DMA Form 1

DEFENSE MINERALS ADMINISTRATION
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DMEA ~~DMA~~ Docket No. 2686

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2684

DEC 5 1952

Mr. Henry J. Kruse
P. O. Box 94
Palisade, Minnesota

Re: Docket No. DMEA-2686 - Iron & Manganese
Kruse Bain Area
Aitkin County, Minnesota

Dear Mr. Kruse:

Your application for exploration assistance on the above-noted project, and other information available to us in Washington, have been carefully reviewed.

This information indicates to us that the probability of finding minable reserves of iron and manganese ores are not sufficiently promising to justify Government participation. We regret, therefore, to inform you that your application is denied.

As you requested, maps submitted with your application are returned herewith, with the exception of a single file copy of each.

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

Sincerely yours,

(signed) FRANK E. JOHNSON

ACTING Administrator

Enclosures

TL Chapman:ls 11/28/52
Copy to: Docket
Admn. Rd. File
F.T., Reg. V
T. L. Chapman
G. C. Selfridge
Martha Carr, USGS
E. J. Gealy, USBM
Operating Committee

Mr. Henry J. Kruse
P. O. Box 94
Palisade, Minnesota

Re: Docket No. DMMA/2686 - Iron & Manganese
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Aitkin County, Minnesota

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(signed) FRANK E. JOHNSON

ACTING Administrator

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G.C.Selfridge
Martha CARR, USGS
E.J.Gealy, USBM
Oper. Corr.

400

Administrator, DMEA

November 28, 1952

Iron and Ferro-Alloy Division, DMEA

Denial of exploration project in the amount of $211,056.00
Docket No. DMEA 2686 - Iron and Manganese
Kruse Bain area
Aitkin County, Minnesota

The denial of the subject application by this Division is based on the following information:

1. Little is known about the geology of the Bain area. There are no outcrops, the area being covered by glacial drift from 150 to 290 feet thick. The available data are limited to 10 diamond drill holes and aeromagnetic surveys. No anomalies of the type caused by the iron and manganese formations are shown on the aeromagnetic maps. No data are available that would indicate that the iron and manganese formation extends in a northeast direction from northern Crow Wing County.

2. Excepting the 10 diamond drill holes, no work has been done in this area.

3. The Field Team of Region V recommends denial. Dr. G. M. Schwartz, Director of the Minnesota Geological Survey, concurs in this denial. The Commodity Division of the U. S. Geological Survey concurs in the denial.

George C. Selfridge

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

cc: Docket
Admn. Read.File
T. L. Chapman
G. C. Selfridge

TLChapman:ls 11/28/52

400

UNITED STATES
DEPARTMENT OF THE INTERIOR

Oscar L. Chapman, Secretary

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
NOV 21 1952

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION V

DMEA-2686 - Henry J. Kruse

Manganese iron exploration
project near Bain,
Aitkin County, Minn.

Robert G. Schmidt, Geologist
U. S. Geological Survey

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

November 18, 1952

Shm O.C
11/26/52

Geologic report on Bain area, Aitkin County, Minnesota

R. G. Schmidt

U. S. Geological Survey

Docket: DMEA-2686

Commodity: Iron-manganese

Summary and conclusions

Henry J. Kruse & Company, Palisade, Minnesota, has applied for a DMEA loan to help finance an exploration by means of 66 diamond drill holes in the vicinity of Bain, Aitkin County, Minnesota. The program has been proposed on the assumption that a wide belt of manganiferous iron-bearing rock extends northeastward through the area from the Cuyuna iron-ore district, which lies to the southwest. The existence and extension of this belt is postulated on previous drilling in the area and in Crow Wing County to the west, on interpretation of aeromagnetic maps, and on general regional structures.

Drilling records submitted with the application fall into two categories. Some report iron ore and manganiferous iron ore of commercial or near-commercial grade but concern areas far to the west and have no bearing on the locality under consideration. Only two drill records are of the Bain area; one reports lean ferruginous slate, and the other reports local iron concentration in Cretaceous sediments. One, and possibly both holes were in slates of the "Cuyuna type", which is known to include iron-formation. Eight additional drill hole records of the Bain area, not included in the application, are in this report, and these holes penetrated dark-gray slate of the "Carlton type", not known to include iron-formation.

No anomalies of the type caused by iron-formation are shown on aeromagnetic maps of the area prepared by the U. S. Geological Survey; anomalies which would suggest that the iron-formation extends in the proposed direction from northern Crow Wing County are also lacking.

The assumption that a belt of iron-formation crosses the Bain area is unsupported by geologic evidence. In the opinion of the field team and of G. M. Schwartz, Director of the Minnesota Geological Survey, the loan should be denied.

Location of Bain area

The area of proposed exploration is in the vicinity of the Village of Bain in the western part of Aitkin County, Minnesota, and is near but northeast of the center of the State (fig. 1). The tracts are parts of secs. 13, 25, 29, and 35, T. 50 N., R. 26 W., and part of sec. 1, T. 49 N., R. 26 W. (pl. 1).

General geology

Very little is known about the geology of the Bain area. There are no outcrops, and the available data are limited to the materials from ten diamond drill holes and the aeromagnetic maps prepared by the U. S. Geological Survey._/ No field examination was made by the field team.

_/ Not yet published, but a preliminary copy is available for inspection at the U. S. Geological Survey, Washington, D. C., and the Minnesota Geological Survey, Minneapolis, Minn.

The known bedrock of the Bain area is composed of light- to dark-gray and red-brown pre-Cambrian slates. These are covered by Cretaceous sands and shales and by Pleistocene glacial drift.

Pleistocene and Cretaceous materials

Thickness of the glacial drift ranges from 150 to 290 feet. No systematic variation of thickness was noticed.

Exact thicknesses of the Cretaceous sediments are hard to determine because the cuttings may resemble parts of the Pleistocene and also parts of the much-decomposed pre-Cambrian slates. Thicknesses recorded in the ten drill holes previously mentioned are as much as 205 feet, with a suggestion that the thickness increases from southeast to northwest. The sediments are sands and shales. Fossils are scarce or lacking. One shark's tooth was found by J. W. Gruner.

Even if iron ore was found in this area, the total thickness of Pleistocene and Cretaceous sediments is too great for present open-pit mining methods and would place a considerable handicap on underground operation.

Bedrock materials and related data

Geologic setting of the Bain area

Three rather distinct types of slate occur in adjacent areas: the Cuyuna slates with their related iron-formation, the Virginia slate, and the Thompson formation. The actual relationship of these slates to each other or to those in the Bain area is not known. They may all be of the same age or of widely different ages. Their distribution is shown in figure 1 and a short discussion of each follows.

The Virginia slate overlies the Biwabik iron-formation of the Mesabi district, strikes parallel to it, and dips gently to the southeast. It is best known from exposures in the open pits and from drilling related to the search for iron ore in the Mesabi district. Little is known about the extent of the slate to the south and southeast. The Virginia slate has suffered little deformation, has not been dynamically metamorphosed, and does not have slaty cleavage. It consists of several thousand feet of thin-bedded argillite and thick-bedded graywacke. The argillaceous parts are medium to dark gray, sometimes black.

The Thompson formation has also been known as the St. Louis slates, the Cloquet slates, and the Carlton slates. It consists of interbedded slates, graywacke slates, and graywacke and is estimated to be over 20,000 feet thick. The series is closely folded and moderately metamorphosed; this metamorphism increased to the southwest, producing phyllite, mica schist, and garnet-mica schist. Flow cleavage is well developed in the slaty beds; fracture cleavage is local. Abundant carbonate concretions are characteristic of the formation. The age of the Thompson formation is problematical. The degree of folding and metamorphism suggests that it is older than the Virginia slate.

The Cuyuna slates and associated iron-formation constitute a very complicated series of metamorphosed and highly folded rocks. The slates beneath the iron-formation are light gray, buff, or reddish brown, and are sericitic, commonly silty, and include irregular lenses of quartzite.

Widely different opinions are held regarding the number of layers of iron-formation and their over-all thickness. Recent work by the U. S. Geological Survey in the Cuyuna district indicates that almost all of the commercial ore bodies occur in a single layer of iron-formation that ranges in thickness from 60 to 400 feet. Intricate folding causes this layer to be at the bedrock surface several times, and these repetitions greatly increase the area which can be explored for ore bodies. To say that the Cuyuna range is 12--or 30--miles wide is not to imply, however, that all of this width is underlain by iron-formation. The belt may include several narrow fold limbs of the iron-formation, but most of the bedrock will be slate. This situation must be considered in wildcat drilling because of its relation to the size of the "target".

Some information seems to indicate the possibility of less extensive layers of iron-formation higher in the Cuyuna slate sequence than the one discussed above.

Drill-hole data of the Bain area

So far as is known, ten holes drilled in 1929 for the Great Northern Iron Ore Properties are the only explorations of the Bain area. The samples were examined as a part of this appraisal, and brief descriptions of the materials follow. The classification of the slates as "Cuyuna type" and "Carlton type" is from an examination of the samples by F. F. Grout, J. W. Gruner, and G. M. Schwartz of the Minnesota Geological Survey.

Hole no. 1 SW¼NW¼ 6-50-25

From	To	
Feet		
0	185	Drift
185	236	Shale, probably Cretaceous

Hole no. 2 SE¼SW¼ 8-50-25

From	To	
Feet		
0	270	Drift
270	277	Soft material
277	375	Carlton-type slate

Hole no. 5 NW¼SW¼ 7-50-25

From	To	
Feet		
0	200	Drift
200	255	Grey shale, Cretaceous
255	310	Disintegrated slate
310	365	Grey slate, Carlton type

Hole no. 7 NE¼SE¼ 35-51-26

From	To	
Feet		
0	160	Drift
160	275	Grey to black shale (Cretaceous?)
275	345	Sand
345	360	Basal conglomerate(?), ferruginous from 345-350.
360	365	?
365	425	Soft decomposed green and brown slate
425	431	Red-brown slate. Possibly Cuyuna type.

Hole no. 11 NW¼SW¼ 20-50-25

From	To	
Feet		
0	290	Drift
290	338	Carlton-type slate

Hole no. 16 SW¼SE¼ 35-50-26

From	To	
Feet		
0	250	Drift
250	571	Ferruginous slate becoming leaner with depth below 458'. Cuyuna type.

Hole no. 19 SW¼SW¼ 23-50-27

From	To	
Feet		
0	212	Drift
212	372	Sandy clay, Cretaceous(?)
372	429	Dark grey Carlton-type slates.

Hole no. 22 SE¼SE¼ 15-50-26

From	To	
Feet		
0	216	Drift
216	250	?
250	340	Quartz sand
340	395	Sand and clay, concretionary or conglomeratic near bottom
395	422	Grey slate, Carlton type

Hole no. 24 NW¼SW¼ 3-49-26

From	To	
Feet		
0	223	Drift
223	260	White frosted sand grains
260	265	Small pebbles
265	290	White frosted sand grains
290	296	Very fine clay, possibly decomposed slate(?)

Hole no. 28 SE¼SE¼ 21-49-26

From	To	
Feet		
0	173	Drift
173	200	Grey sandy clay
200	260	Sandy material, Cretaceous(?)
260	314	Grey slate, Carlton type.

Relationship of slates of Bain area

The above descriptions show that hole no. 16 penetrated a red-brown ferruginous slate that was of the Cuyuna type. An incorrect classification of the material in this hole was used in the application as evidence of iron-formation in the area; the material drilled, however, was not an ore as claimed but averaged about 16 percent iron and 3 percent manganese, which is far below commercial grade. Red-brown slates in hole no. 7 were classified as Cuyuna type also, but analyses had not been made on these. Ore reported in this hole by the applicant came from Cretaceous gravels or from sands containing small carbonate concretions, not from the pre-Cambrian.

Records of the eight additional holes were not included in the application. These holes encountered gray to dark-gray cleavable slate in which the dips suggest intensive folding. As stated in the records of these holes, the materials were thought to be dominantly similar to the Thompson formation (Carlton type), which is not known to contain iron-formation.

Magnetic data

In the opinion of the field team, the U. S. Geological Survey aeromagnetic maps do not indicate in the Bain area any intensive anomalies of the linear type caused by iron-formation, neither do the maps indicate any change in direction of regional structure near Emily suggesting the extension of iron-formation toward Bain.

Drilling data in Crow Wing County

Results of diamond drilling in sec. 1, T. 136 N., R. 25 W., near the Aitkin County line, and in sec. 4, T. 137 N., R. 26 W., near Emily, have no bearing on the presence of iron-formation near Bain.

Extension of the Cuyuna iron-formation to Bain area

The applicant's interpretative extension of the Cuyuna iron-formation (pl. 1) was very carefully considered. This interpretation is that the wide belt in which iron-formation is present in the Crosby area extends northeastward to the Aitkin County line, curves northwestward to the vicinity of Emily, then turns northeastward again, passes through the Bain area, and extends into St. Louis County.

The northwestward extension of single narrow bands of iron-formation from the Aitkin County line to the vicinity of Emily is highly probable. There is no evidence available, however, that the structural trends change direction near Emily and extend northeastward toward the Bain area.

Recommendation

The assumption that a belt of iron-formation crosses the Bain area is unsupported by geologic evidence. It is therefore recommended that the loan for proposed exploration be denied.

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

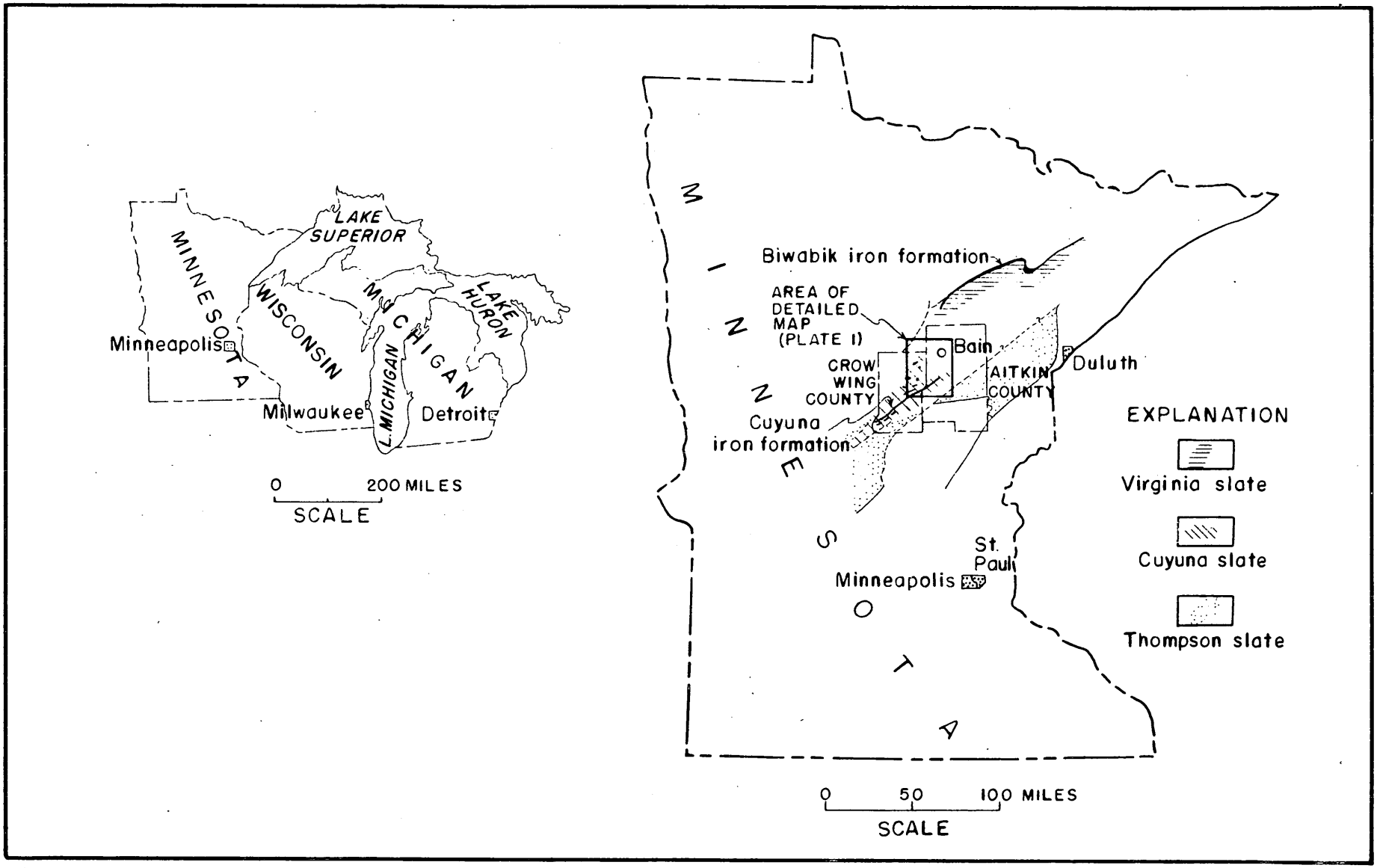

Figure I. Index map of Minnesota showing location of area of plate I and approximate areal extent of slates in adjacent areas.

SEP 9 6 1952

Mr. Henry J. Kruse
P.O. Box 94
Palisade, Minnesota

Re: Docket No. DMEA 2686 - Iron and Manganese
Kruse Bain Area
Aitkin County, Minnesota

Dear Mr. Kruse:

Your application for assistance in exploring the above mentioned property has been reviewed by the Iron and Ferro-Alloy Division of the Defense Minerals Exploration Administration and has been referred to Mr. A. S. Needham, Executive Officer, Region V, 2908 Calfax Avenue, South, Minneapolis 8, Minnesota for a field examination.

The Regional Office will contact you at an early date in regard to the examination of your property. Any aid which you can render the members of the field team during the examination will be appreciated.

Sincerely yours,

(signed) FRANK E. JOHNSON

ACTING Administrator

TLChapman'lm
9/25/52

cc: Admn. Reading File
Docket
Martha Carr, DMOS
Edgar J. Cenly, USBM
Field Team Reg. V
S. O. Selfridge
T. L. Chapman

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

400

September 9, 1952

To: George C. Selfridge, DMSA

From: Martha Carr, USGS

Subject: Exploration application $211,056 DMSA-2686 Manganese and manganiferous iron ore

(a) Henry J. Kruse, P. O. Box 94, Palisade, Minn.
(b) H. J. Kruse & Co., Palisade, Minn.
(c) H. J. Kruse, Pres., 65 South 11th St., Minneapolis, Minn.
John Kruse, Sec., Kansas City, Mo.
M. A. Furber, Treas., 3015 Dupont Ave., So., Minneapolis, Minn.

