DMA Form 1

DEFENSE MINERALS ADMINISTRATION
Control Slip

CONTROLLED DOCUMENT

DMA Docket No. 3011

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Exploration Assistance

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Copies to USBM; USGS retained in Region VI.

Routing Slip

To:	Code 400, Rm. 3538	Date	4/30/53
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CONTROLLED DOCUMENT

Willie Harris in
Congressman Oren Harris' office
called on 6/25/53
to say he had a wire
from the applicant saying
the exam. was a
success.

Please call Willie —
when we know that
the field report has
arrived

WSM

Martin

MAR 22 1954

Miss K. Alfriend
Senate Select Committee on
Small Business
Room 149, S.E.C. Building South
2nd Street and Indiana Avenue, N.W.
Washington 25, D. C.

Re: Docket No. DMEA 3011 - Manganese
Caddo River Mining Company
Old Sauseman Mine
Pike County, Arkansas
and
Thos. R. Howse property

Dear Miss Alfriend:

Confirming your telephone conversation of March 19, 1954, with our Iron and Ferro-Alloys Division, we are enclosing for the Committee's files spare copies from our files of the following: (1) Our letter of July 24, 1953, denying the above-referenced application of Caddo River Mining Company for exploration assistance. (2) Our letter of July 24, 1953, to Mr. Thomas R. Howse, United Mineral Industries, P. O. Box 151, Glenwood, Arkansas.

Mr. Howse made no formal application for exploration assistance. However, between May 18 and May 21, 1953, when our field examination was made of the property of Caddo River Mining Company, the manganese prospect of Mr. Howse was also examined for us.

We also enclose copies of DMEA Order-1, as amended; a booklet, "The Defense Minerals Exploration Program;" and Form MF-103, "Application for Aid in an Exploration Project." If Mr. Howse is interested in exploration assistance, he should submit four completed copies of the application for our consideration.

We believe from the above-noted telephone conversation that you are now familiar with the distinction between exploration and prospecting, which would normally precede exploration, and development, which would be the stage to follow the exploration.

Sincerely yours,

O. O. Mittendorf (for)

Administrator

Enclosures

cc: L. PAVLIDES, USGS
G. DE NUFF, USBM
WSMartin/ls 3/19/54

cc: DOCKET
CODE 400
ADM. READING FILE
FIELD TEAM, REG. VI

R.C.G. 3-22-54

400

FILE
SUR

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

Rutledge
Martin
Hedges

JUL 2 4 1953

Hon. Oren Harris
House of Representatives
Washington 25, D. C.

My dear Mr. Harris:

Reference is made to telephone call of June 25, 1953, from Mr. Willie Harris to our Iron and Ferro-Alloys Division, requesting that we advise your office upon receipt of our Field Team's report covering examination of the properties of the Caddo River Mining Company (our Docket No. DMEA 3011 - Manganese) and Mr. Thos. B. Howse.

Although Mr. Howse has submitted no application for exploration assistance, we arranged to have an examination made of his property because of his extensive correspondence with us. During the examination he stated to our Field Team engineer that he did not desire DMEA aid at this time. Enclosed is a copy of our reply to a letter addressed to us on July 3, 1953, by Mr. Howse.

Also enclosed is a copy of our letter advising Caddo River Mining Company that its application for exploration assistance is denied, but if at some future date the metallurgy of manganese deposits of this type is satisfactorily solved, we shall be glad to consider a revised application for assistance to explore for additional reserves of this type of material.

Please let us know if there is any way in which we can be of any further assistance.

Sincerely yours,

SIGNED
Administrator

Enclosures

cc: Docket No. 3011
File of Thos. B. Howse
Code 400
Field Team, Reg. 6
Adm. Read. File
Oper. Committee
Martha Carr, USGS
Edgar Gealy, USBM

WSMartin/ls 7/17/53

R.C.S.
7-24-53

400

FILE COPY
SURNAME: Dena

Rutledge
Martin
Healy
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Hogan
Jeffries
H. Jones

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

JUL 2 4 1953

Mr. A. F. Weaver, General Partner
Caddo River Mining Company
Box 251
Glenwood, Arkansas

Re: Docket No. DMEA 3011 - Manganese
Caddo River Mining Company
Old Sauseman Mine
Pike County, Arkansas

Dear Mr. Weaver:

Your application for exploration assistance on the subject property and other data available to us in Washington have been carefully reviewed.

Projects approved by the Defense Minerals Exploration Administration must, in its judgment, show definite promise of yielding materials of acceptable grade in quantities that will significantly improve the mineral supply position for the National Defense Program.

Exploration programs already completed on other properties in the Mena district have indicated the presence of substantial tonnages of manganese-bearing material of similar character to the deposit that you proposed to explore. Metallurgical tests to date have indicated that the greater proportion of such material cannot be economically treated to yield a satisfactory product. Therefore, unless further testing produces a satisfactory metallurgical process, additional exploration by the Government is unwarranted in any area where we can expect to find only similar deposits of material which cannot be classed as ore by present standards.

Under the circumstances, we regret to advise that we are unable to approve a project for the exploration of your property. However, if at some future date the metallurgy of manganese deposits of this type is satisfactorily solved, we shall be glad to consider a revised application for assistance to explore for additional reserves of this type of material. If such request is made by you, please refer to the subject docket.

R.C.G.
7-27-53

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

Sincerely yours,

C. O. Mittendorf

Administrator

MHutledge/ls 7/16/53

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OPER. COMMITTEE
MARTIN CARR, USGS
EDGAR [illegible], USBM
HON. OTTO PHILLIPS, U.S. HOUSE OF REPRESENTATIVES

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

July 16, 1953

MEMORANDUM

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division, DMEA

Subject: Denial of exploration project in the amount of $11,766.00
Docket No. DMEA 3011 - Manganese
Caddo River Mining Company
Old Sauseman Mine
Pike County, Arkansas

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

(1) Mr. A. F. Weaver and associates, operating as the Caddo River Mining Company, proposed to explore a manganese-bearing vein in the novaculite. This vein, well defined, strikes N. 80° E. and while almost vertical, in places seems to dip 10° from the vertical and to dip with the south slope of the mountain. At the Live Oak shaft the footwall of the vein is well defined and is a fairly smooth face of novaculite. From this wall for a width of from 12 to 18 inches hard particles of manganese material occur in places tightly wedged and in other places scattered through a brown clay. These particles range from grains to irregular chunks several inches in diameter. The remainder of the vein, from two to six feet in width, is made up of broken and shattered novaculite, the particles of which are cemented with seams of manganese oxides. These seams range from paper thin to 1/2 inch in thickness. The hanging wall is not well defined, but the manganese filled cracks give way to the barren shattered novaculite.

(2) The expected deposits will be similar to those already explored by previous DMEA contracts: Inland Mining Corporation (DMEA 2299), and Arkansas Manganese Co., Inc. (DMA 1248). Until it has been proven that such material can be treated to yield a satisfactory product, additional exploration for this type of manganese deposits is unwarranted.

(3) The examining engineer recommends denial.

(4) The Field Team recommends denial.

(5) The Commodity Division of the Geological Survey recommends denial of the subject application.

(6) The Commodity Division of the Bureau of Mines concurs with the denial.

W S Martin
W. S. Martin, Acting Chief
Iron and Ferro-Alloys Division

P. S. - While it is true that the greater proportion of the manganese-bearing material in the Mena district is not amenable to concentration, small zones of the mineralized material may be hand sorted or concentrated by gravity methods to produce an acceptable product. The results of tests on one such deposit are reported as follows:

"Manganese ore from the A. B. Pickell property near Mena was similar in mineral content to the Inland samples reported above but was higher grade and coarser grained. The ore was concentrated successfully by gravity processes to yield a 72.5 percent recovery of a ferrograde product. Additional recovery, to a total of 85.2 percent, could be effected by flotation of gravity rejects. The property owner has now installed a jig plant and, at last reports, was producing manganese concentrates."

400

FILE COPY
SURNAME: 910

Rutledge
Martin
Healy
Carr

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

July 16, 1953

MEMORANDUM

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division, DMEA

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Docket No. DMEA 3011 - Manganese
Caddo River Mining Company
Old Sauseman Mine
Pike County, Arkansas

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R.C.G.
7-24-53

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(4) The Field Team recommends denial.

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SIGNED

W. S. Martin, Acting Chief
Iron and Ferro-Alloys Division

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Copy to: Docket
Code 400
Oper. Committee
Adm. Reading File

FARutledge/ls

Docket.

Caddo River Mining Company
Glenwood, Arkansas
July 14, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 15 1953

Mr. Edwin T. Perkins
Defense Minerals Exploration Administration
221 West Third Street
Joplin, Missouri

Re: Docket No. DMEA 3011-Manganese
Caddo River Mining Company
Old Bussemann Mine
Pike County, Arkansas

Dear Mr. Perkins:

On May 19 and 20, you were in Glenwood and made an inspection of our claims. You picked up four samples which you had Bruce Williams Laboratories run an analysis on. We received a copy of those on June 6.

Mr. James R. Howse, with the United Minerals Industry, told me that he called you on June 24 in regards to the samples that you picked up on his claim. In the conversation you said that you were filling the Caddo River Mining Company reports on that date.

To date we have had no word from you or the DMA in Washington. We are very anxious to hear something in regards to our application.

Sincerely yours,

Caddo River Mining Company

A.F. Dover
Owner & Partner

cc: Hon. Orren Harris, M.C.
C.C. Mittendorf
A. Martin

Copy retained 400

MINES
HOPPER, ARKANSAS

UNITED MINERAL INDUSTRIES

MINING - BENEFICIATION - BROKING

GLENWOOD, ARKANSAS

July 3,1953

Mr.C.O.Mittendorf,Administrator
Defense Minerals Exploration Administration
Department of the Interior
Washington 25,D.C.

Dear Mr.Mittendorf:

Perhaps you have been puzzelled over the antagonistic stand we have taken against your Joplin Field Team, in view of the fact we have made no application,received a very kind offer from you to co-operate with us and even sent a representative to look over our property while investigating an application of an adjoining mining operation.

Ninty-five percent of our indignancy toward your Joplin office can be attributed to the manner by which it has handled the application of Caddo River Mining Company,Glenwood,Arkansas. We have no financial interest whatsoever in this company and other than a personal friendship with their Mr.Weaver,it makes no difference to us whether this company ever shipped a car of ore. However,we are going to be vitally affective if this company is declined a loan based upon inferior quality of the ore. We certainly cannot see any other reason why the loan would be rejected.

We understand that Caddo River Mining Company has been waiting over a year to get a decision on their application and all during this period there was never a representative of DMEA to make an inspection until your Mr.Perkins was sent down a few weeks ago. Mr.Perkins proved to be a fine gentleman,considerate and anxious to cover the areas,and at his age,I want to compliment the efforts he put forth to see our picture.Climbing those mountain sides have overtaxed much younger men. We have nothing but praise for Mr.Perkins. But,Mr.Perkins,as admitted,is a mining man and not a geologist. Caddo River and this company were presently concerned with exploration which required geology. We have expended a considerable sum of money,considering our small operation,in exploring and,although we feel confident that we have a project that would warrant a beneficiation plant we are placed in this position.

RFC will not (we assume) grant a loan without a satisfactory exploratory program. We have explored to the extent of of finances to tunnel at the base of the mountain until we reached a substantial vein of ore. They will want further exploration and your administration will possible turn us down based upon samples of ore that Mr.Perkins obtained. The samples analized by Bruce

Williams Laboratories,Joplin,Missouri were representative of the ore as removed from the earth but definitely not representative of what we plan to ship. Consequently,I contend that any adverse action taken prior to a complete beneficiation of the ore as,in the manner we propose to process it,will be unjust and in contravention to the intent of the act to provide more domestic ore to the needs of our country.

We had three Steel companies assay samples of our ore that we selected to be representative of the finished product after beneficiation. The lowest manganese grade was reported by Granite City Steel Co.,Lab.No.31524-6 dated February 9,1953 as follows:

Fe	1.91
Phos	.194
MN	45.80
SiO2	2.30

Tennessee Products & Chemical Corporation
Chattanooga,Tennessee. Lab. No. 407

Fe	4.40
Mn	46.47
Insol.	3.70
Phos.	0.30

Montana Ferro Alloys,Inc,Memphis,Tennessee

Mn 47.10
No other tests made.

In addition we sent samples to Rolla School of Mines, Rolla,Missouri. We quote: "If you can produce the manganese material represented by Samples 1 and 4 in car-load lots,the material would constitute an ore and could be sold readily. The material represented by your samples is of shipping grade".

O.R.Grawe,Chairman
Geology Department
School of Mines and Metallurgy,Rolla
Dated March 25,1953.

