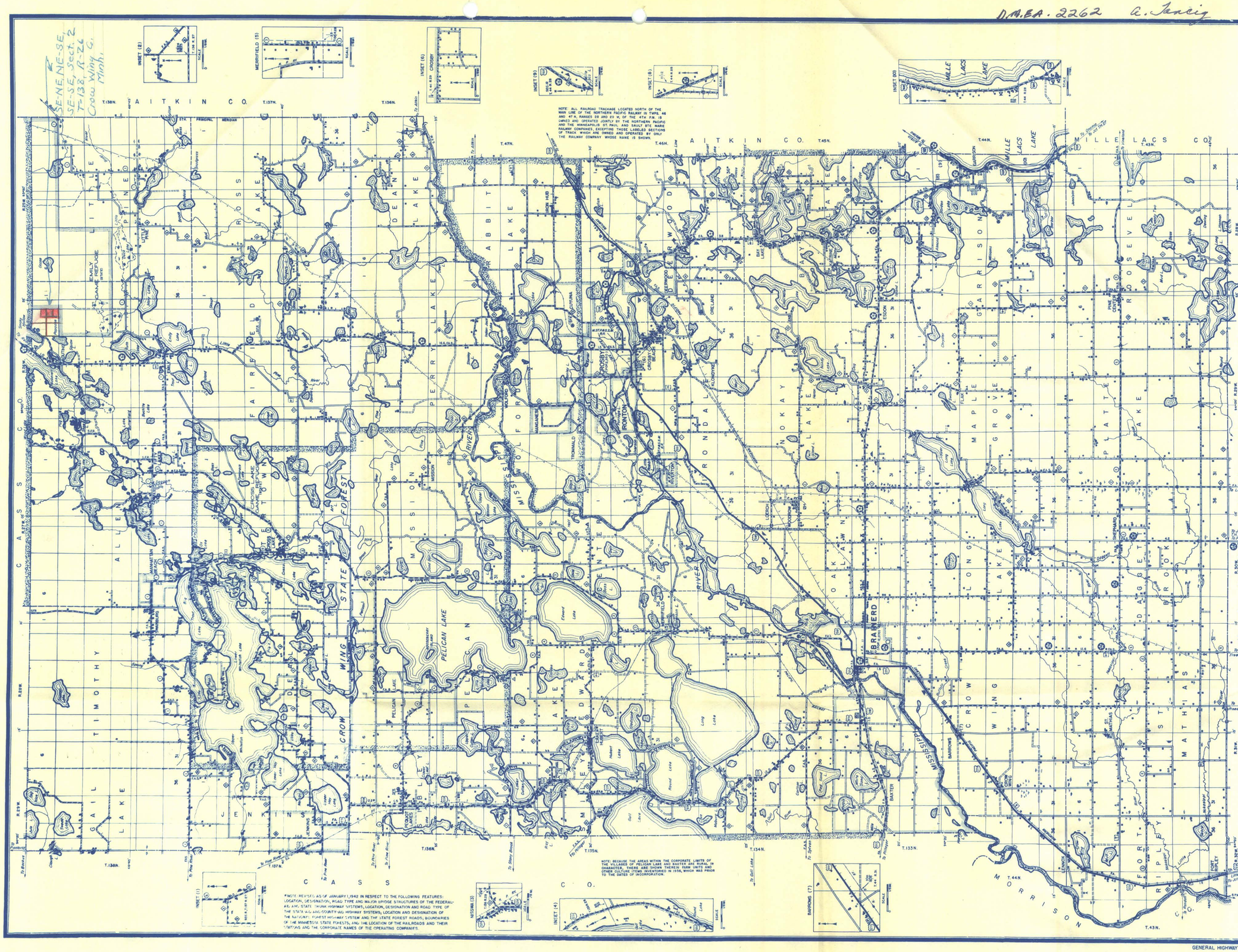
DATA OBTAINED FROM
STATE-WIDE HIGHWAY PLANNING SURVEY

SCALE OF STATUTE MILES

1936*

Polyconic Projection
North American Datum
of 1927

Projection Reference
46th Parallel - 94th Meridian



NOTE: ALL RAILROAD TRACKAGE LOCATED NORTH OF THE MAIN LINE OF THE NORTHERN PACIFIC RAILWAY IN TWPS. 46 AND 47 N. RANGES 28 AND 29 W. OF THE 4TH P.M. IS OWNED AND OPERATED JOINTLY BY THE NORTHERN PACIFIC AND THE MINNEAPOLIS ST. PAUL AND SAULT STE. MARIE RAILWAY COMPANIES, EXCEPTING THOSE LABELED SECTIONS OF TRACK WHICH ARE OWNED AND OPERATED BY ONLY THE RAILWAY COMPANY WHOSE NAME IS SHOWN.

NOTE: BECAUSE THE AREAS WITHIN THE CORPORATE LIMITS OF THE VILLAGES OF PELICAN LAKE AND WALTER ARE RURAL IN CHARACTER, THERE ARE SHOWN THEREIN FARM UNITS AND OTHER CULTURE ITEMS INVENTORIED IN 1936, WHICH WAS PRIOR TO THE DATES OF INCORPORATION.