Property: Kruse Bain area, in northwest quarter of Aitkin Co., Minn.--covering parts of secs. 11, 25, 29, and 35, T. 50 N., R. 26 W. and of sec. 1, T. 49 N., R. 26 W.

Proposal: The applicant proposes to explore the above areas for direct-shipping manganese and manganiferous iron ore. The work is to be carried on by churn- and diamond-drilling 66 holes to an average depth of 300 feet each. The State Exploration Company is to contract for the drilling operations and for all work, labor, and equipment incidental thereto. The work could be started within 30 days from the date of an exploration project contract and be completed within 24 months.

Geology: The area described is in general underlain by pre-Cambrian quartzites, slates, and interbedded iron-formations. The rocks, however, as in the Cuyuna district proper, are covered by a heavy mantle of glacial drift. In places in the Cuyuna district this till reaches 400 feet in thickness; and, except in the open-pit and underground mines, only very minor exposures of bedrock are present. As a result of deformation, the pre-Cambrian rocks of the district have been folded into a complex series of anticlines and synclines that trend approximately northeast-southwest. Seven or eight main belts of iron-bearing rocks run in a northeast-southwest direction, and at intervals along these belts bodies of iron ore and manganiferous iron ore occur. In some belts they are abundant and in others, almost absent.

The Cuyuna iron-ore bodies are generally roughly tabular in shape, elongate with the beddings and as the beds dip steeply, the bodies appear at the surface of the hard rocks as bands that extent for considerable distance along the strike of the beds. They vary in width up to several hundred feet and may be a mile or more long.

The applicant believes from data he sets forth in his application that a northeast extension of the Cuyuna Range, with conditions similar to those described above, underlies the area outlined by him.

Recommendation: Recommendation is made to refer the application to the field team with the suggestion that Dr. G. M. Swartz, Director of the Minnesota Geological Survey (University of Minnesota, Minneapolis 14) be consulted with regard to the possibilities of the area. Much geophysical work and drilling are being done cooperatively by the Federal and State Geological Surveys in Minnesota, and both Dr. Swartz and Carl Dutton, who is at present in Algiers, are in a position to furnish more pertinent advice than is available here. I talked with Jack Meuschke, a member of the Geophysical Branch of the USGS who has done work in the area in cooperation with the State, and in his opinion the area described by the applicant does not warrant drilling based on the magnetics alone. He concurs in the above recommendation.

The applicant's attention should be called to his share of the cost of the proposed project, which would be $105,528. In his letter of August 25 to the Defense Minerals Administration he refers to $80,000 which he is to furnish as his part. He also says that he proposes to explore for "direct-shipping manganese and manganiferous iron ore." The literature on the Cuyuna district refers to "iron ore and manganiferous iron ore."

cc: Director's Reading File (4212)
Branch
DMEA (3)
Ferrous Metals File
Martha Carr(2)

Martha Carr: bbk
G 9/9/52

400

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

Mr. A. B. Redham
Executive Officer, Region V,
U. S. Bureau of Mines
2908 Colfax Avenue, South,
Minneapolis 8, Minnesota.

Dear Sir:

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

Applicant Henry J. Kruse.

Docket No. DMEA 2686

Commodity Manganese-Iron.

Amount $ 211,056.00

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:

Member, Bureau of Mines

Member, Geological Survey

13759

Defense Minerals Administration

Review of Application for Exploration Assistance

Docket No. DMEA 2686

Commodity Manganese-Iron

Total Amount $211,056.00

Govt. Participation 62.5%. ?

1. Name and Address of Applicant Henry J. Kruse, Box 94 Palisade, Minnesota.

2. Location of Property Parts of Sections 11, 25, 29 and 35, T. 50N, R. 26W. and of Section 1, T. 49N, R. 26W. Aitkin County, Minnesota.

3. Mineral or metal Manganese-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? —

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? ——

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 Good

b) Equipment and supplies Good.
(question 14 plus general knowledge of availability)*

c) Accessibility (question 12)* Good.

d) Water (question 13)* Good.

e) Power (question 13)* Good.

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)* Yes.

Is a field check needed on this point?

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

a) Is the project adequately described? Yes.

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

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

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? Yes.

f) Should more information be requested from applicant?_____

g) Is a field examination necessary to complete Exhibit A? No.

11. Exhibit B (question 23-d)*

a) Is it applicable?_____

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?_____

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? Yes.

(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? The area is well known. Should have opinion from Dr. Schwartz. Would project be of any assistance in the production of manganiferous-iron ores for the present emergency?

Enclosed:
2 Copies memo by Martha Carr

Reviewed by: PLC

Date _____

FILE COPY
SURNAME:

200

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

BW

JAN 19 1953

Mr. Henry J. Kruse
P. O. Box 94
Palisade, Minnesota

Dear Mr. Kruse:

This will acknowledge your letter dated January 10, 1953 requesting that all papers, etc., furnished with your application for exploration assistance, Docket No. 2686, be returned to you.

There are enclosed all remaining papers submitted by you with the above-mentioned application.

Sincerely yours,

C. O. Mittendorf (fw)

Administrator

Enclosures

READams/meb
1-16-53

cc to: Adm.Reading File
Mails & Files Br.

J. C. 1/19/53

FILE COPY
SURNAME:

Kruse
Selfridge

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

DEC 5 1952

Mr. Henry J. Kruse
P. O. Box 94
Palisade, Minnesota

Re: Docket No. DMEA-2686 - Iron & Manganese
Kruse Bain Area
Aitkin County, Minnesota

Dear Mr. Kruse:

Your application for exploration assistance on the above-noted project, and other information available to us in Washington, have been carefully reviewed.

This information indicates to us that the probability of finding minable reserves of iron and manganese ores are not sufficiently promising to justify Government participation. We regret, therefore, to inform you that your application is denied.

As you requested, maps submitted with your application are returned herewith, with the exception of a single file copy of each.

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

Sincerely yours,

(signed) FRANK E. JOHNSON (fw)
ACTING Administrator

Enclosures

TLChapman:ls 11/28/52
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G. C. Selfridge
Martha Carr, USGS
E. J. Gealy, USBM
Operating Committee

J.H. 12.5.52

FILE COPY
SURNAME:

Chapman
Selfridge
Gealy
Hedges
Kaplan

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

Mr. Henry J. Kruse
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Palisade, Minnesota

Re: Docket No. DMEA/-2686 Iron & Manganese
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ACTING Administrator

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T.L.Chapman
G.C.Selfridge
Martha CARR, USGS
E.J.Gealy, USBM
Operating Committee

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Administrator, DMEA DATE: November 28, 1952

FROM : Iron and Ferro-Alloy Division, DMEA

SUBJECT: Denial of exploration project in the amount of $211,056.00
Docket No. DMEA 2686 - Iron and Manganese
Kruse Bain Area
Aitkin County, Minnesota

The denial of the subject application by this Division is based on the following information:

1. Little is known about the geology of the Bain area. There are no outcrops, the area being covered by glacial drift from 150 to 290 feet thick. The available data are limited to 10 diamond drill holes and aeromagnetic surveys. No anomalies of the type caused by the iron and manganese formations are shown on the aeromagnetic maps. No data are available that would indicate that the iron and manganese formation extends in a northeast direction from northern Crow Wing County.

2. Excepting the 10 diamond drill holes, no work has been done in this area.

3. The Field Team of Region V recommends denial. Dr. G. M. Schwartz, Director of the Minnesota Geological Survey, concurs in this denial. The Commodity Division of the U. S. Geological Survey concurs in the denial.

G. C. Selfridge

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

FILE COPY
SURNAME:

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

Administrator, DMEA

November 28, 1952

Chapman
Selfridge

Iron and Ferro-Alloy Division, DMEA

Denial of exploration project in the amount of $211,056.00
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3. The Field Team of Region V recommends denial. Dr. G. M. Schwartz, Director of the Minnesota Geological Survey, concurs in this denial. The Commodity Division of the U. S. Geological Survey concurs in the denial.

George C. Selfridge

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

cc: Docket
Admn. Read.File
T. L. Chapman
G. C. Selfridge

TLChapman:ls 11/28/52

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Geo. C. Seybridge

DATE: 11-25-52

FROM : W. D. Crittenden

SUBJECT: DMEA-2686 (manganese-iron)
Henry J. Kruse

Department of the Interior
Bureau Mines Administration
NOV 26 1952

Rejection sustained

11/28/52

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D.C.~~
Region V
2908 Colfax Avenue South
Minneapolis 8, Minnesota

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
NOV 21 1952

November 19, 1952

Memorandum

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

From: Executive Officer, Field Team, Region V

Subject: Docket DMEA-2686, Henry J. Kruse, Palisade, Minn.

Reference is made to your letter of September 29, 1952, attaching Review of Application of Henry J. Kruse, P. O. Box 94, Palisade, Minn., for exploration assistance on manganese-iron of Aitkin County (review made by T. L. Chapman).

Here are the original and three copies of the Field Team report pertinent to this report of review.

A. B. Needham dg

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

Attachments

ABNeedham:dg
cc Dutton
Region V
files
df

Reviewed by
DMEA OPERATING COMMITTEE
11-26-52
(date)

MF-500

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

REFERENCE SLIP

DATE 11-21-52

REFERRED TO:

1. ~~Mrs. Berry, Rm. 4624~~
2. ~~Open Conf.~~
3. ~~Bonchard~~
4. ~~400~~

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: ~~Approved~~ 11/26

Check (X) before the items needing attention.

R. E. ADAMS

Initials of sender.

Las

GPO 16—63815-1

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
NOV 21 1952

11/28/52

UNITED STATES
DEPARTMENT OF THE INTERIOR

Oscar L. Chapman, Secretary

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION V

DMEA-2686 - Henry J. Kruse

Manganese iron exploration
project near Bain,
Aitkin County, Minn.

Copy retained 400

Robert G. Schmidt, Geologist
U. S. Geological Survey

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

November 18, 1952

Reviewed by
DMEA OPERATING COMMITTEE
11-26-52
(date)

Geologic report on Bain area, Aitkin County, Minnesota

R. G. Schmidt

U. S. Geological Survey

Docket: DMEA-2686

Commodity: Iron-manganese

Summary and conclusions

Henry J. Kruse & Company, Palisade, Minnesota, has applied for a DMEA loan to help finance an exploration by means of 66 diamond drill holes in the vicinity of Bain, Aitkin County, Minnesota. The program has been proposed on the assumption that a wide belt of manganiferous iron-bearing rock extends northeastward through the area from the Cuyuna iron-ore district, which lies to the southwest. The existence and extension of this belt is postulated on previous drilling in the area and in Crow Wing County to the west, on interpretation of aeromagnetic maps, and on general regional structures.

Drilling records submitted with the application fall into two categories. Some report iron ore and manganiferous iron ore of commercial or near-commercial grade but concern areas far to the west and have no bearing on the locality under consideration. Only two drill records are of the Bain area; one reports lean ferruginous slate, and the other reports local iron concentration in Cretaceous sediments. One, and possibly both holes were in slates of the "Cuyuna type", which is known to include iron-formation. Eight additional drill hole records of the Bain area, not included in the application, are in this report, and these holes penetrated dark-gray slate of the "Carlton type", not known to include iron-formation.

No anomalies of the type caused by iron-formation are shown on aeromagnetic maps of the area prepared by the U. S. Geological Survey; anomalies which would suggest that the iron-formation extends in the proposed direction from northern Crow Wing County are also lacking.

The assumption that a belt of iron-formation crosses the Bain area is unsupported by geologic evidence. In the opinion of the field team and of G. M. Schwartz, Director of the Minnesota Geological Survey, the loan should be denied.

Location of Bain area

The area of proposed exploration is in the vicinity of the Village of Bain in the western part of Aitkin County, Minnesota, and is near but northeast of the center of the State (fig. 1). The tracts are parts of secs. 13, 25, 29, and 35, T. 50 N., R. 26 W., and part of sec. 1, T. 49 N., R. 26 W. (pl. 1).

General geology

Very little is known about the geology of the Bain area. There are no outcrops, and the available data are limited to the materials from ten diamond drill holes and the aeromagnetic maps prepared by the U. S. Geological Survey._/ No field examination was made by the field team.

_/ Not yet published, but a preliminary copy is available for inspection at the U. S. Geological Survey, Washington, D. C., and the Minnesota Geological Survey, Minneapolis, Minn.

The known bedrock of the Bain area is composed of light- to dark-gray and red-brown pre-Cambrian slates. These are covered by Cretaceous sands and shales and by Pleistocene glacial drift.

Pleistocene and Cretaceous materials

Thickness of the glacial drift ranges from 150 to 290 feet. No systematic variation of thickness was noticed.

Exact thicknesses of the Cretaceous sediments are hard to determine because the cuttings may resemble parts of the Pleistocene and also parts of the much-decomposed pre-Cambrian slates. Thicknesses recorded in the ten drill holes previously mentioned are as much as 205 feet, with a suggestion that the thickness increases from southeast to northwest. The sediments are sands and shales. Fossils are scarce or lacking. One shark's tooth was found by J. W. Gruner.

Even if iron ore was found in this area, the total thickness of Pleistocene and Cretaceous sediments is too great for present open-pit mining methods and would place a considerable handicap on underground operation.

Bedrock materials and related data

Geologic setting of the Bain area

Three rather distinct types of slate occur in adjacent areas: the Cuyuna slates with their related iron-formation, the Virginia slate, and the Thompson formation. The actual relationship of these slates to each other or to those in the Bain area is not known. They may all be of the same age or of widely different ages. Their distribution is shown in figure 1 and a short discussion of each follows.

The Virginia slate overlies the Biwabik iron-formation of the Mesabi district, strikes parallel to it, and dips gently to the southeast. It is best known from exposures in the open pits and from drilling related to the search for iron ore in the Mesabi district. Little is known about the extent of the slate to the south and southeast. The Virginia slate has suffered little deformation, has not been dynamically metamorphosed, and does not have slaty cleavage. It consists of several thousand feet of thin-bedded argillite and thick-bedded graywacke. The argillaceous parts are medium to dark gray, sometimes black.

The Thompson formation has also been known as the St. Louis slates, the Cloquet slates, and the Carlton slates. It consists of interbedded slates, graywacke slates, and graywacke and is estimated to be over 20,000 feet thick. The series is closely folded and moderately metamorphosed; this metamorphism increased to the southwest, producing phyllite, mica schist, and garnet-mica schist. Flow cleavage is well developed in the slaty beds; fracture cleavage is local. Abundant carbonate concretions are characteristic of the formation. The age of the Thompson formation is problematical. The degree of folding and metamorphism suggests that it is older than the Virginia slate.

The Cuyuna slates and associated iron-formation constitute a very complicated series of metamorphosed and highly folded rocks. The slates beneath the iron-formation are light gray, buff, or reddish brown, and are sericitic, commonly silty, and include irregular lenses of quartzite.

Widely different opinions are held regarding the number of layers of iron-formation and their over-all thickness. Recent work by the U. S. Geological Survey in the Cuyuna district indicates that almost all of the commercial ore bodies occur in a single layer of iron-formation that ranges in thickness from 60 to 400 feet. Intricate folding causes this layer to be at the bedrock surface several times, and these repetitions greatly increase the area which can be explored for ore bodies. To say that the Cuyuna range is 12--or 30--miles wide is not to imply, however, that all of this width is underlain by iron-formation. The belt may include several narrow fold limbs of the iron-formation, but most of the bedrock will be slate. This situation must be considered in wildcat drilling because of its relation to the size of the "target".

Some information seems to indicate the possibility of less extensive layers of iron-formation higher in the Cuyuna slate sequence than the one discussed above.

Drill-hole data of the Bain area

So far as is known, ten holes drilled in 1929 for the Great Northern Iron Ore Properties are the only explorations of the Bain area. The samples were examined as a part of this appraisal, and brief descriptions of the materials follow. The classification of the slates as "Cuyuna type" and "Carlton type" is from an examination of the samples by F. F. Grout, J. W. Gruner, and G. M. Schwartz of the Minnesota Geological Survey.

Hole no. 1 SW¼NW¼ 6-50-25

From	To	
Feet		
0	185	Drift
185	236	Shale, probably Cretaceous

Hole no. 2 SE¼SW¼ 8-50-25

From	To	
Feet		
0	270	Drift
270	277	Soft material
277	375	Carlton-type slate

Hole no. 5 NW¼SW¼ 7-50-25

From	To	
Feet		
0	200	Drift
200	255	Grey shale, Cretaceous
255	310	Disintegrated slate
310	365	Grey slate, Carlton type

Hole no. 7 NE¼SE¼ 35-51-26

From	To	
Feet		
0	160	Drift
160	275	Grey to black shale (Cretaceous?)
275	345	Sand
345	360	Basal conglomerate(?), ferruginous from 345-350.
360	365	?
365	425	Soft decomposed green and brown slate
425	431	Red-brown slate. Possibly Cuyuna type.

Hole no. 11 NW¼SW¼ 20-50-25

From	To	
Feet		
0	290	Drift
290	338	Carlton-type slate

Hole no. 16 SW¼SE¼ 35-50-26

From	To	
Feet		
0	250	Drift
250	571	Ferruginous slate becoming leaner with depth below 458'. Cuyuna type.

Hole no. 19 SW¼SW¼ 23-50-27

From	To	
Feet		
0	212	Drift
212	372	Sandy clay, Cretaceous(?)
372	429	Dark grey Carlton-type slates.

Hole no. 22 SE¼SE¼ 15-50-26

From	To	
Feet		
0	216	Drift
216	250	?
250	340	Quartz sand
340	395	Sand and clay, concretionary or conglomeratic near bottom
395	422	Grey slate, Carlton type

Hole no. 24 NW¼SW¼ 3-49-26

From	To	
Feet		
0	223	Drift
223	260	White frosted sand grains
260	265	Small pebbles
265	290	White frosted sand grains
290	296	Very fine clay, possibly decomposed slate(?)

Hole no. 28 SE¼SE¼ 21-49-26

From	To	
Feet		
0	173	Drift
173	200	Grey sandy clay
200	260	Sandy material, Cretaceous(?)
260	314	Grey slate, Carlton type.

