400

JUL 29 1953

2605

Mr. E. B. Killion
2705 North Kansas Street
El Paso, Texas

Re: Docket No. DMEA 2605 - Manganese
E. B. Killion
Killion Vein, American Nos. 1 - 8 incl., claims
Luna County, New Mexico

Dear Mr. Killion:

Reference is made to your letter of July 25, 1953 asking for information on a DMEA loan for your manganese property. We infer from your letter that this is the same property, Killion vein-American group, on which an application for exploration assistance was denied September 9, 1952 (Docket No. DMEA 2605).

The Defense Minerals Exploration Administration is always ready to review its decisions if sufficient new and significant information is furnished to substantiate the merits of a proposed program of exploration. If you have any such additional data as a result of later prospecting and exploration on your part, we will be glad to review your application. If such is the case, please complete and return four copies of the enclosed form and refer to Docket No. DMEA 2605. All questions should be answered in detail and the application should be accompanied by a geologic map showing the target of the proposed exploration program.

Sincerely yours,

C. O. Mittendorf

Administrator

Enclosure

FARutledge:foc 7-28-53
cc: Docket
Code 400
Adm. Read. File
FT. Reg. IV
N. B. Melcher, USBM
Martha Carr, USGS

MR-500

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

REFERENCE SLIP

DATE 6/28/54

REFERRED TO:

1. Iron and Ferro-Alloys Div.
2.
3.
4.

FOR:

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

REMARKS:

DMEA-2605, in her name, was denied 9/9/52.

Check (X) before the items needing attention.

F. Webster
Initials of sender.

GPO 16—63815-1

Denver Federal Center
Denver, Colorado

June 23, 1954

Mrs. Ethel B. Killion
2705 N. Kansas
El Paso, Texas

Dear Mrs. Killion:

Your letter of June 9, 1954, addressed to the Director, U. S. Geological Survey, Washington 25, D. C., applying for a number to sell manganese to theDeming Purchase Depot has been forwarded to this office.

An examination of our records reveals that Certificate 8-M-358 was issued to Mr. E. B. Killion, Park Hotel, Deming, New Mexico, on December 4, 1951. The signature on Mr. Killion's letter of December 2, 1951, requesting this certificate, appears to be the same as on your letter of June 9. This certificate is still valid and can be used to sell manganese to the Deming depot.

I note that your letter of June 9, 1954, is signed both by you and E. B. Killion. If it is your desire to have a certificate issued in both names, rather than in E. B. Killion's name only as is the certificate dated December 4, 1951, please advise and we will be glad to issued you a revised certificate.

Very truly yours,

N. Harold Mundell
Acting Regional Director

CC: C. O. Mittendorf
Administrator
DMEA, Washington 25, D. C.

FILE COPY
400 SURNAME:

Denver
Rutledge
Martin

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

JUL 29 1953

Mr. E. B. Killion
2705 North Kansas Street
El Paso, Texas

Re: Docket No. DMEA 2605 - Manganese
E. B. Killion
Killion Vein, American Nos. 1 - 8 incl., claims
Luna County, New Mexico

Dear Mr. Killion:

Reference is made to your letter of July 25, 1953 asking for information on a DMEA loan for your manganese property. We infer from your letter that this is the same property, Killion vein-American group, on which an application for exploration assistance was denied September 9, 1952 (Docket No. DMEA 2605).

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Sincerely yours,

C. O. Mittendorf

Administrator

Enclosure

FARutledge:foc 7-28-53
cc: Docket
Code 400
Adm. Read. File
FT. Reg. IV
N. B. Melcher, USBM
Martha Carr, USGS

R.C.G.
7-29-53

Dept of the Interior
Care C. O. Mittenderf.
Administrator
Washington D.C.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 27 1953

El Paso Texas
2705 N. Kansas
7-25-53

Dear Sir: Pleased me full information on a D-M-E-A loan on my high grade Manganese property 11 miles from the stock pile at Deming New Mexico.

