DMA Form 1.

DEFENSE MINERALS ADMINISTRATION
Control Slip

CONTROLLED DOCUMENT

DMA Docket No. 990-X

DO NOT DETACH THIS SLIP

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

This document has been recorded as an Exploration document.

Any action taken to change the type of request for assistance must be promptly reported to the Reports and Records Branch. Use DMA Form 2 for submitting these reports.

Routing Slip

To:	P.E.D.	Date	11/13/51
To:	F.L. KNOUSE	Date	11/13/51
To:	CRITTENDEN-USGS.	Date	11/19/51
To:	Knouse	Date	12/18/51
To:		Date	
To:		Date	
To:		Date	
To:		Date	
To:		Date	
To:		Date	
To:		Date	
To:		Date	
To:		Date	
To:		Date	
To:		Date	

DO NOT DETACH

CONTROLLED DOCUMENT

FILE COPY
SURNAME:

2-12-52

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

Gregory
Selfridge
Neglesh
Mayer
Hedges

FEB 12 1952

Duncan, Dieckman & Duncan Mining Co.
605 Walnut Street
St. Louis 2, Missouri

Re: Docket No. DMA 990X - Manganese
Mining Claims in Sections 3,4,6,
8,9, and 10; T 4; S. R.; 30 W
Polk County, Arkansas

Gentlemen:

Your application for aid for an exploration project and other data relating to your application available to us in Washington have been carefully reviewed.

This information, while noting a limited amount of marginal ore on your property, indicates that, geologically, there is little probability of making a significant mineral discovery from which a saleable concentrate can be obtained. We regret, therefore, to inform you that your application is denied.

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

Sincerely yours,

C. O. Mittendorf (for) J.W. 2-12-52

Acting Administrator
Defense Minerals Exploration
Administration

GGGentry'lm
2/6/52

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

FILE COPY
SURNAME:

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

February 6, 1952

Gentry
Selfridge
Kelley
Mayer

Memorandum

To: Acting Administrator, Defense Minerals Exploration Administration

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

Subject: Denial of exploration project in the amount of $10,000.00
Docket No. DMA 990X - Manganese
Mining Claims in Sections 3,4,6,8,9, and 10; T 4; S. R.; 30 W
Polk County, Arkansas

The subject docket was denied by this Division for the following reasons:

1. There is not a reasonable probability of finding a significant tonnage of material from which a usable product can be recovered by any method demonstrated so far.

2. The ore occurs as pockets, veins or fracture fillings, ranging in size from 2 feet to hair-like stringers. The ore minerals are all oxides and cannot be expected to continue much below the present water table.

3. Information available indicates that the average grade of material of this sort, mined in large quantities, is more likely to range from 5 to 10 percent rather than the 15 percent indicated by the samples.

George C. Selfridge

GGGentry'lm
2/6/52

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

cc: Admn. Reading File
Docket
G. C. Selfridge
G. G. Gentry

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

February 6, 1952

Memorandum

To: Acting Administrator, Defense Minerals Exploration Administration

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

Subject: Denial of exploration project in the amount of $10,000.00
Docket No. DMA 990X - Manganese
Mining Claims in Sections 3,4,6,8,9, and 10; T 4; S. R.; 30 W
Polk County, Arkansas

The subject docket was denied by this Division for the following reasons:

1. There is not a reasonable probability of finding a significant tonnage of material from which a usable product can be recovered by any method demonstrated so far.

2. The ore occurs as pockets, veins or fracture fillings, ranging in size from 2 feet to hair-like stringers. The ore minerals are all oxides and cannot be expected to continue much below the present water table.

3. Information available indicates that the average grade of material of this sort, mined in large quantities, is more likely to range from 5 to 10 percent rather than the 15 percent indicated by the samples.

G. C. Selfridge

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

IN REPLY REFER TO:

G-MD-TPT

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

February 1, 1952

Memorandum

To: George C. Selfridge, DMEA

From: T. P. Thayer

Subject: DMA 990-X - Manganese
Duncan, Dieckman and Duncan Mining Co.
St. Louis, Missouri

The Operating Committee discussed the problems involved when the Field Team report was reviewed, and seemed to be in general agreement that there is little point in exploring for more manganiferous novaculite in western Arkansas until recovery of a usable product is shown to be feasible.

Unless Mr. McElwaine can present some convincing evidence of greater widths than Gallagher and Meussig indicate (up to 3 feet), I recommend that the application be denied on the premise that there is not a reasonable probability of finding a significant tonnage of material from which a usable product can be recovered by any method demonstrated so far.

The question of the Prospectus submitted by Gallagher (which I have not seen) might be inquired into as bearing on the intentions and good faith of the applicants.

T.P. Thayer / by Don Lemmon

3+0

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

Reviewed by
DMEA OPERATING COMMITTEE
1-28-52
(date) JHB

January 22, 1952

Memorandum

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 23 1952

To: Operating Committee

From: David Gallagher

Subject: Docket No. DMA-990X
Duncan, Dieckman, and Duncan Mining Co.

Transmitted herewith is an adverse report on the subject docket.

The observed evidence does not convincingly indicate an interestingly large tonnage of material, and none of the evidence available demonstrates that the material under consideration is ore.

The following evidence indicates that the material is not ore: (a) megascopic inspection, (b) comparison with, and inferiority to, other so-called manganese ore in the region that has been demonstrated not to be ore, (c) metallurgical tests that show that better material from the same region is not ore.

In addition to the two points that (1) there isn't enough of it, and (2) it isn't ore anyway, I might add: (3) the applicants are amateur miners, not professionals, (4) their intended technical supervision will apparently not be available, (5) the high administrative salary requested personally for one of the applicants, the stock prospectus, and the difference between the alleged dimension, etc., as given in the application, and as observed by Muessig in the field, engender some feelings of doubt about the wisdom of the Government entering into participation in this project.

Lastly, I am appending a critical discussion of Max Crittenden's analysis of this project.

David Gallagher
David Gallagher

Attachment

DG/lh

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
~~WASHINGTON 25, D. C.~~
Joplin, Missouri
January 22, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 23 1952

Memorandum

To: David Gallagher

From: Siegfried J. Muessig

Subject: Field appraisal of Duncan, Dieckman, and Duncan Mining Company (DMA 990X)

In compliance with written instructions from the Operating Committee, DMEA, December 29, 1951, I visited the property of Duncan, Dieckman, and Duncan on January 10, 1952 with R. W. Newton of Mena, Arkansas.

The property, on the top of West Hanna Mountain (see USGS Bull. 660-C, plate III, for location), is accessible by a 4 1/2-mile unsurfaced forest road which is in extremely poor condition. As the property is almost 3 miles long, only the eastern part, at the end of the road, was visited. Most of the exploratory work, consisting of seven trenches and bulldozer cuts, had been done in this area.

The exploratory cuts, whose positions could not be checked with those shown by the applicant on attachments to his Form MF-103, but which are scattered over an interval of about half a mile, all expose steeply dipping novaculite in which are thin irregular veinlets and fracture fillings colored by black manganese oxides. The veinlets and fracture fillings occur in the novaculite in zones that are 1 to 3 feet wide; none wider were seen. Several clay intercalations in the novaculite contain lumps of manganese oxides which are distributed irregularly and discontinuously parallel to the bedding of the novaculite; none of these "bedded" masses seen is over 4 to 5 inches thick. Fine angular silica fragments occur throughout the manganiferous stringers and masses.

On the basis of the exposures seen in the cuts, a postulated ore body might have a length of half a mile or more with variable thickness up to 3 feet. However, an inspection of the cuts shows that the mineralized novaculite that is exposed probably cannot be classified as ore. With this in mind, I strongly suspect that the various assays of samples from these openings are those of hand-picked, rather than representative "ore".

In Waldron, Arkansas, I made known to Mr. Donald Duncan, vice president of the Company, the various questions raised by the DMEA reviewing team in Washington. As no company geologist or engineer was available at the time of my meeting with Mr. Duncan, I took no steps to try to revise the applicant's answers to questions on his Form MF-103, but suggested that he consult a geologist or engineer to help him do this along the lines outlined by me. It is my understanding that this is now being done for the Company by Mr. Robert McElwaine, of Little Rock, Arkansas.

I have noted below six points which bear adversely on the Company's application:

1. The application, in its entirety, was prepared by Messrs. Duncan, Dieckman, and Duncan, who are businessmen, rather than engineers or geologists.

2. In the answer to Item 23a on Form MF-103, the applicant states that Mr. E. S. White, several of whose reports are attached to the application, will supervise the project. Actually Mr. White now has an address in Marshall, Texas, and has not been in Mena, except for several brief visits, for six months or more. Furthermore, it is my understanding that he will probably not be available to supervise the project.

3. A break-down of the cost schedule of the project, as outlined by the company in Item 23 of Form MF-103, shows that $2,000.00 is allotted to White and the Duncans for supervision. This is 20 percent of the total cost of the project. I suggested to the applicant that this amount be pared down somewhat.

4. The dates on which several important documents that are attached to MF-103 were prepared, make rather interesting reading:

   A. Mill Plan and Flow Sheet (E. S. White) dated February 8, 1949.

   B. Mill Test Report (U. S. Bureau of Mines, Rolla) dated April 22, 1949.

   C. Geologic Report (G. S. White) dated July 27, 1949.

   The chronological order of these activities is exactly the reverse of that normally expected in a mining and milling operation.

5. Under Item 16 of MF-103, "History", the applicant fails to mention that previous prospects existed on his property, on West Hanna Mountain; descriptions of these are found in USGS Bulletin 660-C, page 118, 1917.

6. Donald Duncan informed me that there are no company stockholders other than those listed under Item 3, MF-103. However, I submit as a part of this report an undated Prospectus issued by the Duncan, Dieckman, and Duncan Mining Company in which the sale of 200,000 shares of stock at one dollar per share is proposed.

Recommendation

I recommend that extreme caution be taken in considering approval of an exploration contract between the Government and the applicant. As a part of this caution, I suggest that the "Final Report on the Minerals Dressing and Analysis of Manganese Ores from Mena, Polk County, Arkansas" by M. M. Fine and R. B. Fisher, U. S. Bureau of Mines, Rolla, Missouri, and the recommendations therein, be considered more seriously than they previously appear to have been. This undated document is a report of milling tests on samples submitted to the Bureau of Mines by M. Howard Berliner of the U. S. Geological Survey on April 13, 1951. The samples are from exploratory openings on the properties of the Arkansas Manganese Company (DMA 1248-X, Idm-E82). These openings appear much more favorable than do those on the properties of Duncan, Dieckman, and Duncan. The report by Fine & Fisher closes with:

> "The results of the study show that the tested samples are not amenable to the economic production of ferrograde manganese concentrates by mineral dressing procedure."

Siegfried J. Muessig

Siegfried J. Muessig

Attachment

PROSPECTUS

DUNCAN, DIECKMAN, DUNCAN MINING CO.

605 Walnut St. ST. LOUIS, MO. GA. 1062 CH. 7128

DISCOVERY

The discovery was made about 18 months ago of a large MANGANESE Ore outcrop, 15 miles South of Mena, Polk County, Ark. Located in the mountainous part of the Ouachita National Forest. It is on top of Dog Mountain, 1000 feet high. The ore outcrop on top of this mountain, extends a distance of about 3 miles and is 60 feet wide on the surface.

CORPORATION

We have incorporated the Company in the State of Missouri for 1,200,000 shares of stock, one dollar par value. This is a speculative issue.
The Company has 24 U. S. Government Mining Claims, covering this ore body. The claims are 1500 feet long, 600 feet wide, each, in one body.

PROSPECTING

We have tested this ore body by digging several trenches, each from 15 to 30 feet long, 7 feet deep, spaced along the top of the mountain. Our geologist has made numerous surveys and tests, and has written several reports. Also screening and crushing tests have been made by the U. S. Bureau of Mines. Other ore assays have been made by Bruce-Williams, Joplin, Mo., and Colorado Assaying Co., Denver Colorado.

SALE OF STOCK

The Company proposes to sell 200,000 shares of stock at one dollar per share. The money to be used to further prospect, develop, and mine this ore. We will require mining machinery, and a mill for the concentration of ore. A mill and mining machinery will cost about one hundred thousand dollars.

MANGANESE

Manganese is a strategic metal, used by the steel, paint, glass and dye industries, and is very scarce in the United States. Large amounts have to be imported annually to supply the demand.

APPROXIMATE COST OF MINING

The cost of mining and milling, delivered to shipping point, Mena, Ark., is estimated at $20.00 per ton. MANGANESE assaying 45% will sell for $40 per ton. This leaves a profit of $20 per ton. We propose to build a mill of 100 tons daily capacity. Producing at this rate for 300 days out of the year, would show a very large profit.

GEOLOGICAL REPORT

Excerpts from report of our geologist, Mr. E. S. White:

That 5 places some distance apart, as shown on map No. 1, along the strike of the ore body, in an east-west direction, on your property, in section 3, 4, 5, 8, 9, 10. T.4s, R.30w. Polk Co., Ark., as far as development has been done, proves that ore deposit has sufficient width to permit and justify open cut mining and power mucking.

The results of assays on composite samples from these five openings, shown on assay sheet No. 1 of this report, on the ore body, show a sufficient metallic manganese content of the ore to make it a commercial grade ore, and the result of the concentration tests by the U. S. Bureau of Mines, and given in this report, prove that a high recovery can be made of the manganese in this ore by gravity, concentration, without excessive crushing cost, and that mining and milling of this ore deposit, is justifiable, from an economic viewpoint.

MANAGEMENT

The Company's main office will be in St. Louis, Mo., and will be managed by Geo. E. Dieckman, Secretary and Treasurer, and Wm. G. Duncan, President.

Mining operations will be in charge of Mr. E. S. White of Mena, Ark. Mr. Donald Duncan, Vice-President will be in charge of our Mena, Ark., office.

Mr. White is an experienced geologist and mining engineer.

The Company has no indebtedness.

Money derived from stock sales cannot be used for officers salaries.

Duncan, Dieckman, Duncan Mining Co.
605 Walnut Street St. Louis, Mo.
Telephones: GArfield 1062 — CHestnut 7128

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

January 22, 1952

Discussion of Max Crittenden's Analysis

Par. 1. Six drill holes and five trenches for $10,000 is meager exploration for a 6-square-mile tract of land.

Par. 2. First hand information is in U.S.G.S. Bull. 660-C., p. 118. I am personally not inspired to enthusiasm by the philosophical concept that a prospect must be good if it is in a region of good mines. However, if I were so inclined I would have to reason, in this case, that the prospect must be no good because despite many efforts during at least 35 years no good manganese mine has ever been developed in this region.

Par. 4 et sequ. Is mostly dreaming based on the figures contained in the application and the reports attached thereto, which are not corroborated by our field observations.

(a) The "ore" zone is a small fraction of 12 feet wide.
(b) Evidence is lacking to show that the deposit is over half a mile long.
(c) We don't believe the five assays represent true channel samples 8 to 14 long, but represent high-grade pieces selected from such lengths, with the barren material left out.
(d) Half of 3 miles long times 12 feet wide times 15 feet deep is 1,425,600 cu. feet equals 118,967 tons @ 14 cu. ft. per ton (short tons at that) -- I don't see where Max gets "about 150,000 tons".

My own figuring is as follows: 2640 feet long times 2 feet thick times 10 feet deep equals 52,800 cu. ft. or 4061 long tons @ 13 cu. ft. per long ton.

Now let us assume that a $10,000 exploration program as proposed succeeds in slightly more than doubling the "ore" reserve, to 10,000 long tons.

Assays of material collected by Howard Berliner for the U.S.G.S. last spring in the Mena district of Arkansas averaged 7% Mn. The 10,000 long tons times 2240 lbs. times 7% equals 1,568,000 lbs. Mn. The Bureau tests shows 27.3% recovery or 360,640 lbs. Mn. which divided by 22.4 equals 16,100 long ton units of manganese. Continuing to use the

Bureau figures this would be about 350 tons of concentrates running 46.1% Mn., 3.1% Fe 25.8% SiO_2, 3.0% Al_2O_3, and 0.16% P. After the penalties, this would be worth about 82¢ per unit, I figure, or $13,202.

Exclusive of amortization of equipment and mill, I calculate mining costs on this material at $2.50 per ton, and I doubt if they better $1.00 per ton milling costs, or $3.50 per ton times 10,000 long tons is $35,000; loss equals $21,798 plus amortization.

Par. 6. True, the samples tested by the Bureau were not representative -- the tests referred to are meaningless. Tests run this year by the Bureau on more nearly representative material from this district showed poor recovery yielding a subgrade product high in silica and the conclusion quoted by Muessig.

Par. 7. I am still unconvinced that Inland Mining Company and Southwest Engineering Company can swing it. Max too has expressed some doubt.

Accomplished success might be an argument in favor of exploring other deposits, but the mere existence now of the possibility of success in the future does not, in my opinion, constitute justification now for entering into such exploration at the present time.

David Gallagher

David Gallagher

DG/lh

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

Reviewed by
DMEA OPERATING COMMITTEE
1-28-52
(date) NB

January 22, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 23 1952

Memorandum

To: Operating Committee

From: David Gallagher

Subject: Docket No. DMA-990X
Duncan, Dieckman, and Duncan Mining Co.

Transmitted herewith is an adverse report on the subject docket.

The observed evidence does not convincingly indicate an interestingly large tonnage of material, and none of the evidence available demonstrates that the material under consideration is ore.

The following evidence indicates that the material is not ore: (a) megascopic inspection, (b) comparison with, and inferiority to, other so-called manganese ore in the region that has been demonstrated not to be ore, (c) metallurgical tests that show that better material from the same region is not ore.

In addition to the two points that (1) there isn't enough of it, and (2) it isn't ore anyway, I might add: (3) the applicants are amateur miners, not professionals, (4) their intended technical supervision will apparently not be available, (5) the high administrative salary requested personally for one of the applicants, the stock prospectus, and the difference between the alleged dimension, etc., as given in the application, and as observed by Muessig in the field, engender some feelings of doubt about the wisdom of the Government entering into participation in this project.

Lastly, I am appending a critical discussion of Max Crittenden's analysis of this project.

David Gallagher

Attachment

DG/lh

xxxxxxxxxxxxx
Joplin, Missouri
January 22, 1952

Memorandum

To: David Gallagher

From: Siegfried J. Muessig

Subject: Field appraisal of Duncan, Dieckman, and Duncan Mining Company (DMA 990X)

In compliance with written instructions from the Operating Committee, DMEA, December 29, 1951, I visited the property of Duncan, Dieckman, and Duncan on January 10, 1952 with R. W. Newton of Mena, Arkansas.

The property, on the top of West Hanna Mountain (see USGS Bull. 660-C, plate III, for location), is accessible by a 4 1/2-mile unsurfaced forest road which is in extremely poor condition. As the property is almost 3 miles long, only the eastern part, at the end of the road, was visited. Most of the exploratory work, consisting of seven trenches and bulldozer cuts, had been done in this area.