Samples 1 and 4 were taken from the same cut that Mr.Perkins had analized,designated by Bruce Williams as No.647052 #4,and,as stated previously,was unwashed and in its pre-native stage. I quote that report dated May 26,1953:

Mn	41.39
Fe	3.88
SiO_2	8.37
Al_2O_3	10.58
Phos	0.31

Prior to alledgedly bankruptcy of the North American Manganese Company,Glenwood,Arkansas due to mismanagement,over 20 cars of manganese ore were shipped and no concern was expressed of the grade. Your file on Caddo River Mining Company should produce some interesting reading on this subject.

I resolve these instances to you Mr.Mittendorf why I have attacked DMEA with the thought that I have been honest in my judgement of your administration,knowing you are a man to want the facts to correct any weaknesses that may exist.

CC: DMEA-Joplin
Senator Kefauver

Sincerely yours,

Thos.R.Howse

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
~~WASHINGTON 25, D.C.~~
Joplin, Missouri
June 26, 1953

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

Re: Docket No. DMEA-3011
Caddo River Mining Co.
Pike County, Arkansas
and
Thos. R. Howse Property

Dear Sirs:

Transmitted herewith is a report of a field examination of the subject property. The field examination was conducted in accordance with your request of May 12 and 13. Field Examination and the enclosed report have been completed by Edwin T. Perkins, Mining Engineer, U. S. Bureau of Mines.

The nature of the prospect, the type of ore involved, and the competency of the applicant do not permit the Field Team to recommend favorable action on this application at this time.

Sincerely yours,

W. P. Williams

W. P. Williams
Executive Officer, DMEA
Field Team, Region VI

WPW:jd
Encs.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
~~WASHINGTON 25, D.C.~~
Joplin, Missouri
June 26, 1953

Memorandum

To: W. P. Williams, Executive Officer

From: Edwin T. Perkins, Mining Engineer

Subject: Field examination of Caddo River Mining Company, Glenwood, Pike County, Arkansas, DMEA Docket No. 3011 and Thos. R. Howse property.

Complying with your instructions I spent May 18 to 21, 1953, examining the above designated properties, accompanied by A. F. Weaver, and Thos. R. Howse.

The Caddo River Mining Company

Introduction and Summary

Work on the property of the Caddo River Mining Company shows several exposures of a vein containing manganese oxides. From the narrow part of the vein, hand picking can produce a limited amount of ore suitable for marketing, but that part of the vein where the manganese oxides are intimately mixed throughout the broken and shattered novaculite, some form of removal and concentration of the manganese is necessary to produce a salable product.

A number of metallurgical tests have been made on ores from this area where the manganese oxides and their occurrences have been very similar. Wet gravity concentration tests produced some ore of sufficient manganese content, but the recovery was low and the product had excessive amounts of silica or phosphorus, or both, which made the product unsuitable for the market.

Until a method is developed to extract the intimately mixed manganese oxides from the shattered novaculite making a reasonable recovery and a suitable grade of ore a DMEA program is not recommended.

Cleared
7-10-53
OC

Location

The Caddo River Mining Company has two mining claims in the NW¼ sec. 5 and the NE¼ sec. 6, T. 5 S., R. 26 W., Pike County, Arkansas which extend along the south slope of Hogpen mountain. The property can be reached by traveling five miles south and west from Glenwood, Pike County, Arkansas, over Route 70, thence west on an improved and graveled county road toward Langley a distance of ten miles, thence to the right (north) on a private road a distance of three miles to a point near the foot of Hogpen mountain.

Hogpen mountain is in the northwest part of Pike County, not far from the Montgomery County line and trends southeasterly. The south slope is steep with numerous rock ledges, but is mostly covered with talus, much of which is made up of broken rock ranging from pebbles to large boulders. Weaver had bulldozed a rough and steep road about half way up the mountain, where he installed his 125-foot compressor, his only equipment except for jack hammer and small tools. Recent rains had made this road impossible to travel with even a pick-up truck and we had to make it afoot.

History[1/]

"In May, 1916, the Mississippi Valley Iron Company began work on He Mountain and Coon Creek in the southeast corner of Polk County. It had also done some work on the Risner, Hogpen and Redland Mountains near Langley in the northwest corner of Pike County. The Still mine on the southwest slope of Hogpen mountain had yielded 37 long tons of manganese ore at the time it was visited. The ore was hauled in wagons 20 miles to Glenwood and thence to the Company's furnace at St. Louis for testing. ... A letter from the Company dated December 16, 1916, stated that it had ceased operation." This seems to have been hand-picked ore.

The Still mine, named from a still which had been operated in that vicinity, and mentioned in the above quoted report, seems to have had no further work done on it, but is now known as the Sausman mine. During this early period or possibly sometime later, other work had been done in this area and some outcrops prospected and the Live Oak shaft sunk to 20 feet in depth. These properties are covered by Claim No. 1 of the Caddo River Mining Company.

1/ Hugh D. Miser, Manganese Deposits of the Caddo Gap and DeQueen Quadrangle, Ark. U.S.G.S. Bulletin 660-C, 1917

Following this earlier work, there seems to have been a period of inactivity. Then in the years 1941-1943 there was renewed interest in this whole Western Arkansas manganese area, and some of the efforts to produce a marketable product have been described by Douglas M. Kinney of the U.S.G.S. who visited the area at that time.

The Southern Mine and Milling Company owned several tracts in secs. 19, 29, 30, 31, 32, 33, and 34 in T. 4 S., R. 28 W., and secs. 25 and 26, T. 4 S., R. 29 W. in Polk County, and planned to build a mill of the Joplin type. Production was to have been from several different properties as no one of the different groups had sufficient reserves to keep a mill in operation. Records of the operation of the mill are not available, or if it was ever completed, but Kinney states, "It is recommended that the Southern Mine and Milling Company be allowed to purchase the bare necessities for the completion of the mill ... Such equipment would probably be placed again on the used equipment market within a year as it is doubtful if the milling of the novaculite ore is economic."

The North American Company owned properties in secs. 5 and 6, T. 5 N., R. 25 W., Pike County, built a mill in 1942 and in 1943 operated it on a custom basis. Kinney states, "Heads averaged 20 percent and tails 4 percent manganese with a concentrate averaging 40 percent manganese, although some concentrates are reported to have run as low as 25 percent.

"At the present time (1943) the mine is not capable of supplying the mill and custom work is being done. The haulage charges from the other possible producers are too great to make this procedure practicable except for experimental purposes.

"If the milling of novaculite bearing 10 percent manganese is a financial success, the North American Company has an approximate reserve of 18,000 tons of milling ore capable of producing 3,000 tons of 25-40 percent concentrates.

"The concentrate from the mill will run very high in silica and thus capable of use only in furnaces using high silica iron ore."

The Kerr Manganese Development Company operated in Redland Mountain in secs. 8 and 9, T. 5 S., R. 26 W., Pike County, and planned to mill over the North American Mill eight miles east.

"The poor surface indications and general character of the Arkansas novaculite make it improbable that more than 350 tons of concentrate carrying 25-40 percent manganese could be produced from the Kerr property.

"The cost of mining, milling, and hauling the ore would be excessive, producing 25-40 percent manganese material.

"The concentrate would be a high silica product not desired by furnace operations."

The White property is in NW¼, sec. 29, T. 4 S., R. 28 W., Polk County.

"White reported a shipment of 'ore' for experimental purposes to a Denver mill but with totally unsuccessful results. White planned to send a shipment to the North American Mill in Pike County, but Hasse (the manager) of the North American was positive he could not beneficiate the material."

The Coon Creek properties are in secs. 13 and 14, T. 4 S., T. 28 W., Polk County.

"The mine was operated during the month of December, 1942 with the ore being trucked to the North American Mill.

"Bergman (superintendent of Coon Creek) reported a return of one ton of a 25% manganese concentrate for four tons of milling ore for the 50 tons shipped to the Metals Reserve. Metals Reserve in St. Louis first rejected this car, because of the abundance of fines, but Hasse, Manager of the North American, who milled the ore reports the car since has been accepted on an umpire basis."

From the above reports it is evident that the concentrates produced at that time would not meet the present day requirements. The manganese content of the concentrates was often below even the 40 percent required and the silica and phosphorous contents were too high.

Beginning in 1949, interest was again manifested in this Western Arkansas manganese area, and along with some efforts to produce ore, metallurgical tests were made to see if there were any new techniques in the beneficiation of the ore.

In April 1949, samples of manganese material from near Waldren, Arkansas were sent to the Metallurgical Division of the Rolla Branch of the Bureau of Mines at Rolla, for ore-dressing tests.

"A recovery of 77.8 of the manganese was effected in a concentrate containing 44.1 percent manganese, 1.19 percent iron, 10.8 percent silica, 1.9 percent alumina and 0.41 percent phosphorous." This is a fair recovery of a good grade of manganese, but the phosphorous is too high.

A second report of metallurgical tests by the Bureau of Mines at Rolla was made on samples from Mena, Arkansas. "A sequence of operations, including gravity concentration, flotation, roasting and magnetic separation recovered 27.3 percent of the manganese at a grade of 46.1 percent manganese, 3.1 percent iron, 25.8 percent silica, 3 percent alumina, and 0.16 percent phosphorous. .... 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."

The Ore Testing Division of the Denver Equipment Company, Denver, Colo., reported the results of laboratory concentration tests conducted upon a sample of manganese ore from near Mena, Arkansas, submitted by the Arkansas Manganese Corporation as follows: "No recommendation for treatment of this ore can be made due to the negative results obtained by conventional ore-dressing means. Phosphorous assays were not made on the concentrates because a satisfactory grade of manganese concentrates was not made."

The Southwestern Engineering Company of Los Angeles, California, conducted metallurgical tests on two samples on which they gave the following report, "Comparing tests 1 and 2 the manganese recovery in test 2 was the same, the concentrate a bit lower in grade, the silica considerably lower, but the iron is higher. Phosphorous assay is very high, white copper is well within limits. Our efforts are now centered on reducing the silica, alumina and phosphorous content of the concentrates to a lower percentage, and to making a better recovery of the manganese."

The results of these later tests, to make a satisfactory product, are as discouraging as those of the earlier attempts at milling the ore.

Beginning in the summer of 1952, A. F. Weaver and associates, operating as the Caddo River Mining Company worked some of the outcrops, deepened the Live Oak shaft somewhat and drove the Weaver tunnel (adit) about 35 feet, cross-cutting a manganese bearing vein. The first part of the vein, four feet in thickness, was made up of broken and shattered novaculite, with the particles cemented with manganese oxides. Then for 18 inches more, there was a dark manganese bearing material containing 27.37 percent manganese, 9.50 percent iron, 25.72 percent silica, 7.16 percent alumina and 0.42 percent phosphorous. The shattered novaculite here resembled that encountered in the open cuts higher up the mountain, but the dark material in the narrower part of the vein was less solid and was grainy instead of lumpy, and would likely not yield much hand picked ore.

From the latest operations of the Caddo River Mining Company several tons of hand picked ore for shipping had been selected, but no shipments had been made. The sample #8 taken from this hand picked ore contained 46.43 percent manganese, 0.75 percent iron, 4.41 percent silica, 0.51 percent alumina, and 0.29 percent phosphorous. These results indicate that while there would be some penalties, the grade of the ore is well within acceptable limits.

Ore Deposits

On the Caddo River Mining Company's property the manganese oxides, mainly psilomelane and pyrolusite, with a small amount of wad, occur in a well defined vein which has a strike of approximately N. 80° E and while almost vertical, in places seems to dip 10° from vertical and to dip with the south slope of the mountain. This is shown to the best advantage in the Live Oak shaft which is 5 by 10 feet and 20 feet in depth, and where the vein is more exposed than in the other openings. Here the foot wall is well defined and is a fairly smooth face of novaculite. From this wall for a width of from 12 to 18 inches hard particles of manganese material occur in places tightly wedged and in other places scattered through a brown clay. These particles range from grains to irregular chunks several inches in diameter. The remainder of the vein from two to six feet in width is made up of broken and shattered novaculite, the particles of which are cemented with seams of manganese oxides. These seams range from paper thin to 1/2 inch in thickness. The hanging wall is not well defined, but the manganese filled cracks give way to the barren shattered novaculite.

Open cuts 3, 4, and 6, which are trenches, four feet in depth and ten feet in width, crosscut what seems to be the same vein on which the Live Oak shaft was sunk, and from which it may be inferred that the vein is fairly persistent, but its full extent has not been determined. These showings, along with those in the Weaver adit and the Sausman open cut and adit, indicate that the vein has some depth, but this also has not been definitely determined.