*NOTE: REVISED AS OF JANUARY 1, 1942 IN RESPECT TO THE FOLLOWING FEATURES: LOCATION, DESIGNATION, ROAD TYPE AND MAJOR BRIDGE STRUCTURES OF THE FEDERAL-AID AND STATE TRUNK HIGHWAY SYSTEMS, LOCATION, DESIGNATION AND ROAD TYPE OF THE STATE-AID AND COUNTY-AID HIGHWAY SYSTEMS, LOCATION AND DESIGNATION OF THE NATIONAL FOREST HIGHWAY SYSTEM AND THE STATE FOREST ROADS; BOUNDARIES OF THE MINNESOTA STATE FORESTS, AND THE LOCATION OF THE RAILROADS AND THEIR STATIONS AND THE CORPORATE NAMES OF THE OPERATING COMPANIES.

LEGEND

BOUNDARIES
NATIONAL OR STATE
COUNTY
CIVIL TOWNSHIP, DISTRICT, OR PRECINCT
CORPORATE LIMITS
CONGRESSIONAL (U.S. LAND) TOWNSHIPS
SECTION LINE

PARKS AND OTHER RESERVATIONS
NATIONAL OR STATE PARK
NATIONAL OR STATE FOREST
NATIONAL INDIAN RESERVATION
NATIONAL OR STATE MILITARY RESERVATION
MONUMENT—SMALL
GOLF GROUNDS OR COUNTRY CLUB
ATHLETIC FIELDS OR AMUSEMENT PARKS
SMALL PARKS (SP—STATE, CP—COUNTY, MP—MUNICIPAL)
FAIRGROUNDS, RACE COURSES, SPEEDWAYS
CEMETERY
TOURIST CAMP
CAMP GROUNDS
INTENSIVE RECREATION AREAS
FRESH AIR FARM OR REST HOME
MUNICIPAL PARKS
PICNIC GROUNDS
BATHING BEACH, BALL FIELDS, ETC.
BATHING BEACH
SCENIC SITES
BIRD SANCTUARIES
GAME FARMS
GAME PRESERVES
FISH HATCHERY

ROADS
For Base Maps Only
TRAIL (HIKING)
PRIVATE ROAD
PRIVATE ENTRANCE
PROJECTED ROAD
PRIMITIVE ROAD
ALL OTHER ROADS

ROAD TYPES
For General Highway And Transportation Maps And All Other Series
PROJECTED ROAD
PRIMITIVE ROAD
UNIMPROVED ROAD
GRADED AND DRAINED ROAD
SOIL SURFACED ROAD
METAL SURFACED ROAD
BITUMINOUS SURFACED ROAD
PAVED ROAD
TERMINUS OF DESIGNATED ROAD

ROAD SYSTEM DESIGNATION
UNITED STATES HIGHWAY
STATE HIGHWAY SYSTEM
FEDERAL AID HIGHWAY SYSTEM
FEDERAL AID SECONDARY HIGHWAY SYSTEM
STATE AID ROAD
COUNTY AID ROAD
NATIONAL FOREST HIGHWAY
NATIONAL FOREST DEVELOPMENT ROAD
STATE FOREST ROAD (OPEN TO PUBLIC)
STATE FOREST ROAD (OPEN FOR USE ONLY)

AIRWAYS
AIR ROUTES
AIRPLANE OR MARINE CORPS FIELD
DEPARTMENT OF COMMERCE INTERMEDIATE FIELD
COMMERCIAL OR MUNICIPAL FIELD
MARKED AUXILIARY FIELD
RADIO STATION (WITH CALL LETTERS)
OR EMERGENCY FIELD
AIRPORT (SHOWING HOUSING FACILITIES)
AIRWAY BEACON (LIGHT)

NATURAL FEATURES
PROMINENT ELEVATION (NUMERALS INDICATE HEIGHT IN FEET)

DRAINAGE
INTERMITTENT STREAMS—NARROW
INTERMITTENT STREAMS—WIDE
NARROW STREAMS
WIDE STREAMS
NAVIGABLE STREAMS (INTERMITTENT NAVIGATION)
NAVIGABLE STREAM
SMALL STREAM
HEAD OF NAVIGATION (ROUGH STREAM)
DRAINAGE DITCH
RESERVOIR WITH DAM
RESERVOIR, POND OR LAKE
MARSH LAND
RESERVOIR HIGH WATER LINE

WATERWAYS
OPERATED RANGE LINES ON NATURAL STREAMS
DOCK, PIER OR LANDING
FERRY (TF—TOLL, FF—FREE)
LIGHTHOUSE
LIGHT (NAUTICAL)
LANDMARK LIGHT BEACON

BRIDGE STRUCTURES
General Symbols
HIGHWAY BRIDGE (25' SPAN OR MORE)
DRAWBRIDGE—HIGHWAY
MINOR STRUCTURE (8' TO 25' SPAN) Long River Crossings
GENERAL
DRAWBRIDGE
ARCH
TRUSS (WOOD, STEEL)
NOTE: THE WORD "TOLL" IS ADDED WHERE APPLICABLE