The exploratory cuts, whose positions could not be checked with those shown by the applicant on attachments to his Form MF-103, but which are scattered over an interval of about half a mile, all expose steeply dipping novaculite in which are thin irregular veinlets and fracture fillings colored by black manganese oxides. The veinlets and fracture fillings occur in the novaculite in zones that are 1 to 3 feet wide; none wider were seen. Several clay intercalations in the novaculite contain lumps of manganese oxides which are distributed irregularly and discontinuously parallel to the bedding of the novaculite; none of these "bedded" masses seen is over 4 to 5 inches thick. Fine angular silica fragments occur throughout the manganiferous stringers and masses.

On the basis of the exposures seen in the cuts, a postulated ore body might have a length of half a mile or more with variable thickness up to 3 feet. However, an inspection of the cuts shows that the mineralized novaculite that is exposed probably cannot be classified as ore. With this in mind, I strongly suspect that the various assays of samples from these openings are those of hand-picked, rather than representative "ore".

In Waldron, Arkansas, I made known to Mr. Donald Duncan, vice president of the Company, the various questions raised by the DMEA reviewing team in Washington. As no company geologist or engineer was available at the time of my meeting with Mr. Duncan, I took no steps to try to revise the applicant's answers to questions on his Form MF-103, but suggested that he consult a geologist or engineer to help him do this along the lines outlined by me. It is my understanding that this is now being done for the Company by Mr. Robert McElwaine, of Little Rock, Arkansas.

I have noted below six points which bear adversely on the Company's application:

1. The application, in its entirety, was prepared by Messrs. Duncan, Dieckman, and Duncan, who are businessmen, rather than engineers or geologists.

2. In the answer to Item 23a on Form MF-103, the applicant states that Mr. E. S. White, several of whose reports are attached to the application, will supervise the project. Actually Mr. White now has an address in Marshall, Texas, and has not been in Mena, except for several brief visits, for six months or more. Furthermore, it is my understanding that he will probably not be available to supervise the project.

3. A break-down of the cost schedule of the project, as outlined by the company in Item 23 of Form MF-103, shows that $2,000.00 is allotted to White and the Duncans for supervision. This is 20 percent of the total cost of the project. I suggested to the applicant that this amount be pared down somewhat.

4. The dates on which several important documents that are attached to MF-103 were prepared, make rather interesting reading:

   A. Mill Plan and Flow Sheet (E. S. White) dated February 8, 1949.

   B. Mill Test Report (U. S. Bureau of Mines, Rolla) dated April 22, 1949.

   C. Geologic Report (O. S. White) dated July 27, 1949.

   The chronological order of these activities is exactly the reverse of that normally expected in a mining and milling operation.

5. Under Item 16 of MF-103, "History", the applicant fails to mention that previous prospects existed on his property, on West Hanna Mountain; descriptions of these are found in USGS Bulletin 660-C, page 118, 1917.

6. Donald Duncan informed me that there are no company stockholders other than those listed under Item 3, MF-103. However, I submit as a part of this report an undated Prospectus issued by the Duncan, Dieckman, and Duncan Mining Company in which the sale of 200,000 shares of stock at one dollar per share is proposed.

Recommendation

I recommend that extreme caution be taken in considering approval of an exploration contract between the Government and the applicant. As a part of this caution, I suggest that the "Final Report on the Minerals Dressing and Analysis of Manganese Ores from Mena, Polk County, Arkansas" by M. M. Fine and R. B. Fisher, U. S. Bureau of Mines, Rolla, Missouri, and the recommendations therein, be considered more seriously than they previously appear to have been. This undated document is a report of milling tests on samples submitted to the Bureau of Mines by M. Howard Berliner of the U. S. Geological Survey on April 13, 1951. The samples are from exploratory openings on the properties of the Arkansas Manganese Company (DMA 1248-X, Idm-E82). These openings appear much more favorable than do those on the properties of Duncan, Dieckman, and Duncan. The report by Fine & Fisher closes with:

> "The results of the study show that the tested samples are not amenable to the economic production of ferrograde manganese concentrates by mineral dressing procedure."

Siegfried J. Muessig

Attachment

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

January 22, 1952

Discussion of Max Crittenden's Analysis

Par. 1. Six drill holes and five trenches for $10,000 is meager exploration for a 6-square-mile tract of land.

Par. 2. First hand information is in U.S.G.S. Bull. 660-C., p. 118. I am personally not inspired to enthusiasm by the philosophical concept that a prospect must be good if it is in a region of good mines. However, if I were so inclined I would have to reason, in this case, that the prospect must be no good because despite many efforts during at least 35 years no good manganese mine has ever been developed in this region.

Par. 4 et sequ. Is mostly dreaming based on the figures contained in the application and the reports attached thereto, which are not corroborated by our field observations.

(a) The "ore" zone is a small fraction of 12 feet wide.
(b) Evidence is lacking to show that the deposit is over half a mile long.
(c) We don't believe the five assays represent true channel samples 8 to 14 long, but represent high-grade pieces selected from such lengths, with the barren material left out.
(d) Half of 3 miles long times 12 feet wide times 15 feet deep is 1,425,600 cu. feet equals 118,967 tons @ 14 cu. ft. per ton (short tons at that) — I don't see where Max gets "about 150,000 tons".

My own figuring is as follows: 2640 feet long times 2 feet thick times 10 feet deep equals 52,800 cu. ft. or 4061 long tons @ 13 cu. ft. per long ton.

Now let us assume that a $10,000 exploration program as proposed succeeds in slightly more than doubling the "ore" reserve, to 10,000 long tons.

Assays of material collected by Howard Berliner for the U.S.G.S. last spring in the Mena district of Arkansas averaged 7% Mn. The 10,000 long tons times 2240 lbs. times 7% equals 1,568,000 lbs. Mn. The Bureau tests shows 27.3% recovery or 360,640 lbs. Mn. which divided by 22.4 equals 16,100 long ton units of manganese. Continuing to use the

Bureau figures this would be about 350 tons of concentrates running 46.1% Mn., 3.1% Fe 25.8% SiO_2, 3.0% Al_2O_3, and 0.16% P. After the penalties, this would be worth about 82¢ per unit, I figure, or $13,202.

Exclusive of amortization of equipment and mill, I calculate mining costs on this material at $2.50 per ton, and I doubt if they better $1.00 per ton milling costs, or $3.50 per ton times 10,000 long tons is $35,000; loss equals $21,798 plus amortization.

Par. 6. True, the samples tested by the Bureau were not representative — the tests referred to are meaningless. Tests run this year by the Bureau on more nearly representative material from this district showed poor recovery yielding a subgrade product high in silica and the conclusion quoted by Muessig.

Par. 7. I am still unconvinced that Inland Mining Company and Southwest Engineering Company can swing it. Max too has expressed some doubt.

Accomplished success might be an argument in favor of exploring other deposits, but the mere existence now of the possibility of success in the future does not, in my opinion, constitute justification now for entering into such exploration at the present time.

David Gallagher

DG/lh

[illegible]

990

File transferred to

Frank Johnson

11/13/51

[illegible]

1/8-52

Administrative File

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

Mr. David Gallagher
Executive Officer
Region VI
221 West 3rd Street
Joplin, Missouri

Dear Sir:

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

Applicant DMBA - 990

Docket No. Manganese

Commodity Duncan, Dieckman and Duncan Mining Company

Amount $ 10,000.00

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

Very truly yours,

[redacted] Chairman
[redacted] Committee
Operating

For Bureau of Mines

For Geological Survey

Defense Minerals Exploration Administration

Review of Application for Exploration Assistance

Docket No. 990

Commodity Manganese

Total Amount $10,000.00

Govt. Participation 75%

1. Name and Address of Applicant Duncan, Dieckman and Duncan Mining Company

605 Walnut Street, St. Louis 2, Missouri

2. Location of Property Mena, Polk County, Arkansas

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

If not, application will be rejected. Yes

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 Yes

b) Poor

c) None

d) Don't know—needs field examination Yes

e) Is there an alternative and favorable project? Yes
(If so, attach an explanation) SEE copy of attached memorandum - Mr. Max Crittenden, USGS

5. Is the applicant's right to the property clearly stated? Yes - Owner
(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? No

a) MF-201? _____

b) MF-202 _____

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

a) Available manpower Not clear - Field Team should check this point.

b) Equipment and supplies Not clear - Field Team should check
(question 14 plus general knowledge of availability)*

c) Accessibility (question 12)* Yes

d) Water (question 13)* Yes

e) Power (question 13)* _____

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

9. Does the experience of the applicant appear to be adequate to assure that he can properly conduct the proposed project? (question 4)* The engineer who prepared the report (E.S.White) could probably direct this proposed work.

Is a field check needed on this point? Advisable

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

a) Is the project adequately described? No

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

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

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

If not, what part of it is? _____

Is this part a worth-while exploration project? Yes

d) Are the cost estimates detailed? No

Can they be summarized, as on page 2 of Procedural Instruction 5-A, from the available data? No If so, attach a draft.

e) Are the cost estimates reasonable? Not detailed

f) Should more information be requested from applicant? Not until Field Team goes over project on ground.

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

11. Exhibit B (question 23-d)*

a) Is it applicable? No - None are required.

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

c) Is a field check needed? No

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

a) Is it applicable? Yes

b) Sufficient data? No If so, attach a draft.

c) Are rents and charges reasonable? Not detailed

d) Is a field check needed? Yes

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

a) Are there sufficient data? No

b) Is the schedule adequate for the work proposed? Not detailed - Field Team please clarify.

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

d) Are the proposed wages and salaries reasonable? _____

e) Is a field check needed? Yes

14. Exhibit E (question 23-c)*

a) Is it applicable? No

b) Sufficient data?

c) Reasonable?

d) Field check needed?

15. In your judgment, can the proposed work be done in the proposed time? Time required should be so stated for the revised program - See Memorandum from Mr. Crittenden attached.
(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 proposed work outlined by the applicant may be modified in line with the recommendations of Mr. Crittenden (see copy of his memorandum attached) and obtain more beneficial results for less expenditures, and with this modification the proposed work should be detailed so we can write up the contract, if it is so recommended.

Reviewed by: FLK
FLKnouse

MCrittenden

MFelcher

Date December 19, 1951

Docket File

BN

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

Mr. David Gallagher
Executive Officer
Region VI
221 West 3rd Street
Joplin, Missouri

Dear Sir:

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

Applicant DMEA - 990

Docket No. Manganese

Commodity Duncan, Dieckman and Duncan Mining Company

Amount $ 10,000.00

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

Very truly yours,

C. O. Mittendorf (hw)

ACTING ~~Executive~~ Chairman
~~Executive~~ Committee
Operating

12-29

For Bureau of Mines

For Geological Survey

Defense Minerals Exploration Administration

Review of Application for Exploration Assistance

Docket No. 990

Commodity Manganese

Total Amount $10,000.00

Govt. Participation 75%

1. Name and Address of Applicant Duncan, Dieckman and Duncan Mining Company

605 Walnut Street, St. Louis 2, Missouri

2. Location of Property Mena, Polk County, Arkansas

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

If not, application will be rejected. Yes

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 Yes

b) Poor

c) None

d) Don't know—needs field examination Yes

e) Is there an alternative and favorable project? Yes
(If so, attach an explanation) SEE copy of attached memorandum - Mr. Max Crittenden, USGS

5. Is the applicant's right to the property clearly stated? Yes - Owner
(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? No

a) MF-201? _____

b) MF-202 _____

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

a) Available manpower ~~Not clear - Field Team should check this point.~~

b) Equipment and supplies ~~Not clear - Field Team should check~~
(question 14 plus general knowledge of availability)*

c) Accessibility (question 12)* Yes

d) Water (question 13)* Yes

e) Power (question 13)* _____

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

9. Does the experience of the applicant appear to be adequate to assure that he can properly conduct the proposed project? (question 4)* ~~The engineer who prepared the report (E.S.White) could probably direct this proposed work.~~

Is a field check needed on this point? ~~Advisable~~

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

a) Is the project adequately described? No

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

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

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

If not, what part of it is? _____

Is this part a worthwhile exploration project? ~~Yes~~

d) Are the cost estimates detailed? ~~No~~

Can they be summarized, as on page 2 of Procedural Instruction 5-A, from the available data? ~~No~~ If so, attach a draft.

e) Are the cost estimates reasonable? ~~Not detailed~~

f) Should more information be requested from applicant? ~~Not until Field Team~~ goes over project on ground.

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

11. Exhibit B (question 23-d)*

a) Is it applicable? ~~No - None are required.~~

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

c) Is a field check needed? ~~No~~

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

a) Is it applicable? ~~Yes~~

b) Sufficient data? ~~No~~ If so, attach a draft.

c) Are rents and charges reasonable? ~~Not detailed~~

d) Is a field check needed? ~~Yes~~

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

a) Are there sufficient data? ~~No~~

b) Is the schedule adequate for the work proposed? ~~Not detailed - Field Team~~ please clarify.

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

d) Are the proposed wages and salaries reasonable? _____

e) Is a field check needed? ~~Yes~~

14. Exhibit E (question 23-c)*

a) Is it applicable? No

b) Sufficient data?

c) Reasonable?

d) Field check needed?

15. In your judgment, can the proposed work be done in the proposed time? Time required should be so stated for the revised program - See Memorandum from Mr. Crittenden attached.
(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 proposed work outlined by the applicant may be modified in line with the recommendations of Mr. Crittenden (see copy of his memorandum attached) and obtain more beneficial results for less expenditures, and with this modification the proposed work should be detailed so we can write up the contract, if it is so recommended.

Reviewed by: FLKnouse

MCrittenden

MMelcher

Date December 19, 1951

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

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

(990L)

TO : George C. Selfridge, Rm. 4070 DATE: December 14, 1951

FROM : Norwood B. Melcher

SUBJECT: DMA-990, Duncan, Dieckman, and Duncan, Polk County, Arkansas

I concur with the comments and recommendations of the U. S. Geological Survey.

Norwood B. Melcher

FILE COPY
SURNAME:

410

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

December 3, 1951

BL

Memorandum

To: Mr. N. B. Melcher, USBM
Interior Building, Room 3513

From: Acting Administrator
Defense Minerals Exploration
Administration

Subject: Docket No. DMEA - 990X
Duncan, Dieckman & Duncan Mining Company
Exploration Project Application

Attached hereto is an Application (Form MF-103) for Aid for an Exploration Project, together with a report by E. S. White, consulting geologist, dated 7-27-49 and 1-8-49, with maps, and a Metallurgical Survey by R. C. Knickerbocker, Chief, Rolla Branch, dated 4-22-49 and 6-27-49, and a memorandum dated November 29, 1951 from Mr. Max D. Crittenden, Jr., USGS.

Please review the above application and return the Docket together with your findings and recommendations to this office.

C. O. Mittendorf (for) N.S RHR

Attachments
FLKnouse/meb
cc to: Adm.Reading File
Reports and Records
Mr. Mittendorf
FLKnouse
Docket

OFFICE OF THE ADMINISTRATOR

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

December 3, 1951

Memorandum

To: Mr. N. B. Melcher, USBM
Interior Building, Room 3513

From: Acting Administrator
Defense Minerals Exploration
Administration

Subject: Docket No. DMEA - 990X
Duncan, Dieckman & Duncan Mining Company
Exploration Project Application

Attached hereto is an Application (Form MF-103) for Aid for an Exploration Project, together with a report by E. S. White, consulting geologist, dated 7-27-49 and 1-8-49, with maps, and a Metallurgical Survey by R. C. Knickerbocker, Chief, Rolla Branch, dated 4-22-49 and 6-27-49, and a memorandum dated November 29, 1951 from Mr. Max D. Crittenden, Jr., USGS.

Please review the above application and return the Docket together with your findings and recommendations to this office.

Attachments

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : ~~P. L. Knouse~~ George C. Selfridge, Rm. 4070 DATE: November 29, 1951

FROM : Max D. Crittenden, Jr.

SUBJECT: DMA-990, Duncan, Dieckman, and Duncan, Polk County, Arkansas.

The applicant proposes to spend a total of $10,000 to explore a manganese deposit in Sections 3, 4, 5, 8-10, T. 4 S., R. 30 W., Polk County, Arkansas. They propose to dig 5 bulldozer trenches, 60 feet long, 20 feet deep, 7 feet wide, and to drill 6 holes, (operator expects to "core drill" but churn drilling is the only type practical in this rock).

The Geological Survey has no first-hand information on the particular deposit described by the applicant. However, there is considerable general information about the area, and I have examined two deposits in the same area, and of the same type within the last 2 months.

The manganese deposits of this area occur in fractured and broken Arkansas novaculite of Devonian age. The ore occurs as pockets, veins or fracture fillings of psilomelane ranging in size from 2' to hairlike stringers. The mineralization is best developed at the top of the lower member of the novaculite, which consists of massive white chert. The ore minerals are all oxides, and almost certainly are produced by ground water, and can not be expected to continue much below the present water table.

Judging from the report of E. S. White, which in general is very good, the mineralized zones on which the applicants' claims are located are 10-12" wide. This is not unusual in that area, however, the grade of the ore seems to be somewhat higher than has been exposed elsewhere.

The following channel samples were taken by White:

12' - 14.6% Mn
8' - 11.3% Mn
13' - 10.6% Mn
13' - 22.9% Mn
14' - 12.55% Mn

Although the most widely separated of these samples are at least 2 miles apart, 4 of the samples are located within a distance of three-quarters of a mile. The maximum depth reported of the open-cuts is about 7' and the width averages about 12'. On this basis, it may be reasonable to infer that this three-quarters of a mile interval would yield about 5000 tons averaging about 15% Mn. per foot of depth. Thus if open pit mining can be carried to 15', the reserves would be 72,000 tons. Inasmuch as there is every reason to expect ore to be present in the area between the more widely spaced samples the reserves of the

property as a whole should ultimately prove to be larger than this. The applicant did some bulldozer trenching at 5 locations, and constructed a road for a distance of about 2 miles in 1949. In April of 1951 he made 4 additional cuts. If further exploration proves the ore-bearing zone to be continuous over half of the total distance of 3 miles, reserves of about 150,000 tons would be available to a depth of about 15'. Operations below this level would have to be carried out by underground mining methods.

Metallurgical testing of 2 samples has been done by the Bureau of Mines at Rolla. The results have proved that an excellent product can be obtained by gravity separation after fine grinding. By tabling a sample assaying 24.7% they obtained a 78% recovery in a product assaying 44.1% before sintering. Similar results apparently could be obtained by sink float. Unfortunately the sample tested is not representative of the grade of material as a whole as indicated by the channel samples listed above. Moreover, the average grade of material of this sort, mined in large quantities, is more likely to be 5 to 10% than the 15% indicated by those samples.

Recommendation

The work that has been done to date by the Inland Mining Corporation and by the applicant suggests that there is a possibility of producing Mn from these deposits at a price no higher than that contemplated at Deming, New Mexico ($2.00 per unit). On this basis, it would seem reasonable to approve limited exploration of these deposits to determine the actual grade, continuity and depth to which the ores extend.