Development and Reserves

At the Sausman adit which is some 75 feet or more above the Hogpen branch at the foot of the mountain, a 10-foot open cut extends into the hill for a distance of 60 feet where it encountered the vein. The cut was then extended along the vein, 10 feet in width on each side for distances of about 20 feet. That part of the cut on the right or southeast side, then extended along the vein as a drift (tunnel) for another 15 feet. Sample #5 is from the vein material exclusive of the high-grade part of the vein, and contained 9.50 percent manganese, 1.88 percent iron, 69.52 percent silica, 6.61 percent alumina, and 0.11 phosphorus.

The Weaver adit was started 100 feet higher up the hill and 200 feet to the right or southeast. This adit extends into the hill for 20 feet where a 5½-foot vein was encountered. The adit was extended another nine feet. The first four feet of the vein was the

the shattered novaculite with manganese oxides filling the cracks and seams. Then there was 18 inches of a dark, higher grade material from which sample #6 was taken and which contained, 27.37 percent manganese, 9.50 percent iron, 25.72 percent silica, 7.16 percent alumina, and 0.42 percent phosphorus. Sample #7 was from the lower grade part of the vein material exposed in trench or open cut 4 and contained 32.66 percent manganese, 2.13 percent iron, 28.68 percent silica, 6.80 percent alumina, and 0.26 percent phosphorus.

The amount of development has in no way determined the extent of the deposit. The bulk of the work has been done near the surface, from which some 15 tons of hand-picked ore has been collected and is suitable for shipping. The exposures indicate that the vein extends a distance of 700 feet and the Weaver adit and the Sausman cut and adit indicate that there is a possibility that the vein extends 100 feet in depth. From this it can be inferred that 100 tons of hand-picked ore could be produced. It is estimated that 16,000 tons of inferred ore containing 9.50 percent manganese, 1.88 percent iron, 69.52 percent silica, 6.61 percent alumina, and 0.11 percent phosphorus can be produced. There have been no metallurgical tests made on this Caddo River Mining Company's material, but tests have been made on manganese oxides from this region where the occurrences of the manganese oxides are so near alike in the vein itself and in the host rocks, that similar unsatisfactory results would be expected from material in this immediate area.

While Weaver and his associates are good businessmen and reliable, their mining experience is limited, but suitable workmen are available in the vicinity. It would be necessary for them to engage the services of a capable engineer and depend on him for a plan of operation.

There is water to be had in Hogpen Creek, but there is no electric power available. Gasoline has been used in the compressor.

In its application for an exploration project contract, the Caddo River Mining Company indicated several places on the sketch map where it proposed looking for the extension of the vein. This was in addition to the drifting on the vein in the adit.

Conclusion

As already stated, the manganese oxides of the Caddo River Mining Company and the conditions surrounding their occurrence are so near like those on which numerous beneficiation tests have been made, that one is forced to the conclusion that the ordinary methods of concentration to produce a marketable product would not be successful.

This property can be operated on a small scale, with some degree of success, by hand picking the free ore and storing or stockpiling the balance of the vein material, in which the manganese material is so thoroughly mixed throughout the shattered novaculite. This kind of a program would naturally result in a certain amount of exploration but the returns would be small. Until a method is worked out to extract the intimately mixed manganese oxides from the shattered novaculite, making a reasonable recovery and a suitable grade of ore, a program such as the DMEA would want to cooperate in, would not be justified. It is therefore recommended that the application for a DMEA project contract be denied.

The Thos. R. Howse Property

Work in the property of the United Mineral Industries, of which Thos. R. Howse is Manager, consists of three cuts into the north hillside of Fancy Hill Mountain, all three of which have intersected a vein containing manganese oxides. This vein is very similar to that on the Caddo River property, with the same chunks of free psilomelane scattered through a brown clay and the manganese material filling the seams and cracks in the shattered novaculite.

The property comprises 320 acres in the N½, sec. 28, T. 4 S., R. 26 W., Montgomery County, Arkansas, and can be reached by traveling north from Glenwood, Pike County, Arkansas, a distance of 5 miles on Route 8, thence west after crossing the Caddo River, on an improved and graveled road for a distance of ten miles, thence southeast on a private road for a distance of two miles where the South Branch of the Caddo River is crossed at the foot of Fancy Hill Mountain and near the north boundary of the Howse property. A new road winds on up the mountain and attains an elevation of 150 feet above the river and ends about 50 feet down hill from the open cuts which were being worked at the time of the visit.

Earlier work is recorded as having been done on the Fancy Hill Mountain but it was further to the west, at a somewhat lower level and not on the Howse property. The work here consists of three open cuts, each 15 feet wide and extending into the hill for some 20 feet and all on practically the same level. A vein, exposed for four feet in depth, shows on each side of all three cuts, which are some 30 feet apart. These cuts first passed through barren, shattered novaculite and then through from 2 to 8 feet of vein material made up of the shattered novaculite with the manganese oxides cementing the cracks and seams of the rock. Then for from one to three feet of the rest of the vein there was a loose formation of brown clay which contained nodules of psilomelane. From this part of the vein about 20 tons of hand-picked ore was piled on the dump. A sample (#4) taken from the ore contained 41.39 percent manganese, 3.88 percent iron, 8.37 percent silica, 10.58 percent alumina, and 0.31 percent phosphorus.

A sample (#1) of the brown clay material which had small particles of manganese oxides scattered through it contained 24.45 percent manganese, 3.75 percent iron, 35.04 percent silica, 9.32 percent alumina, and 0.27 percent phosphorus.

A sample (#2) of the shattered novaculite with the manganese oxide filled seams and cracks, contained 27.04 percent manganese, 1.50 percent iron, 42.12 percent silica, 6.55 percent alumina, and 0.17 percent phosphorus.

About 50 feet down the hill, below where these three cuts have been made, another cut had just been started in the hillside from which some brown clay had been removed, but so far no solid rock nor vein had been encountered. A sample (#3) of this material contained 15.07 percent manganese, 9.00 percent iron, 47.72 percent silica, 6.58 percent alumina and 0.28 percent phosphorus.

Thos. R. Howse has had some previous mining experience and seems to be reliable. He also seems to have some financial backing for his operations. He already has several local workmen who have also had some experience. There is ample water at the base of Fancy Hill Mountain. There is no electric power, and gasoline would have to be used.

There had not been sufficient work done on the vein to determine if there were any extensions, beyond the three open cuts. These showed the vein for 105 feet, from which it is estimated that at least 70 tons of hand-sorted ore could be collected.

It is estimated that 1,500 tons of the lower grade material could be produced.

Mr. Howse stated that he did not desire an exploration project contract at this time. His plan of operation is to extend the work along the vein in both directions, removing and collecting by hand picking the free ore and stockpiling that part from the vein containing the manganese oxides which are ultimately mixed with the shattered novaculite. This plan of operation was suggested at the time of the visit.

Intimately?