OTHER STRUCTURES
DAM WITH ROAD
DAM WITHOUT ROAD
DAM WITH ROAD AND LOCK
DAM WITH LOCK
HIGHWAY TUNNEL
FORD—PRIMITIVE ROAD
FORD—ROAD ESTABLISHED
CONCRETE FORD
LEVEE
LEVEE WITH ROAD
MINE DUMPS

RAILWAYS
RAILROAD (UNIT NUMBER OF TRACKS) USED BY SINGLE OPERATING CO.
RAILROAD (UNIT NUMBER OF TRACKS) USED BY MORE THAN ONE OPERATING COMPANY ON SAME OR ADJACENT RIGHT OF WAY (NOT TRACKAGE RIGHTS)
RAILROAD—NARROW GAUGE
COMBINATION STANDARD AND NARROW GAUGE RAILROAD
ELECTRIC OR GAS-ELECTRIC ONLY
RAILROAD STATION
GRADE CROSSING
UNDERPASS (HIGHWAY BELOW)
OVERPASS (HIGHWAY ABOVE)
RAILROAD TUNNEL

Railroads On Streets Or Roads (STEAM) (ELECTRIC)
UNIMPROVED ROAD
GRADED AND DRAINED ROAD
SOIL SURFACED ROAD
METAL SURFACED ROAD
BITUMINOUS SURFACED ROAD
PAVED ROAD

Railroads Wholly Owned Railroads
STANDARD GAUGE
NARROW GAUGE
RAILROAD SERVICE ABANDONED
TRACK RETAINED

CULTURAL FEATURES
FARM UNIT
DWELLING OTHER THAN FARM
DWELLINGS CLOSELY GROUPED
STORE OR SMALL BUSINESS
COMMUNITY OR TOWN HALL, GRANGE
HOTEL
CHURCH, OTHER RELIGIOUS INSTITUTIONS
SCHOOL, EDUCATIONAL INSTITUTIONS
CORRECTIONAL INSTITUTIONS
POST OFFICE
HOSPITALS, SANITARIUMS
FACTORY OR INDUSTRIAL PLANT
CAMP OR LODGE
C.C.C. CAMP
SMALL (STATIONARY)
MINE, OPEN CUT
MINE SHAFT
MINE TUNNEL
GRAVEL PIT
QUARRY
TANKS
POWER OR HYDRO PLANT
FORT, MILITARY RESERVATION
RADIO STATION (WITH CALL LETTERS)
MILL, SAWMILL
DUMP, RUBBISH DUMPS
SEASONAL OR SUMMER COLONY (WELLING)
SEASONAL DWELLINGS CLOSELY SPACED
STOCKYARDS—LOADING PEN
HIGHWAY DEPARTMENT GARAGES
HIGHWAY PATROL SUBSTATION
HIGHWAY DEPT. DIST. OFFICE AND SHOP
HIGHWAY DEPT. GENERAL OFFICE
SEASONAL INDUSTRY (CANNERY OR SMOKE HOUSE WILL)
ELEVATORS
TRIANGULATION STATION
RANGER STATION
RANGER STATION (NOT PERMANENTLY OCCUPIED)
FOREST SERVICE LOOKOUT STATION
GAUGING OR PUMPING STATION
TELEGRAPH OR TELEPHONE LINE
—ALONG ROAD
TRANSMISSION LINE
PIPE LINE, GAS
PIPE LINE, OIL
BENCH MARK
MINE
INCORP. CULTURAL UNITS OPEN THUS, B, D, E, ETC.
ABANDONED CULTURAL UNITS OPEN THUS—A, B, C, ETC.

CITY AND VILLAGE CENTERS
STATE OR NATIONAL CAPITOL
COUNTY SEAT
OTHER CITIES AND VILLAGES
INCORPORATED CITY OR VILLAGE (GENERALIZED)

ADDITIONAL MISCELLANEOUS SYMBOLS
SAME REFUSE
POINTS BETWEEN WHICH DISTANCES ARE MEASURED INDICATED THUS

OUTLINE MAP OF MINNESOTA SHOWING LOCATION OF THIS COUNTY WITHIN THE STATE

OUTLINE MAP OF THIS COUNTY SHADED PORTION BEING AREA DELINEATED ON THIS SHEET

AREA OF COUNTY, 1153 SQ. MILES
LAND AREA, 1048 SQ. MILES

REVISED AS OF	JAN. 1, 1940*	JAN. 1, 1942*		
REVISE				

SHEET 1 OF 1

D.M.E.A. 2262 a. Jonig

SE-NE, NE-SE, SE-SE, Sect 2, T-138, R-26 Crow Wing Co. Minn.

GENERAL HIGHWAY MAP
CROW WING COUNTY
MINNESOTA

PREPARED BY THE
MINNESOTA DEPARTMENT OF HIGHWAYS
IN COOPERATION WITH THE
U.S. DEPARTMENT OF AGRICULTURE
BUREAU OF PUBLIC ROADS
DATA OBTAINED FROM
STATE-WIDE HIGHWAY PLANNING SURVEY

SCALE OF STATUTE MILES

1936*

Polyconic Projection
North American Datum
of 1927

Projection Reference
46th Parallel - 94th Meridian

AITKIN CO.
MILLE LACS CO.
CASS CO.
MORRISON CO.