About a year ago there was a loan asked for the D-M-E-A but was withdrawn for D.P.A-260.377. April 7th 1952 if I am Elegable for another aplication please send full information

Yours Very truly
E. B. Killion

RFC

DMEA 2605

Docket No. DMEA 2605 - Manganese Sept. 19, 1952

Iron and Ferro-Alloy Division, DMEA

Denial of application by field team
Docket No. DMEA 2605 - Manganese
E. F. Killion
Killion Vein, American Nos. 1 - 8 incl., Claims
Luna County, New Mexico

The applicant requested exploration assistance in the amount of $10,031.97 to drive 100 feet of crosscut from the Newalpitt adit to intersect the Killion vein. The field team upon examination discovered the vein already had been intersected near the point the Operator proposed starting his exploration. A study of the surface showed no second vein and the proposed work would have been wasted. The examining field team recommended denial of the application.

The application was denied by the field team and Mr. Killion was advised of this action by letter of September 9, 1952.

/s/
F. A. Rutledge

FARutledge'lm
9/19/52

cc: Admn. Reading File
Docket
H. F. Melcher, USBM
M. D. Crittenden, USGS
G. C. Selfridge
F. A. Rutledge

FILE COPY 400
SURNAME:

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

Docket No. DMEA 2605 - Manganese Sept. 19, 1952

Rutledge
Selfridge by
Martin

Iron and Ferro-Alloy Division, DMEA

cc 9-22-52

Denial of application by field team
Docket No. DMEA 2605 - Manganese
N. B. Killion
Killion Vein, American Nos. 1 - 8 incl., Claims
Luna County, New Mexico

The applicant requested exploration assistance in the amount of $10,031.97 to drive 100 feet of crosscut from the Newalpitt adit to intersect the Killion vein. The field team upon examination discovered the vein already had been intersected near the point the Operator proposed starting his exploration. A study of the surface showed no second vein and the proposed work would have been wasted. The examining field team recommended denial of the application.

The application was denied by the field team and Mr. Killion was advised of this action by letter of September 9, 1952.

/S/

F. A. Rutledge

FARutledge:lm
9/19/52

cc: Admn. Reading File
Docket
N. B. Melcher, USBM
M. D. Crittenden, USGS
G. C. Selfridge
F. A. Rutledge

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Docket No. DMEA 2605 - Manganese DATE: Sept. 19, 1952

FROM : Iron and Ferro-Alloy Division, DMEA

SUBJECT: Denial of application by field team
Docket No. DMEA 2605 - Manganese
E. B. Killion
Killion Vein, American Nos. 1 - 8 incl., Claims
Luna County, New Mexico

The applicant requested exploration assistance in the amount of $10,031.97 to drive 100 feet of crosscut from the Newalpitt adit to intersect the Killion vien. The field team upon examination discovered the vein already had been intersected near the point the Operator proposed starting his exploration. A study of the surface showed no second vein and the proposed work would have been wasted. The examining field team recommended denial of the application.

The application was denied by the field team and Mr. Killion was advised of this action by letter of September 9, 1952.

F. A. Rutledge

F. A. Rutledge

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

224 New Customhouse
Denver 2, Colorado

September 9, 1952

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: 210

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 2605 (Manganese) E. B. Killion, American Claims, Luna County, New Mexico

Enclosed are four copies of the final report on DMEA-2605, two copies of Form 3b, and a copy of the letter of denial to the applicant.

W. H. King
W. H. King

A. H. Koschmann
A. H. Koschmann

Enclosures

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
WASHINGTON
SEP 15 1952

O
P
Y

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
Washington 25, D.C.

224 New Customhouse
Denver 2, Colorado

September 9, 1952

Mr. E. B. Killion
2705 North Kansas Street
El Paso, Texas

Re: DMEA Docket 2605

Dear Mr. Killion:

Reference is made to your application for Government aid in exploration work on the American claims.

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

A careful study of your property and data available to this agency reveals that the probability of disclosing mineable reserves by your proposed exploration program is not considered sufficiently promising to justify Government participation. Under these circumstances, we regreat to advise you that your application for Government aid is denied.

Very truly yours,

/s/ W. H. King
W. H. King
Field Team, Region IV

/s/ A. H. Koschmann
A. H. Koschmann
Field Team, Region IV

HMC:oc

CC: Administrator - DMEA
WRStorms
Subject
Chron.
Koschmann (2)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

September 9, 1952

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 8605, (Manganese) E. S. Killian, American Claims, Luna County, New Mexico

Enclosed are nine copies of the final engineering report on DMEA-8605 by John H. Soule' of the Bureau of Mines.