Edwin T. Perkins

Edwin T. Perkins
Mining Engineer

:jd
Attachments

cc: Operating Committee (Orig. & 3)
L. T. McElvenny

MAY 27 1953

ENGINEERS
INSPECTIONS and TESTS

The Bruce Williams Laboratories

ESTABLISHED 1898

Main Office 618-622 Joplin Street Telephone 556

JOPLIN, MISSOURI

CHEMISTS
INDUSTRIAL and ANALYTICAL

Picher, Oklahoma
Connell Hotel Bldg.
Telephone 710

St. Louis, Missouri
306 Valley Drive
Telephone Imperial 3226

Mr. Perkins
DMEA Office
Joplin, Missouri

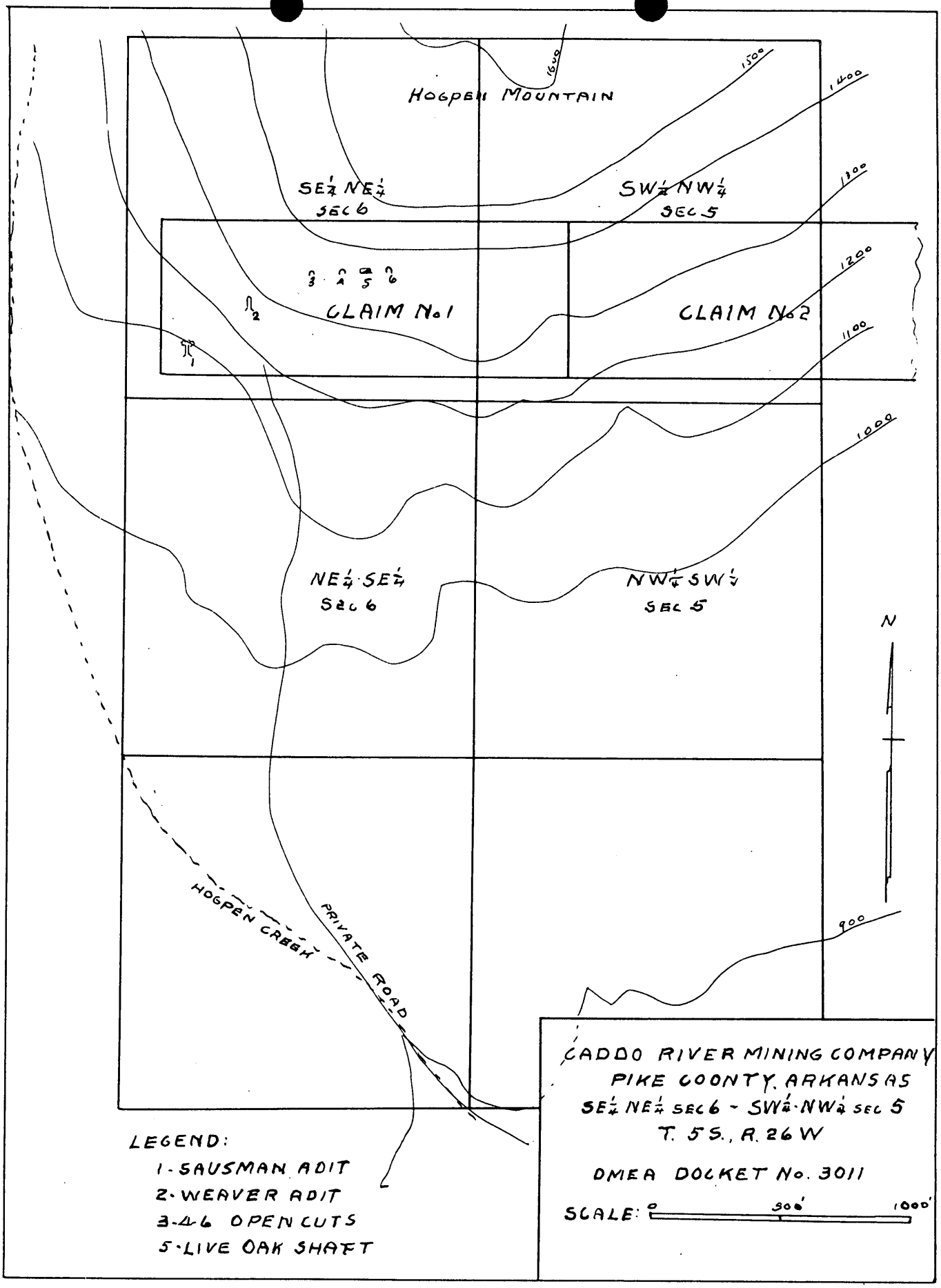
5-26-53

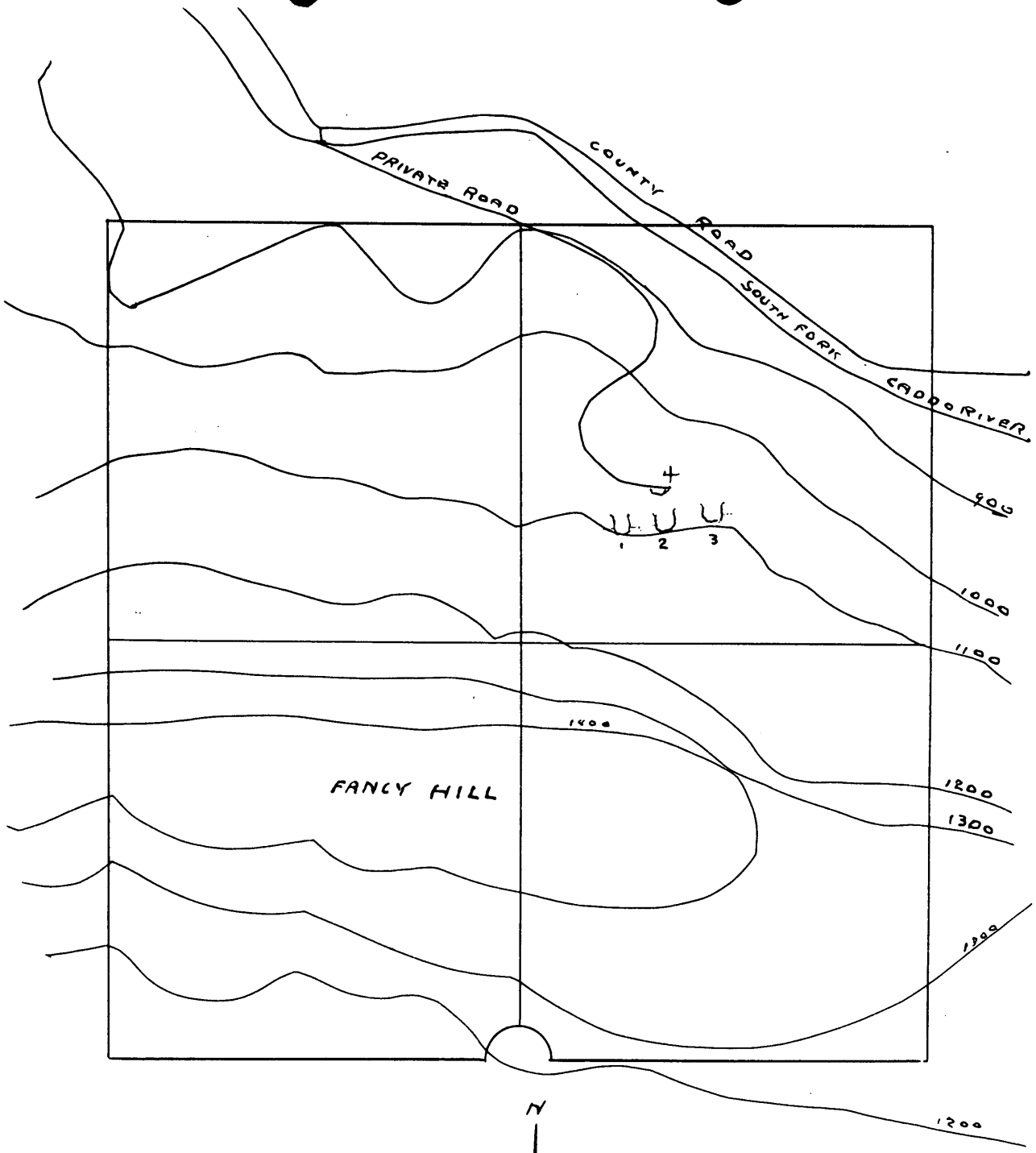
OUR NO.	MARK	DESCRIPTION	ZINC	IRON	LEAD	LIME	MOISTURE

Sample			Mang-anese	Iron	Silica	Alum-ina	Phos-phorous
467052	#1	B/M DMEA Perkins United Minerals	24.45	3.75	35.04	9.32	0.27
053	#2	Industries	27.64	1.50	42.12	6.55	0.17
054	#3	"	15.07	9.00	47.72	6.58	0.28
055	#4	"	41.39	3.88	8.37	10.58	0.31
056	#5	Weaver	9.50	1.88	69.52	6.61	0.11
057	#6	"	27.37	9.50	25.72	7.16	0.42
058	#7		32.66	2.13	28.68	6.80	0.26
059	#8		46.43	0.75	4.41	8.51	0.29

Bruce Williams

UARCO INC. . CHICAGO


HOGPEN MOUNTAIN
1600
1500
1400
1300
1200
1100
1000
900
SE¼ NE¼
SEC 6
SW¼ NW¼
SEC 5
3 4 5 6
2
1
CLAIM No 1
CLAIM No 2
NE¼ SE¼
SEC 6
NW¼ SW¼
SEC 5
N
HOGPEN CREEK
PRIVATE ROAD
LEGEND:
1-SAUSMAN ADIT
2-WEAVER ADIT
3-4-6 OPEN CUTS
5-LIVE OAK SHAFT
CADDO RIVER MINING COMPANY
PIKE COUNTY, ARKANSAS
SE¼ NE¼ SEC 6 - SW¼ NW¼ SEC 5
T. 5 S., R. 26 W
DMEA DOCKET No. 3011
SCALE: 0 500' 1000'



N

LEGEND:

1·2·3 : OPEN CUTS

UNITED MINERAL INDUSTRIES
THOS. R HOWSE
PART N½ SEC 28, T4S., R26W
MONTGOMERY COUNTY, ARK

SCALE 0 500' 1000'

Docket

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 18 1953

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
~~WASHINGTON 25, D.C.~~
Joplin, Missouri
May 15, 1953

Re: Docket No. DMEA-3011
Manganese
Caddo River Mining Co.
Pike County, Arkansas

WSM

Memo

To: Operating Committee

From: W. P. Williams, Executive Officer, Field Team, Region VI

Subject: Field Referral - Caddo River Mining Company, Pike County, Arkansas.

We have received your request dated May 12, 1953 for a field examination of the above referenced property. We shall conduct this field examination as soon as possible.

I wish to point out that we are somewhat at a loss as to what can be materially gained from the examination in view of our past experience with Arkansas manganese. There is no question that large tonnages of low grade manganese ores are present in the Mena district. In our field examination we shall undoubtedly see many thousand more tons of this same manganese.

Mr. Crittenden, in his memorandum on the subject dated May 5, 1953, states "Past experience in the district and mill tests on novaculite ores indicate that it is not possible to make a product meeting ferro-grade specificatins from these mine run ores by ordinary ore-dressing methods. ...No evidence has been presented to show that the proposed milling operation has greater chance of success than others tried in the area." In short, the whole problem of Arkansas manganese is one of metallurgy and treatment rather than one of exploration and ore development.

However, all this is an old story to you, and I do not wish to convey the impression that we are less than enthusiastic about this field examination. We will do our utmost to assist the applicant and our report will be forthcoming as soon as we have examined the property and obtained the necessary information.

W. P. Williams

W. P. Williams
Executive Officer

WPW:jd

cc - Max Crittenden

400

FILE COPY
SURNAME:

Rutledge
Martin
J. Johnson

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

Mr. W. P. Williams, Executive Officer
DMEA Field Team, Region VI
221 West Third Street
Joplin, Missouri

MAY 1 2 1953

Re: Docket No. DMEA 3011 - Manganese
Caddo River Mining Company
Old Sauseman Mine
Pike County, Arkansas

Dear Mr. Williams:

Reference is made to letter of April 28, 1953, from Clinton C. Knox, transmitting the subject application and recommending denial of same.

We would prefer not to make a summary denial; instead, we would like to have you make a field examination. Attached are copies of a memorandum of May 5 by M. D. Crittenden, U. S. Geological Survey, and of a memorandum of May 7, 1953, by Gilbert L. DeNuff, Jr., U. S. Bureau of Mines, concerning the application.

You will recall that our letter of February 12, 1953, to Hon. Oren Harris, mentioned that we understood he would be sending us copies of correspondence between Mr. Glenn Coker and the Arkansas Development Commission regarding the above-referenced manganese occurrences. We assume that the letter by Mr. Norman F. Williams of the Arkansas Resources and Development Commission written February 5, 1953, to Mr. A. F. Weaver, copy of which accompanied the subject application, is the correspondence to which Congressman Harris referred.

Sincerely yours,

W. S. Martin (JHB)
ACTING Chairman, Operating Committee

Enclosures

APPROVED:

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

T. P. Thayer (JHB)
Member, Geological Survey

WSMartin/ls 5/8/53

cc: Docket
Field Team, Region 6
Code 400
Oper. Committee
Adm. Reading File
N. B. Melcher, USBM
M. D. Crittenden, USGS

J. C. 5/12/53

FILE COPY
SURNAME:

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

Martin
Rutledge
Gately
Hayes
Johnson

Mr. A. F. Weaver
Caddo River Mining Company
Box 251
Glenwood, Arkansas

MAY 12 1953

Re: Docket No. DMMA 3011 - Manganese
Caddo River Mining Company
Old Sausman Mine
Pike County, Arkansas

Dear Mr. Weaver:

Your application for assistance in exploring for manganese ore has been reviewed by the Iron and Ferro-Alloys Division of the Defense Minerals Exploration Administration and has been referred for a field examination to Mr. W. P. Williams, Executive Officer, DMMA Field Team, Region VI, 221 West Third Street, Joplin, Missouri.

The Regional Office will contact you at an early date in regard to the examination of your property. Any assistance that you can render the members of the Field Team will be appreciated.

Sincerely yours,

C. O. Mittendorf (fw)

Administrator

WSMartin/ls
5/8/53
cc: Docket
Field Team, Reg. 6
Code 400
Oper. Committee
Admn. Read. File
M. D. Crittenden, USGS
R. W. Geehan, USBM

J.C. 5/12/53

Docket

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 8 1953

May 7, 1953

WSM

Memorandum

To: Mr. W. S. Martin, Acting Chief, Iron & Ferro-Alloy Branch, DMEA

From: Gilbert L. DeHuff, Jr., Commodity Specialist

Subject: DMEA-3011. Manganese. Caddo River Mining Co., Arkansas

Application is made for aid to explore for manganese two contiguous claims located in Pike County, Arkansas. Total cost is estimated by the applicant to be $11,766.00.

The application is poorly presented in spite of efforts on the part of the field engineer for improvement. Applicant claims to have done about six weeks work at the property, during which time he dug a tunnel and several open cuts. Although applicant presents report of analyses for six samples from six locations, each showing good manganese values, he does not give any indication as to what type of samples they were, nor any description of the deposit other than to submit a simple plat of the claims showing location of present and proposed openings, and an extract from U.S.G.S. Bulletin 808 regarding manganese ore occurrences in general in the DeQueen and Caddo Gap quadrangles. It might be mentioned that neither U.S.G.S. Bulletins 660-C or 808 speak very hopefully of the possibilities for manganese production of any consequence from the district. Applicant states that, in 1942-43, the North American Manganese Corporation operated a mill approximately three miles to the east, and shipped some concentrates. He gives the car numbers and shipping dates, but no analyses, for twelve cars, "Billed to the Lawrence Warehouse Company, care of the Metals Reserve Company sotcked piled for RFC, St. Louis, Missouri." A review, dated October 16, 1947, of a Bureau of Mines report of an examination of the property of North American Manganese Company, located in SW¼ SW¼ sec. 5 and the S½SE¼ sec. 6, T5S, R25W, "On Forrester Branch of Self Creek," stated that the face being mined at the time of examination

carried 10% Mn and was being milled in a mill near the shaft. The engineer estimated a reserve of 18,000 tons of ore of similar grade with possibilities for development of additional ore. He noted that the ore was spotty, and that much waste was removed in mining operations from stopes. He stated that this property, with the lowest level at 120 feet in the only shaft accessible at the time, was the only operation in the Ouachita Mountains to follow the mineralized zone to any depth.

At about the beginning of this year (1953), Caddo River Mining Company submitted an application to DMPA for a loan of $27,855.85 for mining equipment, mill and working capital, in order to produce 40% manganese concentrates from their mining claims in Pike County, Arkansas. At that time applicant estimated 30,000 tons of milling ore averaging 10% Mn, to be concentrated with jigs. The application had no supporting data of any kind.

Gilbert L. DeHuff, Jr.

Gilbert L. DeHuff, Jr.

IN REPLY REFER TO:

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

May 5, 1953

Memorandum

To: Mr. W. S. Martin

From: Max D. Crittenden

Subject: DMEA-3011 (manganese)
Caddo River Mining Company
Box 251, Glenwood, Arkansas

The proposal

The applicant proposes to spend a total of $11,766.00 to explore deposits on 2 claims reported to be in the NW¼ of sec. 6, T. 5 S., R. 26 W., Pike County, Arkansas. The work to be done is not specified, except to say that they expect to sink 22 shafts or tunnels (or something).

The property

The property appears to be the same as that described by Miser on p. 92-93 of USGS Bull. 660, as the Still mine (sic.) on Hog Pen Branch. This describes the developments as of August 1916, but the Survey has no information about the more recent work, either during World War II, or since 1950.

The meager information in the application gives almost no hint of the methods of operation the applicants propose to use. However, from the accompanying letter I infer that they propose to set up a custom mill to handle ore from this and adjoining properties.

Past experience in the district and mill tests on novaculite ores indicate that it is not possible to make a product meeting ferrograde specifications from these mine run ores by ordinary ore-dressing methods. The following excerpts from metallurgical reports indicate the problems encountered and the typical results:

From memorandum from R. G. Knickerbocker to L. T. McElvenny - September 17, 1951

"Bureau of Mines tests by M. M. Fine and R. B. Fisher on sample submitted by M. Howard Berliner of Mena, Arkansas, manganese ores.

"Results of gravity concentration, flotation, roasting and magnetic separation showed 27.3% recovery of the manganese at a grade of 46.1% Mn, 3.1% Fe, 25.8% SiO_2, 3.0% Al_2O_3, and 0.16% P. This very low recovery of a sub-grade product is due to the very intimate association of the manganese oxides and novaculite which precluded the ready production of ferrograde material by mineral dressing methods."