NOTE: ALL RAILROAD TRACKAGE LOCATED NORTH OF THE MAIN LINE OF THE NORTHERN PACIFIC RAILWAY IN TWPS. 46 AND 47 N., RANGES 28 AND 29 W. OF THE 4TH P.M. IS OWNED AND OPERATED JOINTLY BY THE NORTHERN PACIFIC AND THE MINNEAPOLIS ST. PAUL AND SAULT STE. MARIE RAILWAY COMPANIES, EXCEPT THOSE LABELED SECTIONS OF TRACK WHICH ARE OWNED AND OPERATED BY ONLY THE RAILWAY COMPANY WHOSE NAME IS SHOWN.

NOTE: BECAUSE THE AREAS WITHIN THE CORPORATE LIMITS OF THE VILLAGES OF PELICAN LAKE AND BAXTER ARE RURAL IN CHARACTER, THERE ARE SHOWN THEREIN FARM UNITS AND OTHER CULTURE ITEMS INVENTORIED IN 1936, WHICH WAS PRIOR TO THE DATES OF INCORPORATION.

*NOTE: REVISED AS OF JANUARY 1, 1942 IN RESPECT TO THE FOLLOWING FEATURES: LOCATION, DESIGNATION, ROAD TYPE AND MAJOR BRIDGE STRUCTURES OF THE FEDERAL-AID AND STATE TRUNK HIGHWAY SYSTEMS; LOCATION, DESIGNATION AND ROAD TYPE OF THE STATE-AID AND COUNTY-AID HIGHWAY SYSTEMS; LOCATION AND DESIGNATION OF THE NATIONAL FOREST HIGHWAY SYSTEM AND THE STATE FOREST ROADS; BOUNDARIES OF THE MINNESOTA STATE FORESTS, AND THE LOCATION OF THE RAILROADS AND THEIR STATIONS AND THE CORPORATE NAMES OF THE OPERATING COMPANIES.

LEGEND

BOUNDARIES
NATIONAL OR STATE
COUNTY
CIVIL TOWNSHIP, DISTRICT, OR PRECINCT
CORPORATE LIMITS
CONGRESSIONAL (U.S. LAND) TOWNSHIPS
SECTION LINE

PARKS AND OTHER RESERVATIONS
NATIONAL OR STATE PARK
NATIONAL OR STATE FOREST
NATIONAL INDIAN RESERVATION
NATIONAL OR STATE MILITARY RESERVATION
MONUMENT—SMALL
GOLF GROUNDS OR COUNTRY CLUB
ATHLETIC FIELDS OR AMUSEMENT PARKS
SMALL PARKS (SP—STATE, CP—COUNTY, MP—MUNICIPAL)
FAIR GROUNDS, RACE COURSES, SPEEDWAYS
CEMETERY
TOURIST CAMP
CAMP GROUNDS
STATE PARK RECREATION AREAS
FREE AIR FARM OR REST HOME
MUNICIPAL PARKS
PICNIC GROUNDS
PLAYGROUNDS, BALLFIELDS, ETC.
BATHING BEACHES
SCENIC SITES
BIRD SANCTUARIES
GAME FARMS
FISH HATCHERIES
FOW HATCHERY

ROADS
For Base Maps Only
TRAIL (SKIERS)
PRIVATE ROAD
UNIMPROVED ROAD
PROJECTED ROAD
PRIMITIVE ROAD
ALL OTHER ROADS

ROAD TYPES
For General Highway And Transportation Maps And All Other Series
PROJECTED ROAD
PRIMITIVE ROAD
UNIMPROVED ROAD
GRADED AND DRAINED ROAD
SOIL SURFACED ROAD
METAL SURFACED ROAD
BITUMINOUS SURFACED ROAD
PAVED ROAD
TERMINUS OF DESIGNATED ROAD

ROAD SYSTEM DESIGNATION
UNITED STATES HIGHWAY
STATE HIGHWAY SYSTEM
FEDERAL AID HIGHWAY SYSTEM
FEDERAL AID SECONDARY HIGHWAY SYSTEM
COUNTY AID ROAD
NATIONAL FOREST HIGHWAY
NATIONAL FOREST DEVELOPMENT ROAD
STATE FOREST ROAD (OPEN TO PUBLIC)
STATE FOREST ROAD (FOREST USE ONLY)

AIRWAYS
AIR ROUTES
AIRPLANE OR MARINE CORPS FIELD
DEPARTMENT OF COMMERCE INTERMEDIATE FIELD
COMMERCIAL OR MUNICIPAL FIELD
MARKED AUXILIARY FIELD
MARINE AIRPORT, LANDING FIELD OR EMERGENCY FIELD
AIRPORT SHOWING HOUSING FACILITIES
AIRWAY BEACON LIGHT

NATURAL FEATURES
PROMINENT ELEVATION (NUMERALS INDICATE HEIGHT IN FEET)

DRAINAGE
INTERMITTENT STREAMS—NARROW
INTERMITTENT STREAMS—WIDE
WIDE STREAMS
DRY STREAMS
NAVIGABLE STREAMS
(INTERMITTENT NAVIGATION)
HEAD OF NAVIGATION
SMALL STREAMS
HEAD OF NAVIGATION (WIDE STREAMS)
DRAINAGE DITCH —ALONG ROAD
RESERVOIR WITH DAM
RESERVOIR, POND OR LAKE
MARSH LAND
RESERVOIR HIGH WATER LINE