The applicant requested $10,031.97 to drive 100 feet of crosscut to a vein which he did not realize had already been intersected near the point he intended to start his work.

The examining engineer recommends the application be denied and we concur in this recommendation.

W. H. King

W. H. King

UNITED STATES
DEPARTMENT OF

September 2, 1952

Memorandum

To : W. L. King, Acting Chief, Mining Div., Region IV

From : Chief, Arizona-New Mexico Br., Mining Div., Region IV

Subject : Final Report, MPA Docket 2603, W. D. Wilson's American Manganese Claims, Little Florida Mountains Mining District, Dona County, New Mex.

Enclosed are original and eight copies of the section on Geology, Conclusions and Recommendations by J. W. Mack of the Geological Survey and J. H. Doule' of the Bureau of Mines, and the section on Engineering by Doule' for the above report. A separate section on Geology will be submitted by the Geological Survey.

The examiners believe that the proposed project is not feasible. I concur with their recommendations that the loan be denied.

Procedure is enclosed.

Walter R. Storms

Walter R. Storms, Chief
Arizona-New Mexico Branch
Mining Division, Region IV

cc W. L. King (6)
J. H. Mitchell
MPA-2603
WS

WRStorms:frj

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

[illegible]

[illegible] 5, [illegible]

[illegible]

To: [illegible]

From: [illegible] Kuschke

Subject: DMEA Docket [illegible], [illegible] Kl[illegible]ton, [illegible] Grants, Luna County, New Mexico [illegible]

Enclosed are [illegible] copies of the geological report by [illegible] of the U. S. Geological Survey covering the above docket.

It has been recommended that the [illegible]

A. H. Kuschke
[illegible] Kuschke
Supervising Geologist
Colorado-Wyoming

Enclosure (3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

August 19 52 report

7/29/53

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]-2005, [illegible] Million's American Manganese Claims

Little Florida Mountains Mining District

Dona County, New Mexico

John M. Parck, Geologist
U. S. Geological Survey

John D. Soule, Mining Engineer
U. S. Bureau of Mines

August 1952

[illegible], Conditions and Recommendations

By J. A. Falck[1] and J. H. Gonle[2]

On June 24, 1952, E. S. Million applied for Government assistance to explore a portion of his group of American manganese claims in the Little Florida Mountains Mining District, Luna County, N. Mex. The application, Docket [illegible]-2605, outlined a project to consist of 100 feet of crosscutting from the Newalpitt adit. This program was to have cost $9,431.97, plus $600.00 for stenographic and legal services, or a total of $10,031.97. The brochure was sent to the field for an examination of the property, and this examination was made on July 31, 1952.

The American claims were located in 1925 and are situated in Secs. 18 and 19, T. 24 S., R. 7 W., on the northeast slopes of the Little Florida Mountains, a small desert range about 10 miles southeast of Deming, N. Mex. Vegetation is sparse and temperature extremes usually are not prolonged. Rainfall is scanty.

The first claims in the district were located in 1918 and operations have been intermittent since that time. The total district production probably is less than 30,000 long tons of manganese ore and concentrates. Most of the production was derived from the Manganese Valley mine with a small amount of ore and concentrates shipped from the Luna mine. Judging by the small mine workings on the American

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1/ Geologist, U. S. Geological Survey
2/ Mining Engineer, U. S. Bureau of Mines

claims, no more than a few hundred tons could have been mined from the property. Available production records indicate the sale of nearly 60 long tons of ore containing 46 percent manganese.

The northeast part of the Little Florida Mountains is underlain with fanglomerate having a known thickness exceeding 1,000 feet. This fanglomerate is composed of slightly rounded to angular fragments, ranging in size from as much as 4 feet in diameter to the finest dust. The whole is well indurated. The color is generally reddish brown. Crude sorting and vague stratification are characteristic.

Numerous northward trending and steeply dipping faults traverse the area of manganese mineralization. Displacement ranges from a few to as much as 200 feet and many steeply pitching grooves suggest movement nearly parallel to the dips of the fissures. Gouge and breccia constitute the bulk of the fissure filling, and in places, manganese minerals occur in sufficient quantity to make ore shoots. Manganite, pyrolusite, psilomelane, and wad are the important manganese minerals. They occur as fracture and breccia filling, as replacement of premineral gouge and breccia, and as a replacement of fragments of the fanglomerate. The ore minerals were derived from the oxidation of manganiferous calcite which was present in portions of the veins.