Denver Equipment Company -- Report to -- Robert B. McElwaine
Ore Test No. CC-18297

"The results of the tests . . . described show that the submitted sample does not respond to flotation or gravity treatment to produce a high grade manganese product. Test No. 3 produced a reasonably good recovery of the manganese (Flotation - 81.0 per cent recovery with the concentrate containing 26.6 per cent Mn), but the grade is regarded as too low for marketing. The occurrence of manganese in close association with the siliceous gangue is responsible for the low grade concentrates produced. It will be noted that the concentrate of Test Number 3 was 81.9% minus 200-mesh, but that the concentrate contained excessive silica (33.1% Insol.) as the chief impurity."

"No recommendations for treatment of this ore can be made due to the negative results obtained by conventional ore dressing means."

Of course any one can hand pick specimens of the quality analyzed, and if material were selectively mined and hand sorted to 20 per cent Mn or so, a satisfactory product might then be obtained by milling.

The exploration proposed is very close to development if this type of hand sorting operation is envisaged.

Conclusion

No evidence has been presented to show that the proposed milling operation has greater chance of success than others tried in the area. Moreover, if selective mining and hand sorting are practiced, the proposed work is more extensive than necessary for exploration.

The chances for a significant discovery can only be characterized as poor.

Max D. Crittenden, Jr.

Max D. Crittenden, Jr.

May 1, 1953

Mr. A. F. Weaver
Caddo River Mining Company
Box 251
Glenwood, Arkansas

DMEA-3011
Subject: Exploration Assistance
Re: Old Sauseman Mine

My dear Mr. Weaver:

The receipt of your application dated April 7, 1953 for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-3011 and referred to the Iron and Ferro-Alloy Division.

Kindly refer to DMEA-3011 in any future correspondence relating to your application.

Sincerely yours,

ROBERT E. ADAMS

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

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

April 30, 1953

Memorandum

To: Executive Officer, DMEA Field Team, Region VI.

From: Chief, Operation's Control and Statistics Division

Subject: Assignment of Docket Number

There is listed below the assigned docket number to an application recently received from Region VI.

DMEA - 3011 - Caddo River Mining Company

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

38226

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
~~WASHINGTON 25, D.C.~~
Joplin, Missouri
April 28, 1953

Operating Committee
Defense Minerals Exploration
Administration
Washington 25, D. C.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 30 1953

Dear Sirs:

Transmitted herewith is the original and two copies of a DMEA application for a manganese exploration project contract, submitted to this Field Team Office on April 7, and again on April 18, by the Caddo River Mining Co., Glenwood, Arkansas. The fourth copy is being retained in the file here.

As you probably will note, despite all my efforts, suggestions, and advice in assisting the company to prepare a worthwhile application, in my personal opinion, it still does not warrant any recommendation of approval. We apparently have no further recourse now, however, so therefore the application is submitted for your careful consideration, recommended official denial, and for your records.

Copies of my letters to the applicant also are enclosed.

Very respectfully submitted,

Clinton C. Knox

Clinton C. Knox
Mining Engineer

:jd
Encs.

MR-103
(Revised April 1952)

APR 9 1953

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 30 1953

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

Not to be filled in by applicant

Docket No. DMEA 3011
Metal or Mineral
Date Received 4/30/53
Estimated Cost
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: Garlo River Mining Co., Box 251, Glenwood, Arkansas

(*b*) A limited partnership (recorded in Pike County Courthouse)

(*c*) Not applicable - L. E. McClain and Glen Coker, Special Partners, Glenwood

(*d*) Three Partners: J. P. Weaver, Owner 1 partner, Glenwood, Ark.

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

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

(*d*) If a partnership, add to the above statement the names and addresses of all partners.

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract NW¼ Sec 6 Tp. 5 S R 26 W, Pike Co. Ark. Claim No. 2, Section 5 and 6 Township 5, Range 26 W, Pike County Ark. Approx 40 acres

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

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise

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

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

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice.

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

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades.

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

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

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power.

5. *The exploration project.*—(*a*) [redacted] the mineral or minerals for which you wis[redacted] explore .....

.....

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

[X] Money [X] Use of equipment owned by you [ ] Other

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated April 7, 1953

Cadd River Mining Co.
(Applicant)

By A. F. Graves
H. H. McLean
Glen Coker.

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

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

2 Application filed: DMEA Executive Officer, Field Team Office Region VI., To General Delivery, Joplin, Missouri.

3(a) Attached copies of unpatented claims recorded in book D, page 216 and 217. County of Pike in state of Arkansas town of Murfreesboro.

3(b) Old Sausoman Mine on Hog Pen Branch.

3(c) Owner of unpatented claims on Government lands.

3(d) No liens on encumbrances.

3(f) Two unpatented claims recorded as stated above in 3(a).

4(a) Attached plat showing the description of our two claims. The Old Sausoman Mine was opened in 1917. There were five cars of free ore shipped from this mine. We have no record of this only the old settlers who live near these claims. They stated there were five cars of free ore shipped from this mine. Attached is analysis of the ore from the Sausoman Mine. From the Weaver Tunnel, which was dug October, 1952, and the Alive Oak Shaft dug 1943 and including three other opens on those claims. The Caddo River Mining Company did about six weeks work in which they dug the Weaver Tunnel and several other opens. In 1942-43 the North American Manganese Corp. operated a mill approximately three miles east of our claims. We have been told that there were between 40 and 50 cars of concentrated ore shipped from the North American location. We only have record of 12 cars of which we are sending you the car numbers and dates of shipping in which you will note that it was shipped to the Reconstruction Finance Corp. St. Louis, Missouri. All working are accessible.

4(b) Answered in 4(a).

4(c) Attached U. S. Geologic Surv. Bullotin 888, which include most of this area. To determine the amount of reserved ore.

4(d) Passable roads which is approximately two miles from the highway. Shipping point, Glenwood, approximately 10 miles and a good supply of water.

4(e) Manpower, materials, supplies, water, and equipment are plentiful. Main powerline 6 miles south of property. If large mining and milling operators are ever launched on the property.

5(a) Will explore inferred manganese ore deposits on the property.

5(b) We plan to sink 22 shafts are cut tunnels on the lead and deepen the Weaver and the Alive Oak shafts, as shown on plat.

5(c) Work will start within ten days and will be completed within three months.

5(d) Caddo River Mining Company prospecting on property in October and November, 1952. Weaver has had one year of prospecting exploration work. H. H. McClain name, Glen Coler name. The man who will superintend the exploration project is Mr. Illoy Vaught who has had ten years experience in the capacity on manganese mining operations in that Arkansas District.

[illegible] Guidance of [illegible].

5(a) Loss

5(b) Labor
[illegible] 1.21 per hour
[illegible] 1.10 per hour
[illegible] per hour
Total Labor [illegible] [illegible] [illegible]

Overhead
[illegible] 70 per cent
[illegible] [illegible]
Total Labor [illegible] [illegible]

Equipment
[illegible] [illegible]

5(c) [illegible] [illegible]
[illegible] [illegible]
[illegible]
[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible]

5(d) [illegible] (cost)
[illegible] [illegible] 1.[illegible] per hour

Overhead
[illegible] [illegible]

[illegible] [illegible]
[illegible] [illegible]

5(e) [illegible] of [illegible] - [illegible]

5(f) [illegible] [illegible] - [illegible]

5(g) Miscellaneous
[illegible] [illegible] [illegible]
[illegible] by [illegible] - [illegible]
[illegible]
[illegible]

5(h) [illegible] - [illegible]

$11766.00

7(a) [illegible].

7(b) [illegible] [illegible] [illegible] of [illegible]

ASSIGNMENT

STATE OF ARKANSAS)
)
COUNTY OF PIKE)

I, A.F. Weaver, Glenwood, Arkansas, for and in consideration of the sum of $10.00 and other good and valuable considerations in hand paid to me by the CADDO RIVER MINING COMPANY, A limited partnership duly organized and filed for record in Pike county, Arkansas, according to Section 65-201 through 65-228 of Arkansas Statutes of 1947 Annotated, the receipt of which is hereby acknowledged, do hereby transfer, bargain, sell and deliver to the CADDO RIVER MINING COMPANY, all my right, title, and interest in the following described mining claims, to-wit:

1. Claim Number One, filed by A.F. Weaver, Hogpen Mining District, Pike County, Ark, Section 6, twp. 5, Range 26 w, Pike County, Ark., Recorded in Book D, Page 216, in Pike County Recorders office.
2. Claim Number two, filed by A.F. Weaver, Hogpen Mining District of Pike County, Ark., Sections 5 and 6, Twp. 5, Range 26 W., Pike County, Ark., Recorded in Book D. Page 217,

TO HAVE AND TO HOLD UNTO THE CADDO RIVER MINING COMPANY together with all my rights, and appurtenances thereto.

I further Warrant the title unto the CADDO RIVER MINING COMPANY against all lawful claims by anyone whomsoever.

WITNESS my hand and seal this 18th. day of April, 1953.

A.F. Weaver
A.F. WEAVER

ACKNOWLEDGEMENT

STATE OF ARKANSAS
COUNTY OF PIKE

I, the undersigned Notary Public, in and for the County and State aforesaid, do hereby certify that A.F. Weaver, well known to me, appeared before me and executed the above instrument as grantor, for the purposes and considerations set out above.

WITNESS my hand and Official Seal this 18th. day of April 1953

N Symmes
Notary Public

My commission expires:
Aug 5- 1954

COPY

Arkansas
RESOURCES AND DEVELOPMENT COMMISSION
STATE CAPITOL
LITTLE ROCK

February 5, 1953

Mr. A. F. Weaver
Weaver Lumber Company
Glenwood, Arkansas

Dear Mr. Weaver:

I am writing you this letter as a result of the talk we had about your problems in getting government assistance in the construction of a small manganese mill near Glenwood, Pike County, Arkansas. If this statement of mine can in any way assist you in getting the concerned Federal agency to give what we both feel is the proper consideration of your problem, you are free to show it to anyone who can help consummate such consideration.

The part of Arkansas centering around Glenwood has long been known to contain considerable amounts of manganese ore, but in the past it has been found difficult to prove that any single deposit is of large enough extent to economically justify the construction of the mill necessary to produce a saleable concentrate. Some description of these deposits and the ore of the area is included in U. S. Geological Survey Bulletin 808 and other publications of the Geological Survey.

The merit of your present plan to construct a small plant to concentrate ore not only from your properties but also from the many other prospects in the region lies in the fact that in this way you are insured of enough mill feed from this group of properties to warrant the operation of a small mill where if you only had a part of the properties it would be necessary to do much expensive drilling and test pitting in order to prove enough reserves to justify such a project. It is true that an outsider would find it difficult to deal with the many individual prospect owners involved, but by being a resident of the area and a neighbor of these people your previous contacts with them would make it possible for you to undertake such a plan with good prospects of success.

If a mill such as you describe will handle fifty tons per day with a recovery of five tons of saleable concentrate, it would result in roughly 2,000 tons of badly needed concentrates being added to the nation's supply each year. It is my belief that there is enough known

about the wide occurrence of manganese in this area to at least justify the appropriate government agency making a check into the accuracy of our assumptions, which we have based on personal knowledge of the area and on published reports.

Yours very truly,

Norman F. Williams
Director, Division of Geology

NFW:kh

(Extract from U.S. Geol. Surv. Bulletin 608, Geology of the Dequeen and Caddo Gap Quadrangles, Arkansas, by Hugh D. Miser and A. H. Purdue)

MANGANESE ORE

Only the general geologic and economic relations of the manganese deposits will be discussed here, for detailed descriptions of them have been given in another report by Mr. Miser.

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, may thus be followed for long distances along the slopes, 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 "ledges" or "leads".

The depth to which the ore extends is not known. An 8-foot 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 290 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 1,800 feet above sea level, but the greatest difference in altitude in any single locality is about 300 feet. This range does not necessarily mean that a shaft sunk from the crest of a mountain would find ore at a depth of 300 feet or that a tunnel driven into the base of a mountain 300 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 manganese ores occur as nodules, pockets, and short irregular veins from a fraction of an inch to 4 feet thick. Thicknesses of 4 feet, however, are rare, and those of 1 foot are not common. The ore bodies are scattered through the hard novaculite and can doubtless be found on every mountain where the Arkansas novaculite is exposed. The ores occupy bedding planes or joint cracks or form a cement in a novaculite breccia, in which the rock fragments range from a fraction of an inch to over a foot in diameter. Iron and manganese ores may be intimately mixed in the same pocket or vein, they may occur separately in different parts of the same vein, or they may occur in separate masses.