WATERWAYS
OPERATED MARINE LINES ON NATURAL STREAMS
DOCK, PIER OR LANDING
FERRY (TF—TOLL, FF—FREE)
LIGHTHOUSE
LIGHT (NAUTICAL)
LANDMARK LIGHT BEACON

BRIDGE STRUCTURES
General Symbols
HIGHWAY BRIDGE (SUFFIXES OR WORKS)
RAILROAD—HIGHWAY
MINOR STRUCTURE (7'6" OR SPAN)
Long River Crossings
GENERAL
DRAWBRIDGE
ARCH
TRUSS (WOOD, STEEL)
NOTE: THE WORD "TOLL" IS ADDED WHERE APPLICABLE

OTHER STRUCTURES
DAM WITH ROAD
DAM WITHOUT ROAD
DAM WITH ROAD AND LOCK
DAM WITH LOCK
HIGHWAY TUNNEL
FORD—PRIMITIVE ROAD
FORD—ROAD ESTABLISHED
CONCRETE FORD
LEVEE
LEVEE WITH ROAD
MINE DUMPS

RAILWAYS
RAILROAD (WITH NUMBER OF TRACKS) USED BY SINGLE OPERATING CO.
RAILROAD (WITH NUMBER OF TRACKS) USED BY MORE THAN ONE OPERATING COMPANY ON SAME OR ADJACENT RIGHT OF WAY
(NOT TRACKAGE RIGHTS)
RAILROAD—NARROW GAUGE
COMBINATION STANDARD AND NARROW GAUGE RAILROAD
ELECTRIC OR GAS-ELECTRIC ONLY
RAILROAD STAT ION
GRADE CROSSING
UNDERPASS (HIGHWAY BELOW)
OVERPASS (HIGHWAY ABOVE)
RAILROAD TUNNEL

Railroads On Streets Or Roads
(STEAM) (ELECTRIC)
UNIMPROVED ROAD
GRADED AND DRAINED ROAD
SOIL SURFACED ROAD
METAL SURFACED ROAD
BITUMINOUS SURFACED ROAD
PAVED ROAD
Railroads Partially Owned Railroads
STANDARD GAUGE
NARROW GAUGE
RAILROAD SERVICE ABANDONED
TRACK RETAINED

CULTURAL FEATURES
RURAL UNIT
DWELLING (OTHER THAN FARM)
DWELLINGS (CLOSELY GROUPED)
STORE OR SMALL BUSINESS
COMMUNITY OR TOWNWALL GRANGE
HOTEL
CHURCH, OTHER RELIGIOUS INSTITUTIONS
SCHOOL, HIGHER EDUCATIONAL INSTITUTIONS
CORRECTIONAL INSTITUTIONS
CITY HALL
HOSPITAL, SANITARIUM
FACTORY OR INDUSTRIAL PLANT
CAMP OR LODGE
C.C.C. CAMP
SMALL (STATIONARY)
MINE, OPEN CUT
MINE SHAFT
MINE TUNNEL
QUARRY PIT
QUARRY
TANKS
POWER OR HYDRO PLANT
FORT, MILITARY RESERVATION
RADIO STATION (WITH CALL LETTERS)
REFT DUMP
MUNICIPAL SUBDIVISION DUMPS
SEASONAL OR SUMMER COLONY DWELLINGS
STOCKYARD—LANDING FIELD
STOCKYARD—LANDING FIELD
HIGHWAY DEPARTMENT GARAGES
HIGHWAY PATROL SUBSTATION
HIGHWAY DEPT. DIST. OFFICE AND SHOP
HIGHWAY DEPT. REGIONAL OFFICE
SEASONAL INDUSTRY (CANNERY OR SMALL GRAIN MILL)
ELEVATORS
FORESTRY STATION
RANGER STATION
RANGER STATION (NOT PERMANENTLY OCCUPIED)
FOREST SERVICE LOOKOUT STATION
GAGING OR PUMPING STATION
TELEGRAPH OR TELEPHONE LINE
TRANSMISSION LINE
PIPE LINE, GAS
PIPE LINE, OIL
BENCH MARK
NOTE—
VACANT CULTURAL UNITS OPEN THUS, o: D, E, ETC.
ABANDONED CULTURAL UNITS OPEN THUS: D, E, ETC.

CITY AND VILLAGE CENTERS
STATE OR NATIONAL CAPITOL
COUNTY SEAT
OTHER CITIES AND VILLAGES
INCORPORATED CITY OR VILLAGE
DEHEMALIZED

ADDITIONAL MISCELLANEOUS SYMBOLS
BANE REFUSE
POINTS BETWEEN WHICH DISTANCES ARE MEASURED INDICATED

OUTLINE MAP OF MINNESOTA SHOWING LOCATION OF THIS COUNTY WITHIN THE STATE

OUTLINE MAP OF THIS COUNTY SHADED PORTION BEING AREA DELINEATED ON THIS SHEET

AREA OF COUNTY, 1933	90. MILES
LAND AREA, 1936	90. MILES

SHEET 1 OF 1

O.M.E.A. 2262 a. Lanig

SE-NE-NE-SE, NE-SE Sect 2, T136N, R26W, Crow Wing Co. Minn.