Relationship of slates of Bain area

The above descriptions show that hole no. 16 penetrated a red-brown ferruginous slate that was of the Cuyuna type. An incorrect classification of the material in this hole was used in the application as evidence of iron-formation in the area; the material drilled, however, was not an ore as claimed but averaged about 16 percent iron and 3 percent manganese, which is far below commercial grade. Red-brown slates in hole no. 7 were classified as Cuyuna type also, but analyses had not been made on these. Ore reported in this hole by the applicant came from Cretaceous gravels or from sands containing small carbonate concretions, not from the pre-Cambrian.

Records of the eight additional holes were not included in the application. These holes encountered gray to dark-gray cleavable slate in which the dips suggest intensive folding. As stated in the records of these holes, the materials were thought to be dominantly similar to the Thompson formation (Carlton type), which is not known to contain iron-formation.

Magnetic data

In the opinion of the field team, the U. S. Geological Survey aeromagnetic maps do not indicate in the Bain area any intensive anomalies of the linear type caused by iron-formation, neither do the maps indicate any change in direction of regional structure near Emily suggesting the extension of iron-formation toward Bain.

Drilling data in Crow Wing County

Results of diamond drilling in sec. 1, T. 136 N., R. 25 W., near the Aitkin County line, and in sec. 4, T. 137 N., R. 26 W., near Emily, have no bearing on the presence of iron-formation near Bain.

Extension of the Cuyuna iron-formation to Bain area

The applicant's interpretative extension of the Cuyuna iron-formation (pl. 1) was very carefully considered. This interpretation is that the wide belt in which iron-formation is present in the Crosby area extends northeastward to the Aitkin County line, curves northwestward to the vicinity of Emily, then turns northeastward again, passes through the Bain area, and extends into St. Louis County.

The northwestward extension of single narrow bands of iron-formation from the Aitkin County line to the vicinity of Emily is highly probable. There is no evidence available, however, that the structural trends change direction near Emily and extend northeastward toward the Bain area.

Recommendation

The assumption that a belt of iron-formation crosses the Bain area is unsupported by geologic evidence. It is therefore recommended that the loan for proposed exploration be denied.

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

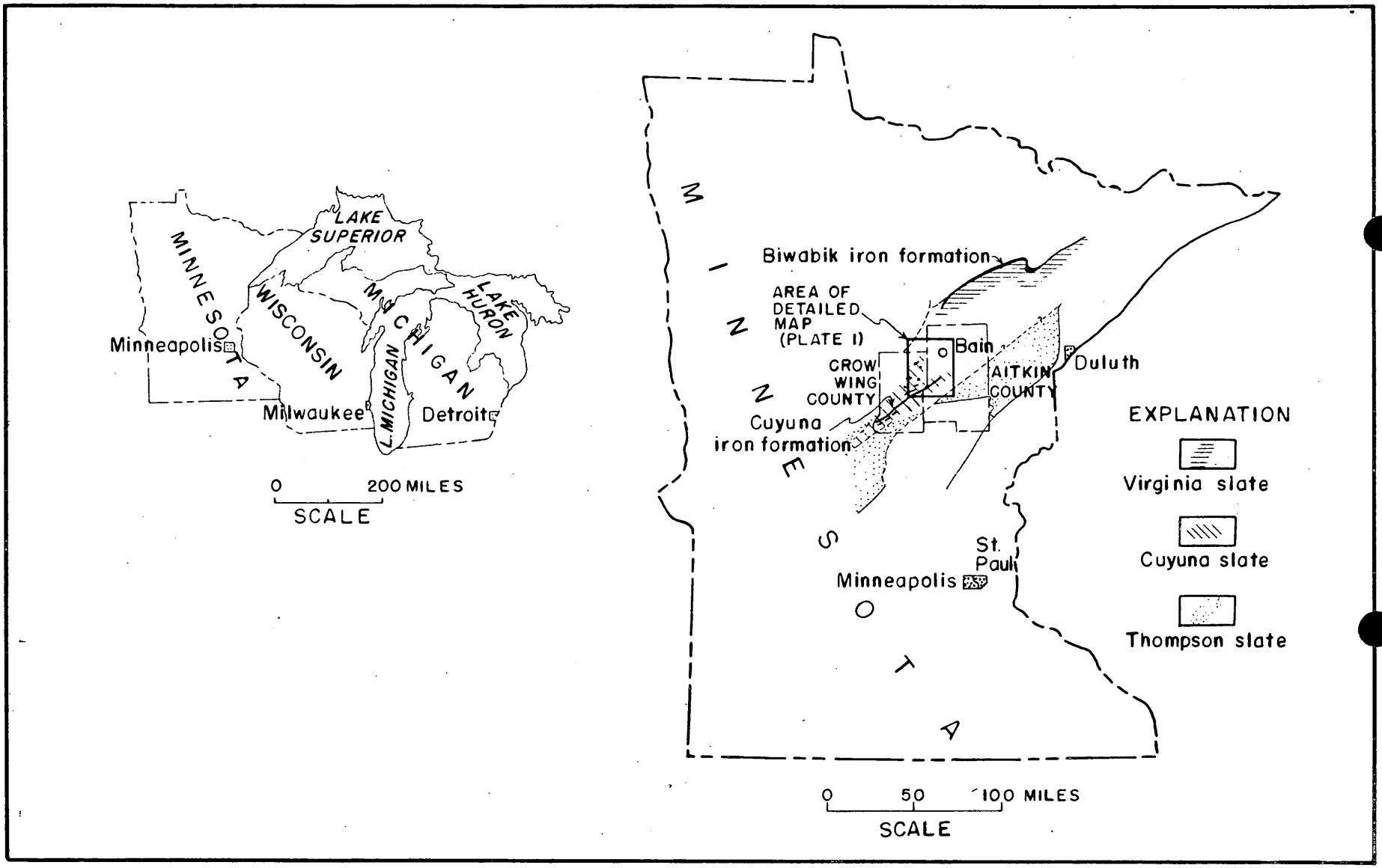


Figure I. Index map of Minnesota showing location of area of plate I and approximate areal extent of slates in adjacent areas.

FILE COPY 400
SURNAME:

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

Chapman
Selfridge
Martin
Gealy
Johnson
Mykhil
Ellis

SEP 2 6 1952

Mr. Henry J. Kruse
P.O. Box 94
Palisade, Minnesota

Re: Docket No. DMRA 2686 - Iron and Manganese
Kruse Bain Area
Aitkin County, Minnesota

Dear Mr. Kruse:

Your application for assistance in exploring the above mentioned property 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, 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 the examination of your property. Any aid which you can render the members of the field team during the examination will be appreciated.

Sincerely yours,

(signed) FRANK E. JOHNSON (for) F.N. 9-29-52

ACTING Administrator

TLChapman'lm
9/25/52

cc: Admn. Reading File
Docket
Martha Carr, USGS
Edgar J. Gealy, USBM
Field Team Reg. V
G. C. Selfridge
T. L. Chapman

Docket

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

Chapman
Selfridge by Martin
Gealy
F. J. Johnson

SEP 29 1952

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

Dear Sir:

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

Applicant Henry J. Kruse

Docket No. DMEA 2686

Commodity Manganese-Iron

Amount $ 211,056.00

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

Sincerely yours,

Ernest Wm. Lins

ACTING Chairman, Operating Committee (B.H.)
Defense Minerals Exploration
Administration

B.H.
9-29-52

APPROVED:

C. H. Johnson (B.H.)
Member, Bureau of Mines

A. R. Kinkel, Jr. (B.H.)
Member, Geological Survey

13759

Chapman
Selfridge
Geely

Defense Minerals Administration

Review of Application for Exploration Assistance

Docket No. DMEA 2686

Commodity Manganese-Iron

Total Amount $211,056.00

Govt. Participation 62.5% (?)

1. Name and Address of Applicant Henry J. Kruse
P.O. Box 94
Palisade, Minnesota

2. Location of Property Parts of Sections 11, 25, 29 and 35, T. 50 N., R. 26 W. and of Section 1, T. 49 N., R. 26 W., Aitkin County, Minnesota.

3. Mineral or metal Manganese-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? ——

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? ——

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 Good

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

c) Accessibility (question 12)* Good

d) Water (question 13)* Good

e) Power (question 13)* Good

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)* Yes

Is a field check needed on this point?

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

a) Is the project adequately described? Yes

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

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

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?___Yes___

f) Should more information be requested from applicant?_____

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

11. Exhibit B (question 23-d)*

a) Is it applicable?_____

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?_____

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? Yes

(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? The area is well known. Should have an opinion from Dr. Schwartz. Would project be of any assistance in the production of manganiferous-iron ores for the present emergency?

TLChapman'lm
9/25/52

Reviewed by: T. L. Chapman

Enclosures:

2 Copies of memo by Martha Carr, U. S. Geological Survey

Date 9/25/52

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

DEPARTMENT OF THE INTERIOR
Minerals Mobilization
SEP 16 1952

September 9, 1952

To: George C. Selfridge, DMEA

From: Martha Carr, USGS

Subject: Exploration application $211,056 DMEA-2686 Manganese and manganiferous iron ore

(a) Henry J. Kruse, P. O. Box 94, Palisade, Minn.
(b) H. J. Kruse & Co., Palisade, Minn.
(c) H. J. Kruse, Pres., 65 South 11th St., Minneapolis, Minn.
John Kruse, Sec., Kansas City, Mo.
M. A. Furber, Treas., 3015 Dupont Ave., So., Minneapolis, Minn.

Property: Kruse Bain area, in northwest quarter of Aitkin Co., Minn.--covering parts of secs. 11, 25, 29, and 35, T. 50 N., R. 26 W. and of sec. 1, T. 49 N., R. 26 W.

Proposal: The applicant proposes to explore the above areas for direct-shipping manganese and manganiferous iron ore. The work is to be carried on by churn- and diamond-drilling 66 holes to an average depth of 300 feet each. The State Exploration Company is to contract for the drilling operations and for all work, labor, and equipment incidental thereto. The work could be started within 30 days from the date of an exploration project contract and be completed within 24 months.

Geology: The area described is in general underlain by pre-Cambrian quartzites, slates, and interbedded iron-formations. The rocks, however, as in the Cuyuna district proper, are covered by a heavy mantle of glacial drift. In places in the Cuyuna district this till reaches 400 feet in thickness; and, except in the open-pit and underground mines, only very minor exposures of bedrock are present. As a result of deformation, the pre-Cambrian rocks of the district have been folded into a complex series of anticlines and synclines that trend approximately northeast-southwest. Seven or eight main belts of iron-bearing rocks run in a northeast-southwest direction, and at intervals along these belts bodies of iron ore and manganiferous iron ore occur. In some belts they are abundant and in others, almost absent.

The Cuyuna iron-ore bodies are generally roughly tabular in shape, elongate with the bedding; and as the beds dip steeply, the bodies appear at the surface of the hard rocks as bands that extent for considerable distance along the strike of the beds. They vary in width up to several hundred feet and may be a mile or more long.

The applicant believes from data he sets forth in his application that a northeast extension of the Cuyuna Range, with conditions similar to those described above, underlies the area outlined by him.

Recommendation: Recommendation is made to refer the application to the field team with the suggestion that Dr. G. M. Swartz, Director of the Minnesota Geological Survey (University of Minnesota, Minneapolis 14) be consulted with regard to the possibilities of the area. Much geophysical work and drilling are being done cooperatively by the Federal and State Geological Surveys in Minnesota, and both Dr. Swartz and Carl Dutton, who is at present in Algiers, are in a position to furnish more pertinent advice than is available here. I talked with Jack Meuschke, a member of the Geophysical Branch of the USGS who has done work in the area in cooperation with the State, and in his opinion the area described by the applicant does not warrant drilling based on the magnetics alone. He concurs in the above recommendation.

The applicant's attention should be called to his share of the cost of the proposed project, which would be $105,528. In his letter of August 25 to the Defense Minerals Administration he refers to $80,000 which he is to furnish as his part. He also says that he proposes to explore for "direct-shipping manganese and manganiferous iron ore." The literature on the Cuyuna district refers to "iron ore and manganiferous iron ore."

Martha Carr

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

DEPARTMENT OF THE INTERIOR
Bureau Mineral Administration
RECEIVED
SEP 16 1952

September 9, 1952

To: George W. Selfridge, DMEA

From: Martha Carr, USGS

Subject: Exploration application $211,056 DMEA-2686 Manganese and manganiferous iron ore

(a) Henry J. Kruse, P. O. Box 94, Palisade, Minn.
(b) H. J. Kruse & Co., Palisade, Minn.
(c) H. J. Kruse, Pres., 65 South 11th St., Minneapolis, Minn.
John Kruse, Sec., Kansas City, Mo.
M. A. Furber, Treas., 3015 Dupont Ave., So., Minneapolis, Minn.

Property: Kruse Main area, in northwest quarter of Aitkin Co., Minn.—covering parts of secs. 11, 25, 29, and 35, T. 50 N., R. 26 W. and of sec. 1, T. 49 N., R. 26 W.

Proposal: The applicant proposes to explore the above areas for direct-shipping manganese and manganiferous iron ore. The work is to be carried on by churn- and diamond-drilling 66 holes to an average depth of 300 feet each. The State Exploration Company is to contract for the drilling operations and for all work, labor, and equipment incidental thereto. The work could be started within 30 days from the date of an exploration project contract and be completed within 24 months.

Geology: The area described is in general underlain by pre-Cambrian quartzites, slates, and interbedded iron-formations. The rocks, however, as in the Cuyuna district proper, are covered by a heavy mantle of glacial drift. In places in the Cuyuna district this till reaches 400 feet in thickness; and, except in the open-pit and underground mines, only very minor exposures of bedrock are present. As a result of deformation, the pre-Cambrian rocks of the district have been folded into a complex series of anticlines and synclines that trend approximately northeast-southwest. Seven or eight main belts of iron-bearing rocks run in a northeast-southwest direction, and at intervals along these belts bodies of iron ore and manganiferous iron ore occur. In some belts they are abundant and in others, almost absent.

The Cuyuna iron-ore bodies are generally roughly tabular in shape, elongate with the beddings and as the beds dip steeply, the bodies appear at the surface of the hard rocks as bands that extent for considerable distance along the strike of the beds. They vary in width up to several hundred feet and may be a mile or more long.

The applicant believes from data he sets forth in his application that a northeast extension of the Cuyuna Range, with conditions similar to those described above, underlies the area outlined by him.

Recommendation: Recommendation is made to refer the application to the field team with the suggestion that Dr. G. W. Swartz, Director of the Minnesota Geological Survey (University of Minnesota, Minneapolis 14) be consulted with regard to the possibilities of the area. Much geophysical work and drilling are being done cooperatively by the Federal and State Geological Surveys in Minnesota, and both Dr. Swartz and Carl Sutton, who is at present in Algiers, are in a position to furnish more pertinent advice than is available here. I talked with Jack Keuschke, a member of the Geophysical Branch of the USGS who has done work in the area in cooperation with the State, and in his opinion the area described by the applicant does not warrant drilling based on the magnetics alone. He concurs in the above recommendation.

The applicant's attention should be called to his share of the cost of the proposed project, which would be $105,528. In his letter of August 25 to the Defense Minerals Administration he refers to $80,000 which he is to furnish as his part. He also says that he proposes to explore for "direct-shipping manganese and manganiferous iron ore." The literature on the Cuyuna district refers to "iron ore and manganiferous iron ore."

cc: Director's Reading File (4212)
Branch
DMEA (3)
Ferrous Metals File
Martha Carr(2)

Martha Carr: bbk
G 9/9/52

Mr. Henry J. Kruse
P. O. Box 94
Palisade, Minnesota

Subject: DMEA-2686
Re: Exploration Assistance
Kruse Bain Mine
September 4, 1952

My dear Mr. Kruse:

The receipt of your application dated August 25, 1952, for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-2686 and referred to the Iron and Ferro-Alloys Division.

Kindly refer to DMEA-2686 in any future correspondence relating to your application.

Sincerely yours,

ROBERT E. ADAMS

Robert E. Adams
Chief, Operation's Control
and Statistics Division

25451

HENRY J. KRUSE
MINING ENGINEER AND GEOLOGIST
~~Aitkin, Minnesota~~
P.O. Box 94
Palisade, Minnesota

August 25, 1952

U. S. Department of the Interior
Defense Minerals Administration
Washington, D. C.

Gentlemen:

Find herewith application for aid to complete this exploration work for direct shipping Manganese and Manganiferous Iron ore, which I have had underway for some time.

Located in the Kruse Bain area T 50 N - R 26 W, Aitkin County, Minnesota.

I am calling this a high grade direct shipping ore area for I saw a Diamond drill sample from this ore that ran well up into 68%.

Several years ago I had the Great Northern in with me for $265,000.00.

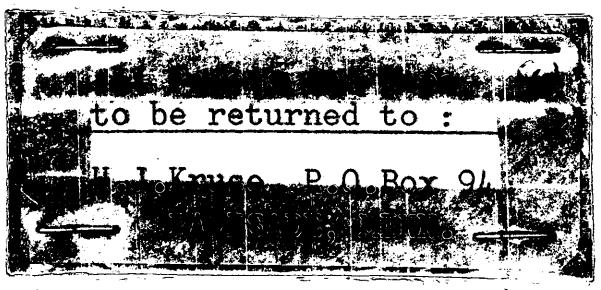
I expect to get two subsidiaries, companies of the Railroads, for this extra amount, as they get $1.03 per ton on ore hauling.

You understand if I had the $80,000.00 which I am to furnish as my part, I would do this work myself, without any help from anyone.

Yours truly,

Henry J. Kruse

Henry J. Kruse, E.M.



MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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

Not to be filled in by applicant

Docket No. DMEA-2686
Metal or Mineral
Date Received 9-3-52
Estimated Cost
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: Henry J. Kruse, P. O. Box 94, Palisade, Minnesota.
H. J. Kruse & Co., Palisade, Minnesota. State of Minnesota.
H. J. Kruse, President, 65 South 11th St., Minneapolis, Minnesota.
M. A. Furber, Treasurer, 3015 Dupont Ave.South, Minneapolis, Minnesota.
John Kruse, Secretary, Kansas City, Missouri.

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

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

(*d*) If a partnership, add to the above statement the names and addresses of all partners. not applicable.

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

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

(*b*) State any mine name by which the property is known. Kruse Bain Area

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Owner see #3(c) list of Papers attached.

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

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

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. Not applicable

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

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades. not applicable

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

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

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power. State Exploration Co. is well supplied all necessary materials and supplies, labor, etc. it will contract this work and will do a high grade job of it.