The present application does not include sufficient information for preparation of a contract, and it is suggested that the applicant be asked to submit more detailed plans showing exactly where on these properties new openings are to be made. In this connection it would appear to me that trenching to a depth of 20' may not be necessary if drilling also is to be done. Also I wonder if it would not be practical for the applicant to trench lengthwise along the vein instead of crosswise. In most of the area a trench 5' deep is sufficient to expose bed rock. By this means his 5 cross trenches 60 x 20 x 7 could be converted into one long trench 5' deep, 10' wide and 250' long. It appears to me that this might provide more information about the deposit. Perhaps in order to prevent undue delay this request to the applicant could be made at the same time the docket is referred to the field, and the applicant could be requested to submit his information directly to the Field Team at the time of their visit. In any case, the feasability of the above or the applicants' counter suggestions should be checked by the Field Team.

BUREAU OF MINES
WASHINGTON, D.C.

Nov 30 1 41 PM '51

FILE COPY
SURNAME:

410

F.L. Knouse
Mittendorf (fw)

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

7 1951

Duncan, Dieckman & Duncan Mining Company
605 Walnut Street
St. Louis 2, Missouri

Re: Docket No. DMA - 990X
Duncan, Dieckman & Duncan Mining Co.
Exploration Project Application

Gentlemen:

With reference to your letter of November 15, we wish to advise you that your application is being processed and we will keep you informed of its progress.

Sincerely yours,

C. O. Mittendorf (fw) 11/27

ACTING Administrator
Defense Minerals Exploration Administration

FLKnouse/meb
11/26/51

cc to: Adm.Reading File
Reports & Records
Mr. Mittendorf
Mr. Knouse
Docket

Bd

November 20, 1951

Memorandum

To: Mr. Max D. Crittenden, USGS
Room 4210

From: Mr. F. L. Knouse, DMA
Room 4035

Subject: Docket No. DMA - 990X
Duncan, Dieckman & Duncan Mining Company
Exploration Project Application

Attached hereto is an Application (Form MF-103) for Aid for an Exploration Project, together with a report by E. S. White, consulting geologist, dated 7-27-49 and 1-8-49, with maps, and a Metallurgical Survey by R. C. Knickerbocker, Chief, Rolla Branch, dated 4-22-49 and 6-27-49.

Please review the above application and return the Docket together with your findings and recommendations to this office.

J. L. Knouse

Attachments

cc to: Reports and Records
PED
FLKnouse
Docket

File

GARFIELD 1062

DUNCAN, DIECKMAN & DUNCAN MINING CO.

A MISSOURI CORPORATION

605 WALNUT ST. ST. LOUIS 2, MO.

OFFICERS.
WM. G. DUNCAN, PRES.
DONALD DUNCAN, V. PRES.
GEO. E. DIECKMAN, SEC. & TREAS.

MANGANESE
MINE
MENA, ARK.

II/15/51

DEPARTMENT OF THE INTERIOR
RECEIVED
NOV 20 1951
Defense Minerals Administration,
Production Expansion Division.

Mr. Johnson
Department of Interior,
D.M.A., Washington, D.C.

Dear Mr. Johnson;

File # 990 X

This will confirm our telephone conversation last Friday.

You asked why we need more exploration work, with the good showing we have. We have not tested for depth, which is necessary.

We are only asking for $7,500. Our property extends over the tops of two mountains for a distance of three miles, the ore body on the surface is seventy feet wide for the entire distance, the ground being solidly covered. It is something worthwhile looking at. There are many boulders on the surface the size of an automobile. In the opinion of many, thedepth of our ore body, will be more than 300 feet,

Originally we asked for a loan of $200,000., but was asked to reduce it to $7,500. for further exploration.

The enclosed clipping may interest you.

I very much appreciate the information you gave me and wish to thank you.

Very truly yours,

G E Dieckman

Secretary.

DEFENSE MINERALS
ADMINISTRATION
WASHINGTON, D.C.
Nov 19 1 46 PM '51

Weather Table 5C
With the Military 8A

...on,

...ximately due west of Cape Flattery on Washington's Olympic Peninsula.

...k

...onversations, we
...k A, consisting
...ct, to be at-
...an exploration
...onal discovery of
...laims in Polk
...sou... of Harrison by large trailer-

(See WEATHER on Page 2A)

...have heretofore
...g term loan under
...duction Act of
...fore such an ap-
...further explora-

...you application for
...enclosed documents

...r will receive

...y yours,

...opposition, said the GOP was ...

(See ELECTIONS on Page 2A)

...entered, Chamber ...
Manager Jack Derdeyn said.

Washington Interest Mounts in Manganese Development Near Norman

Ark-Cal Plant Is Scheduled to Begin Handling of Ore Within Week

Gazette State News Service

Norman, Nov. 6.—A move to tap more of Arkansas's largely undeveloped manganese resources has been launched here, and federal aid for the project is under consideration by three Washington agencies.

The move has been spurred by mining operations in this area by Ark-Cal Manganese, Inc. The firm has been exploring and mining its holdings about three months. First processing and shipping of manganese is expected next week upon completion of a 300-ton-per-day milling plant between Norman and Mount Ida.

Nicholas G. Baxter, mining engineer for Ark-Cal, said today the plant should be ready to handle ore by the end of this week if weather doesn't delay the work.

Baxter also is chairman of a citizens committee formed at this southern Montgomery county town to find a wider market for the area's manganese. The group, with the aid of Senator John L. McClellan and Representative Boyd Tackett, has received favorable response from the Defense Minerals Procurement Administration and the Defense Production Administration.

The citizens committee hopes to have a government stockpile ore purchasing depot established at Norman or nearby.

A spokesman for the General Services Administration said today that agency is now considering location of such a depot in Arkansas to buy manganese for the federal stockpile as well as for immediate use in the defense program, the Gazette Washington Bureau reported.

GSA has such a manganese depot in operation now at Butte, Mont., and has announced plans to open others at, Phillipsburg, Mont., and Demming, N. M.

Confirming that his agency, too, is considering an Arkansas depot, a Defense Materials Procurement Administration official told the Gazette Washington Bureau today: "The discussions are so tentative that the plans are still very nebulous and no early decision is foreseen."

He said the purpose of such a depot would be to give Arkansas miners a convenient place to sell their ore to the government.

Baxter pointed out that location of a purchasing depot here would not affect his firm's operation. "We have enough ore in our holdings," he said, "but there are hundreds of smaller deposits that could be mined profitably if the miners had a convenient place to sell it."

At the Montana depot, Baxter said, the government buys 15 per cent ore for $6.10 per long dry ton; pays $34.81 per ton for 30 per cent ore, and $76 per ton for 40 per cent ore. These prices are for delivery at the stockpile depot.

Baxter urged persons who would sell ore to the government if an Arkansas depot were established to contact him at the Norman Town Hall Building. "This may help obtain a depot in the area," he said.

Manganese is found in Arkansas in an area stretching from western Garland County to a point east of Mena, Baxter said, covering about 45 miles. The strip is about 15 miles wide, centering on Norman, and includes much of Polk, Montgomery and Garland Counties and northeast portion of Pike County.

Ark-Cal Manganese, Inc., has four big holdings in the area, he said, but there are many other deposits which previously didn't justify development because there were few roads into the area.

"In the last few years," Baxter said, "Montgomery County and the Forest Service have built many roads between ridges which lend to development of the state's manganese resources." Arkansas ranks seventh in the nation in manganese potential, he pointed out.

"Another thing that makes development now advisable," he continued, "is that the government is willing to defray up to 75 per cent of the cost of exploration because of the need for manganese in the defense effort."

Manganese is used primarily to strengthen and toughen steel. Ark-Cal has committments from United States Steel and its subsidiaries for purchase of the manganese to be processed at the new milling plant, Baxter said, but small operators would need a government purchasing depot to make mining by them profitable.

One of Ark-Cal's deposits is near Hopper, about six miles south of Norman, Baxter said. The firm is mining with a 3-4 yard power shovel there now. Operation during the past three months has filled Ark-Cal's bunkers and production now is awaiting completion of the milling plant. The firm already has plans for a larger plant, Baxter said.

Ark-Cal Manganese, Inc., is owned by Baxter, a former Arkansan who had lived on the West Coast for many years, and a group of Californians, the mining engineer said. The same group also has mining operations on the West Coast, as California Dolomite, Inc.

FILE COPY
SURNAME:

Holderer
Schroeder

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

AUG 15 1951

Hon. Frank C. Karsten
House of Representatives
Washington 25, D. C.

In reply please refer to
DMA 990

Dear Mr. Karsten:

This is in reply to your telephone request for information regarding the status of an application for an exploration loan from Duncan, Dinsmoor, and Duncan Mining Company of St. Louis, Missouri, DMA 990.

There is attached a copy of a letter, dated July 17, 1951, sent to Mr. Thomas J. Guilfoil of Bartman, Buckley, and Guilfoil, representatives of the company.

To recover a significant quantity of manganese, a large-scale operation is necessary. A test case is under consideration at the moment, and it would not be wise to extend the work until favorable results are obtained from the first job.

Sincerely yours,

M. G. SCHROEDER

Acting Administrator

cc 8/16

Enclosure

GEHolderer:dgs
August 14, 1951

CC: Adm. Reading File
Reports & Records Unit
Dep. Admin., Rm 4617
Mr. Holderer
Files

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

Hon. Frank A. Karsten
House of Representatives
Washington 25, D. C.

In reply please refer to
DMA 990

Dear Mr. Karsten:

This is in reply to your telephone request for information regarding the status of an application for an exploration lease from Duncan, Dieckman, and Duncan Mining Company of St. Louis, Missouri, DMA 990.

There is attached a copy of a letter, dated July 17, 1951, sent to Mr. Thomas J. Quilfoil of Martzen, Muckley, and Quilfoil, representatives of the company.

To recover a significant quantity of manganese, a large-scale operation is necessary. A test case is under consideration at the moment, and it would not be wise to extend the work until favorable results are obtained from the first job.

Sincerely yours,

M. G. SOMERFORD

Acting Administrator

Enclosure

GBHolderer:dgs
August 14, 1951

CC: Adm. Reading File
Reports & Records Unit
Dep. Admin., Rm 4617
Mr. Holderer
Files

340

HARTMAN AND GUILFOIL
ATTORNEYS AND COUNSELORS
319 NORTH FOURTH STREET
SAINT LOUIS 2, MISSOURI

ERWIN C. HARTMAN
THOMAS J. GUILFOIL
EDMUND C. ALBRECHT, JR.

MAIN 9290

August 7, 1951

Mr. George B. Holderer
Chief, Manganese Branch
Defense Minerals Administration
Washington 25, D. C.

Re: DMA 990X

Dear Mr. Holderer:

Upon my return to St. Louis I found your letter of July 17 concerning the above-captioned exploration loan.

I will discuss the matter contained in your letter with officers of the company and will let you know further as to the plans of that company.

Very truly yours,

TJG/lb

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

July 17, 1951

Duncan Dreckman + Duncan
Mining

Mr. Thomas J. Guilfoil
Hartman, Buckley and Guilfoil
Attorneys at Law
319 North Fourth St.
St. Louis 2, Missouri

In reply please refer to
DMA 990X

a.E.C.

Dear Mr. Guilfoil:

This is in reply to your letter of June 25, 1951.

Since discussing with you in the office the possibility of Government assistance in development of your properties in Ouachita district, western Arkansas, the DMA has begun negotiations with two other companies for a considerable amount of exploration in this same district. The purpose of this work is to determine whether sufficient ore reserves exist and whether their character is suitable for the recovery of manganese from this low-grade material by large scale mining operations. Under the circumstances it does not appear desirable now to undertake additional exploration until it has been determined whether this is feasible under present circumstances.

Therefore, it is suggested that you hold in abeyance your proposal pending the outcome of this work. If the results are satisfactory, you would have the advantage of this extensive exploration and of the metallurgical testing which is being done in the area. If very large scale operations are feasible, it might be most practical for you to integrate your operations with those of other companies in the area, or if small-scale operations are feasible it may be possible for you to operate independently.

Very truly yours,

George B. Holderer
jam

George B. Holderer
Chief, Manganese Branch

MDCrittenden:bl

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

340
FILE COPY
SURNAME:

Holderer
Crittenden

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

July 17, 1951

Mr. Thomas J. Guilfoil
Hartman, Buckley and Guilfoil
Attorneys at Law
319 North Fourth St.
St. Louis 2, Missouri

In reply please refer to
DMA 990X

Dear Mr. Guilfoil:

This is in reply to your letter of June 25, 1951.

Since discussing with you in the office the possibility of Government assistance in development of your properties in Ouachita district, western Arkansas, the DMA has begun negotiations with two other companies for a considerable amount of exploration in this same district. The purpose of this work is to determine whether sufficient ore reserves exist and whether their character is suitable for the recovery of manganese from this low-grade material by large scale mining operations. Under the circumstances it does not appear desirable now to undertake additional exploration until it has been determined whether this is feasible under present circumstances.

Therefore, it is suggested that you hold in abeyance your proposal pending the outcome of this work. If the results are satisfactory, you would have the advantage of this extensive exploration and of the metallurgical testing which is being done in the area. If very large scale operations are feasible, it might be most practical for you to integrate your operations with those of other companies in the area, or if small-scale operations are feasible it may be possible for you to operate independently.

Very truly yours,

George B. Holderer
pm

George B. Holderer
Chief, Manganese Branch

MDCrittenden:bl

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

July 17, 1951

Mr. Thomas J. Guilfoil
Hartman, Buckley and Guilfoil
Attorneys at Law
319 North Fourth St.
St. Louis 2, Missouri

In reply please refer to
DMA 990X

Dear Mr. Guilfoil:

This is in reply to your letter of June 25, 1951.

Since discussing with you in the office the possibility of Government assistance in development of your properties in Ouachita district, western Arkansas, the DMA has begun negotiations with two other companies for a considerable amount of exploration in this same district. The purpose of this work is to determine whether sufficient ore reserves exist and whether their character is suitable for the recovery of manganese from this low-grade material by large scale mining operations. Under the circumstances it does not appear desirable now to undertake additional exploration until it has been determined whether this is feasible under present circumstances.

Therefore, it is suggested that you hold in abeyance your proposal pending the outcome of this work. If the results are satisfactory, you would have the advantage of this extensive exploration and of the metallurgical testing which is being done in the area. If very large scale operations are feasible, it might be most practical for you to integrate your operations with those of other companies in the area, or if small-scale operations are feasible it may be possible for you to operate independently.

Very truly yours,

George B. Holderer

jem

George B. Holderer
Chief, Manganese Branch

MDCrittenden:bl

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

Telephone inquiry from Cong. Karsten re status of DMA 990. He wishes us to write a letter. Karsten's secretary has discussed with Selfridge. See letter to Karsten.

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : George Holderer DATE: July 10, 1951

FROM : M. D. Crittenden

SUBJECT: Letter from Thos. Guilfoil of June 25 - DMA 990 X

The following is a suggested draft of a letter to Mr. Guilfoil in reply to his inquiry concerning an exploration project proposed in western Arkansas manganese area.

"Since discussing with you in the office the possibility of Government assistance in development of your properties in Ouachita district, western Arkansas, the DMA has begun negotiations with two other companies for a considerable amount of exploration in this same district. The purpose of this work is to determine whether sufficient ore reserves exist and whether their character is suitable for the recovery of manganese from this low-grade material by large scale mining operations. Under the circumstances it does not appear desirable now to undertake additional exploration until it has been determined whether this is feasible under present circumstances.

Therefore, it is suggested that you hold in abeyance your proposal pending the outcome of this work. If the results are satisfactory, you would have the advantage of this extensive exploration and of the metallurgical testing which is being done in the area. If very large scale operations are feasible, it might be most practical for you to integrate your operations with those of other companies in the area, or if small-scale operations are feasible it may be possible for you to operate independently."

Address the above letter to
Mr. Thomas L. Guilfoil
President, President & Director
Arkansas Mn Co.
319 North Sycamore St.
Hannibal, Missouri

Refer to DMA 990 X
Date of the above letter
[illegible]

George Holderer July 10, 1951

M. D. Crittenden

Letter from Thos. Guilfoil of June 25 - DMA 990 X

The following is a suggested draft of a letter to Mr. Guilfoil in reply to his inquiry concerning an exploration project proposed in western Arkansas manganese area.

Since discussing with you in the office the possibility of Government assistance in development of your properties in Ouachita district, western Arkansas, the DMA has begun negotiations with two other companies for a considerable amount of exploration in this same district. The purpose of this work is to determine whether sufficient ore reserves exist and whether their character is suitable for the recovery of manganese from this low-grade material by large scale mining operations. Under the circumstances it does not appear desirable now to undertake additional exploration until it has been determined whether this is feasible under present circumstances.

Therefore, it is suggested that you hold in abeyance your proposal pending the outcome of this work. If the results are satisfactory, you would have the advantage of this extensive exploration and of the metallurgical testing which is being done in the area. If very large scale operations are feasible, it might be most practical for you to integrate your operations with those of other companies in the area, or if small-scale operations are feasible it may be possible for you to operate independently.

MDCrittenden:gt

Address the above letter to
Mr. Thomas J. Guilfoil
Hartman, Buckley and Guilfoil
Attorneys at Law
319 North Fourth St.
~~Kansas City~~ St. Louis 2, Missouri

Subject: DMA-990 X
Duncan, Dickerman and
Duncan Mining Co.

Dwo File

HARTMAN, BUCKLEY AND GUILFOIL
ATTORNEYS AND COUNSELORS
319 NORTH FOURTH STREET
SAINT LOUIS 2, MISSOURI

ERWIN C. HARTMAN
R. FORDER BUCKLEY
THOMAS J. GUILFOIL
EDMUND C. ALBRECHT, JR.

MAIN 9290

June 25, 1951

no reply necessary

The Honorable Landon F. Strobel
Executive Secretary
Defense Minerals Administration
U. S. Department of the Interior
Washington 25, D. C.

Subject: DMA-990X
Re: Exploration loan

Dear Mr. Strobel:

I thank you so much for your letter of June 20, 1951 with reference to the above-captioned exploration loan application. You will probably not remember me but I visited with you last February about this matter and you were kind enough to direct me to the proper office for filing the necessary papers.

Thanking you for your courtesy and cooperation, I am

Very truly yours,

THOMAS J. GUILFOIL

TJG/nm

Holderer

HARTMAN, BUCKLEY AND GUILFOIL
ATTORNEYS AND COUNSELORS
319 NORTH FOURTH STREET
SAINT LOUIS 2, MISSOURI

ERWIN C. HARTMAN
R. FORDER BUCKLEY
THOMAS J. GUILFOIL
EDMUND C. ALBRECHT, JR.

MAIN 9290

Air Mail

June 25, 1951

Mr. George Holderer, Chief
Manganese Branch
Defense Minerals Administration
U. S. Department of the Interior
Washington 25, D. C.

Subject: DMA-990X
Re: Exploration Loan

Dear Mr. Holderer:

I have received a letter from Mr. Strobel dated June 20, 1951 informing me that the above-captioned loan application was referred to you for study on June 1st, 1951.

You may recall that I was in your office on two occasions and had the pleasure of discussing this matter with you. I sincerely hope that this exploration loan can be given early and favorable consideration. The Duncan, Dieckman and Duncan Mining Company has already expended a considerable amount of money in clearing this property and pushing roads through.

We are convinced that the property is worth developing at this critical time and hope that you will agree with us on its possibilities.