No measured nor indicated ore reserves can be calculated, but about 11,000 long tons of mineralized material may be inferred that contains nearly 27 percent manganese. By applying a grade cutoff of

15 percent and a minimum mining width of 2.5 feet, there may be inferred nearly 6,800 long tons of minable ore containing 21.3 percent manganese.

The applicant planned to drive 100 feet of crosscut from a point about 220 feet from the portal of the Lewalpitt crosscut to intersect his vein. He did not realize that the vein had been intersected near the point he intended to start his work. A study of the surface shows no second vein and such work would have been wasted. Possible exploration could be done by extending the Lewalpitt drift to the southeast west at least 400 feet to explore, at depth, the best outcrops. Such a project would cost at least $17,500. This is beyond the financial capabilities of the applicant who can contribute no more than $1,000 as his share of a possible project. The possible revenue to be derived from the inferred minable ore amounts to $7,820 which is insufficient to repay the Government for its $13,125 share of the possible project.

It is recommended that the application for exploration assistance, Docket DMA-2605, be denied.

[illegible]

[illegible]

	Page
Introduction	1
General geology	2
Ore deposits	[illegible]
Million line	[illegible]
Ore reserves	[illegible]
Possible and proposed exploration	[illegible]
Conclusions and recommendations	[illegible]

[illegible]

	Following page
Figure 1. Location map [illegible]	[illegible]
Figure 2. Million line	[illegible]

[illegible]

Geology

[illegible] Frick
Geologist, U. S. Geological Survey

[illegible]

Application for financial assistance [illegible] for [illegible] near [illegible], New Mexico was made to the Atomic Energy Commission (Administration, [illegible]) by [illegible] Miles, and [illegible] Calhoun Street, [illegible], Texas.

The [illegible] property consists of the patented group of [illegible] claims [illegible], which are located (1) [illegible] sections [illegible] and [illegible] of the northeastern slope of the Little Florida Mountains in [illegible] County, New Mexico. The property is easily reached from [illegible], New Mexico, [illegible] miles of [illegible] road, [illegible] and by a mile of dirt access road.

The first recorded claims on the [illegible] deposits in the Little Florida Mountains were located in September [illegible], and these became the nucleus of the largest property in the district, the [illegible] Mine [illegible]. The second largest property, the [illegible] is located about one mile north of the [illegible] mine site. The [illegible] Miles property is approximately midway between the [illegible] and [illegible] mines. [illegible] Miles acquired the claims by location in [illegible] and the property was [illegible] intermittently since then. During [illegible] the property was controlled by the [illegible] Corporation, which [illegible] explored the property.

[illegible]

The [illegible] part of the Little Florida Mountains, where the [illegible] deposits are situated, is underlain with [illegible] rocks [illegible] a [illegible] thickness of at least [illegible] feet. It consists of [illegible] of [illegible] to [illegible] [illegible] iron oxides as

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[illegible] deposits in the Little Florida Mountains, [illegible] County, New Mexico [illegible], [illegible], [illegible], [illegible], [illegible].

[illegible] as a feet in diameter down to the finest dust. The material is crudely assorted but there is no orientation of the long axes and only vague stratification. The smaller fragments are cemented with what appears to be fine-grained sandstone or grit. The formation as a whole is well-indurated and generally reddish-brown in color. The crude bedding or banding dips from 10 to 20 degrees eastward.

Along the northwest flanks of the Little Florida mountains the fanglomerate has been cut by numerous northerly trending, vertical or steeply dipping faults having displacements ranging from a few feet to about [illegible] feet. In the footwall of some of these faults there are many steeply pitching grooves that suggest movement nearly parallel to the dips of the fissures. The fault zones are filled with [illegible], breccia and manganese minerals, thus forming fissure veins of economic importance.

THE DEPOSITS

The veins appear to be confined to the fanglomerate and all the ore is localized along or near the prominent faults.