16—66551-1

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

(*b*) Describe fully the proposed work, including a map or sketch of the property showing a plan (and cross sections if needed) of any present mine workings, and the location of the proposed exploration work as related to such features as contacts, veins, ore-bearing beds, etc. See #5 (b) inclosed in binder.

(*c*) The work will start within 30 days and be completed within 24 months from the date of an exploration project contract.

(*d*) State the operating experience and background of the applicant with relation to the ability to carry out such exploration project, and also that of the person or persons who will supervise the operations. See #5(d) inclosed in binder.

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

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

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

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

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

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

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

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

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

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

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

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

☐ Money ☐ Use of equipment owned by you ☒ Other

Explain in detail on acompanying paper. Letters and application enclosed in envelope accompanying this report.

CERTIFICATION

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

Dated August 25, 1952.

Henry J. Kruse
(Applicant)

By

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

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

Application for Aid in an Exploration Project, Pursuant to DMEA Order 1, Under the Defense Production Act of 1950, as Amended

Instructions

1. (Name of Applicant):
   (a) Henry J. Kruse, P.O. Box 94, Palisade, Minnesota
   (b) H. J. Kruse & Co., State of Minnesota.
   (c) H. J. Kruse, President, 65 South 11th St., Minneapolis, Minn.
   John Kruse, Secretary Kansas City, Mo.
   M. A. Furber, Treasurer, 3015 Dupont Ave. So.,Minneapolis, Minn.
   (d) Not Applicable

2. General: All checked

3. Applicant's property rights:
   (a) Full Ownership, (see list attached marked #3(a).
   (b) Kruse Bain Area.
   (c) Owner. (see #3(c) in list of papers attached.
   (d) Not applicable.
   (e) A clear Title.
   (f) Not applicable.

4. Physical description:
   (a) See list of reports, Logs of drill holes, U. S. Magnetometer and State of Minnesota Geological surveys, and the applicant's report, etc.
   (b) Not applicable.
   (c) See Northern Pacific Ry. Geologist Zapffe letter, and other data relating to this area, and the Kruse comparison.
   (d) See #4 (d) in list of papers attached.
   (e) There is a surplus of man power at this time, all equipment, supplies, water, and power, all on the location.

5. The Exploration project:
   (a) A High Grade, Manganese and Manganiferous Iron Ore.
   (b) See #5 (b) list of maps, Township Plats showing drilling cross sections for drill holes as planned.
   (c) The work will start within 30 days, and be completed in 24 months.
   (d) See applicant's record on experience #5 (d) sheet #1.

6. Estimated total cost:
   Churn Drilling @ $8.00 per foot, Diamond Drilling @ $12.00 per foot. See Township Plats showing location of drill holes, a total of 66 holes is necessary, drilled to an average depth of 300 feet, requires 19800 feet of drill work, total cost, including Supervision and Engineering and Analytical work. See list on last page of this application for detail.

Application for aid in an
Exploration Prpject, Pursuant to
DMEA Order 1.Under The Defense
Production Act of 1950, as Amended

Instructions

1.(Name of Applicant):

(a) Henry J. Kruse, P.O.Box 94,Palisade, Minn.

(b) H.J.Kruse & Co, State of Minnesota.

(c) H.J.Kruse, President,65 South 11th St,
Minneapolis, Minn.

John Kruse,Secretary, Kansas City,Mo.

M.A.Furbur, Treasurer, 3015 Dupont Ave S,
Minneapolis,Minn.

(d) Not Applicable.

6

Applications Instructions

2. General:
   (a) Checked over.

3

INSTRUCTIONS

On Applications MF-103

#3 Applicants property rights

(a) Full Owner ship see list attached #3(a)
(b) KRUSE BAIN AREA
(c) Owner (see #3 - c)in list attached.
(d) Not applicable.
(e) A clear Title.
(f) Not applicable.

the parties of the first part except and reserve from this grant all minerals, rocks, ores and oils upon or beneath the surface as to the general mineral reservation clause in all deeds of this Railway Company, where land is to be conveyed and the mineral reserved, or any part thereof, together with the exclusive and perpetual right, power, and privilege in and to the parties of the first part, their successors and assigns, to enter upon and cover any part of said land, to erect and remove buildings, derricks or other appliances for mining or removing such minerals, rocks, ores and oils, and to strip, sink shafts in, bore, mine or explore any part of said land for the purpose of discovering, locating mining and removing the same, in such way as it may determine.

Register of Deeds Office
Aitkin, Minnesota

Henry J. Kruse
Aitkin, Minn.

INSTRUCTIONS

On Applications MF-103

#3 Applicants property rights

(a) Full Owner ship see list attached #3(a)
(b) KRUSE BAIN AREA
(c) Owner (see #3 - c)in list attached.
(d) Not applicable.
(e) A clear Title.
(f) Not applicable.

#3 (a) Applicants property rights

Mineral Reservation Clause
of the
St. Paul and Chicago Railway Company

****

The general mineral reservation clause in all deeds of this Railway Company are as follows:

<u>In Book 7 of Deeds, page 9</u>

The parties of the first part except and reserve from this grant all minerals, rocks, ores and oils upon or beneath the surface as to the general mineral reservation clause in all deeda of this Railway Company, where land is to be conveyed and the mineral reserved, or any part thereof, together with the exclusive and perpetual right, power, and privilege in and to the parties of the first part, their successors and assigns, to enter upon and cover any part of said land, to erecb and remove buildings, derricks or other appliances for mining or removing such minerals, rocks, ores and oils, and to strip, sink shafts in, bore, mine or explore any part of said land for the purpose of discovering, locating mining and removing the same, in such way as it may determine.

Register of Deeds Office
Aitkin, Minnesota

Henry J. Kruse
Aitkin, Minn.

#3 (A) Applicants property rights.

EXHIBIT SHEET #2

The legal description of this area is Bain Township, Tp. 50 N, Range 26 W., Aitkin County, Minnesota, and are the following U. S. Government Survey: SW¼ of NE¼; NE¼ of SW¼; E½ of SW¼ of SW¼; SE¼ of SW¼; NW¼ of SE¼; SE¼ of SE¼, all in Sec. 11, Tp. 50 N. Range 26 W.;

S½ of NE¼ of NE¼; S½ of NW¼ of NE¼; S½ of NE¼ of NW¼; SE¼ of NW¼; E½ of E½ of SE¼; all in Sec. 25, Tp. 50 N., Range 26 W;

W½ of SE¼ of NE¼; Sec. 29, Tp. 50 N, Range 26 W; W½ of NW¼ of SW¼; Sec. 35, Tp. 50 N., Range 26 W;

Also in Township 49 N, Range 26 West, same Bain area, SW¼ of NE¼; SE¼ of NW¼; NE¼ of SW¼; NW¼ of SW¼; SW¼ of SW¼; SE¼ of SW¼; all in Sec. 1, Rp. 49 N., R. 26 W; containing 640 acres more or less according to the U. S. Government survey. This area is high and dry.

See Township Plats in-closed with #5-(b) for the location in each Township.

ACCESSIBLE

All this property is adjacent to the Soo Line Railroad, and is 66 miles from the Ore Docks at Duluth and Superior. The Soo Line Railroad and the Northern Pacific Railroad are ore hauling roads.

The Area is also traversed by U. S. Government Highway #169, Minneapolis to Hibbing, also Highway #35 paralleling highway 169 North and South, also East and West county highways #12 and #24.

Henry J. Kruse
P.O. Box 94
Palisade, Minnesota

INSTRUCTIONS

On Applications MF - 103

#4 . Physical Description:

(a) See list of reports,Logs of drill holes, U.S.Aero Magnetometer and Minnesota State Geological survey Maps. and the applicants report on this Bain area.

(b) Not applicable.

(c) See Carl Zapffe letter Geologist for the Northern Pacific Ry Co,and Manager of their Mining property.and other data relating to this Area, and the Kruse comparison of the drill records.

(d) See #4(d) In list of papers attached.

(e) There is a surplus of drill man power at this time,And the State Exploration Company that is going to do this drilling work,is well fortified,for equipment,supplies,power,water,etc. They can handle a job many times larger than this one.

4

#4-(c)

STRUCTURAL GEOLOGY of the Cuyuna Range and the Northeastern Extension of this range.

Starting in Crow Wing County on the Cuyuna Range proper, and at the Kennedy Mine.

In driving our main cross cut south on the 262 foot level, as we pass through the ore deposit and hit the hanging wall (which was a black slate) we encountered a drag fold in the hanging wall black slate. In this drag fold we had a beautiful high grade ore.

And when I received the U. S. Geological Aero Magnetometer map, I saw and interpreted their survey as showing the same drag fold on a very large scale just East of the Kennedy Mine, (see U.S. G.S. Area map), photostat which I enclose.

From their survey you will see that the range extends on the Northeast for another six miles; at this point near the Aitkin County West line, our engineers discovered the magnetic attraction at Ross Lake in a Northwest Southeast direction, showing another definite swing in the Cuyuna Range and in this bend several drill holes show ore, some very high grade Manganese ore (see drill Log in Sec. 1, T. 136 N. R. 25W enclosed). We also have three drill holes one mile north of the good Mn hole, and 6 drill holes 1½ miles west, all in iron formation, which proves this swing, and the aero map shows this positively.

The Range extends in this northwest direction for approximately 12 miles and at this point the Range again makes another swing and extends eastward. almost due east and west.

I call your attention to U.S. G.S. Magmetometer map at a point 6 miles northwest from the Ross Lake bend. The magnetometer highs and lows are not elongated in a northwest and southeast direction, but show definitely in a north-sputh direction, which showed that the range is starting to make the swing to the east.

In Sec. 4, T. 137 N. R. 26 W. I call your attention to the cross section of drill holes, deepest one No. 8, bottomed in ore Fe 41.77% and Mn 2.10% at 845 feet and the last five foot sample from the bottom shows the iron content gained 4.8% and the Mn content gained 1.6%. This proves the ore will go much deeper and is a major ore bearing fold. Note the high Mn content in most of the drill holes.

Also note the Quartz areas in some of the holes in this ore deposit near the top.

I shall call your attention to some formation in holes in the Kruse Bain Area. I also call your attention to the green schist in the bottom of drill hole No. 4 bottomed at 730 feet, 10 feet in this green schist. I shall call your attention to this later.

The past three years the Pickands-Mather Company have drilled this ore deposit further and have enlarged on it to a very great extent and have developed a very fine and large ore deposit.

The Oliver Iron Mining Company have two drills working in this Emily area and have encountered some 30% Mn. It had a black color on the order of the pyrolucite. I saw the sample, also information from the engineer in charge of the work.

The U.S. G.S. Magnetometer map shows no magnetic structures or readings where the Oliver is getting this ore west of Emily and the Oliver's super dip shows neutral readings, the same as the U.S. G.S. Magnetometer survey.

As we extend eastward into Aitkin County the U.S. G.S. Magnetometer Survey has picked up the structures and I call your attention to them on the map. This extends for 27 miles eastward. Note the 4 highs all in a direct line. I call your attention to drill hole No. 7. This is a foot wall definitely, it carried a large amount of quartz similar to the Crow Wing drilling in Sec. 4, T. 137 N. R. 26 W. We will also compare drill hole No. 16 in Sec. 35, T.50 N. R.26 W. This ore formation is similar to the walls of the Crow Wing deposit. I saw the samples of the drilling in Sec. 4, 137 - 26.

We also get a green chloretic schist in Sec. 8,T. 50 N. R25 W.

In this same line of highs, Sec. 13 - 52 - 23 we have drill hole No. 21, ledged at 140 feet of surface encountered brown schist.

In the Kruse Bain Area with the three drill holes in a very good Mn ore formation and 6 miles apart, and all the magnetometer structures proven up by the U.S. G.S. Area magnetometer work and drill hole No. 16, 600 feet deep and bottomed in same ore formation, this shows definitely that the main range is located in this area and without the slightest doubt. We had one drill core from this area in exceptionally high grade ore. We are not after low grade ore but we are working on the main fold for this regional district, and we will open up a high grade direct shipping ore.

H. J. Kruse
P.O. Box 94
Palisade, Minn.

Accessible

#4-(d)

All this property is adjacent to the Soo Line Railroad and is 66 miles from the Ore Docks at Duluth and Superior.

The Soo Line and Northern Pacific are both ore hauling roads.

This area is also traversed by U. S. Government Highway #169, Minneapolis to Hibbing, also Highway #35 paralleling Highway #169 (North and South).

And the East and West County Highways #12 and 24. This Area is well located for quick results.

Present and Previous History

My Exploration work and drill records at this time is based on the U. S. Government's Geological departments Air Borne Magnetometer work in this area, they are checking closely, with all my previous drill work.

My opinion is that this work will start to prove up an area 18 to 24 miles long, and a high grade Manganese and Manganeferous Iron Ore.

Henry J. Kruse
P.O. Box 94
Palisade, Minnesota

STATE EXPLORATION COMPANY'S

DRILLING EQUIPMENT

1- Warehouse and Office Building 25 x 60 feet, a very substantial office building.

8- Churn drills and equipment.

6- Diamond drills and equipment.

Three Sullivans hydraulic-feed Diamond Drills, capacity 1500 feet EX rods.

Two belt drive screw feed 600 and 700 feet EX rods

One Stean Power Screw Feed 400 feet EX rods.

A very large supply complete stock of all parts and drill casing supplies.

Henry J. Kruse
P.O. Box 94
Palisade, Minn.

SPECIFICATIONS FOR CHURN AND DIAMOND DRILLING

Kruse Bain Area Project at Cuyuna Range extension, Aitkin County, Minnesota.

1. Purpose.--The purpose of this contract is to obtain for Kruse Company samples of churn drill sludge or cuttings, and Diamond drill cores and sludge produced in drilling nominal _____ inch diameter churn drill holes and Diamond drill cores and sludge from ore deposits and rock formations of the above described project.

2. Description of Work.--The Kruse Company guarantees to the contractor units of work set forth in the Schedule of Unit Prices sufficient to result in payments totaling a minimum of $_____. The Kruse Company at its option, may require the contractor to perform any or all of the units of work specified in said schedule beyond the minimum amount guaranteed in this article up to a maximum amount of $_____, including the minimum.

The tentative locations, diameters, depths, and number of holes, the approximate overburden and nature of formations to be drilled, as well as other data deemed pertinent to the work, are set forth in a sheet annexed hereto marked "Data Pertinent to Drilling Operations" but the correctness of the statements is not warranted by the Kruse Company; they are not representations upon which the contractor can rely, and they are not any part of this contract. The Kruse Company may change the locations, diameters, depths, and number of the holes at its

discretion.

3. Commencement, Prosecution, Completion, Default, Damages.--

(a) The work shall be commenced, prosecuted, and completed as follows:

(1) The contractor shall commence actual drilling operations with all equipment and crews required, at the site of the work, within _____ days after receipt of official notice to proceed.

(2) The contractor shall at all times prosecute the work diligently, expertly and continuously as herein provided, and in a workmanlike manner.

(3) The contractor shall maintain in operation not less than _____ drills, not less than _____ 8-hour shifts per drill per day, not less than _____ days per week, except for days in which a national holiday may occur, in which event the work-week may be reduced by that day.

(b) Times necessarily consumed in operations incidental to operation of the drills, including fishing for lost tools, making repairs, and moving from drilling site to drilling site shall count as operation of the drills.

(c) With the written approval of the Kruse Company's resident engineer or the contracting officer, drilling operations may be reduced or suspended on account of inclement, unusual, or severe weather which interferes with operations.

(d) Should the contractor default in any of his obligations under this contract, the Kruse Company, subject to any conditions provided herein, may at any time by written notice to the contractor terminate his right to proceed with the work under this contract. In such event the Kruse Company may take

over the work and prosecute it to completion, by contract or otherwise, and the contractor and his sureties shall be liable to the Kruse Company for any excess cost occasioned the Kruse Company thereby. The Kruse Company may take possession of and utilize in completing the work such materials, appliances, and equipment of the contractor as may be on the site of the work and suitable or necessary therefor. As long as the Kruse Company does not terminate the right of the contractor to proceed, the contractor shall continue to perform under this contract. Termination of the contractor's right to proceed shall not affect any right of the Kruse Company to liquidated damages for any default accrued prior to the time the termination becomes effective.

(e) It is agreed that it will be impossible to determine the actual damages resulting from the contractor's failure to commence the work or to prosecute the work continuously as provided herein, and in lieu thereof and in addition to any excess costs provided for in section (d) of this Article, the contractor shall pay to the Kruse Company as fixed, agreed, and liquidated damages the sum of $_____ for each day of failure to commence actual drilling operations and the sum of $_____ for each 8-hour drill shift or fraction thereof in excess of two hours that the contractor fails to maintain each drill in actual operation as defined herein the required number of shifts.

(f) The right of the contractor to proceed shall not be terminated or the contractor charged with liquidated damages because of any default due to unforeseeable causes beyond the control of and without the fault or negligence of the contractor, and the contracting officer so determines and finds. In the

event of any such default, actual or impending, the contractor, at any time prior to the occurrence of the default or at any time thereafter and before the final settlement of the contract, may notify the contracting officer in writing of the causes thereof. Upon the receipt of such notice the contracting officer shall, or without such notice and on his own initiative the contracting officer may, ascertain the facts as to the causes of the default and the extent thereof, and his findings of fact thereon shall be final and conclusive on the parties hereto, subject only to appeal, within 30 days, by the contractor to the Kruse Company. The Kruse Company may act on such appeal or may delegate any person other than the contracting officer to act thereon. The decision on appeal shall be final and conclusive on the parties hereto.

4. Contractor's Equipment and Services.-- The contractor's equipment shall be such as is necessary and proper to perform the work specified, and shall include the following: 4 Missaba Type churn drills and all equipment pertaining thereto; also 4 Diamond drills and equipment.

The Kruse Company may at its option inspect the contractor's equipment or any part thereof, at the drilling site or elsewhere, and if it or any of it is not, in the Kruse Company's opinion, sufficient or satisfactory for the purpose the contractor shall make it sufficient and satisfactory to the Kruse Company or replace it with equipment that is sufficient and satisfactory to the Kruse Company.

The contractor's services and the expenses which he must bear, except as otherwise provided in this contract, include the following:

(a) All labor, machinery, tools, pipe, casing, equipment, power, compressed air, water, materials, sealing materials, cement, and supplies necessary and proper to do and perform everything provided for in this contract.