Very truly yours,

THOMAS J. GUILFOIL

TJG/nm

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 27 1951
LANDON F. STROBEL
Executive Secretary

FILE COPY
SURNAME:

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

June 20, 1951

Mr. Thomas J. Guilfoil
Hartman, Buckley, and Guilfoil
319 North Fourth Street
St. Louis 2, Missouri

Subject: DMA-990X
Re: Exploration loan

My dear Mr. Guilfoil:

Receipt is acknowledged of your application and attachments of May 31, 1951 for Duncan Dieckman and Duncan Mining Company for an exploration loan under the Defense Production Act of 1950.

The application was assigned Docket Number DMA-990X and was referred to Mr. George Holderer, Chief, Manganese Branch on June 1, 1951.

In any future correspondence relating to your application, kindly refer to DMA990X.

Sincerely yours,

LANDON F. STROBEL

Landon F. Strobel
Executive Secretary

LFSTROBEL:Jeb
cc: Strobel-2
Files
Holderer
Lyon

Duncan Dieckman and Duncan Mining Co.

June 20, 1951

Mr. Thomas J. Guilfoil
Hartman, Buckley, and Guilfoil
319 North Fourth Street
St. Louis 2, Missouri

Subject: DMA-990X
Re: Exploration loan

My dear Mr. Guilfoil:

Receipt is acknowledged of your application and attachments of May 31, 1951 for Duncan Dieckman and Duncan Mining Company for an exploration loan under the Defense Production Act of 1950.

The application was assigned Docket Number DMA-990X and was referred to Mr. George Holderer, Chief, Manganese Branch on June 1, 1951.

In any future correspondence relating to your application, kindly refer to DMA990X.

Sincerely yours,

LANDON F. STROBEL

Landon F. Strobel
Executive Secretary

LFSTROBEL:Jeb
cc: Strobel-2
Files
Holderer
Lyon

FILE COPY
SURNAME:

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

Boyd
for
Strobel 6/14

June 12, 1950

Hon. Frank M. Karsten
House of Representatives
Washington, D. C.

In reply please refer to:
DMA-990

Dear Mr. Karsten:

This will acknowledge your letter of June 7, 1951, concerning the status of the loan application of Duncan, Dieckmann and Duncan Mining Company, St. Louis, Missouri.

The applicant's request for a straight loan of $200,000 for exploration and equipment of their manganese properties in Polk County, Arkansas, was denied on May 14, 1951, and they were advised to this effect.

However, the company has submitted an application for an exploration loan of $10,000 which is now under consideration by the Manganese Branch.

Sincerely yours,

JAMES BOYD

Administrator

PRBradley:mam

cc: Adm. Reading File
Mr. Strobel
Mr. Douglas
Mr. Bradley
Files

FRANK M. KARSTEN
13TH DISTRICT, MISSOURI

LANDON F. STROBEL
Bradley

MEMBER OF
COMMITTEE ON EXPENDITURES IN THE EXECUTIVE DEPARTMENTS
COMMITTEE ON POST OFFICE AND CIVIL SERVICE
MIGRATORY BIRD CONSERVATION COMMISSION
UNITED STATES TERRITORIAL EXPANSION COMMISSION
ASSISTANT MAJORITY WHIP

HOUSE OF REPRESENTATIVES
WASHINGTON, D. C.

June 7, 1951

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 11 1951
LANDON F. STROBEL
Executive Secretary

Hon. James Boyd
Director, Bureau of Mines
Department of the Interior
Washington, D. C.

DMA 990

Dear Mr. Boyd:

There has been called to my attention the case of the Duncan, Dieckman and Duncan Mining Company, which I understand has applied for financial assistance through the Office of Defense Minerals.

I am not familiar with the details of the case and, of course, would not want to make any recommendation. The file number, I am informed, is DMA-990.

I shall appreciate it if you will advise me of the status of this application and inform me of the final action taken on the case.

Sincerely yours,

Frank M. Karsten

Answered by Bradley
6/12/51

BUREAU OF MINES
MAIL ROOM
WASHINGTON, D. C.

JUN 11 9 22 AM '51

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

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

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

DO NOT FILL IN THIS BLOCK

Docket No. DMA 990X

Date received 5-31-51

Participation

Duncan, MacLinn & Duncan Mining Co.,
a corp.,
605 Walnut St.,
St. Louis 2, Mo.

Name and address of applicant

Date May 29, 1951.

FILL IN THIS BLOCK

Date of application May 29, 1951.

Estimated cost $10,000.00

Mineral or metal Manganese

Percentage of Government participation 75%

Location of mine Mena, Polk County, Arkansas.

Date of filing MF-100

DMA Docket Number, if available DMA 990 X

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation? Corporation.

*2. If a partnership, state names and addresses of partners.

*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders. See Rider.

*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project. See Rider.

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

6. If owner, state what claims, liens, or encumbrances, if any, are against the property. None.

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

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

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

9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)? $25,000.00. This sum, together with loan, is sufficient for additional exploration.

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

16—64067-1

THE PROPERTY (See Rider)

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.
*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.
*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.
*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.
15. State in detail how the ore could be shipped and how and where milled.
*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.
*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.
19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION (See Rider)

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?
21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.

22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS (See Rider)

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.
24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

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

Duncan, Nicolaisen & Duncan Mining Co. (Name of company) By Wm. R. Duncan (Signature of authorized official)

May 20, 1952. (Date) President. (Title)

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

*Same as footnote on page 1.

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

THE APPLICANT

3. Officers, directors and stockholders — William C. Duncan, 7240 Sarah St., Maplewood, St. Louis County, Missouri, President, Director and Stockholder; Donald Duncan, Waldron, Arkansas, Vice President, Director and Stockholder; George E. Dieckman, 4527 West Pine Boulevard, St. Louis, Missouri, Secretary and Treasurer, Director and Stockholder; Patrick Gallock, St. Louis, Missouri, Stockholder

4. Duncan, Dieckman & Duncan Mining Co. was organized June 10, 1949, as a corporation to exploit and develop the mining claims herein referred to. Its personnel was inexperienced in mining but retained E. S. White, of Mena, Arkansas, a geologist, with 40 years experience in the geological field. He is a graduate of University of Mississippi and of the Colorado School of Mines, and is intimately familiar with the mineral conditions in Polk County and surrounding territory. The report of Mr. White has been heretofore forwarded in connection with the corporation's application for Certificate of Necessity. Since 1949 the personnel of this company have devoted their personal time and attention to preliminary exploration work and are now relatively experienced in the promotion and development of this tract. The project will be managed and under the supervision of Mr. White, and Mr. William C. Duncan and Mr. Donald Duncan will give their time and efforts to the further exploration of the property.

8. The corporation has no profit and loss statement since it has not been actively engaged in business, but its assets consist entirely of the mining claims hereinafter described, in which it has already invested in connection with exploration the sum of approximately $7,000.00.

THE PROPERTY

10. 24 mining claims were filed in October and November, 1948, involving the property located in Polk County, Arkansas. This property is in Township 4 South, Range 30 West, in Polk County, Arkansas, and are located respectively in Sections 3, 4, 6, 8, 9 and 10. The mining claims are designated simply as Group No. 1. The claims cover a tract approximately 3 miles long and appear from the maps hereto attached.

11. See above.

12. The mining claims are 14 miles south of Mena, Arkansas, and 15 miles east of Cove, Arkansas. The Kansas City, Southern Railroad is approximately 15 miles from the property, passing through both Mena and Cove. Hard surface roads to both Mena and Cove are within a quarter of a mile from the claims and there is a gravel road from the hard road from the foot up to the top of the mountain, and a dirt road heretofore constructed by the corporation to the mining claims, which are located on the top of a mountain. The roads are in good condition and there should be no difficulty in transporting to the railroad.

13. There is a creek at the foot of the mountain, which has all year round a sufficient and adequate supply of water for the operations of the mine.

14. There is no equipment now on the property. However, the mining will be a strip mine operation, which will require only portable equipment and tools and no shafting hoists or tunneling are contemplated.

15. It is the purpose of the corporation to erect a mill for processing of the ore on the property. The ore can be transported to the bottom of the mountain either by truck or by belt conveyer. From the bottom of the mountain it would be shipped to the railroad approximately 15 miles away.

16. Exploration activities have taken place since 1949. 7 exploratory trenches have been dug, each 30 to 40 feet long, 7 feet deep and 6 to 8 feet wide. These are about a quarter of a mile apart and have all accrued to the satisfaction of the corporation the existence of manganese ore in economical quantities. In 1950 surface dirt has been stripped from the top of the mountain at 5 locations, each of these are 50 feet wide by 60 feet long and about 4 feet deep. They are about a quarter of a mile apart and have exposed many veins of ores which indicate the presence in large quantities of manganese. A further trench has been dug 50 feet long by 7 feet wide by a depth of 23 feet, which exposed approximately 9 veins of ore, 3 of which are 3 to 4 feet wide; 25 tons of ore have been taken out and are now piled next to the excavation. During all of this time Mr. White, heretofore referred to, has made tests and examinations and has reported favorably as appears from his report heretofore filed and accompanying this application.

17. As aforesaid, the mine is not now in production, and, consequently, the information called for in this question is not available.

THE EXPLORATION

20. It is proposed to make further explorations to indicate the presence and in what type and quantity manganese ore exists.

21. It is proposed with the proceeds of the government loan herewith applied for and the additional money to be invested by the corporation, to dig 5 additional trenches, all of which will be 60 feet long, 20 feet deep and 7 feet wide. It is proposed to make core drills to a depth of 50 feet in each of those trenches to indicate the depth of the veins thus exposed as well as the quality and quantity of ore available. The additional exploration work to be financed as aforesaid should be concluded within 60 to 90 days since the extensive development work is almost sufficient to indicate conclusively the presence of economical ore bodies.

22. The statements and reports of E. S. White are herewith filed, together with maps of the project.

23. A schedule as set forth in question 23 is not applicable since the work of further exploration will be done by contracts with independent contractors. The cost of digging each trench by contract should be approximately $1200.00, and the cost of the borings should be $300.00 each. Therefore, the cost of contracting this work would be a total of $7800.00; in addition, the services of E. S. White, who will supervise the work, would be approximately $1,000.00, and the cost of assays would be approximately $500.00. The balance of the cost would constitute expenses and nominal compensation to William C. Duncan and Donald Duncan, who will devote their time to additional supervision.

24. All of the above work will be commenced forthwith and should be completed no later than 90 days from its start.

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

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

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

DO NOT FILL IN THIS BLOCK

Docket No. DMA 990X

Date received 5-3-51

Participation

Duncan, Dieckman & Duncan Mining Co.,
a corp.,
605 Walnut St.,
St. Louis 2, Mo.

Name and address of applicant

Date May 29, 1951.

FILL IN THIS BLOCK

Date of application May 29, 1951.

Estimated cost $10,000.00

Mineral or metal Manganese

Percentage of Government participation 75%

Location of mine Mena, Polk County, Arkansas.

Date of filing MF-100

DMA Docket Number, if available DMA 990X

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation? Corporation.

*2. If a partnership, state names and addresses of partners.

*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders. See Rider.

*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project. See Rider.

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

6. If owner, state what claims, liens, or encumbrances, if any, are against the property. None.

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

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

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

9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)? $2500.00. This sum, together with loan, is sufficient for additional exploration.

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

16—64067-1

THE PROPERTY (See Rider)

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.
*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.
*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.
*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.
15. State in detail how the ore could be shipped and how and where milled.
*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.
*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.
19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION (See Rider)

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?
21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.

22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS (See Rider)

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.
24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

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

Duncan, Moehman & Duncan Mining Co. (Name of company) By Wm. H. Duncan (Signature of authorized official)

May 28, 1951. (Date) President. (Title)

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

*Same as footnote on page 1.

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

THE APPLICANT

3. Officers, directors and stockholders — William G. Duncan, 7240 Sarah St., Maplewood, St. Louis County, Missouri, President, Director and Stockholder; Donald Duncan, Waldron, Arkansas, Vice President, Director and Stockholder; George E. Dieckman, 4527 West Pine Boulevard, St. Louis, Missouri, Secretary and Treasurer, Director and Stockholder; Patrick Wallock, St. Louis, Missouri, Stockholder

4. Duncan, Dieckman & Duncan Mining Co. was organized June 10, 1949, as a corporation to exploit and develop the mining claims herein referred to. Its personnel was inexperienced in mining but retained E. S. White, of Mena, Arkansas, a geologist, with 40 years experience in the geological field. He is a graduate of University of Mississippi and of the Colorado School of Mines, and is intimately familiar with the mineral conditions in Polk County and surrounding territory. The report of Mr. White has been heretofore forwarded in connection with the corporation's application for Certificate of Necessity. Since 1949 the personnel of this company have devoted their personal time and attention to preliminary exploration work and are now relatively experienced in the promotion and development of this tract. The project will be managed and under the supervision of Mr. White, and Mr. William G. Duncan and Mr. Donald Duncan will give their time and efforts to the further exploration of the property.

8. The corporation has no profit and loss statement since it has not been actively engaged in business, but its assets consist entirely of the mining claims hereinafter described, in which it has already invested in connection with exploration the sum of approximately $7,000.00.

THE PROPERTY

10. 24 mining claims were filed in October and November, 1948, involving the property located in Polk County, Arkansas. This property is in Township 4 South, Range 30 West, in Polk County, Arkansas, and are located respectively in Sections 3, 4, 6, 8, 9 and 10. The mining claims are designated simply as Group No. 1. The claims cover a tract approximately 3 miles long and appear from the maps hereto attached.

11. See above.

12. The mining claims are 14 miles south of Mena, Arkansas, and 15 miles east of Cove, Arkansas. The Kansas City, Southern Railroad is approximately 15 miles from the property, passing through both Mena and Cove. Hard surface roads to both Mena and Cove are within a quarter of a mile from the claims and there is a gravel road from the hard road from the foot up to the top of the mountain, and a dirt road heretofore constructed by the corporation to the mining claims, which are located on the top of a mountain. The roads are in good condition and there should be no difficulty in transporting to the railroad.

13. There is a creek at the foot of the mountain, which has all year round a sufficient and adequate supply of water for the operations of the mine.

14. There is no equipment now on the property. However, the mining will be a strip mine operation, which will require only portable equipment and tools and no shafting hoists or tunneling are contemplated.

15. It is the purpose of the corporation to erect a mill for processing of the ore on the property. The ore can be transported to the bottom of the mountain either by truck or by belt conveyor. From the bottom of the mountain it would be shipped to the railroad approximately 15 miles away.

16. Exploration activities have taken place since 1949. 7 exploratory trenches have been dug, each 30 to 40 feet long, 7 feet deep and 6 to 8 feet wide. These are about a quarter of a mile apart and have all accrued to the satisfaction of the corporation the existence of manganese ore in economical quantities. In 1950 surface dirt has been stripped from the top of the mountain at 5 locations, each of these are 50 feet wide by 60 feet long and about 4 feet deep. They are about a quarter of a mile apart and have exposed many veins of ores which indicate the presence in large quantities of manganese. A further trench has been dug 50 feet long by 7 feet wide by a depth of 23 feet, which exposed approximately 9 veins of ore, 3 of which are 3 to 4 feet wide; 25 tons of ore have been taken out and are now piled next to the excavation. During all of this time Mr. White, heretofore referred to, has made tests and examinations and has reported favorably as appears from his report heretofore filed and accompanying this application.

17. As aforesaid, the mine is not now in production, and, consequently, the information called for in this question is not available.

THE EXPLORATION

20. It is proposed to make further explorations to indicate the presence and in what type and quantity manganese ore exists.

21. It is proposed with the proceeds of the government loan herewith applied for and the additional money to be invested by the corporation, to dig 5 additional trenches, all of which will be 60 feet long, 20 feet deep and 7 feet wide. It is proposed to make core drills to a depth of 50 feet in each of these trenches to indicate the depth of the veins thus exposed as well as the quality and quantity of ore available. The additional exploration work to be financed as aforesaid should be concluded within 60 to 90 days since the extensive development work is almost sufficient to indicate conclusively the presence of economical ore bodies.

22. The statements and reports of E. S. White are herewith filed, together with maps of the project.

THE REQUIREMENTS AND COSTS

23. A schedule as set forth in question 23 is not applicable since the work of further exploration will be done by contracts with independent contractors. The cost of digging each trench by contract should be approximately $1200.00, and the cost of the borings should be $300.00 each. Therefore, the cost of contracting this work would be a total of $7800.00; in addition, the services of E. S. White, who will supervise the work, would be approximately $1,000.00, and the cost of assays would be approximately $500.00. The balance of the cost would constitute expenses and nominal compensation to William G. Duncan and Donald Duncan, who will devote their time to additional supervision.

24. All of the above work will be commenced forthwith and should be completed no later than 90 days from its start.

Form MF-103
(April 1951)

U. DEPARTMENT OF THE INTERI
DEFENSE MINERALS ADMINISTRATION

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

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

DO NOT FILL IN THIS BLOCK

Docket No. DMA 990X

Date received 5-31-51

Participation

Duncan, Dieckman & Duncan Mining Co.,
a corp.,
605 Walnut St.,
St. Louis 2, Mo.

Name and address of applicant

Date May 29, 1951.

FILL IN THIS BLOCK

Date of application May 29, 1951.

Estimated cost $10,000.00

Mineral or metal Manganese

Percentage of Government participation 75%

Location of mine Mena, Polk County, Arkansas.

Date of filing MF-100

DMA Docket Number, if available DMA 990

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation? Corporation.

*2. If a partnership, state names and addresses of partners.

*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders. See Rider.

*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project. See Rider.

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

6. If owner, state what claims, liens, or encumbrances, if any, are against the property. None.

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

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

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

9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)? $2500.00. This sum, together with loan, is sufficient for additional exploration.

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

16—64067-1

THE PROPERTY (See Rider)

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.
*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.
*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.
*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.
15. State in detail how the ore could be shipped and how and where milled.
*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.
*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.
19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION (See Rider)

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?
21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.

22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS (See Rider)

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.
24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

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

Duncan, Dieckman & Duncan Mining Co. (Name of company) By Wm G Duncan (Signature of authorized official)

May 28, 1951. (Date) President. (Title)

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

*Same as footnote on page 1.

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

THE APPLICANT

3. Officers, directors and stockholders — William G. Duncan, 7240 Sarah St., Maplewood, St. Louis County, Missouri, President, Director and Stockholder; Donald Duncan, Waldron, Arkansas, Vice President, Director and Stockholder; George E. Dieckman, 4527 West Pine Boulevard, St. Louis, Missouri, Secretary and Treasurer, Director and Stockholder; Patrick Ballock, St. Louis, Missouri, Stockholder

4. Duncan, Dieckman & Duncan Mining Co. was organized June 10, 1949, as a corporation to exploit and develop the mining claims herein referred to. Its personnel was inexperienced in mining but retained E. S. White, of Mena, Arkansas, a geologist, with 40 years experience in the geological field. He is a graduate of University of Mississippi and of the Colorado School of Mines, and is intimately familiar with the mineral conditions in Polk County and surrounding territory. The report of Mr. White has been heretofore forwarded in connection with the corporation's application for Certificate of Necessity. Since 1949 the personnel of this company have devoted their personal time and attention to preliminary exploration work and are now relatively experienced in the promotion and development of this tract. The project will be managed and under the supervision of Mr. White, and Mr. William G. Duncan and Mr. Donald Duncan will give their time and efforts to the further exploration of the property.