GENERAL HIGHWAY MAP
CROW WING COUNTY
MINNESOTA

PREPARED BY THE
MINNESOTA DEPARTMENT OF HIGHWAYS
IN COOPERATION WITH THE
U.S. DEPARTMENT OF AGRICULTURE
BUREAU OF PUBLIC ROADS

DATA OBTAINED FROM
STATE-WIDE HIGHWAY PLANNING SURVEY

SCALE OF STATUTE MILES

1936*

Polyconic Projection
North American Datum
of 1927

Projection Reference
46th Parallel - 94th Meridian

NOTE: ALL RAILROAD TRACKAGE LOCATED NORTH OF THE MAIN LINE OF THE NORTHERN PACIFIC RAILWAY IN TWPS. 46 AND 47 N., RANGES 28 AND 29 W. OF THE 4TH P.M. IS OWNED AND OPERATED JOINTLY BY THE NORTHERN PACIFIC AND THE MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RAILWAY COMPANIES, EXCEPTING THOSE LABELED SECTIONS OF TRACK WHICH ARE OWNED AND OPERATED BY ONLY THE RAILWAY COMPANY WHOSE NAME IS SHOWN.

NOTE: BECAUSE THE AREAS WITHIN THE CORPORATE LIMITS OF THE VILLAGES OF PELICAN RAPIDS AND FORT RIPLEY ARE SMALL OR CHARACTER, THERE ARE NONE OF THEM SHOWN. THE AREA WITHIN OTHER CITIES AND INCORPORATED IN 1936, WHICH WAS PRIOR TO THE DATES OF INCORPORATION.

*NOTE: REVISED AS OF JANUARY 1, 1942 IN RESPECT TO THE FOLLOWING FEATURES: LOCATION, DESIGNATION, ROAD TYPE AND MAJOR BRIDGE STRUCTURES OF THE FEDERAL-AID AND STATE TRUNK HIGHWAY SYSTEMS; LOCATION, DESIGNATION AND ROAD TYPE OF THE STATE-AID AND COUNTY-AID HIGHWAY SYSTEMS; LOCATION AND DESIGNATION OF THE NATIONAL FOREST HIGHWAY SYSTEM AND THE STATE FOREST ROADS; BOUNDARIES OF THE MINNESOTA STATE FORESTS, AND THE LOCATION OF THE RAILROADS AND THEIR STATIONS AND THE CORPORATE NAMES OF THE OPERATING COMPANIES.

LEGEND

BOUNDARIES
NATIONAL OR STATE
COUNTY
CIVIL TOWNSHIP, DISTRICT, OR PRECINCT
CORPORATE LIMITS
CONGRESSIONAL (U.S. LAND) TOWNSHIP
SECTION LINE

PARKS AND OTHER RESERVATIONS
NATIONAL OR STATE PARK
NATIONAL OR STATE FOREST
NATIONAL INDIAN RESERVATION
NATIONAL OR STATE MILITARY RESERVATION
MONUMENT—SMALL
GOLF GROUNDS OR COUNTRY CLUB
ATHLETIC FIELDS OR AMUSEMENT PARKS
SMALL PARKS (SP—STATE, CP—COUNTY, MP—MUNICIPAL)
FAIR GROUNDS, RACE COURSES, SPEEDWAYS
CEMETERY
TOURIST CAMP
CAMP GROUNDS
INTENSIVE RECREATION AREAS
REST HOUSE OR REST HOME
MUNICIPAL PARKS
PICNIC GROUNDS
PLAYGROUNDS, BALLFIELDS, ETC.
BATHING BEACHES
SCENIC SITES
BIRD SANCTUARIES
GAME FARMS
GAME PRESERVES
FISH HATCHERY

ROADS
For Base Maps Only
TRAIL (HIKING)
PRIVATE ROAD
PRIVATE ENTRANCE
PROJECTED ROAD
PRIMITIVE ROAD
ALL OTHER ROADS

ROAD TYPES
For General Highway And Transportation Maps And All Other Series
PROJECTED ROAD
PRIMITIVE ROAD
UNIMPROVED ROAD
GRADED AND DRAINED ROAD
SOIL SURFACED ROAD
METAL SURFACED ROAD
BITUMINOUS SURFACED ROAD
PAVED ROAD
TERMINUS OF DESIGNATED ROAD

ROAD SYSTEM DESIGNATION
UNITED STATES HIGHWAY — 10
STATE HIGHWAY SYSTEM — 17
FEDERAL AID HIGHWAY SYSTEM — FA
FEDERAL AID SECONDARY HIGHWAY SYSTEM — FAS
STATE AID ROAD — S
COUNTY AID ROAD — C
NATIONAL FOREST HIGHWAY — NFH
NATIONAL FOREST DEVELOPMENT ROAD — FDR
STATE FOREST ROADS (OPEN TO PUBLIC) — SFR
STATE FOREST ROAD (COMMY USE ONLY) — SFR