(b) Reaming, casing, cementing, or otherwise sealing porous formations, and servicing holes.

(c) The delivery of cuttings and sludge to the Kruse Company at the drill site into containers furnished by the Kruse Company.

(d) The making of a tight seal in solid formation to prevent the escape of sludge and cuttings and to prevent contamination while drilling.

(e) Transportation of drilling equipment to and from the project and drill sites.

(f) Preparation of drilling locations, except as otherwise provided in this contract.

(g) All losses of or damage to equipment, tools, or supplies.

(h) Procurement of water for drilling, and expenses incident thereto.

All pipe and casing shall remain the property of the contractor who may pull or salvage same upon completion of the work or, with the written consent of the Kruse Company's resident engineer or the contracting officer, prior thereto, unless the resident engineer or the contracting officer directs that any or all of the pipe or casing be left in the hole, in which event the title thereto shall pass to the Kruse Company and the Kruse Company shall pay for it as provided in the Schedule of Unit Prices. The contractor guarantees his clear and unencumbered

title to all pipe and casing thus passing to the Kruse Company.

5. The State Exploration Co., Inc.--The Drilling Company will (a) build any necessary roads or trails to the site of the work; (b) clear vegetation from the sites for drilling; (c) furnish containers required for holding the sludge or cuttings, and receptacles for collecting and settling sludges but no other equipment; (d) supply a man to care for the sludge and cuttings upon delivery to containers.

6. Direction of the Work.--The work will be performed under the direction of a resident Kruse Company engineer who will designate the location, diameter, number, position, and depth of all holes to be drilled; determine depths at which drilling is to be stopped; and direct when and where and to what extent reaming, casing, cementing, sealing formation, surveying, or sampling are to be done.

The contractor will not give any information regarding results of the drilling to any third party.

7. Performance of the Work.--The contractor shall keep accurate records of drilling operations and shall furnish the Kruse Company's engineer with a daily log showing footage drilled, hours worked, nature of rock penetrated, feet and size of casing placed during each shift, feet of hole cemented or sealed, and pertinent information regarding condition of each hole.

All work shall be performed with the understanding that the objective is to secure accurate samples of the formation penetrated and shall be directed to this end. Sludge or cuttings must be removed as soon as each "run" is completed, and

placed by the contractor in proper sequence in containers provided by the Kruse Co's for that purpose. Return water and sludge shall be discharged into barrels or other receptacles as directed by the Kruse Co's engineer. The contractor shall make every effort to secure the highest recovery of sludge or cuttings commensurate with good practice, using a sand pump, in good condition, when ordered by Kruse Company's engineer.

8. Lost Holes.--The contractor will not be paid for any footage of holes lost before the desired depth has been attained, when such loss is due to incompetency or negligence on the part of the contractor or to defective or inadequate equipment. If a hole is lost for reasons beyond the control of the contractor and the hole is abandoned by order of the Kruse Company's engineer, the contractor shall be paid in full for footage drilled in the abandoned hole. No payment will be made for footage lost below a point of diversion on account of any diversion of the bit from the original hole, except diversions intentionally made by the placing of wedges at the written order or with the written approval of the contracting officer.

9. Payments to Contractor.--The contractor shall properly certify the present invoices or vouchers upon the completion of each hole or monthly for holes completed during the preceding month, showing the footage drilled and all other work for which payment is claimed and the amount due. Upon completion and acceptance of all work required under this contract, the balance then due the contractor will be paid upon the presentation of a properly executed and duly certified voucher, after the contractor shall have furnished the Kruse Company with a release,

if required, of all claims against the Kruse Company arising under and by virtue of this contract, other than such claims, if any, as may be specifically excepted by the contractor from the operation of the release in stated amounts to be set forth therein. Each voucher or invoice must be approved by the Kruse Company's engineer or contracting officer, and payment will be made thereon when approved by the Kruse Company's office manager and president.

10. Bonds.--The contractor will be required to furnish performance and payment bonds in the sum of $_____ each.

STATE EXPLORATION COMPANY

_____
President

_____
Secretary

INSTRUCTIONS

On Application MF- 103

#5. The Exploration Project :

(a) Manganese and Manganiferous Iron Ore.

(b) See #5-(B) Township plats and maps enclosed in the binder. this, or the plats shows the cross sections to be drilled and location of drill holes.

(c) The work will start within 30 days, and completed in 24 months.

(d) See applicants record on experience #5-(d) Sheet #1.

#5-(d) Exhibit Sheet #1

Outlining experience of the applicant Henry J. Kruse, Mining Engineer and Geologist. He is a practically and technically and business trained Mining Man.

Starting work as a common laborer at various jobs at the Negaunee Iron Mine, in Michigan, 4 years carpenter shop, blacksmith shop, machine shop, framing timber for underground, iron ore sample man, etc.

He resigned from this Mine to attend college, studied studied accounting, banking and commercial law at this college 1-1/2 years, completing this business course, he started working in the Champion Iron Mining Company Office, Accounting Department, at Beacon, Michigan. Was in this department 2-1/2 years. He was promoted and placed in charge of the North Champion Mine, and the Northhampton Mine, and all exploratory work, diamond drilling, etc.

He was with this Company 9 years, at which time the Champion Iron Company of Boston, Massachusetts sold out to the U. S. Steel.

Mr. Walter Fitch, Agent of the Champion Iron Company, sent him to Michigan College of Mining and Technology, where he obtained his Engineer of Mines degree.

On completion of this course of study, President McNair of the College, selected him out of the class to take a position with Rogers Brown Ore Company of Chicago.

This company was just being organized, by five large furnace and steel companies, located in Chicago, Cleveland, Buffalo, Hanging Rock, Ohio, and the Tonowando Iron & Steel Company.

After recommending and advising them to take over what is now called the Kennedy Mine at Rabbit Lake on the Cuyuna Iron Range in Minnesota, this Range was found to be the outstanding producer of Manganese and Manganeferous ore.

He was placed in full and complete charge of opening up the North Cuyuna Iron Range.

The companies had from 8 to 15 drills working winter and summer for 7 years, and at the same time opening up and developing the first four mines on this Range.

He was with this Company 10 years. This Company sold two of the mines to Inland Steel Company of Chicago, and two were sold to the Youngstown Sheet and Tube Company.

Since the transfer of ownership he has been working independently with his own drills; he is in need of funds to carry on his work to completion.

He will manage and supervise this work, he also has an experienced Foreman who has been with him for several years.

Henry J. Kruse
P.O. Box 94
Palisade, Minnesota

INSTRUCTIONS

On Application MF-103

6 Estimate of Costs.

Estimated Total Cost:
This work requires 66 drill holes, to be drilled to an average depth of 300 feet each, making a total of 19800 feet.
The contract price for churn drill workis $8.00 per foot.
The contract price for Diamond Drill work is $12.00 per foot.

We estimate this as follows:

10560 feet of Churn drill work @ $8.00	$ 84,480.00
9240 " Diamond " " $ 12.00	110,880.00
Supervision and Engineering 24 months	12,000.00
Samples Analytical work, Fe, Phos, Mn, SiO_2	3,696.00
Total Cost	$ 211,056.00

6

88 East Washington Street

Telephone Dearborn 7182

OLIVER FOREMAN
OSTEOPATHIC PHYSICIAN

Dec. 16th, '49.

Mr. E. O. Kruger,
Minneapolis, Minn.

Dear Mr. Kruger:-

Replying to your inquiry regarding the ability of Henry J. Kruse, as mining engineer and geologist, wish to say my associations with Mr. Kruse date back to 1907 at a time when he was newly out of Michigan School of Mines, and engaged, after considerable deliberation, as superintendant of Rogers, Brown Ore Company, of Chicago, Illinois.

At that time I was Secretary and Assistant-treasurer of the Company, and had charge of all the offices, which included the one of the Cuyuna Range properties, which was being handled by Mr. Kruse. There he opened up and developed from grass roots the first four large iron ore mines, on a most profitable basis. Incidentally, he did a great deal of exploratory work, and learned the surrounding territory quite thoroughly. The Company expended probably a couple of Millions of dollars on the Range, and I feel Mr. Kruse did an exceptional job in handling the same. I was very closely in touch with the financing, and made many trips to the range to audit the accounts and records and never found anything to his discredit.

I was with the company until January 1913, when I resigned to study osteopathy; Mr. Kruse, I believe remained with the company until 1914, when he found it to his interests to make a change, and resigned. He is ambitious, conscientious, has no bad habits, strictly a family man, with no social ambitions. He is a hard worker, and I believe a most capable one. I feel I can recommend him unreservedly.

Very truly yours,

OCF/f.

Oliver Foreman, D.O.
Oliver Foreman D.O.

W. T. MOUNT, PRESIDENT THORNTON GETTING, VICE PRESIDENT HENRY D. McNEIL, CASHIER

THE Farmers National Bank OF AITKIN

A ROLL OF HONOR BANK

AITKIN, MINN.

Sept. 11th, 1943.

Mr. E. O. Kruger
2306 Colfax Ave. So.
Minneapolis, Minn.

Dear Sir;-

Mr. Henry J. Kruse has been known to me for the past twenty eight years. When I first became acquainted with him he was Superintendent of the Rogers Brown Ore Co. for their Cuyuna Range operations. They later sold or leased their properties to another mining company and Mr. Kruse moved to Kansas City and has since seemed to devote his time to the purchase of ore properties, mineral rights and exploration work. He has been active in this manner in this locality at various times during the past ten years or more but as he does not do his business with us, we are, of course, not prepared to say what the results of his operations have been.

We have always considered him honorable and trustworthy and believe him to be well experienced in matters of this kind and capable of carrying on reliable exploration work.

If I were interested in any mining properties I would not hesitate to place the exploration work in his hands.

Yours truly,

Henry D. McNeil

HENRY J. KRUSE
MINING ENGINEER AND GEOLOGIST
~~Aitkin, Minnesota~~
P.O. Box 94
Palisade, Minnesota

August 25, 1952

U. S. Department of the Interior
Defense Minerals Administration
Washington, D. C.

Gentlemen:

Find herewith application for aid to complete this exploration work for direct shipping Manganese and Manganiferous Iron ore, which I have had underway for some time.

Located in the Kruse Bain area T 50 N - R 26 W, Aitkin County, Minnesota.

I am calling this a high grade direct shipping ore area for I saw a Diamond drill sample from this ore that ran well up into 68%.

Several years ago I had the Great Northern in with me for $265,000.00.

I expect to get two subsidiaries, companies of the Railroads, for this extra amount, as they get $1.03 per ton on ore hauling.

You understand if I had the $80,000.00 which I am to furnish as my part, I would do this work myself, without any help from anyone.

Yours truly,

Henry J. Kruse

Henry J. Kruse, E.M.

Rec'd Sept. 4 '52 p.m.

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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

Not to be filled in by applicant

Docket No. DMEA-2686
Metal or Mineral
Date Received 9-3-52
Estimated Cost
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: Henry J. Kruse, P. O. Box 94, Palisade, Minnesota.
H. J. Kruse & Co., Palisade, Minnesota. State of Minnesota.
H. J. Kruse, President, 65 South 11th St., Minneapolis, Minnesota.
M. A. Furber, Treasurer, 3015 Dupont Ave.South, Minneapolis, Minnesota.
John Kruse, Secretary, Kansas City, Missouri.

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

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

(*d*) If a partnership, add to the above statement the names and addresses of all partners. not applicable.

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

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

(*b*) State any mine name by which the property is known. Kruse Bain Area

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Owner see #3(c) list of Papers attached.

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

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

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. Not applicable

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

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades. not applicable

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

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

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power. State Exploration Co. is well supplied all necessary materials and supplies, labor, etc. it will contract this work and will do a high grade job of it.

5. *The exploration proj*[illegible]—(*a*) State the mineral or minerals for whi[illegible]u wish to explore Manganese and Manganiferous Iron Ore.

(*b*) Describe fully the proposed work, including a map or sketch of the property showing a plan (and cross sections if needed) of any present mine workings, and the location of the proposed exploration work as related to such features as contacts, veins, ore-bearing beds, etc. See #5 (b) inclosed in binder.

(*c*) The work will start within 30 days and be completed within 24 months from the date of an exploration project contract.

(*d*) State the operating experience and background of the applicant with relation to the ability to carry out such exploration project, and also that of the person or persons who will supervise the operations. See #5(d) inclosed in binder.

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

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

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

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

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

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

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

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

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

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

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

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

☐ Money ☐ Use of equipment owned by you ☒ Other Letters and application enclosed in envelope accompanying this report.

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated August 25, 1952.

Henry J. Kruse
(Applicant)

By

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

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

Application for Aid in an
Exploration Project, Pursuant to
DMEA Order 1, Under the Defense
Production Act of 1950, as Amended

Instructions

1. (Name of Applicant):
   (a) Henry J. Kruse, P.O. Box 94, Palisade, Minnesota
   (b) H. J. Kruse & Co., State of Minnesota.
   (c) H. J. Kruse, President, 65 South 11th St., Minneapolis, Minn.
   John Kruse, Secretary Kansas City, Mo.
   M. A. Furber, Treasurer, 3015 Dupont Ave. So.,Minneapolis,Minn.

   (d) Not Applicable

2. General: All checked.

3. Applicant's property rights:
   (a) Full Ownership, (see list attached marked #3(a).
   (b) Kruse Bain Area.
   (c) Owner. (see #3(c) in list of papers attached.
   (d) Not applicable.
   (e) A clear Title
   (f) Not applicable.

4. Physical description:
   (a) See list of reports, Logs of drill holes, U. S. Magnetometer and State of Minnesota Geological surveys, and the applicant's report, etc.
   (b) Not applicable.
   (c) See Northern Pacific Ry. Geologist Zapffe letter, and other data relating to this area, and the Kruse comparison.
   (d) See #4 (d) in list of papers attached.
   (e) There is a surplus of man power at this time, all equipment, supplies, water, and power, all on the location.

5. The Exploration project:
   (a) A High Grade, Manganese and Manganiferous Iron Ore.
   (b) See #5 (b) list of maps, Township Plats showing drilling cross sections for drill holes as planned.
   (c) The work will start within 30 days, and be completed in 24 months.
   (d) See applicant's record on experience #5 (d) sheet #1.

6. Estimated total cost:
   Churn Drilling @ $8.00 per foot, Diamond Drilling @ $12.00 per foot. See Township Plats showing location of drill holes, a total of 66 holes is necessary, drilled to an average depth of 300 feet, requires 19800 feet of drill work, total cost, including Supervision and Engineering and Analytical work. See list on last page of this application for detail.

Application for aid in an
Exploration Prpject, Pursuant to
DMEA Order 1.Under The Defense
Production Act of 1950, as Amended

Instructions

1.(Name of Applicant):

(a) Henry J. Kruse, P.O.Box 94,Palisade, Minn.

(b) H.J.Kruse & Co, State of Minnesota.

(c) H.J.Kruse, President,65 South 11th St,
Minneapolis, Minn.

John Kruse,Secretary, Kansas City,Mo.

M.A.Furbur, Treasurer, 3015 Dupont Ave S,
Minneapolis,Minn.

(d) Not Applicable.

Applications Instructions

2. General:
   (a) Checked over.

INSTRUCTIONS

On Applications MF-103

#3 Applicant's property rights

(a) Full Ownership see list attached #3(a)
(b) KRUSE BAIN AREA
(c) Owner (see #3 - c) in list attached.
(d) Not applicable.
(e) A clear Title.
(f) Not applicable.

Mineral Reservation Clause
of the
St. Paul and Chicago Railway Company

****

The general mineral reservation clause in all deeds of this Railway Company are as follows:

In Book 7 of Deeds, page 9

The parties of the first partexcept and reserve from this grant all minerals, rocks, ores and oils upon or beneath the surface as to the general mineral reservation clause in all deeds of this Railway Company, where land is to be conveyed and the mineral reserved, or any part thereof, together with the exclusive and perpetual right, power, and privilege in and to the parties of the first part, their successors and assigns, to enter upon and cover any part of said land, to erect and remove buildings, derricks or other appliances for mining or removing such minerals, rocks, ores and oils, and to strip, sink shafts in, bore, mine or explore any part of said land for the purpose of discovering, locating mining and removing the same, in such way as it may determine.

Register of Deeds Office
Aitkin, Minnesota

Henry J. Kruse
Aitkin, Minn.

EXHIBIT SHEET #2

The legal description of this area is Bain Township, Tp. 50 N, Range 26 W., Aitkin County, Minnesota, and are the following U. S. Government Survey: SW¼ of NE¼; NE¼ of SW¼; E½ of SW¼ of SW¼; SE¼ of SW¼; NW¼ of SE¼; SE¼ of SE¼, all in Sec. 11, Tp. 50 N. Range 26 W.;

S½ of NE¼ of NE¼; S½ of NW¼ of NE¼; S½ of NE¼ of NW¼; SE¼ of NW¼; E½ of E½ of SE¼; all in Sec. 25, Tp. 50 N., Range 26 W;

W½ of SE¼ of NE¼; Sec. 29, Tp. 50 N, Range 26 W; W½ of NW¼ of SW¼; Sec. 35, Tp. 50 N., Range 26 W;

Also in Township 49 N, Range 26 West, same Bain area, SW¼ of NE¼; SE¼ of NW¼; NE¼ of SW¼; NW¼ of SW¼; SW¼ of SW¼; SE¼ of SW¼; all in Sec. 1, Rp. 49 N., R. 26 W; containing 640 acres more or less according to the U. S. Government survey. This area is high and dry.

ACCESSIBLE

All this property is adjacent to the Soo Line Railroad, and is 66 miles from the Ore Docks at Duluth and Superior. The Soo Line Railroad and the Northern Pacific Railroad are ore hauling roads.

The Area is also traversed by U. S. Government Highway #169, Minneapolis to Hibbing, also Highway #35 paralleling highway 169 North and South, also East and West county highways #12 and #24.

Henry J. Kruse
P.O. Box 94
Palisade, Minnesota

INSTRUCTIONS

On Application MF - 103

#4. Physical Description:

(a) See list of reports, Logs of drill holes, U. S. Aero Magnetometer and Minnesota State Geological survey Maps, and the applicant's report on this Bain area.

(b) Not applicable.

(c) See Carl Zapffe letter Geologist for the Northern Pacific Ry. Co., and Manager of their Mining property, and other data relating to this Area, and the Kruse comparison of the drill records.

(d) See #4(d) In list of papers attached.