8. The corporation has no profit and loss statement since it has not been actively engaged in business, but its assets consist entirely of the mining claims hereinafter described, in which it has already invested in connection with exploration the sum of approximately $7,000.00.

THE PROPERTY

10. 24 mining claims were filed in October and November, 1948, involving the property located in Polk County, Arkansas. This property is in Township 4 South, Range 30 West, in Polk County, Arkansas, and are located respectively in Sections 3, 4, 6, 8, 9 and 10. The mining claims are designated simply as Group No. 1. The claims cover a tract approximately 3 miles long and appear from the maps hereto attached.

11. See above.

12. The mining claims are 14 miles south of Mena, Arkansas, and 15 miles east of Cove, Arkansas. The Kansas City, Southern Railroad is approximately 15 miles from the property, passing through both Mena and Cove. Hard surface roads to both Mena and Cove are within a quarter of a mile from the claims and there is a gravel road from the hard road from the foot up to the top of the mountain, and a dirt road heretofore constructed by the corporation to the mining claims, which are located on the top of a mountain. The roads are in good condition and there should be no difficulty in transporting to the railroad.

13. There is a creek at the foot of the mountain, which has all year round a sufficient and adequate supply of water for the operations of the mine.

14. There is no equipment now on the property. However, the mining will be a strip mine operation, which will require only portable equipment and tools and no shafting hoists or tunneling are contemplated.

15. It is the purpose of the corporation to erect a mill for processing of the ore on the property. The ore can be transported to the bottom of the mountain either by truck or by belt conveyor. From the bottom of the mountain it would be shipped to the railroad approximately 15 miles away.

16. Exploration activities have taken place since 1949. 7 exploratory trenches have been dug, each 30 to 40 feet long, 7 feet deep and 6 to 8 feet wide. These are about a quarter of a mile apart and have all accrued to the satisfaction of the corporation the existence of manganese ore in economical quantities. In 1950 surface dirt has been stripped from the top of the mountain at 5 locations, each of these are 50 feet wide by 60 feet long and about 4 feet deep. They are about a quarter of a mile apart and have exposed many veins of ores which indicate the presence in large quantities of manganese. A further trench has been dug 50 feet long by 7 feet wide by a depth of 23 feet, which exposed approximately 9 veins of ore, 3 of which are 3 to 4 feet wide; 25 tons of ore have been taken out and are now piled next to the excavation. During all of this time Mr. White, heretofore referred to, has made tests and examinations and has reported favorably as appears from his report heretofore filed and accompanying this application.

17. As aforesaid, the mine is not now in production, and, consequently, the information called for in this question is not available.

THE EXPLORATION

20. It is proposed to make further explorations to indicate the presence and in what type and quantity manganese ore exists.

21. It is proposed with the proceeds of the government loan herewith applied for and the additional money to be invested by the corporation, to dig 5 additional trenches, all of which will be 60 feet long, 20 feet deep and 7 feet wide. It is proposed to make core drills to a depth of 50 feet in each of these trenches to indicate the depth of the veins thus exposed as well as the quality and quantity of ore available. The additional exploration work to be financed as aforesaid should be concluded within 60 to 90 days since the extensive development work is almost sufficient to indicate conclusively the presence of economical ore bodies.

22. The statements and reports of E. S. White are herewith filed, together with maps of the project.

THE REQUIREMENTS AND COSTS

23. A schedule as set forth in question 23 is not applicable since the work of further exploration will be done by contracts with independent contractors. The cost of digging each trench by contract should be approximately $1200.00, and the cost of the borings should be $300.00 each. Therefore, the cost of contracting this work would be a total of $7800.00; in addition, the services of E. S. White, who will supervise the work, would be approximately $1,000.00, and the cost of assays would be approximately $500.00. The balance of the cost would constitute expenses and nominal compensation to William G. Duncan and Donald Duncan, who will devote their time to additional supervision.

24. All of the above work will be commenced forthwith and should be completed no later than 90 days from its start.

HARTMAN, BUCKLEY AND GUILFOIL
ATTORNEYS AND COUNSELORS
319 NORTH FOURTH STREET
SAINT LOUIS 2, MISSOURI

ERWIN C. HARTMAN
R. FORDER BUCKLEY
THOMAS J. GUILFOIL
EDMUND C. ALBRECHT, JR.

MAIN 9290

May 29, 1951

Mr. P. R. Bradley, Jr.
Chief, Manganese Branch
U. S. Department of the Interior
Defense Mineral Administration
Washington 25, D. C.

Re: D M A - 990

Dear Mr. Bradley:

Enclosed herewith are four copies of application for aid for an exploration project pursuant to Mineral Order 5, under Defense Production Act of 1950 filed on behalf of Duncan, Dieckman & Duncan Mining Co.

Additional information on the properties involved is contained in your file bearing Docket Number DMA-990.

Please do not hesitate to call upon the writer for any further information.

Very truly yours,

T. J. Guilfoil

TJG:lf

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 31 1951
LANDON F. STROBEL
Executive Secretary

DRAFT

DATE

ADDRESS

Your _____ dated _____ has been
letter or application
reviewed by this Branch of DMA, but inasmuch as we have insufficient information, we are unable to take any definite action.

Enclosed herewith are five copies of Form MF-100. Will you kindly fill in the required information and return these forms to us in quadruplicate. Promptly upon receipt and consideration of this data we will notify you as to the course of action recommended.

Yours very truly,

P. R. Bradley, Jr.

FILE COPY
SURNAME:

Bradley

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

May 14, 1951

Hartman, Buckley and Guilfoil
Attorneys at Law
319 North Fourth Street
Saint Louis 2, Missouri

In reply please refer to
DMA-990

Gentlemen:

The application submitted by your firm in behalf of the Duncan, Dieckman and Duncan Mining Company for a loan of $200,000 for exploration and equipment of their manganese properties in Polk County, Arkansas, has been carefully reviewed by the Defense Minerals Administration.

The type of loan requested can be approved only when there is a reasonable assurance that the deposit may contain sufficient ore of a marketable grade to liquidate the loan. The applicant's properties are undeveloped and the present application cannot be approved.

However, it may be possible the applicant can qualify for an exploration loan. Manganese exploration loans are made on a participating basis, wherein the applicant shares 25 percent of the cost, and the Government advances the balance; if the venture is successful, the Government's share is repaid. In case they are interested in an exploration loan, we are enclosing 5 copies of Form MF-103 and the explanation sheet MO-5. Form MF-103 should be filed in quadruplicate with this office.

Very truly yours,

P. R. Bradley

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

Enclosures

cc: Files
Adm. Reading File
Mr. Strobel
Mr. Bradley
Mr. Crittendon

856

FILE COPY
SURNAME:

Barr

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

May 9, 1951

Mr. William G. Duncan, President
Duncan, Dieckman & Duncan Mining Company
605 Walnut Street
St. Louis 2, Missouri

Subject: DMA-990

Dear Mr. Duncan:

Thank you for your letter of April 23, 1951 regarding your application, which is being actively processed by Mr. P. R. Bradley, Chief, Manganese Branch, Defense Minerals Administration.

We believe you will have a report from Mr. Bradley within a short time.

Sincerely yours,

James Barr

James A. Barr, Chief
Industrial Minerals Branch

MEC:dak

cc: Mr. Strobel
Mr. Bradley
Mr. Barr
Files

FILE COPY
SURNAME:

Strobel: DM

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

April 25, 1951

Hartman, Buckley and Guilfoil
Duncan Dieckman and Duncan
Mining Company
319 North Fourth Street
St. Louis 2, Missouri

Subject: DMA-990
Re: Loan $200,000
(Arkansas)

Gentlemen:

Receipt is acknowledged of your application and attachments of April 11 from the DUNCAN DIECKMAN AND DUNCAN MINING COMPANY for a Government loan under the Defense Production Act of 1950.

The application was assigned Docket Number 990 and referred to Mr. P. R. Bradley, Chief, Manganese Branch, on April 13.

In any future correspondence relating to your application, kindly refer to DMA-990.

Sincerely yours,

JULIAN W. FEISS

Julian W. Feiss
Assistant to the
Administrator

LFSTROBEL:aec
copies to Strobel-2
Files
Mr. Bradley
Mr. Lyon

(1) Barr - Info
(2) Bradley - reply

GARFIELD 1062

DUNCAN, DIECKMAN & DUNCAN MINING CO.

A MISSOURI CORPORATION

605 WALNUT ST. ST. LOUIS 2, MO.

OFFICERS.
WM. G. DUNCAN, PRES.
DONALD DUNCAN, V. PRES.
GEO. E. DIECKMAN, SEC. & TREAS.

MANGANESE MINE
MENA, ARK.

RECEIVED APR 24 1951

Ans 5-9-51
James Barr

Mr. J. A. Barr.Sr.
Defense Minerals Administration.
Washington.
D.C.

April--23- 1951.

DMA-990

Dear Mr. Barr,

Mr. Foster and I talked to you here in St. Louis at the Engineers convention, We were with your son. At that time we had put in an aplication about our Manganese-but we did not have it made out right-so we had to, make it all over again- Now it is on file with the Defense Mineral Administration, was sent in about a week ago, It is in the name of Duncan, Dieckman, Duncan Mining Co.

We think that we have a large ore body-It is three miles long and 100 feet wide, the Manganese runs from 10 % to 49%. of coarse a lot of it has to be concentrated.

Any thing that you might be able to do for us will be greatly appreciated, as we are anxious to get this Manganese property going for the war production.

Very truly yours,
Duncan, Dieckman, Duncan Mining Co.
President.

BUREAU OF MINES
WASHINGTON, D. C.

APR 25 1 48 AM '51

FILE COPY
SURNAME:

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

April 20, 1951

Hartman, Buckley and Guilfoil
Duncan Dieckman and Duncan Mining Company
319 North Fourth Street
St. Louis 2, Missouri

Subject: DMA-990
Re: Loan $200,000
(Arkansas)

Gentlemen:

Receipt is acknowledged of your application and attachments of April 11 from the DUNCAN DIECKMAN AND DUNCAN MINING COMPANY for a Government loan under the Defense Production Act of 1950.

The application was assigned Docket Number 990 and referred to Mr. P. H. Bradley, Chief, Manganese Branch, on April 13.

In any future correspondence relating to your application, kindly refer to DMA-990.

Sincerely yours,

LANDON F. STROBEL

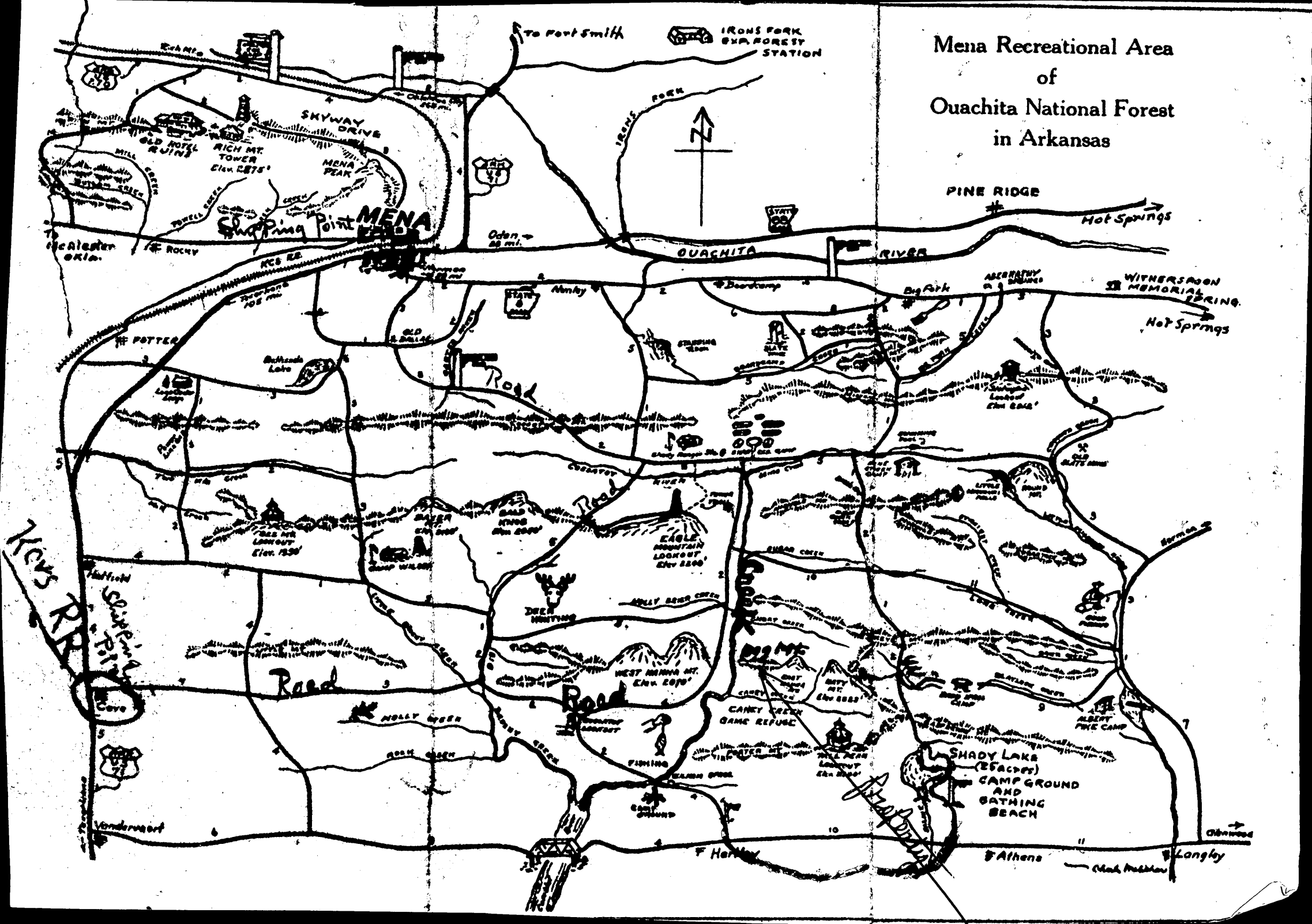
Landon F. Strobel
Executive Secretary

LFSTROBEL:aec
copies to Strobel-2
Files
Mr. Bradley
Mr. Lyon

Duncan 990

B

Mena Recreational Area of Ouachita National Forest in Arkansas



A. H. HOLLAND, Pres-Treas. EDMUND E. PHILLIPS, Vice-Pres. and Gen. Mgr. M. E. HOLLAND, Secretary

OUR MOTTO: WHAT THERE IS IN IT, NO MORE, NO LESS.

THE COLORADO ASSAYING COMPANY

(INCORPORATED)

ASSAYERS AND CHEMISTS

2013 WELTON STREET

DENVER, 1, COLORADO. Feb. 18, 1949.

REPORT ON DETERMINATIONS MADE FOR — Mr. Wm. G. Duncan,
St. Louis, Missouri.

SAMPLE MARKS	METALS	Amount per Ton Ozs.	Amount per Ton Hds.	PER CENT	Value per Ton Dollars	Value per Ton Cents
Trench #1	Manganese			45.50%		
	Iron			8.40		
	Phosphorus			0.504		
	Silica (insoluble)			1.35		
Trench #3	Manganese			45.30		
	Iron			8.15		
	Phosphorus			0.483		
	Silica (insoluble)			1.94		
Trench #4	Manganese			47.85		
	Iron			5.60		
	Phosphorus			0.449		
	Silica (insoluble)			1.65		
Trench #5	Manganese			49.35		
	Iron			2.90		
	Phosphorus			0.366		
	Silica (insoluble)			5.24		

These samples were average = of the High Grade also taken from the Trenches =

THE COLORADO ASSAYING COMPANY

GOLD AT [redacted] PER OUNCE SILVER AT _____ PER OUNCE

LEAD AT _____ PER UNIT COPPER AT _____ PER UNIT

By Edmund Phillips

DUNCAN, DUCKMAN & DUNCAN MINING CO.
A MISSOURI CORPORATION
600 WALNUT ST. ST. LOUIS 2, MO.

OFFICERS.
WM. G. DUNCAN, PRES.
DONALD DUNCAN, V. PRES.
GEO. E. DUCKMAN, SEC. & TREAS.

MANGANESE MINE MENA, ARK.

April--1--1951.

Report of developing work Just completed.

We have just completed new developing work, on our Mangenese property- at Mena.Ark. which shows much more ore exposure and proves up other reserves.

(1) Along the mountain top the mineralized zone is 70 ft. by 3½ miles long----- At four sections ½ mile apart, we have removed the overburden dirt, rock, etc-with a Bulldozer. Uncovering 50ft. strips across the mineralized zone. Showing several formations of Mangenese ore as follows.

CUT # 1----------Overburden removed exposing one vein 6 feet wide and one 4 feet wide

Cut # 2---------- Overburden removed , showing one 12 foot vein, one 6 foot vein and one 3 foot vein

Cut # 3---------- Overburden removed--Showing good Milling ore all through the clay.

Cut # 4---------- Overburden removed-- exposing several small veins and ore in the clay-----

Depths of these cuts is from 1 to 4 feet and was as far as the Bulldozer could go, because hard formations were encountered which requires a Blasting Crew.

[illegible] through 50 feet in [illegible] feet wide, and 25 feet deep--this shows 3 veins [illegible] and they show 4 feet in width and 3 smaller veins [illegible] alongside the veins. [illegible] of good ore [illegible] yard on the side, this ore would run [illegible] from [illegible] to [illegible] per ton.

[illegible]

[illegible] three mile strip from hard road to foot of mountain--Then on top of mountain a road was worked [illegible] Miles to east end of property-- this was done with a bulldozer.

Yours Truly,

Duncan, Dieckman, Duncan, Mining Co.

Wm. G. Duncan,

President.

E. S. WHITE
CONSULTING GEOLOGIST
AND MINE OPERATOR
P. O. BOX 416
MENA, ARK.

Duncan, Dieckman & Duncan Mining Co.
605 Walnut Street
St. Louis, Missouri

Gentlemen:

Enclosed herewith find Geological Report, as per your request, on your property in Sections 3, 4, 5, 8, 9 and 10, Township 4 South, Range 30 West, Polk County, Arkansas.

The sources of information from which the data for this report was compiled, are as follows, viz:

Bulletins and Professional papers of the U.S.G.S.
Publications of the Arkansas State Geological Survey
Reports from the U. S. Bureau of Mines
Seven years of field work by the writer, in prospecting, examining and developing manganese deposits of the Ouachita Mountain area of Arkansas and Oklahoma, including three years research on concentration of manganese ores, using my own pilot plant.