The manganese ores consist of oxides, four of which, psilomelane, pyrolusite, manganite, and wad, have been identified; if others are present, they probably occur in minute quantities. Although these minerals may be found separately, as a rule two or more are intimately mixed in the same deposit, and in some places they are associated with iron ores and manganiferous iron ores. Psilomelane, pyrolusite, and

manganite form the larger part of the manganese ore in this region. A material consisting or rock fragments and clay cemented together by soft manganese oxide is present at a number of places; locally it is known as "bog ore." The iron ores comprise various hydrous sesqui-oxides, of which limonite is probably the most common. The most abundant material with which the iron and manganese ores are associated is clay, some of which has been brought in by ground water and some of which is residual and probably in place.

The mode of occurrence of the manganese ores in the Arkansas novaculite suggests that their origin and that of the novaculite are intimately associated. The novaculite is regarded by the writers and some others as having been deposited as a manganese-bearing calcite at the two main ore horizons, but some of it was doubtless deposited as a 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 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 the 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 following are analyses of manganese and manganiferous iron ores from these quadrangles:

Analyses of manganese and manganiferous iron ores from the Caddo Gap and Dequeen quadrangles, Ark.

	1	2	3	4	5	6	7	8	9
Manganese (Mn)	60.28	56.36	55.00	51.54	48.65	45.34	40.51	27.00	28.20
Iron (Fe)			.50		2.09		25.53	35.59	16.63
Silica (SiO_2)		9.62	9.72		11.86		.80	1.80	29.00
Phosphorus (P)	.413		.030	.167	.308	.449	.767	.290	.342

	10	11	12	13	14	15	16	17
Manganese (Mn)	22.84	11.93	2.06	30.93	48.62	56.66	49.24	52.16
Iron (Fe)		22.26	50.38	9.21	5.55	.18	2.04	4.00
Silica (SiO_2)	.42	44.40		5.86	.52	.15	2.90	.24
Phosphorus (P)	.047	.576	1.450	.320	.310	Trace	.380	.390
Manganese dioxide (MnO_2)				42.09	71.73	82.10	71.43	77.00

	18	19	20	21	22	23	24	25
Manganese (Mn)	42.75	59.55	25.99	30.95	16.45	23.96	60.54	42.52
Iron (Fe)	2.72	.74	10.75	12.00	5.11	7.45		6.72
Silica (SiO_2)	10.40	.52	9.21	6.20	17.10	25.00	6.30	5.17
Phosphorus (P)	.450	None	.387	.461	.181	.234	.22	.35
Manganese dioxide (MnO_2)	62.75	90.52						(b)
Alumina (Al_2O_3)			8.44	10.04	8.62	12.55		4.00
Lime (CaO)			.04	.05	.04	.05		1.42
Magnesia (MgO)			.04	.05	.04	.05		Trace
Sulphur (S)			.024	.029	.028	.041		.02
Moisture			16.04		31.35			

(a) Silica and insoluble in HCl (b) Oxidizing power equal to 64.00 per cent MnO_2

Analyses 1 to 12 from Age of Steel, vol. 62, p. 9, Sept. 3, 1887; 13 to 19 from Penrose, R.A.F., jr., Manganese--Its Uses, Ores, and Deposits: Ark. Geol. Surv. Ann. Rept. for 1890, vol. 1, p. 319, 1891; 20 to 23 furnished by Miss. Valley Iron Co.; 24 furnished by Mierke Lumber & Coal Co. Analysts: 1, 4, 6, 12, Regis Chauvenet & Bro.; 2, 3, 5, 7-11, St. Louis Sampling & Testing Works; 13-19, R. N. Brackett; 24, Kansas City Testing Laboratory; 25, George Steiger.

1-12. Polk County, locality unspecified.
13. Lime Mountain, Pike County.
14. Fancy Hill Mountain (W. R. Porter prospect) Montgomery County.
15. North Mountain (mine), Montgomery County.
16. McKinley Mountain, Polk County.
17. Tall Peak Mountain, Polk County.
18. Manganese Mountain, Polk County.
19. Cossatot Mountain, Polk County.
20-23. Still mine, Pike County. 20, One car, natural; 21, same, dry; 22, another car, natural; 23, same, dry.
24. Mierke Lumber & Coal Co.'s prospect, Montgomery County.
25. Composite sample from 20 localities in Pike, Polk, and Montgomery Counties.

The possibilities of manganese mining in west-central Arkansas are ably discussed by Penrose, from whom the following is quoted:

> The aggregate amount of manganese in the region is undoubtedly large, but it is distributed over an extensive area, and in almost all places it is hopelessly scattered through the rock in small nests and seams. If these nests and seams were in sufficient quantities the rock might be crushed and the ore concentrated by washing, but the pockets containing them are too small to permit the expense of machinery. It is a popular idea that the ore will increase in quantity at a depth, but there is absolutely no reason to expect this, as such deposits are just as likely and sometimes even more likely to become poorer at a depth than they are to improve.
>
> From the nature of the deposit it is to be expected that the ore at a depth is, at the very best, no more plentiful than in the surface outcrops of the so-called "lodes"--that is, that it exists as a series of pockets separated by greater or less distances of barren rock. With very few exceptions the pockets of ore seen on the surface can not be worked at a profit, and in the rare cases where a small profit might be made the amount would not be enough to pay for sinking through the barren rock that separates the pockets from each other. The intervening thickness of barren rock is much greater than the depth of any one pocket.

The quantity of manganese ore that can be mined at a profit from any one deposit is therefore small, which means that under normal conditions manganese mining will never become one of the chief industries in this region.

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 ore that has 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 1916 and still in progress. The geologic map (pl. 3) shows the location of many of the prospects and mines.

Manganese Concentrates from Glenwood, Arkansas

Shipped from
North American Manganese Corp.
Glenwood
Arkansas

Billed to the Lawrence
Warehouse Company, care of
the Metals Reserve Company
stocked piled for RFC,
St. Louis, Missouri

Car No.		Date Shipped
PHCK	91657	Nov. 10, 1942
PRI	682108	Dec. 23, 1942
MP	23272	Feb. 18, 1943
PLE	42370	Sept. 10, 1942
CB & Q	87526	Jan. 21, 1943
MP	22678	Oct. 13, 1942
PRR	503901	Nov. 26, 1942
MP	2298	Jan. 1, 1943
Soo Line	64837	Aug. 22, 1942
MP	59433	Oct. 22, 1942
MP	23182	Sept. 3, 1942
MP	73648	Sept. 26, 1942

Caddo River Mining Company
Glenwood, Arkansas

Equipment, bought in October 1952

1 Joy Model 105 Air Compressor, Serial No. 49493, Motor No.342205, Gasoline Engine Driven, Portable, on two pneumatic tires with springs, complete with regular equiment. 1952 Model, $3450.00, F.O.B. Little Rock, Arkansas.

1 Gardner Denver Jack Hammer, with fittings.Model H 111, Serial No. HV 2992. $365.00 F.O.B. Little Rock, Arkansas

2	# 165 Wheelbarrors	$50.00
6	# 6 Picks	13.50
6	RR Picks Handles	5.28
6	# 2 RR Shovels	16.80
2	18" Wrenchs	7.64
1	PC 2' X 7/8 Hex Drill Steel	4.35
1	PC 4' X 7/8 Hex Drill Steel	6.05
50	5/8" Drill Bits H Thread	27.00
50	1 3/4" Drill Bits H Thread	27.50
300	Ft. 1 1/4" Pipe	72.00
1	50 foot Air Hose	50.00
		$280.12
		3815.00
	Total	$4095.12

Report of Chemical Analysis

ARKANSAS RESOURCES AND DEVELOPMENT COMMISSION

DIVISION OF GEOLOGY

Room 446 State Capitol Building — Little Rock, Arkansas

Sample No. 1207

Date 10-3-52

From: A. F. Weaver
Glenwood, Ark.

Mineral suspected by sender: Mn - grade

Kind of Material: 4 samples; marked 1, 2, 3, & 4

Test recommended for: Mn, Fe, SiO_2, Al_2O_3, P

ANALYSIS

	#1 Jenny Lind	#2 No. 3 Opening	#3 No. 4 Opening	#4 No. 5 Opening
Mn	51.1	46.2	40.4	54.5
Fe	2.0	3.5	3.6	1.0
P	0.026	0.003	0.036	0.044
Silica & Insolubles	7.17	5.16	4.63	6.67
Soluble Alumina	9.9	14.1	15.8	10.3
Silica & Alumina	17.07	19.26	20.43	16.97

By Troy W. Carney
Chief Chemist

Date completed: 10-7-52

Form RD-2—1M—6-51—111472—C-McB.

Report of Chemical Analysis

ARKANSAS RESOURCES AND DEVELOPMENT COMMISSION

DIVISION OF GEOLOGY

Room 446 State Capitol Building — Little Rock, Arkansas

Sample No. 1295

Date 10-30-52

From: A. F. Weaver
Glenwood, Ark.

Kind of Material: Mn ores

Test recommended for: Assay, etc.

ANALYSIS

	#1 - Soft ore	#2 Hard ore
Mn	52.8%	49.8
Fe	0.85	0.70
Phos.	0.334	0.073
Silica	4.27	1.62
Alumina	3.08	9.71

Date completed: 10-31-52

By Troy W. Carney
Chief Chemist

Form RD-2—1M—6-51—111472—C.-McB.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
~~WASHINGTON 25, D.C.~~
Joplin, Missouri
April 20, 1953

Mr. A. F. Weaver
Box 251
Glenwood, Arkansas

Dear Mr. Weaver:

Enclosed herewith are two mining location claim notices which I believe were received in this office by mistake. I feel sure that you would want to have them attached to your application forms which I returned to you last week.

Very truly yours,

Clinton C. Knox
jd

Clinton C. Knox
Mining Engineer

CCK:jd
Encs.

APR 24 1953

Mr. Knox

Please attach these claims to my applications, which I failed to do.

Thanks
A. F. Weaver
A. F. Weaver

MINING CLAIM LOCATION

STATE OF ARKANSAS
County of Pike

The Hog pen Mining District of Pike Co. Ark.

Notice is hereby given that the undersigned having complied with the UNITED STATES MINING LAWS AND LOCAL REGULATIONS has located a claim for mining purposes with metes and bounds as follows: Start at the Old Sausman manganeze mine in the S W¼ NE¼ Sec 6 Tp. 5 S R 26 W.- and run 300 ft. West; then 300 ft. North to a stake which is a metal pipe in the ground,-said stake being located on the West side of a spotted ~~oak tree-18.in. in Diameter,& which is 22 ft. East of hog pen creek~~; said stake being the point of beginning; Thence run due Soith 660 ft. to a metal stake or pipe, about 10 in. from a pine tree 8 in. in diameter, & blazed; said stake being 42 ft. East of hogpen creek; thence East 1500 ft. to a stakeof metal pipe- 4 ft. West of a hickory tree about 10 in. in diameter,(blazed); Thence North 600 ft. to a metal stake which is about 6 in. from a large rock & about 30 ft. West of a steep cliff of rock; Thence West 1500 ft. to the point of beginning ;

~~This being Claim No. (1) filed by A.F.Weaver, in Hogpen mining district of Pike County Arkansas;~~

including all spurs, dips, angles and parallel veins within said boundary, and situated in Section 6 Township 5, Range 26, in the County of Pike State of Arkansas.

Located this 21st day of November 1952.

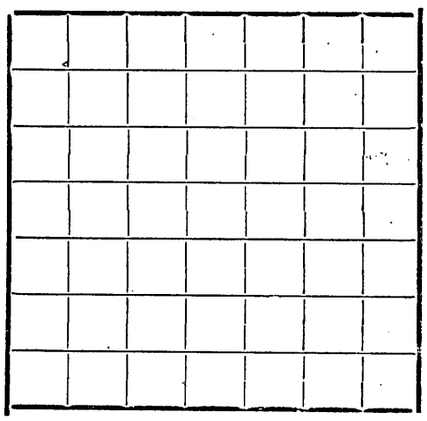
WITNESSES:

P.G.Coker.
Miley Vaught.

LOCATORS: A.F.Weaver.
A.F.Weaver.

Glenwood, Ark.

Diagram of Section and Claim



CERTIFICATE OF RECORD

UNITED STATES MINING DISTRICT,

County of Pike

THE STATE OF ARKANSAS,

I Howard Lewis Recorder ..... Mining District, do hereby certify that the annexed and foregoing Mining Claim Location, was filed in my office for ercord, on the 21st day of November 1952, and the same is now duly recorded in Record Book D, Page 216.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my seal at ....., this 21 day of November 1952.

Howard Lewis Record.

MINING CLAIM LOCATION

STATE OF ARKANSAS
County of Pike

The Hogpen Mining District of Pike County.