AIRWAYS
AIR ROUTES — AIRWAY
AIRWAY ON MARINE CORPS FIELD
DEPARTMENT OF COMMERCE INTERMEDIATE FIELD
COMMERCIAL OR MUNICIPAL FIELD
MARKED AUXILIARY FIELD
MAP, AIR LANDING FIELD
OR EMERGENCY FIELD
AIRPORT (SHOWING HOUSING FACILITIES)
AIRWAY BEACON LIGHT

NATURAL FEATURES
PROMINENT ELEVATION (NUMERALS INDICATE HEIGHT IN FEET)

DRAINAGE
INTERMITTENT STREAMS—NARROW
INTERMITTENT STREAMS—WIDE
NARROW STREAMS
WIDE STREAMS
NAVIGABLE STREAMS (INTERMITTENT NAVIGATION)
HEAD OF NAVIGATION (SMALL STREAM)
HEAD OF NAVIGATION (WIDE STREAM)
DRAINAGE DITCH
RESERVOIR WITH DAM
RESERVOIR, POND OR LAKE
MARSH LAND
RESERVOIR HIGH WATER LINE

WATERWAYS
OPERATED BAND LINES ON NATURAL STREAMS
DOCK, PIER OR LANDING
FERRY (TF—TOLL, FF—FREE)
LIGHTHOUSE
LIGHT (NAUTICAL)
LANDMARK LIGHT BEACON

BRIDGE STRUCTURES
General Symbols
HIGHWAY BRIDGE (OTHER OR MORE)
DRAWBRIDGE—HIGHWAY
MINOR STRUCTURE (FIVE OR MORE) Long River Crossings
GENERAL
DRAWBRIDGE
ARCH
TRUSS (WOOD-STEEL)
NOTE—THE WORD "COLE" IS ADDED WHERE APPLICABLE

OTHER STRUCTURES
DAM WITH ROAD
DAM WITHOUT ROAD
DAM WITH ROAD AND LOCK
DAM WITH LOCK
HIGHWAY TUNNEL
FORD—PRIMITIVE ROAD
FORD—ROAD ESTABLISHED
CONCRETE FORD
LEVEE
LEVEE WITH ROAD
MINE DUMPS

RAILWAYS
RAILROAD (SHOWING NUMBER OF TRACKS) USED BY ONE OWNER (ONE OR MORE)
RAILROAD (SHOWING NUMBER OF TRACKS) USED BY MORE THAN ONE OPERATING COMPANY ON SAME OR ADJACENT RIGHT OF WAY (NOT TRACKAGE RIGHTS)
RAILROAD—NARROW GAUGE
COMBINATION STANDARD AND NARROW GAUGE RAILROAD
ELECTRIC OR GAS-ELECTRIC ONLY
RAILROAD STATION
GRADE CROSSING
UNDERPASS (HIGHWAY BELOW)
OVERPASS (HIGHWAY ABOVE)
RAILROAD TUNNEL

Railroads On Streets Or Roads (STEAM) (ELECTRIC)
UNIMPROVED ROAD
GRADED AND DRAINED ROAD
SOIL SURFACED ROAD
METAL SURFACED ROAD
BITUMINOUS SURFACED ROAD
PAVED ROAD

Privately Owned Railroads
STANDARD GAUGE
NARROW GAUGE
RAILROAD SERVICE ABANDONED
TRACK REMOVED

CULTURAL FEATURES
FARM UNIT
DWELLING OTHER THAN FARM
DWELLINGS (CLOSELY GROUPED)
STORE OR SMALL BUSINESS
COMMUNITY OR TOWNSHIP LIBRARY
HOTEL
CHURCH, OTHER RELIGIOUS INSTITUTIONS
SCHOOL, HIGHER EDUCATIONAL INSTITUTIONS
CORRECTIONAL INSTITUTIONS
POST OFFICE
HOSPITALS; SANITARIANS
PLANT OR INDUSTRIAL PLANT
CAMP OR LODGE
G.C.C. CAMP
SUMMER (SEASONAL) RESORT
MINE, OPEN CUT
MINE SHAFT
MINE TUNNEL
GRAVEL PIT
QUARRY
SAND PIT
POWER OR HYDRO PLANT
FORT, MILITARY RESERVATION
RADIO STATION (WITH CALL LETTERS)
BEET DUMP
MUNICIPAL RUBBISH DUMPS
SEASONAL OR SUMMER COLONY DWELLINGS
SEASONAL DWELLINGS CLOSELY SPACED
STOCKYARDS—LOADING PEN
HIGHWAY PATROL BARRACKS
HIGHWAY PATROL SUBSTATION
HIGHWAY DEPT. DIST. OFFICE AND SHOP
HIGHWAY DEPT. GENERAL OFFICE
SEASONAL INDUSTRY (CANNERY OR SMALL GRAIN MILL)
ELEVATORS
TRIANGULATION STATION
WATER STATION
RANGER STATIONS (NOT PERMANENTLY OCCUPIED)
FOREST SERVICE LOOKOUT STATION
GAUGING OR PUMPING STATION
TELEGRAPH OR TELEPHONE LINE —ALONG ROAD
TRANSMISSION LINE
PIPE LINE, GAS
PIPE LINE, OIL
BENCH MARK
NOTE—
MOUNT CULTURAL UNITS OPEN THUS, A, B, C, D, ETC.
ABANDONED CULTURAL UNITS OPEN THUS, A, B, C, D, ETC.