Very respectfully,

E. S. White

July 27th, 1949

I N D E X

Subject	Page
Location	1
Topography, Drainage and Climate . . .	1
Stratigraphy	1 & 2
Geologic History	2
Structural Geology	2 & 3
Economic Geology and Ore Deposition . .	3,4 & 5
Development	6 & 7
Potential Ore Reserves	7 & 8
Estimated Cost of Operation	8
Summary and Conclusions	9
Recommendations	9

LOCATION

The immediate area, under examination and discussion in this report, lies in Sections 3,4,5,8,9 and 10, T.4S., R. 30 W. Polk Co., Ark., is in the Ouachita National Forest and is covered by the DeQueen quadrangle of the U.S.G.S.

The nearest shipping point is Vandervoort, Ark., on the main line of the Kansas City Southern R.R. and is about 10 miles from the west end of your property.

TOPOGRAPHY, DRAINAGE AND CLIMATE

Lying, as it does, on the southwest flank of the Cossatot Mountains, the topography is characterized by steep sided mountains and narrow valleys, the area having a maximum topographic relief of about 1,000 feet.

The drainage is to the west and south into Cossatot River. Brushy Creek which flows across the west end of your property and empties into Cossatot River, a few miles to the south, will furnish an ample supply of water, all of the year, for milling operations.

The climate of this area is mild and is free from extreme cold in Winter and the nights are cool in the Summer thus making for good working conditions all of the year.

The rainfall is sufficiently abundant to produce a heavy growth of timber over the area and there is an ample supply of good pine and oak on your property for mining and milling operations.

The general area in which your property is situated has good all weather roads leading into the forest and to Mena, the County Seat and to Hatfield, Cove and Vandervoort all on the Kansas City Southern Railroad.

STRATIGRAPHY

The rocks exposed in this immediate area are, in ascending order,: the Blaylock sandstone and Missouri Mountain slate of Silurian age, the Arkansas Novaculite of Devonian age and the Stanley shale of the Lower Carboniferous.

The Blaylock sandstone, which is this area rests unconformably upon the Polk Creek shale, of the Ordovician, is the basal formation of the Silurian and is composed of fine grained gray or green sandstone and dark shale slightly micaceous. Most of the sandstone is hard and quartzitic and occurs in even bedded strata from 1 to 6 inches thick. The shale is much jointed and the joints in both the shale and sandstone are sometimes filled with milky quartz. The thickness in this area is about 600 feet.

The Missouri Mountain slate of the Silurian rests unconformably upon the Blaylock sandstone and consists of soft shale and sandstone, slate and some quartzitic sandstone in layers 3 to 5 inches in thickness. The unweathered shale is gray, green, red or black but when weathered the color is green, buff or dark brown, the slate is mostly soft but in some localities is of fair grade. The thickness of this formation in this area is probably not over 100 feet.

The Arkansas Novaculite of Devonian age rests conformably upon the Missouri Mountain slate. The Novaculite is divided into three members, viz: a lower member of massive white novaculite composed of even bedded layers from 6 inches to 10 feet thick and it has a conchoidal fracture.

The rock is very hard and dense and usually contains 99. or more percent of silica. The color is sometimes brown or gray caused by iron and manganese oxides and carbonaceous materials. In this area its thickness is about 400 feet.

The middle member of the Arkansas Novaculite formation is a hard, black dense cleavable shale and slate and thin bedded dark dense novaculite containing some calcite and pyrite. The thickness of this member, in this area, is probably about 300 feet.

The upper member of the formation is a gray massive hard and somewhat dense calcareous material, usually in beds from a few inches to several feet in thickness and while it retains most of the characteristics of the other members of the formation it is more porous and softer than the others. The thickness of this member, in this area, is about 200 feet.

The Stanley shale of Mississippian age overlies, unconformably, the upper member of the Arkansas Novaculite with usually a basal conglomerate of worn novaculite pebbles. The formation is composed principally of slaty shale and sandstone. The unweathered shale is usually blue black which turns to green or brown upon weathering.

The sandstone is in layers from 2 inches to 3 feet interbedded with the shale and is fine grained bluish gray to gray when unweathered but turns soft, porous and darker when weathered. Thin veins of quartz are usually found in the Stanley shale, its thickness in this area is about 5,000 feet.

GEOLOGIC HISTORY

The Paleozoic sediments, which include the Carboniferous, Devonian and Silurian, of this report, were deposited in a geosynclinal basin that lay north of a land area occupying the present region of Louisiana and East Texas and south of the present Ozark region, which was land during most of Paleozoic time.

The sediments were derived mostly from this southern land mass and the material for the bed of tuff in the Mississippian rocks was ejected from volcanic vents that were active during a probably mountain making epoch on the southern land. The shallow water nature of most of the sediments indicates that the bottom of the geosynclinal basin gradually subsided during their deposition.

The rock strata were deformed by folding and faulting near the middle of the Pensylvanian epoch of the Carboniferous, by compressive movements from the south.

This deformation has compressed the strata into about half of their original horizontal extent.

STRUCTURAL GEOLOGY

In this area the formations due to compressive movements have been intensely folded, resulting in a high order of fracturing and brecciation in the Novaculite formation, a competent formation, and compacting and crumpling in the less competent formations, as the Missouri Mountain slate and the Blaylock sandstone.

This folding has resulted in the development of a steep s ided over turned asymetrical anticline in the north part of Section 3, T.4S., R. 30 W. with a strike about N. 80 W. and extends into the west part of Section 5 where a plunging anticlinal nose seems to be developed. The novaculite formation covers most of this anticline and has a dip to the north and east in the truncated beds on the surface which would be the normal dip

for beds overturned to the south and the original top of the fold eroded.

The value of this fold or anticline to your mining property is that the folding produced a highly factured and brecciated condition in the competent novaculite beds, extending the entire length of your property from east to west, therefore a favorable host rock for the circulation of ground waters and the precipitation by them of the manganese minerals carried in solution, and probably derived from the enormous amount of material which has been eroded from above the present top of the truncated beds which form the novaculite ridges of the area, in this connection the following is quoted from U.S.G.S. Bull. 808 by H. D. Miser and A. H. Pardue "Physigraphic History; The highest ridges of the Ouachita Mountains in the quadrangles attain an elevation of 2360 feet above sea level, but 18,000 feet or more of Paleozoic rocks have been removed from above the crests of these ridges. The available evidence indicates the presence of two peneplains called the Ouachita and Hot Springs".

ECONOMIC GEOLOGY AND ORE DEPOSITION

The Arkansas Novaculite was a competent formation at the time of the intense folding and faulting, attending the compressive movement from the south, during Carboniferous time, when the Ouachita Mountains were formed, and therefore did not compact as the less competent underlying Missouri Mountain slate and Blaylock sandstone did, but instead was sheared and fractured resulting in much faulting, jointing, fracturing and brecciation in the novaculite beds, thus creating a condition in these beds, favorable to the deposition, through the action of surface and ground waters and chemical changes, of manganese and iron minerals, mostly oxides, which were probably derived from minerals in the enormous amount of material eroded from above the present top of the truncated beds, and deposited in the more porous and permeable parts of the novaculite beds, which seems to be the upper part of the lower member of this formation and the upper calcareous part of the upper member of the novaculite formation.

In the published literature there seems to be some difference of opinion as to the origin of the manganese and iron oxide deposits. In the writers opinion there was a concentration of these minerals in the upper part of the upper member and the upper part of the lower member of the Arkansas Novaculite formation subsequent to the fracturing, jointing and brecciation of these beds.

Therefore it seems reasonable to assume that the depth of the manganese ore deposits in the novaculite beds, as they are at the present, taking into consideration the removal by erosion of the material above the present tops of the beds, would depend to a large degree on the position of, particular beds under examination, with reference to whether or not their position on the fold as it was progressively developed, was favorable or not for the folding movement to produce a maximum of faulting, jointing, fracturing or brecciation of the beds and therefore the degree of porosity and permeability to be expected in the present truncated beds.

There are at least two locations, in the Ouachita Mountain area, where continuous manganese ore deposits can be observed and measured at the present time, to a vertical depth of 117 feet and 175 feet respectively.

One is at the North American Manganese Corp'n mine on the Black Springs Lumber Company property in Sec. 7, T.5S., R. 25 W., Pike County, Ark., where ore was stoped out from the 117 foot level to the surface and ore can be observed from the top to the bottom at the ends of the stope.

The other is on an eroded bluff on East Saline Creek, in Sec. 29, T. 4 S., R.28W., Polk Co., Ark., the ore beds in this deposit dip 70 degrees from the horizontal N 5 degrees east and are on the north limb of an over-

turned anticline, overturned to the south.

Your property is on the north limb of an overturned anticline and with the overturn to the south. The location of the two deposits, with reference to the exposed rocks of the underlying Missouri Mountain slate and Blaylock sandstone is about the same.

The position, of the two deposits, on the fold is about the same. The strike and the angle of dip of the beds in the two deposits is about equal therefore in the opinion of the writer it is reasonable to expect similar conditions as to the depth of the two deposits particularly on account of the high degree of fracturing, jointing, brecciation and mineralization of the beds on your property.

The manganese minerals found on your property are the oxides psilomelane and manganite and the dioxide pyrolusite, psilomelane predominating. The psilomelane is a black or blue black mineral with a shell like fracture. It is usually found in a massive non crystalline form and has a density of 3.7-4.7 and a hardness of 5-6 and contains 45-60% Mn. It is difficult to scratch this mineral with a knife and its streak is brownish black shining. Pyrolusite is an iron black mineral with either crystalline or granular structure has a density of 4.75 and hardness of 2-2.5 and often will soil the fingers, steak black or bluish black contains 60-63 Mn. Manganite is a black, brittle massive or crystalline mineral, density 4.2-4.4 hardness 4.0 streak reddish brown or black, contains 62.4 Mn.

The iron oxides found in connection with your manganese ore are the Limonite, density 3.6-4.0, hardness 5-5.5, color brown, streak yellow, Hematite, density 4.9-5.3, hardness 5.5-6.5, brittle, dark steel gray or iron black, streak cherry red or reddish brown.

The manganese ore found on the surface along the top of the novaculite ridges on your property is at the top of the lower member of the formation and is in lumps of from 2-30 lbs. nearly free of rock but the larger amount is found in factured and brecciated boulders and in mineralized ledges in place, some of these ledges stand 10 feet above the surface and some are 15 feet across their strike which is N. 20 W. with a 60 degree dip to the north and east. Following along the ridge where the ore body, in place, is not exposed, float ore will be found either on top of the ridge or down its sides. This condition exists almost without a break for the entire length of your property, about 16,000 feet.

The following is taken from U.S.G.S. Bull. 808 By H. D. Miser and A. H. Purdue "Geology of the DeQueen and Caddo Gap Quadrangles."

MANGANESE ORE.

"Only the general geologic and economic relations of the manganese deposits will be discussed here.

The manganese deposits occur in the mountainous parts of the quadrangles. They are found in the Arkansas novaculite and are mainly confined to two stratigraphic horizons, one in the upper division of the formation and the other near the top of the lower division. Some deposits, however, are found in other parts of the lower division. The Arkansas novaculite and other formations have been thrown into a series of folds whose trend is parallel with the ridges. This formation is very resistant; the upturned edges stand up as ridges on which rock ledges or their debris abound.

The beds at the two ore horizons, which show ore at the surface in many places, <u>may thus be followed for long distances along the slopes,</u> and their outcrops, owing to the numerous folds, are repeated on the slopes or crests of the many parallel ridges, or even on a single ridge. The outcrops of these ore-bearing beds are sometimes called "lodes" or "leads."

The depth to which the ore extends is not known. An 8 ft. vein of solid manganese ore is, however, reported to have been found in the lower tunnel at the North Mountain mine at a distance of about 615 feet from the portal. This tunnel is 250 feet above the road along the south base of North Mountain; it is 530 feet below the crest of the mountain and is 216 feet below the upper tunnel, which penetrates the exposed ore body near its main outcrops.

At other places ore is found only in the present shallow workings. These workings and the outcrops of ore occur at all altitudes on the high ridges, from the level of the streams that cut through them up to their crests, which are even and probably represent a Cretaceous peneplain.

The deposits that have been examined range from 900 to 1800 feet above sea level, but the greatest difference in altitude in any single locality is about 800 feet. This range does not necessarily mean that a shaft sunk from the crest of a mountain would find ore at a depth of 800 feet or that a tunnel driven into the base of a mountain 800 feet below its crest would find ore, for the lower limit of the ore, which may not extend much below water level, may be higher in the mountains than in the valleys, just as the water level is higher in the mountains than in the valleys.

The mode of occurrence of the manganese ores in the Arkansas novaculite are intimately associated. The novaculite is regarded by the writers and some others as being deposited through chemical or organic processes or both, and thus belonging to the class of cherts. The manganese was probably deposited as a manganese-bearing calcite at the two main ore horizons, but some of it was doubtless deposited as carbonate in other parts of the novaculite and in the overlying and underlying shales.

The concentration of the ores has been effected by ground water, which has carried down their constituents from the vast mass of rock that has been eroded from the region. The local concentration of the ores into deposits large enough to be of value appears to have been dependent upon the amount of open space in the Arkansas novaculite, which is hard and compact and usually has no visible openings between the layers or along the joints.

The places where the fissures are largest and most numerous would be most favorable for the circulation of underground water and consequently for the deposition of the ore, little of which replaces the novaculite.

The fissures were formed during the folding, faulting and fracturing of the novaculite late in the Carboniferous period. The ores would be expected to occur in those places where the novaculite has undergone much fracturing and close folding, as on and near faults and at the noses or ends of plunging anticlines. A number of such places where deposits occur have been observed. It is noteworthy that many cold springs, and even the Hot Springs at Hot Springs, Ark., issue on the noses of plunging anticlines, showing that such places are especially favorable for the circulation of ground water.

The manganese deposits have been worked only in a very small way and so far have yielded not more than a few hundred tons of ores that have been sold. Most of the work has been done during two periods of activity, one beginning about 1885 and ending in 1889, and the other beginning in 1915 and still in progress".

DEVELOPMENT

During the Winter of 1948-49, under the writers supervision a number of open cuts and tranches were made on your property in order to ascertain the following information, 1st. The geological and structural aspects of material in place. 2nd. Manganese content of the deposit, 3rd. The extent of the deposits, 4th. The susceptibility of the ore to concentration. The locations of these openings are shown on map 1, of this report and sketches of the openings are shown on map 2, of this report.

No., An open cut, 50 feet in length 5 feet deep and 4 feet wide. The manganese found in this cut is in the form of psilomelane and manganite, the former predominating in quantity, both of these minerals are hard and occur in vertical veins from ½ to 2 inches thick and scattered through the brecciated beds and fractures in the hard thin beds of novaculite, which are in place. Some clay is found associated with the ore. An analysis of an average sample from this cut will be found Assay sheet No. 1, of this report. This cut is still in ore on the South and in floor and walls.

No.1-A, A pit 8 feet long 3 feet deep and 3 feet wide. At the base and a little northwest of a ledge of mineralized novaculite in place and boulders of mineralized boulders, the rocks are about 10 feet high and 12 feet wide are highly brecciated and mineralized and very hard, gray white. An analysis of an average sample from this pit will be found on Assay sheet No. 1, of this report. This pit still in ore in floor, walls and South end.

No. 2, A trench 20 feet in length 5 feet deep and 4 feet wide, primarily dug in attempt to find north wall or hanging wall. No samples taken.

No. 3, An open cut 150 feet South and 50 feet lower in elevation than No. 1, is about 25 feet in length 6 feet wide and 7 feet deep at breast, the ore mostly psilomelane is found in red clay interbedded with comparatively soft gray novaculite with ore in the fractures of the rock, not the same material as in No. 1 and is a separate deposit strike is same but beds have a dip of from 20 degrees at the south side of the deposit to 45 degrees at the breast, beds seemingly in place. This cut still in ore in walls, floor and breast. An analysis of average sample from this cut will be found on Assay sheet No. 1, of this report.

No. 4, An open cut 20 feet in length 8 feet wide and 7 feet deep at breast, the ore is found in red clay beds in the bedding planes of the brecciated and fractured novaculite One strata of ore, nearly free of rock, 1 foot thick cuts across the floor of the cut in an east west direction the same as the strike of the beds and one pocket of high grade ore about 1 foot in diameter is in the breast of the cut near the floor. Most of the ore in this cut is a hard psilomelane with some oxide of iron with it. This deposit is, in my opinion on the same deposit as No. 1 and No. 1-A and is about 1500 feet west of No. 1. An analysis of average ore sample from this cut will be found on Assay sheet No. 1, of this report. This cut still

in ore in floor, walls and breast.
The character of the material and degree and type of fracturing is the same as that in openings 1-A, 1. and 4 seems to be on the same vein.

No. 5, A trench in the SE¼ of the SW¼ of Sec. 6, T. 4 S., R. 30 W., about 8,000 feet along the strike of the ore body from open cut No. 4, is 20 feet in length 5 feet deep and 4 feet wide. The manganese, mostly a hard psilomelane, occurs in thin beds, maximum, 2 inches, of highly fractured and brecciated novaculite, with some red clay. The beds dip about 60 degrees to the north and east. There is a small amount of iron oxide on the South side of the ore body. The analysis of a composite sample from this trench is on assay sheet No. 1, of this report. This trench still in ore, in floor, walls and North end. A good road has just been completed, as shown on map No. 1, of this report, which will enable you to get material and equipment necessary for mining operations up to the top of the Mountain and to bring ore down to the mill.

POTENTIAL ORE RESERVES

An estimate is the correlation of tangible facts susceptible to proof, therefore an estimate of a potential ore reserve, in tons, in place, would have to be based on measurements of length, thickness and width, also the average density of the ore in place, which would be manifestly impossible, unless the ore deposit was 100% homogeneous, which, in the metallic mineral ore deposits, none of it is. Therefore in an estimate there is an assumed average density used that is based upon the known density of composite samples taken from the ore body. A correct or incorrect interpretation and correlation of the geological evidence is also used in arriving at a conclusion or estimate. A correct conclusion depends upon experienced knowledge, integrity and ability to read Nature's geological sign-boards.

A considered opinion, of a potential ore reserve, is an estimate based on the correlation of all tangible facts susceptible to proof and the projection of known facts, by the use of the Laws of dynamic earth movement, sedimentation and mineral deposition. Here too a correct conclusion depends upon experienced knowledge, integrity and ability to read Nature's geological sign-boards.

Development so far, on your property, has proved at five points, widely spaced, along the strike of your ore body, that, at the five opening the ore body has an average thickness of 13 feet with a maximum depth of 7 feet and that there is still ore in the floors, walls and breasts of the openings. These bedded deposits all have approximately the same angle of dip to the North, the entire length of the property, some 16,000 feet, indicating that the same folding movement was operating, with the equal intensity along the entire length of the ridge, upon which your property is located, and producing a uniform degree of fracturing and brecciation in the novaculite, which is 99.% silica, beds and therefore the same degree of porosity and permeability, in the beds, for the action of the circulating waters in their deposition of manganese minerals in these beds.

Manganese minerals are found on the surface, along the ridge with only a few breaks in the line of occurence, where the leaves and debris are thick, either in the form of fractured and mineralized and almost vertical novaculite beds, in place, fractured and mineralized novaculite boulders or fragments of fractured and mineralized novaculite float, either

on the top of the ridge or down its side, the entire length of your property.