Notice is hereby given that the undersigned having complied with the UNITED STATES MINING LAWS AND LOCAL REGULATIONS has located a claim for mining purposes with metes and bounds as follows:

Start at the Southeast corner of Claim No. 1 filed by A.F.Weaver which is a stake set in the ground, in Sec 6, and which is on file in the mining records of Pike county, and which is near a hickory tree and run East 1500 feet to a Metal stake set in the ground, and which is on the West side of a Hickory tree about 5 inches in diameter; Thence run North 600 ft. to a metal stake set in the ground and which is near a blazed hickory tree about 12 inches in diameter; Thence run West 1500 feet to a metal stake set in the ground and which is near a large rock and which is also the Northeast corner of A.F.Weaver Claim No. 1; Thence South to the place of beginning;

THIS BEING A.F.WEAVER CLAIM NO. ~~1~~ (2) Two in Hogpen Mining district of Pike Co. Ark.

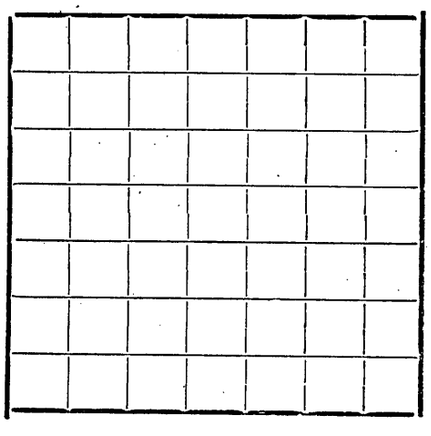
including all spurs, dips, angles and parallel veins within said boundary, and situated in Section s 5 and 6 Township 5, Range 26 W in the County of Pike State of Arkansas.

Located this 21st day of NOV.- 195 2.-

WITNESSES:
P. G. Coker
Miley Vaught

LOCATORS:
A. F. Weaver

Diagram of Section and Claim



CERTIFICATE OF RECORD

UNITED STATES MINING DISTRICT,

County of Pike.

THE STATE OF ARKANSAS,

I Howard Lewis Recorder ..... Mining District, do hereby certify that the annexed and foregoing Mining Claim Location, was filed in my office for ercord, on the 21st day of November 195 2, and the same is now duly recorded in Record Book D, Page 217.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my seal at ....., this 21st day of November, 195 2.

Howard Lewis Record.

APR 21 1953

Caddo River Mining Company
Glenwood, Arkansas
April 18, 1953

Mr. C. C. Knox
Defense Minerals Exploration Administration
221 West Third Street
Joplin, Missouri

Dear Mr. Knox:

I am sending the additional information and corrections, which you stated in your letter of April 13th would be of benefit to us.

In our limited partnership contract, I did assign my claims to the Caddo River Mining Company, but you had no way knowing this. Today I have assigned my clamis to the Company, and am sending you copys.

As you stated I am leaving out the 8 claims and also the 9 claims which we had a lease on . I failed to send you a copy of.

"4a" Caddo River Mining Company dug the Weaver tunnel, deepened the Liveoak Shaft and made two cross cuts on the lead. In doing this work, we got out approximately 20 tons of free ore, which we sent you the analysis on.

"5b" Mr. Vaught suggests that instead of sinking shafts that we dig tunnels size 4'X6' the length would be from 15' to 30' each tunnel would be about 100' apart. Starting with our first tunnel, we would drop down the mountain about 20' from our lead and dig back in the direction of lead which we should hit within 15' or 20'. Next tunnelwe would drop down 40' and so on across the claims. Doing this would give us approximately the depth of the lead. The reason for deepening the Weaver and Liveoak shaft and tunnel would be to judge the depth of the lead.

You will notice on the sketch maps, the engineer has put the scale on them.

I hope this will give you the additional information you need.

Yours very truly
Caddo River Mining Company
A.F. Weaver
A.F.Weaver

xxxxxxxxxxxx
Joplin, Missouri
April 13, 1953

Mr. A. F. Weaver
Caddo River Mining Co.
Glenwood, Arkansas

Re: DMEA Application - Manganese
Pike County, Arkansas

Dear Mr. Weaver:

Your application for a DMEA exploration project for manganese ore in Pike County, Arkansas, received by this Field Team office April 9, is returned herewith. Although you can submit the application directly to the Defense Minerals Exploration Administration, Department of the Interior, Washington 25, D. C. to be considered in its present form, the Field Team believes that the following suggested clarifications could be made to your company's advantage:

Apparently the two claims in sections 5 and 6, T. 5 S., R. 26 W. on which the exploration work is proposed, are owned personally by you. Therefore, we believe a legal assignment to the Caddo River Mining Co. would be required for that company to comply with the title requirements of the application.

Because the eight additional claims in section 17 are too distant to be affected by the proposed exploration work, we do not believe those ownership titles should have been included with the application.

We have not been able to determine the locations of the other additional nine claims, mentioned in your letter of transmittal as being held under lease to the company. Unless they possibly could be affected by the proposed exploration work, we believe they too should not be included in the application. Then submitting copies of those leases would be unnecessary. Likewise the "Owner's Consent to Lien," which you submitted and which is applicable only to those leased mining rights, will not need to be furnished with the application.

We further believe that complete details of the existing mine workings, their accesibility for examination purposes, and the exact part of that work which was done by your company, should be described under "4a" of the application.

The results of the work by your company, and the amount of ore that it might have produced, is not clearly stated. Also under "4b," assuming that the ore from the North American property, 3 miles away, was similar to yours, we yet may be able to obtain the data on those reported shipments to R.F.C. Probably like some other ores which were shipped during World War II to the Metals Reserve and other Government agencies, however, they might not have been a marketable product by the present standards of commercial users. Although you state that those workings are accessible, it is doubtful that their examination would be warranted in connection with your proposed exploration project.

Under "5b," we understood that Mr. Taught with his years of manganese mining experience there, would prepare a detailed description and plans of your proposed exploration plan (and cross sections if necessary) showing the relationship of that plan and the previous work to the "lead" you mentioned on which the proposed 22 shafts are to be sunk. With that geologic reasoning, the required estimate of their depths then could be prepared. Also the geologic reasoning for deepening the Weaver and Live Oak Shafts should be presented to refute the data you presented under "4c" which indicated that the "ore" might not persist at depth.

Also under "4c", a statement describing how the samples were taken for the six separate analyses you submitted, or your evaluation of the width of the "lead" represented by each sample, would be helpful.

The scale was not given on the sketch map of Claims No. 1 and No. 2 extending across parts of sections 5 and 6, but each claim is indicated to be slightly over one-half mile long rather than the standard 1,500 feet given in the claim location descriptions you submitted.

The above are merely suggestions made in our earnest efforts on your behalf but if we have misunderstood the mentioned statements of your application, please feel free to return the application immediately for our recommendations and transmittal to Washington and continue to call upon this office for any assistance that we can give.

Very sincerely yours,

Clinton C. Knox
Mining Engineer

/jd
Encs.
cc - Operating Committee

APR 9 1953

Caddo River Mining Company
Glenwood, Arkansas
April 7, 1953

Mr. C. C. Knox
Defense Minerals Exploration Administration
221 West Third Street
Joplin, Missouri

Dear Mr. Knox:

Enclosed is our applisation for an Exploration Loan. You will note that we have only put in two claims for our exploration work. Mr. McDonald who drew up our platts recommended that we do our exploration on only two claims with the amount of money which we are applying for. So we selected our best two claims.

Although we have shown only two claims for exploration work. We own 10 claims and have nine claims leased. Which I am sending copys.

I appreciated the courtesy shown me when I was in Joplin and the instructions you gave me.

Yours very truly

Caddo River Mining Company

A. F. Weaver

A.F.Weaver

APR 9 1953

Caddo River Mining Company
Glenwood, Arkansas
April 7, 1953

Mr. C. C. Knox
Defense Mimerals Exploration Administration
221 West Third Street
Joplim, Missouri

Dear Mr. Knox:

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I appreciated the conrtesy shown me when I was in Joplin amd the imstructions you gave me.

Yours very truly

Caddo River Mining Company

A. F. Weaver

A.F.Weaver

MF-203

OWNER'S CONSENT TO LIEN

WHEREAS, the undersigned, as owner, co-owner, lessor, or seller has an interest in certain property in the State of Arkansas, County of Pike, described as follows:1/

Mining Claims dated Nov., 21, 1952

and attached hereto.

which is the subject of a proposed exploration project contract, hereinafter called the "contract", between the United States of America, hereinafter called the "Government", and

2/ Caddo River Mining Company, Glenwood, Arkansas

A.F.Conover, Glenwood, Arkansas

H.H.McLean, " " and Glen Coker, Glenwood, Arkansas

hereinafter called the "Operator"; and

WHEREAS, under certain provisions of said contract which are set forth on the reverse side hereof, the Government is entitled to a percentage royalty on production and to certain other rights and equities which do or may conflict with or be adverse to the interest of the undersigned in said property;

NOW THEREFORE, the undersigned, in consideration of said contract and as an inducement to the Government to enter into same, undertakes and agrees as follows:

1. The Government's equity in and right to dismantle, sever, take possession of, and remove and dispose of facilities, buildings, fixtures, equipment, or other items as provided in the contract, or any amendment thereof, shall prevail over and be prior and superior to any conflicting or adverse rights of the undersigned, and the Government is authorized to enter upon the land for such purposes.

2. To secure the payment to the Government of the percentage royalty on production3/ provided for under the terms of said exploration project contract, or any amendment thereof which does not increase the maximum amount of the Government's claim here stated or alter the provisions for repayment, there is hereby granted to the Government a lien upon the land herein described and upon any production of minerals therefrom, until the royalty claim is fully paid in the amount of the Government's contribution, not in excess of 4/$12,000.00, or ten years have elapsed from the date of the contract.

3. The undersigned shall commit no act nor assert any claim that may contravene or conflict with the lien, claim, or rights of the Government under the provisions of said contract. This agreement shall be binding upon the heirs, executors, administrators, successors, and assigns of the undersigned.

Dated this 7 day of April 1953

A.F. Conover [Seal]

H.H. McLean [Seal]

Glen Coker [Seal]

1/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease [or contract, deed, or other document] dated _____, and recorded in book _____ page _____ official records of said county." If (b) is used, the book and page of recordation cannot be dispensed with. If the space provided is insufficient, use an Annex, and refer to the Annex in the space.

2/ Insert the name of the Operator as it will appear in the exploration project contract.

3/ Mining or production from the land is not required, and in the absence of production there is no obligation to repay the Government.

4/ Insert the maximum amount of the Government's contribution.

RELEVANT CONTRACT PROVISIONS

Repayment by Operator. (a) If, at any time, the Government considers that a discovery or a development from which production may be made has resulted from the exploration work, the Government, at any time not later than six months after the Operator has rendered the required final report and final account, may so certify in writing to the Operator. The certification shall describe broadly or indicate the nature of the discovery or development. In the event of such certification, any minerals mined or produced from the land described in Article 2 within 10 years from the date of this contract, including any mined or produced before the certification, shall be subject to a percentage royalty which the Operator or his successor in interest shall pay to the Government, upon the net smelter returns, the net concentrator returns, or other net amounts realized from the sale or other disposition of any such production, in whatever form disposed of, including ore, concentrates, or metal, until the total amount contributed by the Government, without interest, is fully repaid, or said 10 years have elapsed, whichever occurs first, as follows:

(1) One and one-half (1½) per cent of any such net amounts not in excess of eight dollars ($8.00) per ton.

(2) One and one-half (1½) per cent of any such net amounts, plus one-half (½) per cent such net amounts for each additional full fifty cents ($0.50) by which such net amounts exceed eight dollars ($8.00) per ton, but not in excess of five (5) per cent of such net amounts.

(For instance: the percentage royalty on a net amount of five dollars ($5.00) per ton, would be one and one-half (1½) per cent; on a net amount of ten dollars ($10.00) per ton, three and one-half (3½) per cent.)

(b) As here used, "net smelter returns", "net concentrator returns", and "other net amounts realized from the sale or other disposition", mean gross revenue from sales; or if not sold, the market value, the market value of the material after it is mined in the form in which and the place where it is held. In the case of integrated operations in which the material is not disposed of as such, these terms mean what is or would be gross income from mining operations for percentage depletion purposes in income tax determination.

(c) To secure the payment of its percentage royalty, the Government shall have and is hereby granted a lien upon the land described in Article 2 and upon any production of minerals therefrom, until the royalty claim is extinguished by lapse of time or is fully paid.

(d) This article is not to be construed as imposing any obligation on the Operator or the Operator's successor in interest to engage in any mining or production operations.