CITY AND VILLAGE CENTERS
STATE CAPITAL
COUNTY SEAT
OTHER CITIES AND VILLAGES
INCORPORATED CITY OR VILLAGE (GENERALIZED)

ADDITIONAL MISCELLANEOUS SYMBOLS
BASE REFINE
POINTS BETWEEN WHICH DISTANCES ARE MEASURED INDICATED THUS

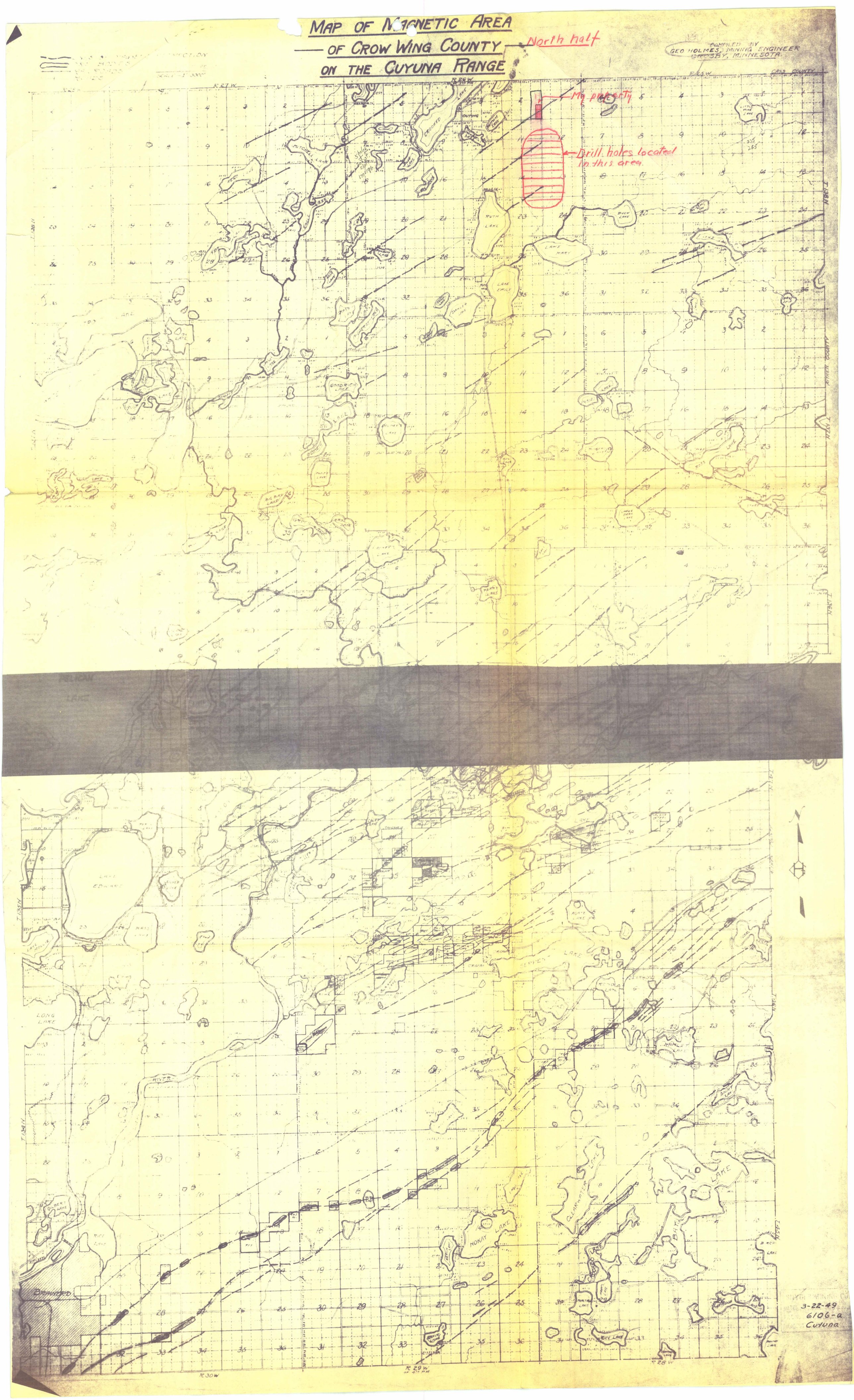
OUTLINE MAP OF MINNESOTA SHOWING LOCATION OF THIS COUNTY WITHIN THE STATE

OUTLINE MAP OF THIS COUNTY SHADED PORTION BEING AREA DELINEATED ON THIS SHEET
AREA OF COUNTY, 1153 SQ. MILES
LAND AREA, 1018 SQ. MILES

*SHOWS LAYOUT OF JAN. 1, 1940 JAN. 1, 1942
REVISED AS OF

SHEET 1 OF 1

MAP OF MAGNETIC AREA
OF CROW WING COUNTY
ON THE CUYUNA RANGE

North half

COMPILED BY
GEO HOLMES, MINING ENGINEER
CROSBY, MINNESOTA