(e) There is a surplus of drill man power at this time, and the State Exploration Company that is going to do this drilling work, is well fortified, for equipment, supplies, power, water, etc. They can handle a job many times larger than this one.

#4-(c)

STRUCTURAL GEOLOGY of the
Cuyuna Range and the Northeastern Extension of this range.

Starting in Crow Wing County on the Cuyuna Range proper, and at the Kennedy Mine.

In driving our main cross cut south on the 262 foot level, as we pass through the ore deposit and hit the hanging wall (which was a black slate) we encountered a drag fold in the hanging wall black slate. In this drag fold we had a beutiful high grade ore.

And when I received the U. S. Geological Aero Magnetometer map, I saw and interpreted their survey as showing the same drag fold on a very large scale just East of the Kennedy Mine, (see U.S. G.S. Area map), photostat which I enclose.

From their survey you will see that the range extends on the Northeast for another six miles; at this point near the Aitkin County West line, our engineers discovered the magnetic attraction at Ross Lake in a Northwest Southeast direction, showing another definite swing in the Cuyuna Range and in this bend several drill holes show ore, some very high grade Manganese ore (see drill Log in Sec. 1, T. 136 N. R. 25W enclosed). We also have three drill holes one mile north of the good Mn hole, and 6 drill holes 1½ miles west, all in iron formation, which proves this swing, and the aero map shows this positively.

The Range extends in this northwest direction for approximately 12 miles and at this point the Range again makes another swing and extends eastward. almost due east and west.

I call your attention to U.S. G.S. Magmetometer map at a point 6 miles northwest from the Ross Lake bend. The magnetometer highs and lows are not elongated in a northwest and southeast direction, but show definitely in a north-sputh direction, which showed that the range is starting to make the swing to the east.

In Sec. 4, T. 137 N. R. 26 W. I call your attention to the cross section of drill holes, deepest one No. 8, bottomed in ore Fe 41.77% and Mn 2.10% at 845 feet and the last five foot sample from the bottom shows the iron content gained 4.8% and the Mn content gained 1.6%. This proves the ore will go much deeper and is a major ore bearing fold. Note the high Mn content in most of the drill holes.

Also note the Quartz areas in some of the holes in this ore deposit near the top.

I shall call your attention to some formation in holes in the Kruse Bain Area. I also call your attention to the green schist in the bottom of drill hole No. 4 bottomed at 730 feet, 10 feet in this green schist. I shall call your attention to this later.

The past three years the Pickands-Mather Company have drilled this ore deposit further and have enlarged on it to a very great extent and have developed a very fine and large ore deposit.

The Oliver Iron Mining Company have two drills working in this Emily area and have encountered some 30% Mn. It had a black color on the order of the pyrolucite. I saw the sample, also information from the engineer in charge of the work.

The U.S. G.S. Magnetometer map shows no magnetic structures or readings where the Oliver is getting this ore west of Emily and the Oliver's super dip shows neutral readings, the same as the U.S. G.S. Magnetometer survey.

As we extend eastward into Aitkin County the U.S. G.S. Magnetometer Survey has picked up the structures and I call your attention to them on the map. This extends for 27 miles eastward. Note the 4 highs all in a direct line. I call your attention to drill hole No. 7. This is a foot wall definitely, it carried a large amount of quartz similar to the Crow Wing drilling in Sec. 4, T. 137 N. R. 26 W. We will also compare drill hole No. 16 in Sec. 35, T.50 N. R.26 W. This ore formation is similar to the walls of the Crow Wing deposit. I saw the samples of the drilling in Sec. 4, 137 - 26.

We also get a green chloretic schist in Sec. 8, T. 50 N. R25 W.

In this same line of highs, Sec. 13 - 52 - 23 we have drill hole No. 21, lodged at 140 feet of surface encountered brown schist.

In the Kruse Bain Area with the three drill holes in a very good Mn ore formation and 6 miles apart, and all the magnetometer structures proven up by the U.S. G.S. Area magnetometer work and drill hole No. 16, 600 feet deep and bottomed in same ore formation, this shows definitely that the main range is located in this area and without the slightest doubt. We had one drill core from this area in exceptionally high grade ore. We are not after low grade ore but we are working on the main fold for this regional district, and we will open up a high grade direct shipping ore.

N. J. Kruse
P.O. Box 94
Palisade, Minn

Accessible

All this property is adjacent to the Soo Line Railroad and is 66 miles from the Ore Docks at Duluth and Superior.

The Soo Line and Northern Pacific are both ore hauling roads.

This area is also traversed by U. S. Government Highway #169, Minneapolis to Hibbing, also Highway #35 paralleling Highway #169 (North and South).

And the East and West County Highways #12 and 24. This Area is well located for quick results.

Present and Previous History

My Exploration work and drill records at this time is based on the U. S. Government's Geological departments Air Borne Magnetometer work in this area, they are checking closely, with all my previous drill work.

My opinion is that this work will start to prove up an area 18 to 24 miles long, and a high grade Manganese and Manganeferous Iron Ore.

Henry J. Kruse
P.O. Box 94
Palisade, Minnesota

STATE EXPLORATION COMPANY'S

DRILLING EQUIPMENT

1- Warehouse and Office Building 25 x 60 feet, a very substantial office building.

8- Churn drills and equipment.

6- Diamond drills and equipment.

Three Sullivans hydraulic-feed Diamond Drills, capacity 1500 feet EX rods.

Two belt drive screw feed 600 and 700 feet EX rods

One Stean Power Screw Feed 400 feet EX rods.

A very large supply complete stock of all parts and drill casing supplies.

Henry J. Kruse
P.O. Box 94
Palisade, Minn.

SPECIFICATIONS FOR CHURN AND DIAMOND DRILLING

Kruse Bain Area Project at Cuyuna Range extension, Aitkin County, Minnesota.

1. Purpose.--The purpose of this contract is to obtain for Kruse Company samples of churn drill sludge or cuttings, and Diamond drill cores and sludge produced in drilling nominal _____ inch diameter churn drill holes and Diamond drill cores and sludge from ore deposits and rock formations of the above described project.

2. Description of Work.--The Kruse Company guarantees to the contractor units of work set forth in the Schedule of Unit Prices sufficient to result in payments totaling a minimum of $_____. The Kruse Company at its option, may require the contractor to perform any or all of the units of work specified in said schedule beyond the minimum amount guaranteed in this article up to a maximum amount of $_____, including the minimum.

The tentative locations, diameters, depths, and number of holes, the approximate overburden and nature of formations to be drilled, as well as other data deemed pertinent to the work, are set forth in a sheet annexed hereto marked "Data Pertinent to Drilling Operations" but the correctness of the statements is not warranted by the Kruse Company; they are not representations upon which the contractor can rely, and they are not any part of this contract. The Kruse Company may change the locations, diameters, depths, and number of the holes at its

discretion.

3. Commencement, Prosecution, Completion, Default, Damages.--

(a) The work shall be commenced, prosecuted, and completed as follows:

(1) The contractor shall commence actual drilling operations with all equipment and crews required, at the site of the work, within _____ days after receipt of official notice to proceed.

(2) The contractor shall at all times prosecute the work diligently, expertly and continuously as herein provided, and in a workmanlike manner.

(3) The contractor shall maintain in operation not less than _____ drills, not less than _____ 8-hour shifts per drill per day, not less than _____ days per week, except for days in which a national holiday may occur, in which event the work-week may be reduced by that day.

(b) Times necessarily consumed in operations incidental to operation of the drills, including fishing for lost tools, making repairs, and moving from drilling site to drilling site shall count as operation of the drills.

(c) With the written approval of the Kruse Company's resident engineer or the contracting officer, drilling operations may be reduced or suspended on account of inclement, unusual, or severe weather which interferes with operations.

(d) Should the contractor default in any of his obligations under this contract, the Kruse Company, subject to any conditions provided herein, may at any time by written notice to the contractor terminate his right to proceed with the work under this contract. In such event the Kruse Company may take

over the work and prosecute it to completion, by contract or otherwise, and the contractor and his sureties shall be liable to the Kruse Company for any excess cost occasioned the Kruse Company thereby. The Kruse Company may take possession of and utilize in completing the work such materials, appliances, and equipment of the contractor as may be on the site of the work and suitable or necessary therefor. As long as the Kruse Company does not terminate the right of the contractor to proceed, the contractor shall continue to perform under this contract. Termination of the contractor's right to proceed shall not affect any right of the Kruse Company to liquidated damages for any default accrued prior to the time the termination becomes effective.

(e) It is agreed that it will be impossible to determine the actual damages resulting from the contractor's failure to commence the work or to prosecute the work continuously as provided herein, and in lieu thereof and in addition to any excess costs provided for in section (d) of this Article, the contractor shall pay to the Kruse Company as fixed, agreed, and liquidated damages the sum of $_____ for each day of failure to commence actual drilling operations and the sum of $_____ for each 8-hour drill shift or fraction thereof in excess of two hours that the contractor fails to maintain each drill in actual operation as defined herein the required number of shifts.

(f) The right of the contractor to proceed shall not be terminated or the contractor charged with liquidated damages because of any default due to unforeseeable causes beyond the control of and without the fault or negligence of the contractor, and the contracting officer so determines and finds. In the

event of any such default, actual or impending, the contractor, at any time prior to the occurrence of the default or at any time thereafter and before the final settlement of the contract, may notify the contracting officer in writing of the causes thereof. Upon the receipt of such notice the contracting officer shall, or without such notice and on his own initiative the contracting officer may, ascertain the facts as to the causes of the default and the extent thereof, and his findings of fact thereon shall be final and conclusive on the parties hereto, subject only to appeal, within 30 days, by the contractor to the Kruse Company. The Kruse Company may act on such appeal or may delegate any person other than the contracting officer to act thereon. The decision on appeal shall be final and conclusive on the parties hereto.

4. Contractor's Equipment and Services.-- The contractor's equipment shall be such as is necessary and proper to perform the work specified, and shall include the following: 4 Missaba Type churn drills and all equipment pertaining thereto; also 4 Diamond drills and equipment.

The Kruse Company may at its option inspect the contractor's equipment or any part thereof, at the drilling site or elsewhere, and if it or any of it is not, in the Kruse Company's opinion, sufficient or satisfactory for the purpose the contractor shall make it sufficient and satisfactory to the Kruse Company or replace it with equipment that is sufficient and satisfactory to the Kruse Company.

The contractor's services and the expenses which he must bear, except as otherwise provided in this contract, include the following:

(a) All labor, machinery, tools, pipe, casing, equipment, power, compressed air, water, materials, sealing materials, cement, and supplies necessary and proper to do and perform everything provided for in this contract.

(b) Reaming, casing, cementing, or otherwise sealing porous formations, and servicing holes.

(c) The delivery of cuttings and sludge to the Kruse Company at the drill site into containers furnished by the Kruse Company.

(d) The making of a tight seal in solid formation to prevent the escape of sludge and cuttings and to prevent contamination while drilling.

(e) Transportation of drilling equipment to and from the project and drill sites.

(f) Preparation of drilling locations, except as otherwise provided in this contract.

(g) All losses of or damage to equipment, tools, or supplies.

(h) Procurement of water for drilling, and expenses incident thereto.

All pipe and casing shall remain the property of the contractor who may pull or salvage same upon completion of the work or, with the written consent of the Kruse Company's resident engineer or the contracting officer, prior thereto, unless the resident engineer or the contracting officer directs that any or all of the pipe or casing be left in the hole, in which event the title thereto shall pass to the Kruse Company and the Kruse Company shall pay for it as provided in the Schedule of Unit Prices. The contractor guarantees his clear and unencumbered

title to all pipe and casing thus passing to the Kruse Company.

5. The State Exploration Co., Inc.--The Drilling Company will (a) build any necessary roads or trails to the site of the work; (b) clear vegetation from the sites for drilling; (c) furnish containers required for holding the sludge or cuttings, and receptacles for collecting and settling sludges but no other equipment; (d) supply a man to care for the sludge and cuttings upon delivery to containers.

6. Direction of the Work.--The work will be performed under the direction of a resident Kruse Company engineer who will designate the location, diameter, number, position, and depth of all holes to be drilled; determine depths at which drilling is to be stopped; and direct when and where and to what extent reaming, casing, cementing, sealing formation, surveying, or sampling are to be done.

The contractor will not give any information regarding results of the drilling to any third party.

7. Performance of the Work.--The contractor shall keep accurate records of drilling operations and shall furnish the Kruse Company's engineer with a daily log showing footage drilled, hours worked, nature of rock penetrated, feet and size of casing placed during each shift, feet of hole cemented or sealed, and pertinent information regarding condition of each hole.

All work shall be performed with the understanding that the objective is to secure accurate samples of the formation penetrated and shall be directed to this end. Sludge or cuttings must be removed as soon as each "run" is completed, and

placed by the contractor in proper sequence in containers provided by the Kruse Co's for that purpose. Return water and sludge shall be discharged into barrels or other receptacles as directed by the Kruse Co's engineer. The contractor shall make every effort to secure the highest recovery of sludge or cuttings commensurate with good practice, using a sand pump, in good condition, when ordered by Kruse Company's engineer.

8. Lost Holes.--The contractor will not be paid for any footage of holes lost before the desired depth has been attained, when such loss is due to incompetency or negligence on the part of the contractor or to defective or inadequate equipment. If a hole is lost for reasons beyond the control of the contractor and the hole is abandoned by order of the Kruse Company's engineer, the contractor shall be paid in full for footage drilled in the abandoned hole. No payment will be made for footage lost below a point of diversion on account of any diversion of the bit from the original hole, except diversions intentionally made by the placing of wedges at the written order or with the written approval of the contracting officer.

9. Payments to Contractor.--The contractor shall properly certify the present invoices or vouchers upon the completion of each hole or monthly for holes completed during the preceding month, showing the footage drilled and all other work for which payment is claimed and the amount due. Upon completion and acceptance of all work required under this contract, the balance then due the contractor will be paid upon the presentation of a properly executed and duly certified voucher, after the contractor shall have furnished the Kruse Company with a release,

if required, of all claims against the Kruse Company arising under and by virtue of this contract, other than such claims, if any, as may be specifically excepted by the contractor from the operation of the release in stated amounts to be set forth therein. Each voucher or invoice must be approved by the Kruse Company's engineer or contracting officer, and payment will be made thereon when approved by the Kruse Company's office manager and president.

10. Bonds.--The contractor will be required to furnish performance and payment bonds in the sum of $_____ each.

STATE EXPLORATION COMPANY

_____
President

_____
Secretary

INSTRUCTIONS

On Application MF - 103

#5. The Exploration Project:

(a) Manganese and Manganiferous Iron Ore.

(b) See #5-(b) Township plats and maps enclosed in the binder. This, or the plats shows the cross sections to be drilled and location of drill holes.

(c) The work will start within 30 days, and completed in 24 months.

(d) See applicant's record on experience #5-(d) Sheet #1.

Exhibit Sheet #1

Outlining experience of the applicant Henry J. Kruse, Mining Engineer and Geologist. He is a practically and technically and business trained Mining Man.

Starting work as a common laborer at various jobs at the Negaunee Iron Mine, in Michigan, 4 years carpenter shop, blacksmith shop, machine shop, framing timber for underground, iron ore sample man, etc.

He resigned from this Mine to attend college, studied studied accounting, banking and commercial law at this college 1-1/2 years, completing this business course, he started working in the Champion Iron Mining Company Office, Accounting Department, at Beacon, Michigan. Was in this department 2-1/2 years. He was promoted and placed in charge of the North Champion Mine, and the Northhampton Mine, and all exploratory work, diamond drilling, etc.

He was with this Company 9 years, at which time the Champion Iron Company of Boston, Massachusetts sold out to the U. S. Steel.

Mr. Walter Fitch, Agent of the Champion Iron Company, sent him to Michigan College of Mining and Technology, where he obtained his Engineer of Mines degree.

On completion of this course of study, President McNair of the College, selected him out of the class to take a position with Rogers Brown Ore Company of Chicago.

This company was just being organized, by five large furnace and steel companies, located in Chicago, Cleveland, Buffalo, Hanging Rock, Ohio, and the Tonowando Iron & Steel Company.

After recommending and advising them to take over what is now called the Kennedy Mine at Rabbit Lake on the Cuyuna Iron Range in Minnesota, this Range was found to be the outstanding producer of Manganese and Manganeferous ore.

He was placed in full and complete charge of opening up the North Cuyuna Iron Range.

The companies had from 8 to 15 drills working winter and summer for 7 years, and at the same time opening up and developing the first four mines on this Range.

He was with this Company 10 years. This Company sold two of the mines to Inland Steel Company of Chicago, and two were sold to the Youngstown Sheet and Tube Company.

Since the transfer of ownership he has been working independently with his own drills; he is in need of funds to carry on his work to completion.

He will manage and supervise this work, he also has an experienced Foreman who has been with him for several years.

Henry J. Kruse
P.O. Box 94
Palisade, Minnesota

INSTRUCTIONS

On Application MF-103

6 Estimate of Costs

Estimated Total Cost:
This work requires 66 drill holes, to be drilled to an average depth of 300 feet each, making a total of 19800 feet.

The contract price for churn drill work is $8.00 per foot.
The contract price for Diamond Drill work is $12.00 per foot.

We estimate this as follows:

10560 feet of Churn drill work @ $8.00	$ 84,480.00
9240 " " Diamond " " " 12.00	110,880.00
Supervision and Engineering 24 months	12,000.00
Samples Analytical work, Fe, Phos, Mn, SiO_2	3,696.00
Total Cost	$ 211,056.00

Mr. Healy

HENRY J. KRUSE
MINING ENGINEER AND GEOLOGIST
~~Aitkin, Minnesota~~
P.O. Box 94
Palisade, Minnesota

August 25, 1952

U. S. Department of the Interior
Defense Minerals Administration
Washington, D. C.

Gentlemen:

Find herewith application for aid to complete this exploration work for direct shipping Manganese and Manganiferous Iron ore, which I have had underway for some time.

Located in the Kruse Bain area T 50 N - R 26 W, Aitkin County, Minnesota.

I am calling this a high grade direct shipping ore area for I saw a Diamond drill sample from this ore that ran well up into 68%.

Several years ago I had the Great Northern in with me for $265,000.00.

I expect to get two subsidiaries, companies of the Railroads, for this extra amount, as they get $1.03 per ton on ore hauling.

You understand if I had the $80,000.00 which I am to furnish as my part, I would do this work myself, without any help from anyone.