The ore consists of the oxide minerals of manganite, psilomelane, pyrolusite, and wad that (1) fill cracks in breccia and the shattered walls of the fissure, (2) replace premineral gouge and breccia, (3) and replace the finer grained parts of the fanglomerate and some of the coarse fragments. No sulfides have been recognized. Much of the ore consists of fragments of rock, each commonly with a crust of hard psilomelane and each partly replaced by manganese oxide and commonly with a matrix of soft clayey material composed largely of wad and pyrolusite. A noteworthy amount of the ore is a brown wad having an unusually low specific gravity which makes it difficult to concentrate the ore by gravity methods.

The ore minerals were derived by oxidation of manganiferous calcite and the distribution of calcite along the productive veins suggests that the present shoots of oxides occupy roughly the position of the original calcite shoots. The ore forms definite shoots that rake along the dip of the vein, roughly parallel to the deep grooves in the footwall and thus presumably parallel to the direction of movement along the fissure.

KILLION MINE

The Killion vein, Figure 2, occupies a fissure in fanglomerate and is exposed on the surface more or less continuously for a distance of about 2000 feet. The vein width ranges from a few inches to about 6 feet but only scattered, isolated parts of it are sufficiently mineralized to constitute ore. The ore is typical of the district and consists of manganite, pyrolusite, psilomelane and wad. These ore minerals cement or replace gouge and breccia or fill cracks and open spaces in the fissure walls.

The vein has been developed by several small open stopes at the surface, by two drifts about 50 and 100 feet long respectively, and by a shaft reported to be about 150 feet deep. The vein has also been explored by a crosscut adit, Fig. 2, about 200 feet long from which has been driven about 500 feet of drifts along the vein, and about 100 feet of miscellaneous crosscuts and raises. Most of the surface workings were made during a period of several years preceding the last war but the crosscut adit and related drifts were driven by the Newmont Corporation about 1942 and 1943.

Several hundred tons of ore apparently were mined from open cuts along the surface but there is no evidence to indicate that underground mining was done or that any commercial ore was obtained