It is a known fact that mineralized beds, upon weathering, produce mineralized float and that non-mineralized beds do not produce mineralized float, therefore where fractured mineralized manganese float is found on or on the side of a novaculite ridge, a bed of fractured and mineralized novaculite can be found near or above the position of the float. All of the above mentioned material is fairly uniform as to character of material, fracturing and mineralization.

Therefore, taking the above facts and premises into consideration, my considered opinion is that when you get the deposit opened up to an extent sufficient to mine and deliver to the mill a tonnage of 300 tons of mine run ore daily, that you will have proved up a sufficient reserve of commercial grade ore, at the present or somewhat lower price of manganese, to supply your mill for a long time.

ESTIMATED COST OF OPERATION

Using the combined results of Assay sheet No. 1, of this report, we find that the average metallic manganese content of the ore deposit sampled and assayed, would be 14.5 per cent and using the report of the Bureau of Mines, apart of this report, on their concentration test on ore from this same deposit and same character of ore, but having a metallic manganese content of 24.0 per cent, which would mean a concentration ratio of 3.5:1. In an ore having a metallic manganese content of 14.5 the concentration ratio would be approximately 5 : 1 or in other words it would require 5 tons of mine run ore to produce 1 ton of concentrate, assuming that the mechanical combination of the mineral and gangue in the ore is the same as that of the 24.0 per cent ore used by the Bureau of Mines, which it is.

In their tests the Bureau did not crush below - 10 mesh and only produced 14.4%, containing 10.9% of the total manganese in the head sample, of the head sample as a middling, or included grains, requiring finer crushing to free the mineral from the gangue material. This test proves that your ore is very amenable to gravity concentration, by tabling, which is very important as it indicates that only a small percentage will require fine grinding and flotation concentration.

Using a concentration ratio of 5 : 1, after the ore deposit has been equipped for economical mining and loading into trucks, the costs of producing a ton of concentrate will be;

Mining - labor, power and supplies	5 tons @ $1.00 per ton	$5.00
Mucking into truck loading bins	5 tons @ .25	1.25
Hauling crude ore to mill	5 tons @ .75	3.75
Millin g - labor, fuel and supplies	5 tons @ 1.00	5.00
Hauling concentrate to sintering plant at Railroad		2.00
Sintering - labor, fuel and supplies		2.00
Total cost F.O.B. cars		$ 19.00

In mining from the west end of your property and mucking directly into ore bin at mill, the above estimate will be too high. Less trucking would be $15.25

SUMMARY AND CONCLUSIONS

Prospecting and development work on the property so far has proved:

1. That five places some distance apart, as shown on Map No. 1, along the strike of the ore body, in an east west direction on your property, in Sections 3,4,5,8,9 and 10, T. 4 S., R. 30 W., Polk County, Arkansas, as far as development has been done, prove that ore deposit has sufficient width to permit and justify open cut mining and power mucking.

2. The results of the assays on composite samples from these five openings, shown on Assay sheet No. 1 of this report, on the ore body show a sufficient metallic manganese content of the ore to make it a commercial grade ore and the results of the concentration test by the Bureau of Mines, and given in this report, prove that a high recovery can be made of the manganese in this ore by gravity concentration without excessive crushing, costs and that mining and milling of this ore deposit is justifiable from an economic viewpoint

RECOMMENDATIONS

Now that your road has been built to the top of the mountain, as shown on Map No. 1 of this report, I would recommend that a small portable air compressor be obtained and that development work be continued on openings already started, beginning at No. 4, in order to ascertain the maximum width of minable ore at these points, as I am confident that this added work will show that the minable part is quite a bit wider than the present development shows, and that composite samples be taken from each opening and mixed, making a composite sample of about 700 lbs. to be sent to the Bureau of Mines, at Rolla, Missouri, to find out whether or not they can eliminate any appreciable amount of waste rock without too much loss of manganese, before tabling or crushing for tabling, as it is very important to eliminate as much waste rock as possible, as early as possible, in the flow sheet of a mill, in order to increase capacity and efficiency of machines and cut down crushing costs.

In the event the iron content of the concentrate becomes excessive, you can install a small roasting furnace and magnetic pulley. In that way, you can remove the iron, either in the form of oxide or sulphide, as roasting will render the iron magnetic and then can be removed with the pulley. This would give a magnetic iron product for sale, and a premium grade manganese concentrate.

ENGINEERS
INSPECTIONS and TESTS

No. 1

CHEMISTS
INDUSTRIAL and ANALYTICAL

The Bruce Williams Laboratories

ESTABLISHED 1898
Main Office 620-622 Joplin Street Telephone 556
JOPLIN, MISSOURI

109 S. Connell Street
Picher, Oklahoma
Telephone 110

1297 N. 51st Street
East St. Louis, Ill.
Telephone Hemlock 2940

July 14, 1949

Duncan, Dieckman & Duncan Mining Company
605 Walnut Street
St. Louis, Missouri

Attn: Mr. Wm G. Duncan

551793 Sample #1, Quartered from 100# sample from continuous channel sample 12' in length along wall of open cut #1 by E.S.White 6/30/49.

551794 Sample #1-A, Quartered from 50# continuous channel sample 8' in length from wall of open cut #1-A by E.S.White 6/30/49.

551995 Sample #3-B, Quartered from 110# continuous channel sample 13' in length from floor of open cut #3 by E.S.White 7/8/49.

551996 Sample #4-B, Quartered from 110# continuous channel 13' in length from floor and breast of open cut #4 by E.S.White 7/8/49.

551997 Sample 5-B , Quartered from 120# continuous channel sample 14' in length from floor of open cut #5 by E.S.White 7/8/49.

		551793	551794	551995	551996	551997
Manganese	Mn	14.60	11.30	10.65	22.90	12.55
Iron	Fe	1.20	3.50	5.20	12.00	4.50
Phosphorous	P	0.09	0.15	0.20	0.52	0.16
Silica	SiO_2	66.32	73.84	60.78	39.40	63.11
Alumina	Al_2O_3	4.98	1.70	3.86	1.90	3.14

THE BRUCE WILLIAMS LABORATORIES

Bruce Williams

February 6, 1952

Memorandum

To: Acting Administrator, Defense Minerals Exploration Administration

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

Subject: Denial of exploration project in the amount of $10,000.00
Docket No. DMA 990X - Manganese
Mining Claims in Sections 3,4,6,8,9, and 10: T 4; S. R.; 30 W
Polk County, Arkansas

The subject docket was denied by this Division for the following reasons:

1. There is not a reasonable probability of finding a significant tonnage of material from which a usable product can be recovered by any method demonstrated so far.

2. The ore occurs as pockets, veins or fracture fillings, ranging in size from 2 feet to hair-like stringers. The ore minerals are all oxides and cannot be expected to continue much below the present water table.

3. Information available indicates that the average grade of material of this sort, mined in large quantities, is more likely to range from 5 to 10 percent rather than the 15 percent indicated by the samples.

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

GCGentry'lm
2/6/52

cc: Admn. Reading File
Docket
G. C. Selfridge
G. G. Gentry

Dumont, Dieckman & Duncan Mining Co.
605 Walnut Street
St. Louis 2, Missouri

Re: Docket No. DMA 990X - Manganese
Mining Claims in Sections 3,4,6,
8,9, and 10; T 4; S. R.; 30 W
Polk County, Arkansas

Gentlemen:

Your application for aid for an exploration project and other data relating to your application available to us in Washington have been carefully reviewed.

This information, while noting a limited amount of marginal ore on your property, indicates that, geologically, there is little probability of making a significant mineral discovery from which a saleable concentrate can be obtained. We regret, therefore, to inform you that your application is denied.

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

Sincerely yours,

C. O. Mittendorf

Acting Administrator
Defense Minerals Exploration
Administration

GGGentry:lm
2/6/52

cc: Admn. Reading File
Docket
N. B. Melcher, USPHS
H. D. Crittenden, USGS
Field Team Reg. VI
G. C. Selfridge
G. G. Gentry

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

G-MD-T-T

February 1, 1952

Memorandum

To: George C. Selfridge, DMEA

From: T. P. Thayer

Subject: DMA 990-X - Manganese
Duncan, Dieckman and Duncan Mining Co.
St. Louis, Missouri

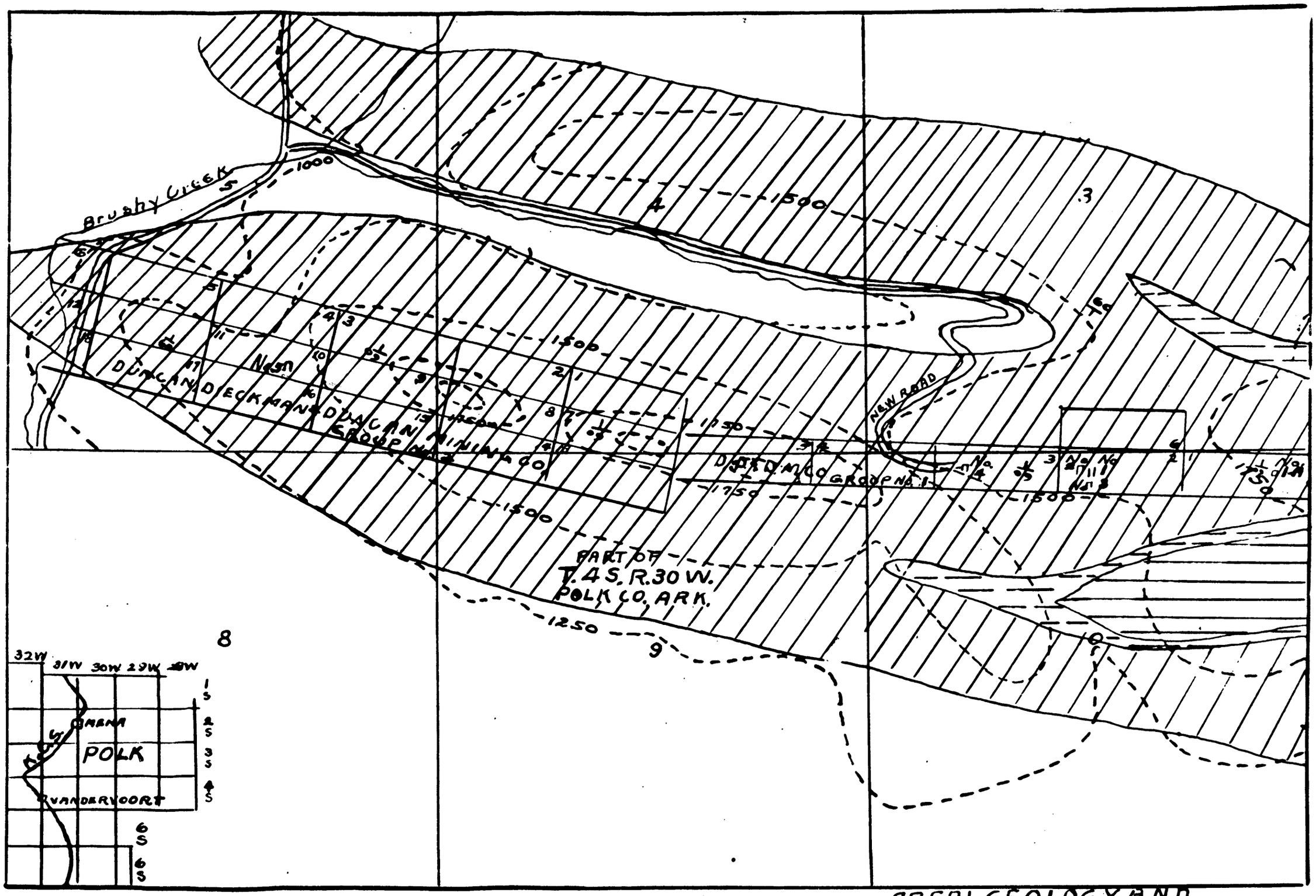
The Operating Committee discussed the problems involved when the Field Team report was reviewed, and seemed to be in general agreement that there is little point in exploring for more manganiferous novaculite in western Arkansas until recovery of a usable product is shown to be feasible.

Unless Mr. McElvaine can present some convincing evidence of greater widths than Gallagher and Heussig indicate (up to 3 feet), I recommend that the application be denied on the premise that there is not a reasonable probability of finding a significant tonnage of material from which a usable product can be recovered by any method demonstrated so far.

The question of the Prospectus submitted by Gallagher (which I have not seen) might be inquired into as bearing on the intentions and good faith of the applicants.

TPThayer:gt

Copies to: Director's reading file
Branch reading file



LEGEND

- Stanley Shale
- Arkansas Novaculite
- Missouri Mt. Slate
- Blaylock Sandstone

Scale, 4" = 1 mile

AREAL GEOLOGY AND CONTOURS COPIED FROM PLATE 3, U.S.G.S. BULLETIN 808.

E. O. White
Geologist
July 27th 1949

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

ROLLA HEADQUARTERS
1300 BISHOP AVE.--U. S. HIGHWAY 66

ROLLA, MISSOURI

TELEPHONE: 1083
MAIL ADDRESS: P. O. BOX 136

July 27, 1949

Mr. C. E. Dieckman
605 Walnut Street
St. Louis, Missouri

Dear Mr. Dieckman:

We have completed the ore dressing work on the manganese samples from your property in Waldron, Arkansas. The information contained in this letter may be considered a supplement to that previously transmitted in my letter of April 22. All of this work is a part of the Mineral Dressing Section program of the Bureau at Rolla. Mr. M. M. Fine is the Engineer-in-Charge of this section.

The data presented herein were obtained from test work on the lower grade of the two samples which contained 24.0 percent manganese.

A sample of the ore was crushed to minus 10-mesh and treated on the Humphrey's spiral concentrator. The ore was fed in a pulp of about 17 percent solids at the rate of 32 pounds a minute to the spiral. Concentrates were collected from the first few ports, middlings from others and the remainder of the pulp was considered tailings. The spiral failed to make a satisfactory separation on the ore. The recovery of manganese was only 56.5 percent at a grade of 39.4 percent manganese, 2.1 percent iron and 22.4 percent acid insoluble matter. These results are considerably inferior to those obtained by tabling, as may be seen by comparison with the previous data.

Flotation was also briefly investigated. The sample was ground to minus 100-mesh, thickened to 25 percent solids and conditioned with 2.0 pounds of sodium hydroxide and 2.0 pounds of sodium silicate per ton of ore. The conditioned pulp was then floated with 2.0 pounds of oleic acid and 0.5 pound of fuel oil. The rougher manganese froth was cleaned three times with no additional reagents. The results of the test are shown on the following page.

Table 1 - Float-Sink Separation - Sample 2

Product	Weight, percent	Analysis, percent			Percent of total
		Mn	Fe	Acid insoluble	Mn
3/4- to 3/8-inch float	24.2	9.3			7.2
" " " " sink	42.6	44.5	4.2	7.9	62.3
3/8-inch to 4-mesh float	4.7	6.7			1.0
3/8-inch to 4-mesh sink	9.8	42.1	6.6	8.6	13.4
4- to 10-mesh float	3.4	4.3			0.3
" " " " sink	[illegible]	[illegible]	[illegible]	[illegible]	9.8
10- to 28-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.0 1/
[illegible]	[illegible]	[illegible]	[illegible]	7.1	1.3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.0 1/
" " " " sink	[illegible]	[illegible]	14.1	8.0	0.7
Minus 200-mesh	0.7	13.8			0.3
Composite	100.0	30.5			100.0

1/ Values smaller than significant figures

The results of the separations showed that on sample 2 high grade concentrates could be made at sizes as coarse as 3/4-inch, indicating that such unit operations as jigging could be successfully applied.

A similar series of heavy liquid separations on the lower grade sample is presented in Table 2.

Table 2 - Float-Sink Separations - Sample 1

Product	Weight, percent	Analysis, percent			Percent of total
		Mn	Fe	Acid insoluble	Mn
3/4- to 3/8-inch float	26.3	11.4			12.4
" " " " sink	30.0	39.0	2.5	21.1	48.3
3/8-inch to 4-mesh float	10.0	10.6			4.6
3/8-inch to 4-mesh sink	8.2	39.0	2.6	18.9	13.2
4- to 10-mesh float	6.4	6.0			1.7
" " " " sink	6.3	39.3	2.5	16.5	10.3
10- to 28-mesh float	3.4	2.9			0.4
" " " " sink	3.7	39.2	2.4	13.8	5.8
28- to 65-mesh float	1.5	2.0			0.0 1/
" " " " sink	1.4	39.6	2.9	10.6	2.1
65- to 200-mesh float	1.0	1.3			0.0 1/
" " " " sink	0.6	38.1	3.9	10.9	0.8
Minus 200-mesh	1.2	10.7			0.4
Composite	100.0	24.2			100.0

1/ Values smaller than significant figures

The data given on the preceding page showed much less liberation of manganese and gangue in sample 1 than in sample 2. Note that only in the minus 10-mesh sizes was the insoluble content less than 14 percent. It was evident that gravity concentration of sample 1 would be most effective on the finer sizes.

In order to determine the grade and recovery possible with tabling, a representative portion of sample 1 was crushed to minus 10-mesh and hydraulically classified into 4 sand fractions and a slime. Each sand fraction was then tabled to yield a concentrate, middling and tailing. Similar products were combined for analysis. The results of tabling sample 1 are shown in Table 3 below.

Table 3 - Table Test

Product	Weight, percent	Analysis, percent					Percent of total
		Mn	Fe	SiO_2	Al_2O_3	P	Mn
Concentrate	43.5	44.1	1.9	10.8	1.9	0.41	77.8
Middling	14.4	18.9					10.9
Tailing	24.7	2.3					2.4
Slime	17.4	12.9					8.9
Composite	100.0	24.7					100.0

A recovery of 77.8 percent of the manganese was effected in a concentrate containing 44.1 percent manganese, 1.9 percent iron, 10.8 percent silica, 1.9 percent alumina and 0.41 percent phosphorus.

As mentioned previously, the float-sink data indicated that jigging would probably recover little high grade concentrate from the coarse sizes of sample 1. However, the novaculite gangue is so hard that the possibility of rejecting some of it at coarse sizes by jigging or other means is well worth investigating. Unfortunately, there was not enough of sample 1 to investigate that possibility. If sample 1 is regarded as representative of the material to be treated in the mill, enough additional ore (about 500-600 pounds) should be submitted to permit such tests to be conducted.

It must be emphasized that the results of tests given in this letter apply only to material conforming to the samples submitted.

Very truly yours,

R. G. Knickerbocker,
Chief, Rolla Branch,
Metallurgical Division.

POST OFFICE BOX 1091

TELEPHONE 4-7866

E. S. WHITE
CONSULTING GEOLOGIST
224 NORTH STREET
JACKSON, MISSISSIPPI

Mena, Ark. 1/8/49

Messrs. Donald & W.G.Duncan
Waldron
Ark.

Gentlemen:-

Attached hereto is a report of results of development work, up to date, on your mining claims in Twp. 4 South Range 30 West in Polk County, Ark.

Very respectfully

E. S. White

Results of Development Work to 1/8/49.