Yours truly,

Henry J. Kruse

Henry J. Kruse, E.M.

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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

Not to be filled in by applicant

Docket No. DMEA-2686
Metal or Mineral
Date Received 9-3-52
Estimated Cost
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: Henry J. Kruse, P. O. Box 94, Palisade, Minnesota.
H. J. Kruse & Co., Palisade, Minnesota. State of Minnesota.
H. J. Kruse, President, 65 South 11th St., Minneapolis, Minnesota.
N. A. Furber, Treasurer, 3015 Dupont Ave.South, Minneapolis, Minnesota.
John Kruse, Secretary, Kansas City, Missouri.

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

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

(*d*) If a partnership, add to the above statement the names and addresses of all partners. not applicable.

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

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

(*b*) State any mine name by which the property is known. Kruse Bain Area

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Owner see #3(c) list of Papers attached.

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

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

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. Not applicable

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

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades. not applicable

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

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

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power. State Exploration Co. is well supplied all necessary materials and supplies, labor, etc. it will contract this work and will do a high grade job of it.

16-66574

5. *The exploration proje*[redacted] (*a*) State the mineral or minerals for which [redacted] wish to explore Manganese and Manganiferous Iron Ore.

(*b*) Describe fully the proposed work, including a map or sketch of the property showing a plan (and cross sections if needed) of any present mine workings, and the location of the proposed exploration work as related to such features as contacts, veins, ore-bearing beds, etc. See #5 (b) inclosed in binder.

(*c*) The work will start within 30 days and be completed within 24 months from the date of an exploration project contract.

(*d*) State the operating experience and background of the applicant with relation to the ability to carry out such exploration project, and also that of the person or persons who will supervise the operations. See #5(d) inclosed in binder.

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

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

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

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

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

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

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

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

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

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

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

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

☐ Money ☐ Use of equipment owned by you ☒ Other Letters and application enclosed in envelope accompanying this report.

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated August 25, 1952.

Henry J. Kruse
(Applicant)

By

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

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

Application for Aid in an
Exploration Project, Pursuant to
DMEA Order 1, Under the Defense
Production Act of 1950, as Amended

Instructions

1. (Name of Applicant):
   (a) Henry J. Kruse, P.O. Box 94, Palisade, Minnesota
   (b) H. J. Kruse & Co., State of Minnesota.
   (c) H. J. Kruse, President, 65 South 11th St., Minneapolis, Minn.
   John Kruse, Secretary Kansas City, Mo.
   M. A. Furber, Treasurer, 3015 Dupont Ave. So.,Minneapolis,Minn.

   (d) Not Applicable

2. General: All checked.

3. Applicant's property rights:
   (a) Full Ownership, (see list attached marked #3(a).
   (b) Kruse Bain Area.
   (c) Owner. (see #3(c) in list of papers attached.
   (d) Not applicable.
   (e) A clear Title
   (f) Not applicable.

4. Physical description:
   (a) See list of reports, Logs of drill holes, U. S. Magnetometer and State of Minnesota Geological surveys, and the applicant's report, etc.
   (b) Not applicable.
   (c) See Northern Pacific Ry. Geologist Zapffe letter, and other data relating to this area, and the Kruse comparison.
   (d) See #4 (d) in list of papers attached.
   (e) There is a surplus of man power at this time, all equipment, supplies, water, and power, all on the location.

5. The Exploration project:
   (a) A High Grade, Manganese and Manganiferous Iron Ore.
   (b) See #5 (b) list of maps, Township Plats showing drilling cross sections for drill holes as planned.
   (c) The work will start within 30 days, and be completed in 24 months.
   (d) See applicant's record on experience #5 (d) sheet #1.

6. Estimated total cost:
   Churn Drilling @ $8.00 per foot, Diamond Drilling @ $12.00 per foot. See Township Plats showing location of drill holes, a total of 66 holes is necessary, drilled to an average depth of 300 feet, requires 19800 feet of drill work, total cost, including Supervision and Engineering and Analytical work. See list on last page of this application for detail.

Application for aid in an
Exploration Project, Pursuant to
DMEA Order 1. Under The Defence
Production Act of 1950, as Amended

Instructions

1. (Name of Applicant):

(a) Henry J. Kruse, P.O.Box 94,Palisade,Minn.

(b) H.J.Kruse & CO, State of Minnesota.

(c) H.J.Kruse, President,65 South 11th St,
Minneapolis, Minn.

John Kruse, Secretary, Kansas City, Mo.

M.A.Furbur, Treasurer,3015 Dupont Ave S,
Minneapolis, Minn.

(d) Not Applicable.

Instruction Application

2. General:

   (a) Checked over.

INSTRUCTIONS

On Applications MF-103

#3 Applicant's property rights

(a) Full Ownership see list attached #3(a)
(b) KRUSE BAIN AREA
(c) Owner (see #3 - c) in list attached.
(d) Not applicable.
(e) A clear Title.
(f) Not applicable.

Mineral Reservation Clause
of the
St. Paul and Chicago Railway Company

The general mineral reservation clause in all deeds of this Railway Company are as follows:

In Book 7 of Deeds, page 9

The parties of the first partexcept and reserve from this grant all minerals, rocks, ores and oils upon or beneath the surface as to the general mineral reservation clause in all deeds of this Railway Company, where land is to be conveyed and the mineral reserved, or any part thereof, together with the exclusive and perpetual right, power, and privilege in and to the parties of the first part, their successors and assigns, to enter upon and cover any part of said land, to erect and remove buildings, derricks or other appliances for mining or removing such minerals, rocks, ores and oils, and to strip, sink shafts in, bore, mine or explore any part of said land for the purpose of discovering, locating mining and removing the same, in such way as it may determine.

Register of Deeds Office
Aitkin, Minnesota

Henry J. Kruse
Aitkin, Minn.

#3 (a) Applicants Property rights.

EXHIBIT SHEET #2

The legal description of this area is Bain Township, Tp. 50 N, Range 26 W., Aitkin County, Minnesota, and are the following U. S. Government Survey: SW¼ of NE¼; NE¼ of SW¼; E½ of SW¼ of SW¼; SE¼ of SW¼; NW¼ of SE¼; SE¼ of SE¼, all in Sec. 11, Tp. 50 N. Range 26 W.;

S½ of NE¼ of NE¼; S½ of NW¼ of NE¼; S½ of NE¼ of NW¼; SE¼ of NW¼; E½ of E½ of SE¼; all in Sec. 25, Tp. 50 N., Range 26 W;

W½ of SE¼ of NE¼; Sec. 29, Tp. 50 N, Range 26 W; W½ of NW¼ of SW¼; Sec. 35, Tp. 50 N., Range 26 W;

Also in Township 49 N, Range 26 West, same Bain area, SW¼ of NE¼; SE¼ of NW¼; NE¼ of SW¼; NW¼ of SW¼; SW¼ of SW¼; SE¼ of SW¼; all in Sec. 1, Rp. 49 N., R. 26 W; containing 640 acres more or less according to the U. S. Government survey. This area is high and dry.

See Township Plats in-closed with #5-(b) for the location in each Township.

ACCESSIBLE

All this property is adjacent to the Soo Line Railroad, and is 66 miles from the Ore Docks at Duluth and Superior. The Soo Line Railroad and the Northern Pacific Railroad are ore hauling roads.

The Area is also traversed by U. S. Government Highway #169, Minneapolis to Hibbing, also Highway #35 paralleling highway 169 North and South, also East and West county highways #12 and #24.

Henry J. Kruse
P.O. Box 94
Palisade, Minnesota

INSTRUCTIONS

On Application MF - 103

#4. Physical Description:

(a) See list of reports, Logs of drill holes, U. S. Aero Magnetometer and Minnesota State Geological survey maps, and the applicant's report on this Bain area.

(b) Not applicable.

(c) See Carl Zapffe letter Geologist for the Northern Pacific Ry. Co., and Manager of their Mining property, and other data relating to this Area, and the Kruse comparison of the drill records.

(d) See #4(d) In list of papers attached.

(e) There is a surplus of drill man power at this time, and the State Exploration Company that is going to do this drilling work, is well fortified, for equipment, supplies, power, water, etc. They can handle a job many times larger than this one.

#4-(c)

STRUCTURAL GEOLOGY of the
Cuyuna Range and the Northeastern Extension of this range.

Starting in Crow Wing County on the Cuyuna Range proper, and at the Kennedy Mine.

In driving our main cross cut south on the 262 foot level, as we pass through the ore deposit and hit the hanging wall (which was a black slate) we encountered a drag fold in the hanging wall black slate. In this drag fold we had a beutiful high grade ore.

And when I received the U. S. Geological Aero Magnetometer map, I saw and interpreted their survey as showing the same drag fold on a very large scale just East of the Kennedy Mine, (see U.S. G.S. Area map), photostat which I enclose.

From their survey you will see that the range extends on the Northeast for another six miles; at this point near the Aitkin County West line, our engineers discovered the magnetic attraction at Ross Lake in a Northwest Southeast direction, showing another definite swing in the Cuyuna Range and in this bend several drill holes show ore, some very high grade Manganese ore (see drill Log in Sec. 1, T. 136 N. R. 25W enclosed). We also have three drill holes one mile north of the good Mn hole, and 6 drill holes 1½ miles west, all in iron formation, which proves this swing, and the aero map shows this positively.

The Range extends in this northwest direction for approximately 12 miles and at this point the Range again makes another swing and extends eastward. almost due east and west.

I call your attention to U.S. G.S. Magmetometer map at a point 6 miles northwest from the Ross Lake bend. The magnetometer highs and lows are not elongated in a northwest and southeast direction, but show definitely in a north-south direction, which showed that the range is starting to make the swing to the east.

In Sec. 4, T. 137 N. R. 26 W. I call your attention to the cross section of drill holes, deepest one No. 8, bottomed in ore Fe 41.77% and Mn 2.10% at 845 feet and the last five foot sample from the bottom shows the iron content gained 4.8% and the Mn content gained 1.6%. This proves the ore will go much deeper and is a major ore bearing fold. Note the high Mn content in most of the drill holes.

Also note the Quartz areas in some of the holes in this ore deposit near the top.

I shall call your attention to some formation in holes in the Kruse Bain Area. I also call your attention to the green schist in the bottom of drill hole No. 4 bottomed at 730 feet, 10 feet in this green schist. I shall call your attention to this later.

The past three years the Pickands-Mather Company have drilled this ore deposit further and have enlarged on it to a very great extent and have developed a very fine and large ore deposit.

The Oliver Iron Mining Company have two drills working in this Emily area and have encountered some 30% Mn. It had a black color on the order of the pyrolucite. I saw the sample, also information from the engineer in charge of the work.

The U.S. G.S. Magnetometer map shows no magnetic structures or readings where the Oliver is getting this ore west of Emily and the Oliver's super dip shows neutral readings, the same as the U.S. G.S. Magnetometer survey.

As we extend eastward into Aitkin County the U.S. G.S. Magnetometer Survey has picked up the structures and I call your attention to them on the map. This extends for 27 miles eastward. Note the 4 highs all in a direct line. I call your attention to drill hole No. 7. This is a foot wall definitely, it carried a large amount of quartz similar to the Crow Wing drilling in Sec. 4, T. 137 N. R. 26 W. We will also compare drill hole No. 16 in Sec. 35, T.50 N. R.26 W. This ore formation is similar to the walls of the Crow Wing deposit. I saw the samples of the drilling in Sec. 4, 137 - 26.

We also get a green chloretic schist in Sec. 8, T. 50 N. R25 W.

In this same line of highs, Sec. 13 - 52 - 23 we have drill hole No. 21, ledged at 140 feet of surface encountered brown schist.

In the Kruse Bain Area with the three drill holes in a very good Mn ore formation and 6 miles apart, and all the magnetometer structures proven up by the U.S. G.S. Area magnetometer work and drill hole No. 16, 600 feet deep and bottomed in same ore formation, this shows definitely that the main range is located in this area and without the slightest doubt. We had one drill core from this area in exceptionally high grade ore. We are not after low grade ore but we are working on the main fold for this regional district, and we will open up a high grade direct shipping ore.

N. J. Kruse
P.O. Box 94
Palisade, Minn.

Accessible

All this property is adjacent to the Soo Line Railroad and is 66 miles from the Ore Docks at Duluth and Superior.

The Soo Line and Northern Pacific are both ore hauling roads.

This area is also traversed by U. S. Government Highway #169, Minneapolis to Hibbing, also Highway #35 paralleling Highway #169 (North and South).

And the East and West County Highways #12 and 24. This Area is well located for quick results.

Present and Previous History

My Exploration work and drill records at this time is based on the U. S. Government's Geological departments Air Borne Magnetometer work in this area, they are checking closely, with all my previous drill work.

My opinion is that this work will start to prove up an area 18 to 24 miles long, and a high grade Manganese and Manganeferous Iron Ore.

Henry J. Kruse
P.O. Box 94
Palisade, Minnesota

STATE EXPLORATION COMPANY'S

DRILLING EQUIPMENT

1- Warehouse and Office Building 25 x 60 feet, a very substantial office building.

8- Churn drills and equipment.

6- Diamond drills and equipment.

Three Sullivans hydraulic-feed Diamond Drills, capacity 1500 feet EX rods.

Two belt drive screw feed 600 and 700 feet EX rods

One Stean Power Screw Feed 400 feet EX rods.

A very large supply complete stock of all parts and drill casing supplies.

Henry J. Kruse
P.O. Box 94
Palisade, Minn.

SPECIFICATIONS FOR CHURN AND DIAMOND DRILLING

Kruse Bain Area Project at Cuyuna Range extension, Aitkin County, Minnesota.

1. Purpose.--The purpose of this contract is to obtain for Kruse Company samples of churn drill sludge or cuttings, and Diamond drill cores and sludge produced in drilling nominal _____ inch diameter churn drill holes and Diamond drill cores and sludge from ore deposits and rock formations of the above described project.

2. Description of Work.--The Kruse Company guarantees to the contractor units of work set forth in the Schedule of Unit Prices sufficient to result in payments totaling a minimum of $_____. The Kruse Company at its option, may require the contractor to perform any or all of the units of work specified in said schedule beyond the minimum amount guaranteed in this article up to a maximum amount of $_____, including the minimum.

The tentative locations, diameters, depths, and number of holes, the approximate overburden and nature of formations to be drilled, as well as other data deemed pertinent to the work, are set forth in a sheet annexed hereto marked "Data Pertinent to Drilling Operations" but the correctness of the statements is not warranted by the Kruse Company; they are not representations upon which the contractor can rely, and they are not any part of this contract. The Kruse Company may change the locations, diameters, depths, and number of the holes at its

discretion.

3. Commencement, Prosecution, Completion, Default, Damages.--

(a) The work shall be commenced, prosecuted, and completed as follows:

(1) The contractor shall commence actual drilling operations with all equipment and crews required, at the site of the work, within _____ days after receipt of official notice to proceed.

(2) The contractor shall at all times prosecute the work diligently, expertly and continuously as herein provided, and in a workmanlike manner.

(3) The contractor shall maintain in operation not less than _____ drills, not less than _____ 8-hour shifts per drill per day, not less than _____ days per week, except for days in which a national holiday may occur, in which event the work-week may be reduced by that day.

(b) Times necessarily consumed in operations incidental to operation of the drills, including fishing for lost tools, making repairs, and moving from drilling site to drilling site shall count as operation of the drills.

(c) With the written approval of the Kruse Company's resident engineer or the contracting officer, drilling operations may be reduced or suspended on account of inclement, unusual, or severe weather which interferes with operations.

(d) Should the contractor default in any of his obligations under this contract, the Kruse Company, subject to any conditions provided herein, may at any time by written notice to the contractor terminate his right to proceed with the work under this contract. In such event the Kruse Company may take

over the work and prosecute it to completion, by contract or otherwise, and the contractor and his sureties shall be liable to the Kruse Company for any excess cost occasioned the Kruse Company thereby. The Kruse Company may take possession of and utilize in completing the work such materials, appliances, and equipment of the contractor as may be on the site of the work and suitable or necessary therefor. As long as the Kruse Company does not terminate the right of the contractor to proceed, the contractor shall continue to perform under this contract. Termination of the contractor's right to proceed shall not affect any right of the Kruse Company to liquidated damages for any default accrued prior to the time the termination becomes effective.

(e) It is agreed that it will be impossible to determine the actual damages resulting from the contractor's failure to commence the work or to prosecute the work continuously as provided herein, and in lieu thereof and in addition to any excess costs provided for in section (d) of this Article, the contractor shall pay to the Kruse Company as fixed, agreed, and liquidated damages the sum of $_____ for each day of failure to commence actual drilling operations and the sum of $_____ for each 8-hour drill shift or fraction thereof in excess of two hours that the contractor fails to maintain each drill in actual operation as defined herein the required number of shifts.

(f) The right of the contractor to proceed shall not be terminated or the contractor charged with liquidated damages because of any default due to unforeseeable causes beyond the control of and without the fault or negligence of the contractor, and the contracting officer so determines and finds. In the

event of any such default, actual or impending, the contractor, at any time prior to the occurrence of the default or at any time thereafter and before the final settlement of the contract, may notify the contracting officer in writing of the causes thereof. Upon the receipt of such notice the contracting officer shall, or without such notice and on his own initiative the contracting officer may, ascertain the facts as to the causes of the default and the extent thereof, and his findings of fact thereon shall be final and conclusive on the parties hereto, subject only to appeal, within 30 days, by the contractor to the Kruse Company. The Kruse Company may act on such appeal or may delegate any person other than the contracting officer to act thereon. The decision on appeal shall be final and conclusive on the parties hereto.

4. Contractor's Equipment and Services.-- The contractor's equipment shall be such as is necessary and proper to perform the work specified, and shall include the following: 4 Missaba Type churn drills and all equipment pertaining thereto; also 4 Diamond drills and equipment.

The Kruse Company may at its option inspect the contractor's equipment or any part thereof, at the drilling site or elsewhere, and if it or any of it is not, in the Kruse Company's opinion, sufficient or satisfactory for the purpose the contractor shall make it sufficient and satisfactory to the Kruse Company or replace it with equipment that is sufficient and satisfactory to the Kruse Company.

The contractor's services and the expenses which he must bear, except as otherwise provided in this contract, include the following:

(a) All labor, machinery, tools, pipe, casing, equipment, power, compressed air, water, materials, sealing materials, cement, and supplies necessary and proper to do and perform everything provided for in this contract.