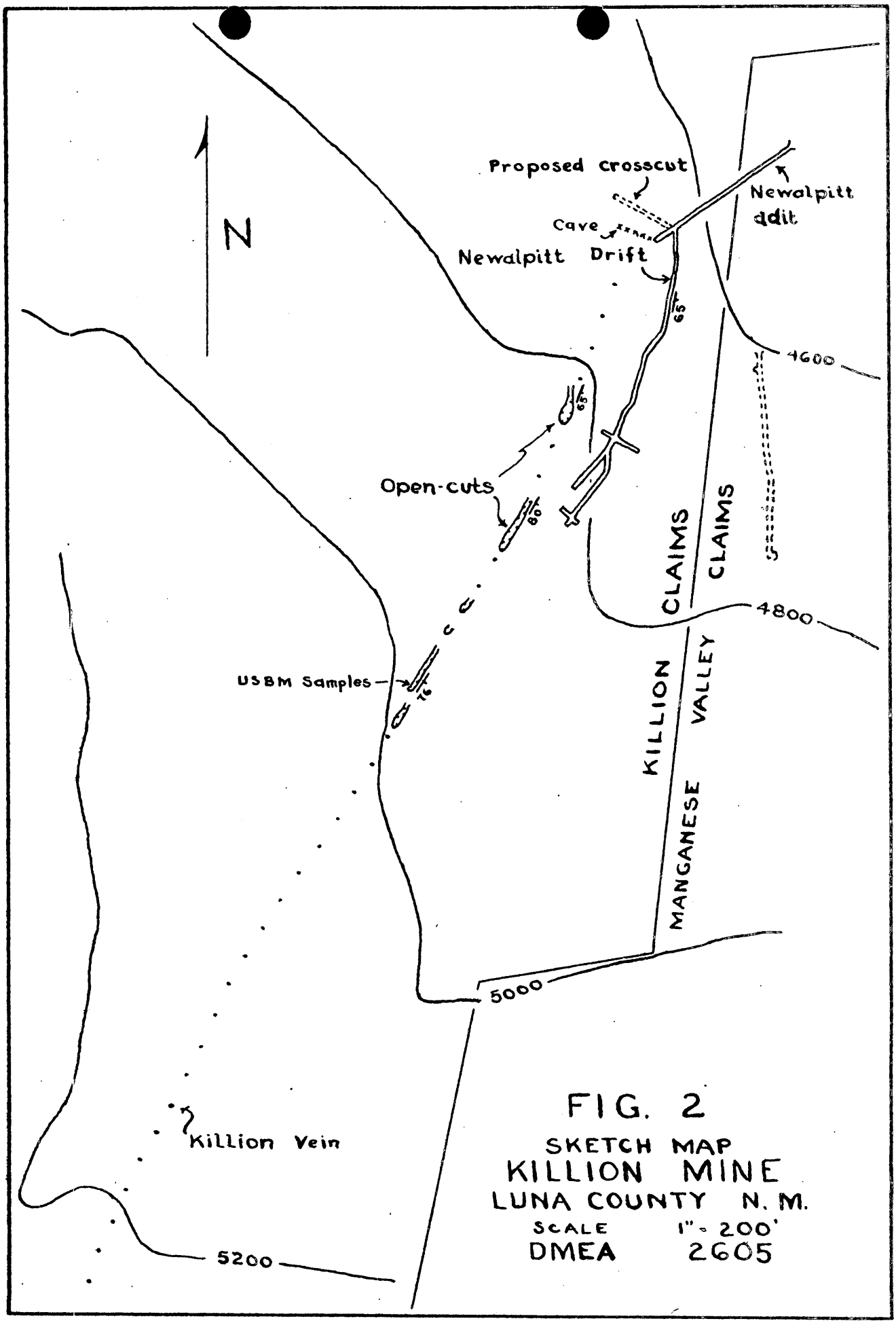

FIG. 2
SKETCH MAP
KILLION MINE
LUNA COUNTY N. M.
SCALE 1" = 200'
DMEA 2605

from the crosscut and drift. [illegible] of the ore appears to have been mined from a [illegible] near the south end of the developed portion of the vein, for it is here that the vein is widest, reaching a maximum of about [illegible] feet. Geologic [illegible] remarks indicate that some of the richest [illegible] ore is present in the area. [illegible] sampled some of the workings and obtained the results given in the following table:

[illegible]

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

[illegible] Vanis, [illegible] Investigation of [illegible] deposits, Little Florida Mountains [illegible] District, Luna County, New Mexico [illegible] Bur. of Mines [illegible] 1949.

The approximate location of the samples 20 [illegible] are as follows. They were taken in an adit driven on the vein extending southwest from an open stope and indicate an average vein width of 5.3 feet for a drift length of 75 feet and the average grade is 17.5 percent manganese. This ore shoot has a strike length of about 125 feet. This is the best mineralized portion of the vein open for examination and part of it was been mined from the drift level to the surface.

If this ore shoot rakes parallel to the dip of the vein, as is the result of the ore shoots in the district, then the projection of it at greater depth would be about 200 feet south of the present drift of the Swalpitt crosscut adit.

Mr. Millie reports that about 2,500 tons of ore containing between 20 and 25 percent manganese has been shipped from his property, but this estimate may be exaggerated. The ore produced obviously is a product of hand-sorting as indicated by the size and distribution of the waste dump. Records of ore shipments are not available to this writer except for four cars as follows:

Date	Mining Co.	Gross L.	Gross L.	Gross Pics	Gross Lbs.
1[illegible]	Irwin Lee, Inc.	25.07	17.75	[illegible]	717.15
1[illegible]	"	21.22	[illegible]	[illegible]	[illegible]
1939	Hecla, Inc.	21.5	6.1	[illegible]	3[illegible]
1939	Not available	39	43	Not available	

Although the crude ore is relatively low grade, an excellent product can be made by hand-sorting or by concentration. Available analysis and shipping records indicate that a product can be obtained that will contain from 46 to 50 percent manganese, 5 to 10 percent iron, 4 to 5 percent silica and will be within allowable limits of lime, magnesia, phosphorus and sulphur.

[illegible]

In this examiner's opinion the applicant has erroneously interpreted the geology of his property, and assumes that ample ore exists where there probably is none; consequently no ore reserves can be claimed for the project. The only recovered vein on the property has been explored by surface stopes and by an adit and drift, and near surface exposures indicate that an ore shoot may exist near the south end of the old workings. This ore shoot is about 145 feet long, averaging about 2.5 feet in width and contains about 5 tons of ore per foot of depth. About 22,000 tons of ore containing about 17 percent zinc, lead is inferred to be present above the Swingitt adit level; however, it is possible that about 60 percent of this ore shoot may be too narrow or too low grade to mine. The ore is worth about $25.00 at the smelter, New Mexico stockpile, but at this price and the present costs of production it could not be profitably exploited; however, at some future time it may deserve favorable consideration.