No.1. A trench, as shown on map accompanying this report, is 50 feet in length 5 feet deep and 4 feet wide and shows a good grade of milling manganese ore with some "free" ore for a distance of about 10 feet in the walls and in the floor of the trench, the ore is found scattered through a hard fractured novaculite and clay gangue.

No.2. A trench about 20 feet in length and about 5 feet deep with only a small showing of ore.

No.3. An open cut about 150 feet south and 50 feet lower in elevation is about 25 feet in length, 7 feet deep and 6 feet wide with good manganese milling ore, with some free manganese ore for a distance of 15 feet in the walls, floor and breast of the cut. The ore and gangue materialan altered and fractured novaculite and red clay seems to be in place and I believe that further development on this deposit will open up a good ore body of considerable length and width and should extend down.

No.4. An open cut 20 feet in length, 8 feet wide and 7 feet in depth at the breast and about 1500 feet west of No. 1 shows good milling manganese ore about 12 feet in width, in an altered and fractured fairly soft novaculite with quite a bit of red clay, seemingly "in place" but showing considerable limonite, this iron may decrease with depth. Nos. 1 to 4 are in the north part of sec. 10 4S. R. 30 W.

No.5. A trench, in the S.E. ¼ of Sec. 5,T. 4 S. R.30 W., 20 feet in length and five feet deep shows good manganese milling ore 12 feet in width in the walls, floor and north end of the trench. The ore is in a highly fractured and altered novaculite brecciated material with a misture of red clay seemingly "in place". This trench is 25 feet lower in elevation than a good manganese exposure about 50 feet east and approximately 300 feet higher in elevation than Brushy Creek about one half mile to the west.

Summary and Recommendations.

In the writers opinion, the ore deposits shown up by development work as above described, have a reasonable chance of extending the entire length of your property, some 15,000 feet and should attain considerable depth as the writer has observed two manganese deposits which show to be continuous to a depth of 135 feet and 175 feet respectively, the first mentioned is on the property of the Black Springs Lumber Co's property about 12 miles west of Glenwood, Pike Co. Arkansas where a shaft was sunk to a depth of 117 feet in good milling and free manganese ore and with a solid body of high grade shipping ore 9 feet in width at the bottom of the shaft, later an upraise was driven into the ore body 18 feet deeper.

The other is on property owned by the writer and situated on East Saline Creek, in a bluff, about 3/4 mile east of Shady Lake, in Sec. 32 T.4.S.R. 28 W. Polk Co. Arkansas, where there is good manganese milling ore with a vertical depth of 175 feet from the top of the ore body to water level in East Saline Creek.

There fore in the writer's opinion there is a strong probability that the ore deposits opened up, on your property will extend down to a considerable depth.

Assuming that the ore deposits, as shown by development work to date, extend from one end of your property to the other, in east west direction which assumption is reasonable from the presence of float manganese ore along the top and sides of the novaculite ridge extending the entire length of your property, and that the ore deposit does not prove to be any wider or deeper than at present stage of development there would be approximately 150,000 tons of good milling ore.

Recommendations.

Would recommend that trenching be continued on the west end of your property, in order to prove the probable depth of the ore body and that then the ore body be cut at the level of the lowest exposure at 1,000 feet easterly along the strike of the ore body and at 2,000 feet easterly along the strike, either by drifting or open cuts and I believe that considering the local topography that this would be more economical than sinking shafts.

This should prove up a much larger body of ore. The erection of a concentration plant on your property which in the writer's opinion should be located on the west end of your property, just east of the road. A plant here would be on a good all weather road and near Brushy Creek which will afford ample for even an extensive operation.

The term milling ore where used in this report is ore that in the writer's opinion, can be mined and milled at a profit.

Very respectfully,

Geologist

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
ROLLA, MISSOURI

ROLLA HEADQUARTERS
1300 BISHOP AVE.—U. S. HIGHWAY 66

TELEPHONE: 1083
MAIL ADDRESS: P. O. BOX 136

April 22, 1949

Mr. C. E. Dieckman
605 Walnut Street
St. Louis, Missouri

Dear Mr. Dieckman:

We have been making some ore dressing tests on your manganese ore from Waldron, Arkansas, and this letter will serve as a summary of our findings to date.

Two samples were received, a lower grade sample of about 100 pounds and a higher grade sample of apparently hand picked material weighing about 15 pounds. Both consisted of manganese and iron oxides in a dense novaculite gangue. The chemical analyses of the samples are given below:

	Analysis, percent					
Sample	Mn	Fe	Ba	SiO_2	Al_2O_3	P
1	24.0	1.8	0.62	47.1	1.8	0.19
2	30.9	5.5	1.1	28.4	2.1	0.35

Some idea of the liberation of the manganese oxides from gangue was gained by making heavy liquid separations on sized fractions of each sample. In addition, this information served as an estimate of what could be accomplished by gravity separation. The results of such a test on the higher grade material, sample 2, are detailed in Table 1 on the following page.

Results of Flotation

Product	Weight, percent	Analysis, percent			Percent of total
		Mn	Fe	SiO_2	Mn
Concentrate	41.7	45.8	1.4	6.3	79.9
Middling	13.0	17.5			9.6
Tailing	45.3	5.6			10.5
Composite	100.0	23.9			100.0

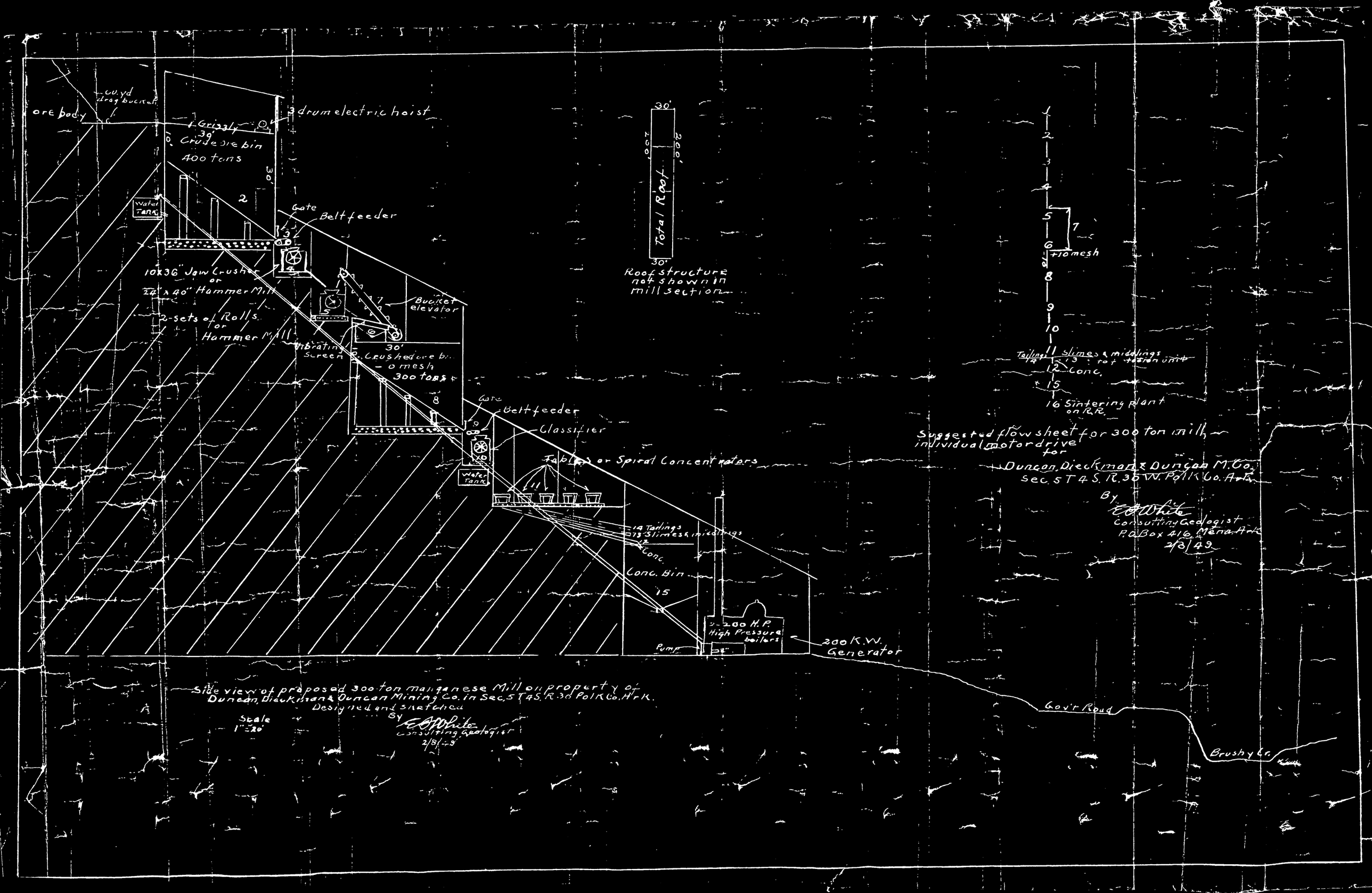
A recovery of 79.9 percent was effected in a concentrate containing 45.8 percent manganese, 1.4 percent iron and 6.3 percent silica. The flotation concentrate is too fine to meet size specifications for manganese ore and must be sintered or agglomerated. In the laboratory this was simulated by mixing the flotation concentrate with 10 percent of coke and heating in a muffle furnace at 1000° C. The sintered product had an analysis of 52.9 percent manganese, 1.7 percent iron, 6.3 percent silica, 6.2 percent alumina, 0.25 percent phosphorus and 0.32 percent lead which should be acceptable as manganese concentrates.

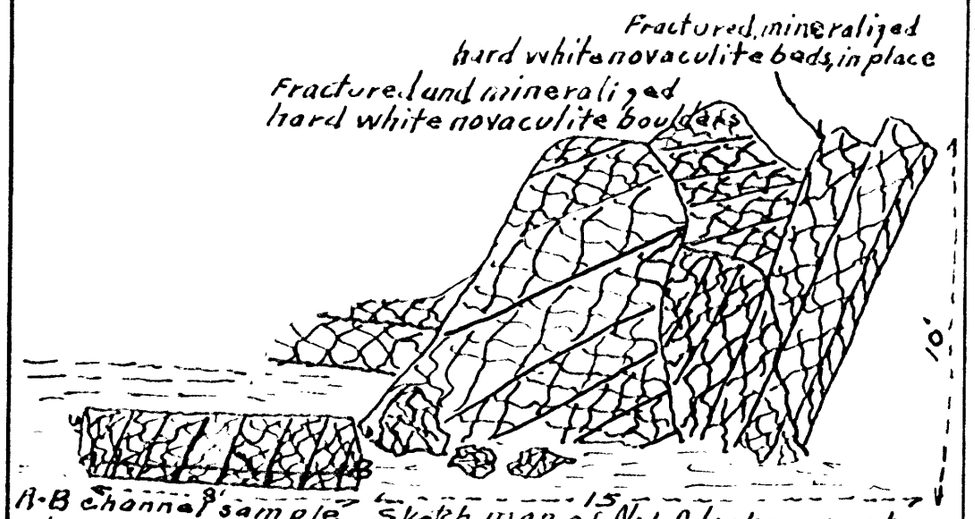
This completes our work on the manganese ore from Waldron, Arkansas, and the results obtained apply only to ore conforming to the samples tested. If you have any comments or questions about the work, we will be glad to hear from you.

Very truly yours,

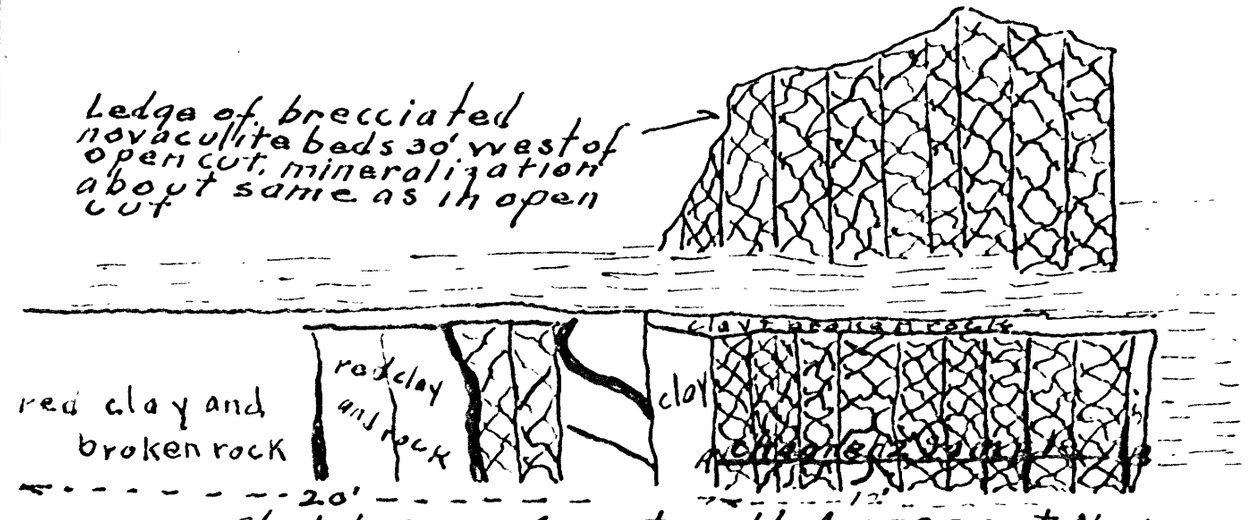
R. G. Knickerbocker,
Chief, Rolla Branch,
Metallurgical Division.

1849 1949
A Century of Conservation

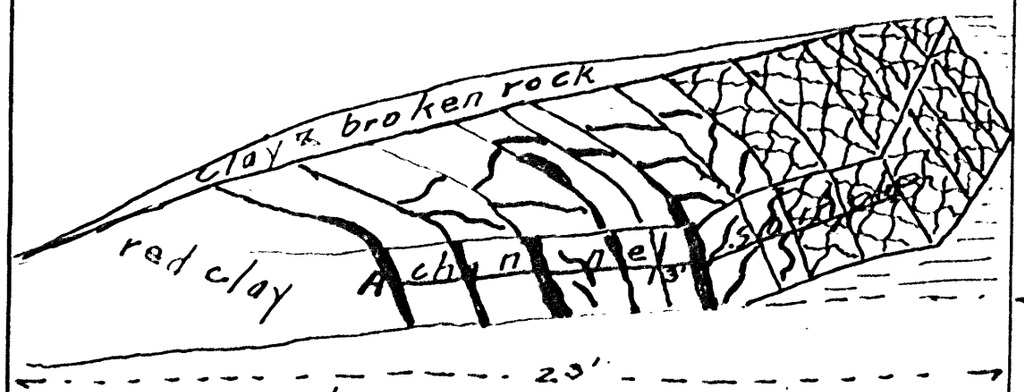

ore body
cu. yd drag bucket
3 drum electric hoist
Grizzly
39'
Crude ore bin
400 tons
30'
Water Tank
2
Gate
Belt feeder
3
10x36" Jaw Crusher
or
24" x 40" Hammer Mill
2-sets of Rolls
or
Hammer Mill
4
5
7
Bucket elevator
Vibrating Screen
6
30'
Crushed ore bin
- 0 mesh
300 tons
8
Gate
Belt feeder
9
Classifier
10
Water Tank
Tables or Spiral Concentrators
11
14 Tailings
13 Slimes & middlings
12
Conc.
Conc. Bin
15
2-200 H.P. High Pressure boilers
Pump
200 K.W. Generator
Gov't Road
Brushy Cr.
30'
200'
100'
30'
Total Roof
Roof structure not shown in mill section
1
2
3
4
5
6
7
+10 mesh
8
9
10
11
Tailings 14
slimes & middlings 13 not taken into unit
12 Conc.
15
16 Sintering plant on R.R.
Suggested flow sheet for 300 ton mill, individual motor drive for
Duncan, Dieckmann & Duncan M. Co.
Sec. 5 T 4 S. R. 30 W. Polk Co. Ark.
By
E. O. White
Consulting Geologist
P.O. Box 416 Mena, Ark.
2/8/49
Side view of proposed 300 ton manganese Mill on property of
Duncan, Dieckmann & Duncan Mining Co. in Sec. 5 T 4 S. R. 30 Polk Co. Ark.
Designed and sketched
By
E. O. White
Consulting Geologist
2/8/49
Scale
1" = 20'



A-B channel sample. Sketch map of No. 1-A looking east showing structural position of novaculite beds and occurence of manganese minerals in the cracks & bedding planes, joints of these beds and boulders. Mineral hard psilomelane

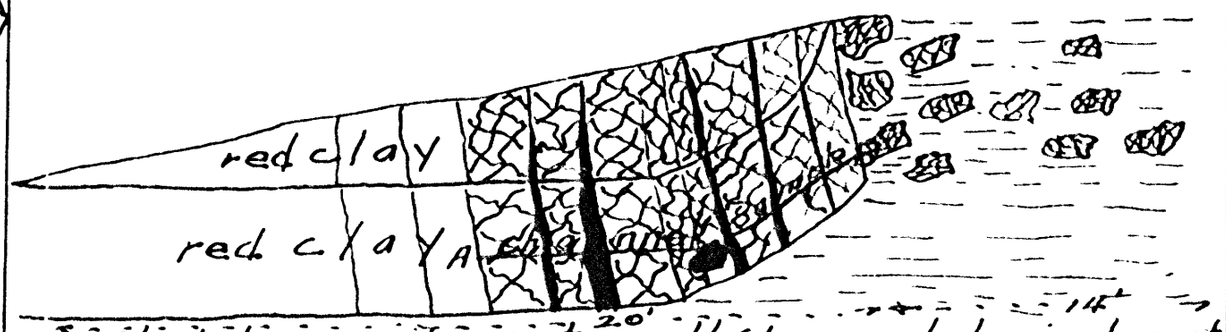


Sketch map of west wall of open cut No. 1 showing structural position of hard white novaculite beds and occurence of manganese minerals in the bedding planes, joints & cracks in these beds. Mineral hard psilomelane

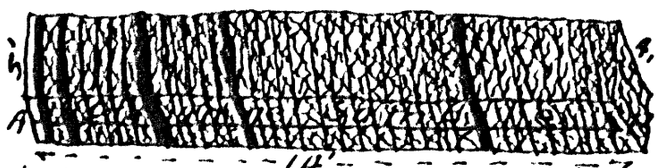


A-B channel sample

Sketch map of west wall, floor & breast of open cut No. 3, showing structural position of fractured soft gray novaculite beds of red clay & ore and fractured & jointed mineralized beds. Mineral rather soft psilomelane, maximum thickness



Sketch map of west wall, floor and sloping breast of No. 4, open cut, showing structural position of fractured and mineralized hard white novaculite beds, red clay with the minerals in the bedding planes, minerals, mostly hard psilomelane with some manganite. Some hematite.



Sketch map of west wall, floor & breast of No. 5 showing structural position of hard white fractured & brecciated novaculite beds, mineral hard psilomelane, maximum thickness 4" in bedding planes and 1/8" up in the brecciated beds.

LEGEND Scale, 1" = 5'

black is manganese mineral.

E. O. White
Geologist
July 27th 1949