(b) Reaming, casing, cementing, or otherwise sealing porous formations, and servicing holes.

(c) The delivery of cuttings and sludge to the Kruse Company at the drill site into containers furnished by the Kruse Company.

(d) The making of a tight seal in solid formation to prevent the escape of sludge and cuttings and to prevent contamination while drilling.

(e) Transportation of drilling equipment to and from the project and drill sites.

(f) Preparation of drilling locations, except as otherwise provided in this contract.

(g) All losses of or damage to equipment, tools, or supplies.

(h) Procurement of water for drilling, and expenses incident thereto.

All pipe and casing shall remain the property of the contractor who may pull or salvage same upon completion of the work or, with the written consent of the Kruse Company's resident engineer or the contracting officer, prior thereto, unless the resident engineer or the contracting officer directs that any or all of the pipe or casing be left in the hole, in which event the title thereto shall pass to the Kruse Company and the Kruse Company shall pay for it as provided in the Schedule of Unit Prices. The contractor guarantees his clear and unencumbered

title to all pipe and casing thus passing to the Kruse Company.

5. The State Exploration Co., Inc.--The Drilling Company will (a) build any necessary roads or trails to the site of the work; (b) clear vegetation from the sites for drilling; (c) furnish containers required for holding the sludge or cuttings, and receptacles for collecting and settling sludges but no other equipment; (d) supply a man to care for the sludge and cuttings upon delivery to containers.

6. Direction of the Work.--The work will be performed under the direction of a resident Kruse Company engineer who will designate the location, diameter, number, position, and depth of all holes to be drilled; determine depths at which drilling is to be stopped; and direct when and where and to what extent reaming, casing, cementing, sealing formation, surveying, or sampling are to be done.

The contractor will not give any information regarding results of the drilling to any third party.

7. Performance of the Work.--The contractor shall keep accurate records of drilling operations and shall furnish the Kruse Company's engineer with a daily log showing footage drilled, hours worked, nature of rock penetrated, feet and size of casing placed during each shift, feet of hole cemented or sealed, and pertinent information regarding condition of each hole.

All work shall be performed with the understanding that the objective is to secure accurate samples of the formation penetrated and shall be directed to this end. Sludge or cuttings must be removed as soon as each "run" is completed, and

placed by the contractor in proper sequence in containers provided by the Kruse Co's for that purpose. Return water and sludge shall be discharged into barrels or other receptacles as directed by the Kruse Co's engineer. The contractor shall make every effort to secure the highest recovery of sludge or cuttings commensurate with good practice, using a sand pump, in good condition, when ordered by Kruse Company's engineer.

8. Lost Holes.--The contractor will not be paid for any footage of holes lost before the desired depth has been attained, when such loss is due to incompetency or negligence on the part of the contractor or to defective or inadequate equipment. If a hole is lost for reasons beyond the control of the contractor and the hole is abandoned by order of the Kruse Company's engineer, the contractor shall be paid in full for footage drilled in the abandoned hole. No payment will be made for footage lost below a point of diversion on account of any diversion of the bit from the original hole, except diversions intentionally made by the placing of wedges at the written order or with the written approval of the contracting officer.

9. Payments to Contractor.--The contractor shall properly certify the present invoices or vouchers upon the completion of each hole or monthly for holes completed during the preceding month, showing the footage drilled and all other work for which payment is claimed and the amount due. Upon completion and acceptance of all work required under this contract, the balance then due the contractor will be paid upon the presentation of a properly executed and duly certified voucher, after the contractor shall have furnished the Kruse Company with a release,

if required, of all claims against the Kruse Company arising under and by virtue of this contract, other than such claims, if any, as may be specifically excepted by the contractor from the operation of the release in stated amounts to be set forth therein. Each voucher or invoice must be approved by the Kruse Company's engineer or contracting officer, and payment will be made thereon when approved by the Kruse Company's office manager and president.

10. Bonds.--The contractor will be required to furnish performance and payment bonds in the sum of $_____ each.

STATE EXPLORATION COMPANY

_____
President

_____
Secretary

INSTRUCTIONS

On Application MF - 103

#5. The Exploration Project:

(a) Manganese and Manganiferous Iron Ore.

(b) See #5-(b) Township plats and maps enclosed in the binder. This, or the plats shows the cross sections to be drilled and location of drill holes.

(c) The work will start within 30 days, and completed in 24 months.

(d) See applicant's record on experience #5-(d) Sheet #1.

#5-(d) Exhibit Sheet #1

Outlining experience of the applicant Henry J. Kruse, Mining Engineer and Geologist. He is a practically and technically and business trained Mining Man.

Starting work as a common laborer at various jobs at the Negaunee Iron Mine, in Michigan, 4 years carpenter shop, blacksmith shop, machine shop, framing timber for underground, iron ore sample man, etc.

He resigned from this Mine to attend college, studied studied accounting, banking and commercial law at this college 1-1/2 years, completing this business course, he started working in the Champion Iron Mining Company Office, Accounting Department, at Beacon, Michigan. Was in this department 2-1/2 years. He was promoted and placed in charge of the North Champion Mine, and the Northhampton Mine, and all exploratory work, diamond drilling, etc.

He was with this Company 9 years, at which time the Champion Iron Company of Boston, Massachusetts sold out to the U. S. Steel.

Mr. Walter Fitch, Agent of the Champion Iron Company, sent him to Michigan College of Mining and Technology, where he obtained his Engineer of Mines degree.

On completion of this course of study, President McNair of the College, selected him out of the class to take a position with Rogers Brown Ore Company of Chicago.

This company was just being organized, by five large furnace and steel companies, located in Chicago, Cleveland, Buffalo, Hanging Rock, Ohio, and the Tonowando Iron & Steel Company.

After recommending and advising them to take over what is now called the Kennedy Mine at Rabbit Lake on the Cuyuna Iron Range in Minnesota, this Range was found to be the outstanding producer of Manganese and Manganeferous ore.

He was placed in full and complete charge of opening up the North Cuyuna Iron Range.

The companies had from 8 to 15 drills working winter and summer for 7 years, and at the same time opening up and developing the first four mines on this Range.

He was with this Company 10 years. This Company sold two of the mines to Inland Steel Company of Chicago, and two were sold to the Youngstown Sheet and Tube Company.

Since the transfer of ownership he has been working independently with his own drills; he is in need of funds to carry on his work to completion.

He will manage and supervise this work, he also has an experienced Foreman who has been with him for several years.

Henry J. Kruse
P.O. Box 94
Palisade, Minnesota

INSTRUCTIONS

On Application MF-103

6 Estimate of Costs

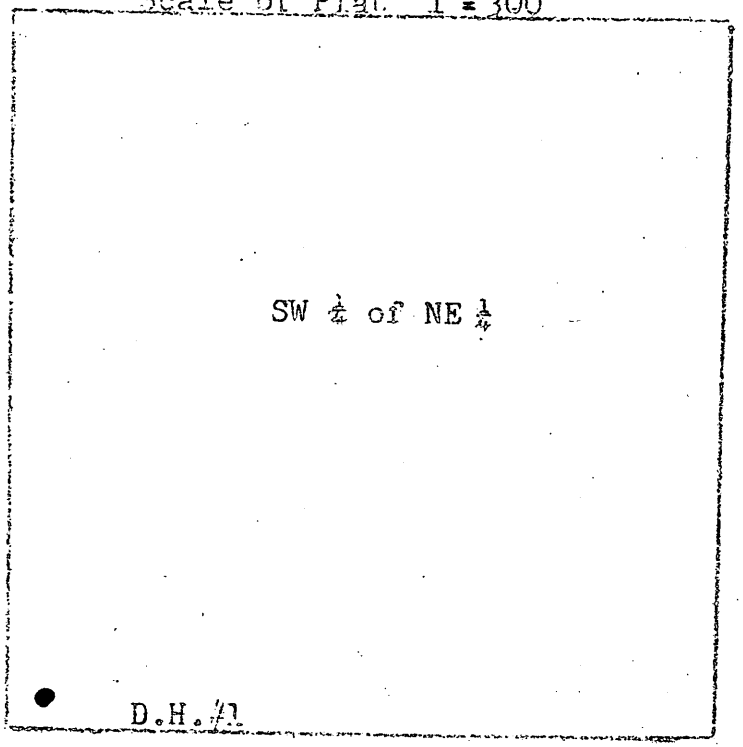
Estimated Total Cost:
This work requires 66 drill holes, to be drilled to an average depth of 300 feet each, making a total of 19800 feet.

The contract price for churn drill work is $8.00 per foot.
The contract price for Diamond Drill work is $12.00 per foot.

We estimate this as follows:

10560 feet of Churn drill work @ $8.00	$ 84,480.00
9240 " " Diamond " " " 12.00	110,880.00
Supervision and Engineering 24 months	12,000.00
Samples Analytical work, Fe, Phos, Mn, SiO_2	3,696.00
Total Cost	$ 211,056.00

Scale of Plat 1" = 300'



REPORT OF EXPLORATION ON

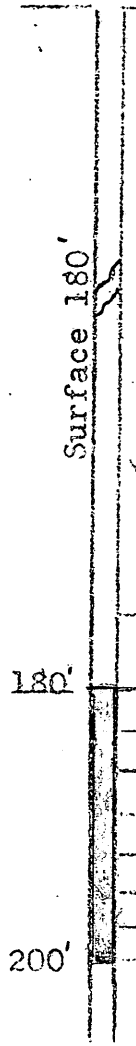
SW ¼ of NE ¼ - Sec 1 - T 136 N - R 25 W

Crow Wing County, Minnesota.

Drilled by Henry J. Kruse
December 15, 1915

Scale of Hole 1" = 20'

D.H. No 1.



Mn Core	Mn Sludge	Iron
	28.43	9.98
38.39		11.45
	18.63	8.92
35.90		8.19
	17.55	8.68
30.45		11.57
	25.35	5.66

Dead-Black Slate

Bottomed Dec 20, 1915.

Henry J. Kruse
P.O.Box 94,
Palisade, Minn.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
S. 157 HOWARD ST.
Spokane 8, Wash.

OFFICIAL BUSINESS

VIA AIR MAIL

VIA AIR MAIL

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JUL 28
7 PM
1952
WASH.

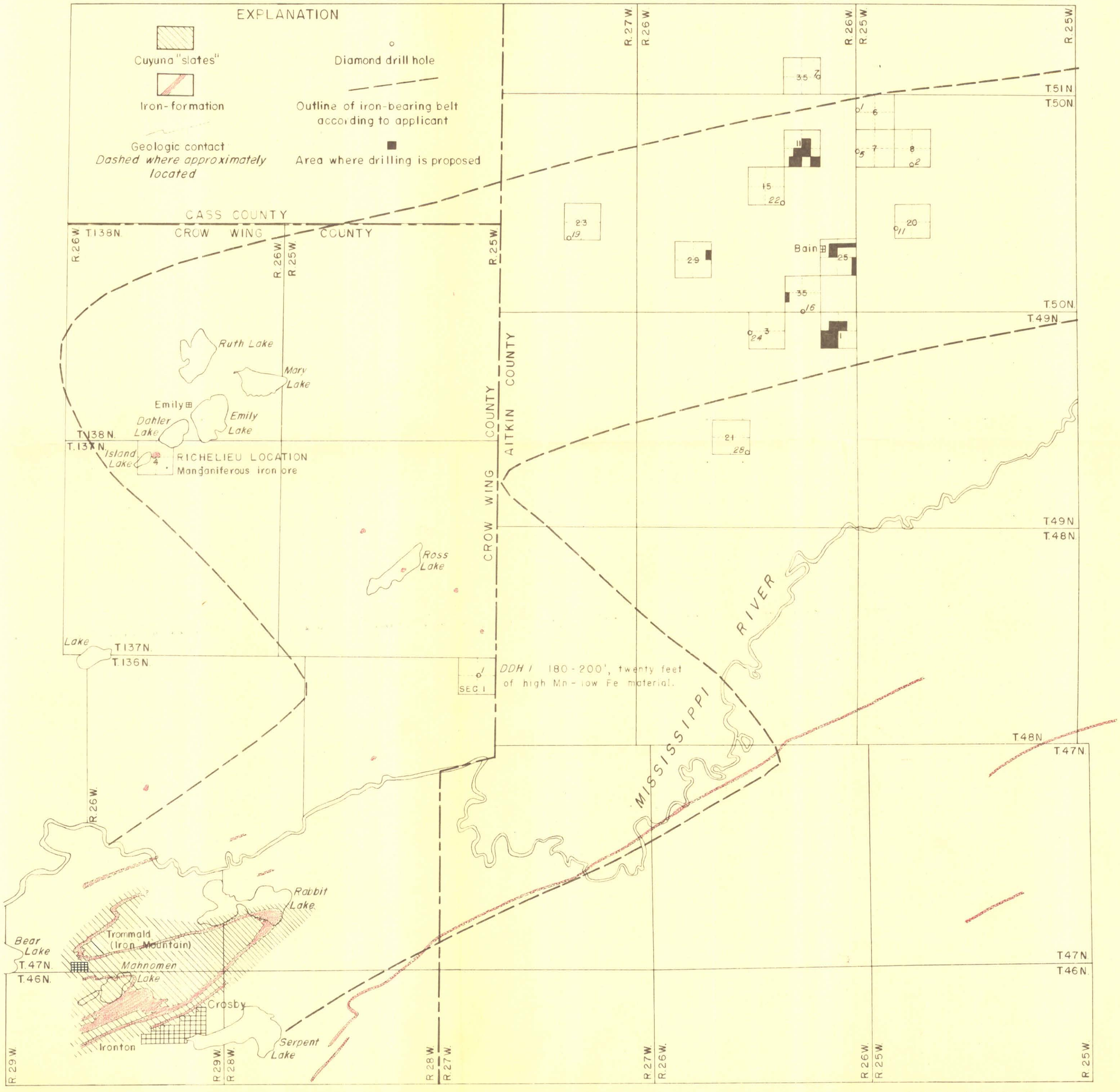
2

MR. FRANK E. JOHNSON
CHAIRMAN, OPERATING COMMITTEE
DEFENSE MINERALS EXPL. ADMIN.
DEPARTMENT OF THE INTERIOR
WASHINGTON 25, D. C.

VIA AIR MAIL

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PLATE I



MAP SHOWING EXTENSION OF IRON-BEARING BELT AS POSTULATED BY APPLICANT

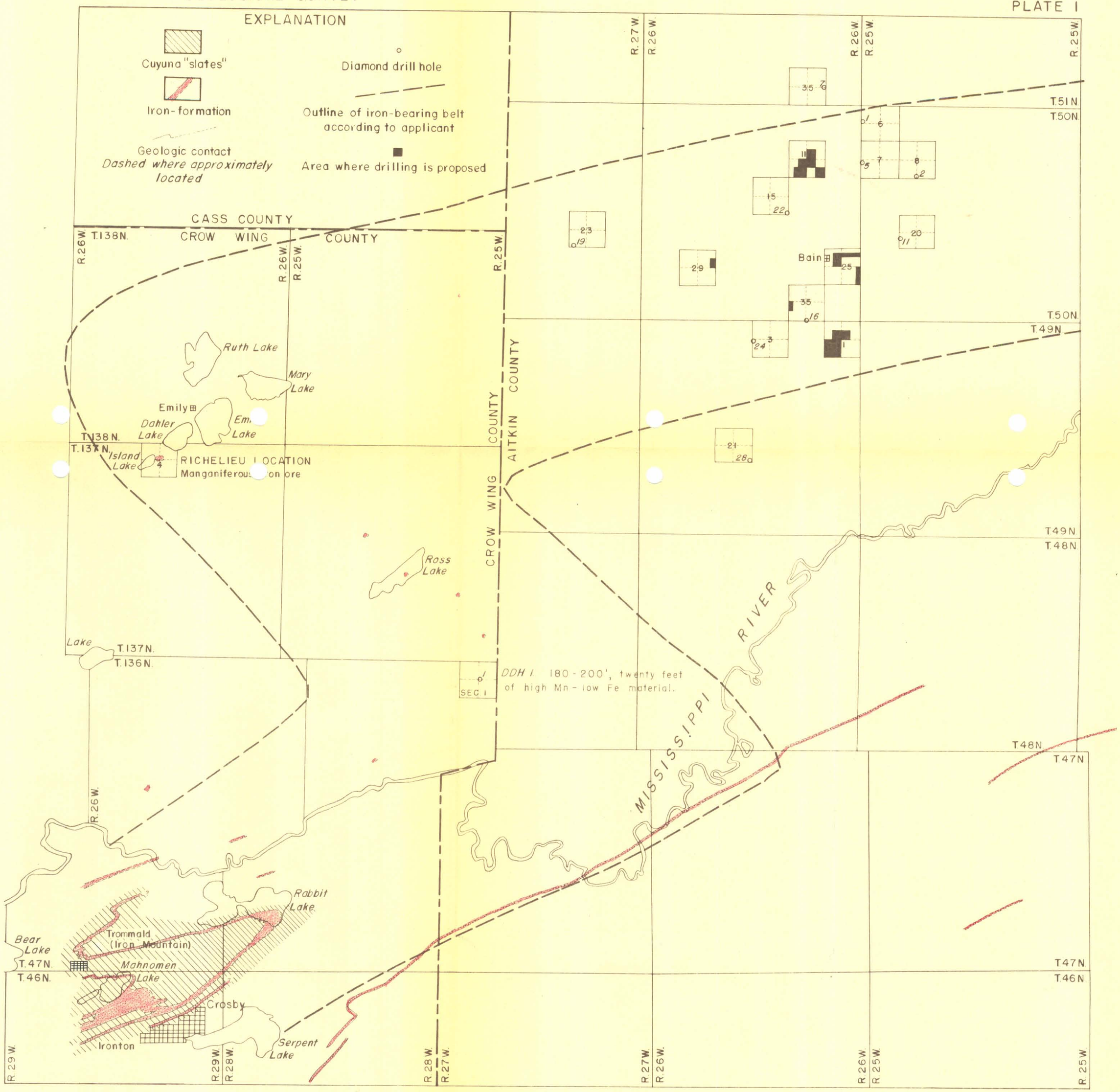
CROW WING AND AITKIN COUNTIES, MINNESOTA

0 2 4 6 Feet

SCALE

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PLATE I



MAP SHOWING EXTENSION OF IRON-BEARING BELT AS POSTULATED BY APPLICANT

CROW WING AND AITKIN COUNTIES, MINNESOTA

0 2 4 6 Feet

SCALE