Title to and disposition of property. All facilities, buildings, fixtures, equipment, or other items costing more than $50.00 each, paid for or purchased with funds contributed jointly by the Operator and the Government, although title may be taken in the name of the Operator, shall belong to the Operator and the Government jointly, in proportion to their respective contributions, and upon the completion of the work or the termination of the contract shall be disposed of promptly by the Operator for the joint account of the Government and the Operator, either by return to the vendor, by sale to others, or purchase by the Operator at a price at least as high as could otherwise be obtained, as may appear to be for the best interest of the Government, unless the Government, in writing, waives its interest in any such item. If necessary to accomplish such disposition, the Operator shall dismantle, sever from the land, and remove any such item, the cost thereof to be for the joint account of the parties in proportion to their respective interests. If the Operator, within 90 days after the receipt of written notice from the Government, fails, neglects, or refuses to dispose of such property, the Government may itself enter upon the land, take possession of, and remove and dispose of any such property as above provided.

MF-203

OWNER'S CONSENT TO LIEN

WHEREAS, the undersigned, as owner, co-owner, lessor, or seller has an interest in certain property in the State of Nevada, County of Elko, described as follows:1/

Mining Claims dated Oct. 22, 1952 and recorded Records.

which is the subject of a proposed exploration project contract, hereinafter called the "contract", between the United States of America, hereinafter called the "Government", and

2/ Lodo Prof Mining Company, Clermont, Nevada and Glen Coker, Clermont, Nevada hereinafter called the "Operator"; and

WHEREAS, under certain provisions of said contract which are set forth on the reverse side hereof, the Government is entitled to a percentage royalty on production and to certain other rights and equities which do or may conflict with or be adverse to the interest of the undersigned in said property;

NOW THEREFORE, the undersigned, in consideration of said contract and as an inducement to the Government to enter into same, undertakes and agrees as follows:

1. The Government's equity in and right to dismantle, sever, take possession of, and remove and dispose of facilities, buildings, fixtures, equipment, or other items as provided in the contract, or any amendment thereof, shall prevail over and be prior and superior to any conflicting or adverse rights of the undersigned, and the Government is authorized to enter upon the land for such purposes.

2. To secure the payment to the Government of the percentage royalty on production3/ provided for under the terms of said exploration project contract, or any amendment thereof which does not increase the maximum amount of the Government's claim here stated or alter the provisions for repayment, there is hereby granted to the Government a lien upon the land herein described and upon any production of minerals therefrom, until the royalty claim is fully paid in the amount of the Government's contribution, not in excess of 4/$12,000.00, or ten years have elapsed from the date of the contract.

3. The undersigned shall commit no act nor assert any claim that may contravene or conflict with the lien, claim, or rights of the Government under the provisions of said contract. This agreement shall be binding upon the heirs, executors, administrators, successors, and assigns of the undersigned.

Dated this 7 day of April 1953

[Seal]

[Seal]

Glen Coker [Seal]

1/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease [or contract, deed, or other document] dated _____, and recorded in book _____ page _____ official records of said county." If (b) is used, the book and page of recordation cannot be dispensed with. If the space provided is insufficient, use an Annex, and refer to the Annex in the space.

2/ Insert the name of the Operator as it will appear in the exploration project contract.

3/ Mining or production from the land is not required, and in the absence of production there is no obligation to repay the Government.

4/ Insert the maximum amount of the Government's contribution.

RELEVANT CONTRACT PROVISIONS

Repayment by Operator. (a) If, at any time, the Government considers that a discovery or a development from which production may be made has resulted from the exploration work, the Government, at any time not later than six months after the Operator has rendered the required final report and final account, may so certify in writing to the Operator. The certification shall describe broadly or indicate the nature of the discovery or development. In the event of such certification, any minerals mined or produced from the land described in Article 2 within 10 years from the date of this contract, including any mined or produced before the certification, shall be subject to a percentage royalty which the Operator or his successor in interest shall pay to the Government, upon the net smelter returns, the net concentrator returns, or other net amounts realized from the sale or other disposition of any such production, in whatever form disposed of, including ore, concentrates, or metal, until the total amount contributed by the Government, without interest, is fully repaid, or said 10 years have elapsed, whichever occurs first, as follows:

(1) One and one-half (1½) per cent of any such net amounts not in excess of eight dollars ($8.00) per ton.

(2) One and one-half (1½) per cent of any such net amounts, plus one-half (½) per cent such net amounts for each additional full fifty cents ($0.50) by which such net amounts exceed eight dollars ($8.00) per ton, but not in excess of five (5) per cent of such net amounts.

(For instance: the percentage royalty on a net amount of five dollars ($5.00) per ton, would be one and one-half (1½) per cent; on a net amount of ten dollars ($10.00) per ton, three and one-half (3½) per cent.)

(b) As here used, "net smelter returns", "net concentrator returns", and "other net amounts realized from the sale or other disposition", mean gross revenue from sales; or if not sold, the market value, the market value of the material after it is mined in the form in which and the place where it is held. In the case of integrated operations in which the material is not disposed of as such, these terms mean what is or would be gross income from mining operations for percentage depletion purposes in income tax determination.

(c) To secure the payment of its percentage royalty, the Government shall have and is hereby granted a lien upon the land described in Article 2 and upon any production of minerals therefrom, until the royalty claim is extinguished by lapse of time or is fully paid.

(d) This article is not to be construed as imposing any obligation on the Operator or the Operator's successor in interest to engage in any mining or production operations.

Title to and disposition of property. All facilities, buildings, fixtures, equipment, or other items costing more than $50.00 each, paid for or purchased with funds contributed jointly by the Operator and the Government, although title may be taken in the name of the Operator, shall belong to the Operator and the Government jointly, in proportion to their respective contributions, and upon the completion of the work or the termination of the contract shall be disposed of promptly by the Operator for the joint account of the Government and the Operator, either by return to the vendor, by sale to others, or purchase by the Operator at a price at least as high as could otherwise be obtained, as may appear to be for the best interest of the Government, unless the Government, in writing, waives its interest in any such item. If necessary to accomplish such disposition, the Operator shall dismantle, sever from the land, and remove any such item, the cost thereof to be for the joint account of the parties in proportion to their respective interests. If the Operator, within 90 days after the receipt of written notice from the Government, fails, neglects, or refuses to dispose of such property, the Government may itself enter upon the land, take possession of, and remove and dispose of any such property as above provided.

MF-203

OWNER'S CONSENT TO LIEN

WHEREAS, the undersigned, as owner, co-owner, lessor, or seller has an interest in certain property in the State of [illegible], County of [illegible], described as follows: 1/

[illegible]

which is the subject of a proposed exploration project contract, hereinafter called the "contract", between the United States of America, hereinafter called the "Government", and

2/ [illegible]

hereinafter called the "Operator"; and

WHEREAS, under certain provisions of said contract which are set forth on the reverse side hereof, the Government is entitled to a percentage royalty on production and to certain other rights and equities which do or may conflict with or be adverse to the interest of the undersigned in said property;

NOW THEREFORE, the undersigned, in consideration of said contract and as an inducement to the Government to enter into same, undertakes and agrees as follows:

1. The Government's equity in and right to dismantle, sever, take possession of, and remove and dispose of facilities, buildings, fixtures, equipment, or other items as provided in the contract, or any amendment thereof, shall prevail over and be prior and superior to any conflicting or adverse rights of the undersigned, and the Government is authorized to enter upon the land for such purposes.

2. To secure the payment to the Government of the percentage royalty on production3/ provided for under the terms of said exploration project contract, or any amendment thereof which does not increase the maximum amount of the Government's claim here stated or alter the provisions for repayment, there is hereby granted to the Government a lien upon the land herein described and upon any production of minerals therefrom, until the royalty claim is fully paid in the amount of the Government's contribution, not in excess of 4/$ [illegible], or ten years have elapsed from the date of the contract.

3. The undersigned shall commit no act nor assert any claim that may contravene or conflict with the lien, claim, or rights of the Government under the provisions of said contract. This agreement shall be binding upon the heirs, executors, administrators, successors, and assigns of the undersigned.

Dated this 8 day of [illegible], [illegible] 1959

[illegible] [Seal]

[illegible] [Seal]

Glen Coker [Seal]

1/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease [or contract, deed, or other document] dated _____, and recorded in book _____ page _____ official records of said county." If (b) is used, the book and page of recordation cannot be dispensed with. If the space provided is insufficient, use an Annex, and refer to the Annex in the space.

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(2) One and one-half (1½) per cent of any such net amounts, plus one-half (½) per cent such net amounts for each additional full fifty cents ($0.50) by which such net amounts exceed eight dollars ($8.00) per ton, but not in excess of five (5) per cent of such net amounts.

(For instance: the percentage royalty on a net amount of five dollars ($5.00) per ton, would be one and one-half (1½) per cent; on a net amount of ten dollars ($10.00) per ton, three and one-half (3½) per cent.)

(b) As here used, "net smelter returns", "net concentrator returns", and "other net amounts realized from the sale or other disposition", mean gross revenue from sales; or if not sold, the market value, the market value of the material after it is mined in the form in which and the place where it is held. In the case of integrated operations in which the material is not disposed of as such, these terms mean what is or would be gross income from mining operations for percentage depletion purposes in income tax determination.

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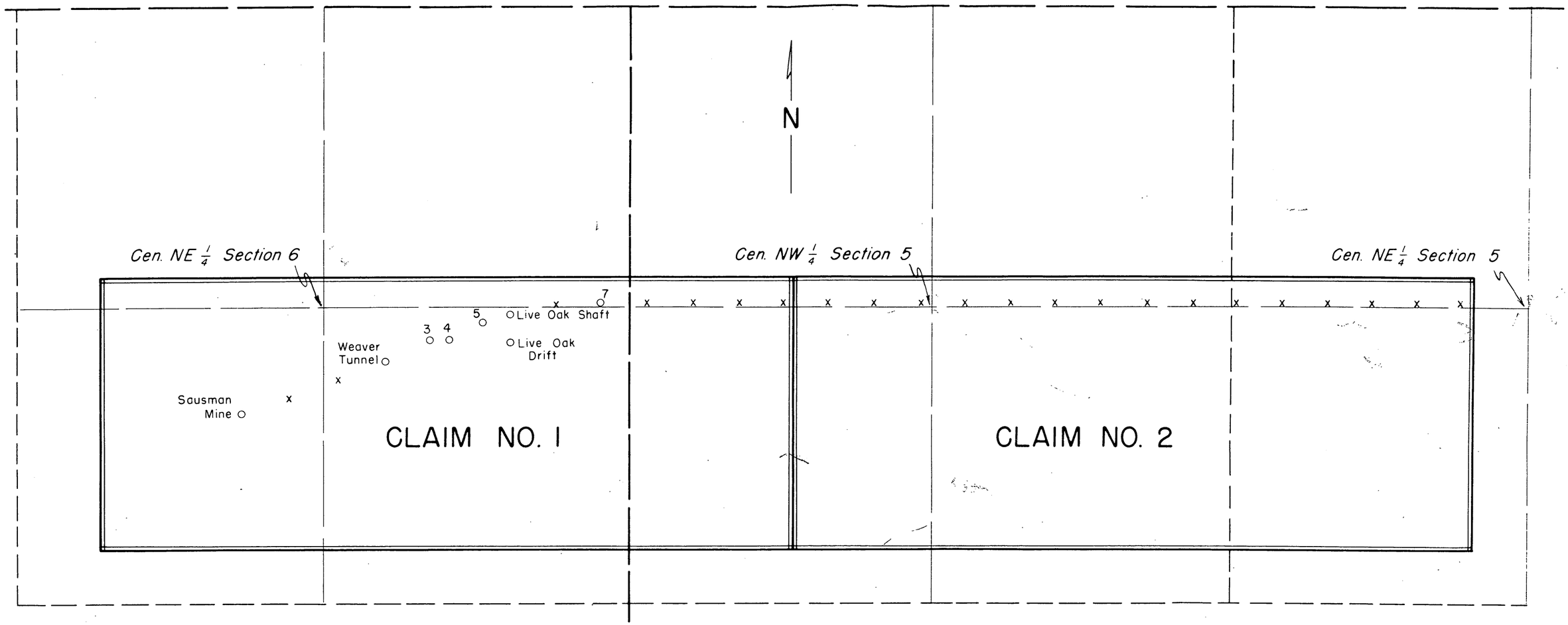

Land Plat showing present and proposed openings on Claim No. 1 and Claim No. 2 of The Caddo River Mining Co. in Sections 5 and 6 of Township 5 South, Range 26 West, Pike County, Arkansas.

Opening Locations Approximate
Descriptions as follows:

- o Existing mine, pit or shaft
- x Proposed exploration pit

SCALE : 1"=200'

DMEA - 3011

Joplin, Missouri

OFFICIAL BUSINESS

JOPLIN
5 PM

Operating Committee
Defense Minerals Exploration Administration
U. S. Department of Interior
Interior Building
Washington 25, D. C.