[illegible]

Mr. Allison's proposal is to drive a 400 foot crosscut (Fig. 2) in a direction [illegible] from the intersection of the Swingitt adit and drift. This crosscut is intended to intersect another manganiferous vein zone which he believes exists west of the main drift. Mr. Allison believes the Swingitt drift was driven on a fault parallel to the main Allison vein and not the vein from which ore was formerly produced.

Observation by the examiners and data from available maps indicate that there is only one vein zone present, and that the Swingitt drift and the old surface stopes are on it, as may be interpreted from Figure 2. The vein dips northward at an [illegible] of

65 to 70 degrees and to the lower, give the impression that the surface stopes and Sweelpitt drift are on separate veins, although the attitude, mineralogy, and character of the vein in nearly all parts are identical.

There is no evidence on the surface to indicate that more than one vein is present.

When this possible interpretation was pointed out to Mr. Miller, he seemed to agree with it, and stated that the other interpretation originated with someone else, and that he doubted its validity. Another factor of importance is that the end of the Sweelpitt adit penetrated a vertical, cave-like opening about 7 feet long, 3 feet wide, and reported to be about 20 feet deep below the adit level. This opening trends [illegible] and apparently marks the position of a fault. This is at an angle of about 40 degrees with the vein and may have displaced the vein, although actual conditions could not be ascertained. The vein is very weak, mineralized near this fault and its extension beyond the fault was not seen by the examiners.

The proposed exploration has little merit because it is unlikely that another vein exists and if it does exist, then it must be faulted by a cross-fault and the location of the extension is unknown. Not over 15% of "blocks" could be present in this area between the tunnel level and the surface. Considering these adverse factors the proposed exploration cannot be justified.

If the drift from the Sweelpitt adit were advanced southwest along the vein from 200 to 300 feet, it would probably penetrate the normally extension of the best ore shoot mined at the surface. This alternative exploration possibility was discussed with the applicant and he was willing to participate for 200 feet of drifting.

[illegible] could not finance the share of a 400 or 500 foot drift. As 200 feet of drifting is not enough to explore the vein, the project should not be undertaken.

[illegible]

As a result of the examination of the various mineral claims 1 to [illegible] inclusive, it is concluded that no vein exists in the area for which exploration is proposed and its inferred presence is based on an error in geological interpretation. The million vein has been explored by open-cut stopes and trenches at the surface and by the Ewalpitt adit and drift. Near the south end of the formerly productive area, which is reported to have produced about 4,500 tons of ore, there is an ore shoot that is inferred to contain about 11,000 tons of ore containing about 17 percent lead. It is possible that about 40 percent of this ore shoot may be too narrow or too low grade to mine. The Ewalpitt drift would probably penetrate this ore shoot if advanced southward a distance of 400 to 500 feet. However, the applicant is not financially able to contribute his share of the cost of 400 to 500 feet of drifting.

Because there probably is no vein in the zone the applicant proposes to explore, and because he is unable to finance his part of a larger exploration project, it is recommended that the application for Government assistance be denied.

DMA-2605, E. B. HELTON'S
MERIGAN MANGANESE CLAIMS
LITTLE FLORIDA MOUNTAINS MINING DISTRICT
LUNA COUNTY, NEW MEXICO

Engineering Report

By John H. Soule*
Mining Engineer
U. S. Bureau of Mines

September 1952

EMA-2605, L. B. BRAUER'S
AMERICAN MANGANESE CLAIMS
LITTLE FLORIDA MOUNTAINS MINING DISTRICT
DONA ANA, NEW MEXICO

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INTRODUCTION

The manganese deposits in the Little Florida mountains have been worked intermittently since 1918. Only two mines have produced appreciable quantities of ore with the bulk of the district production being credited to the Manganese Valley mine. Some ore has been mined from Luna mine. Operations have been limited to periods of high manganese prices and when low-grade ores were acceptable.

E. D. Hillion of El Paso, Texas worked in the district during some of the early operations, and in 1925 located the American group of claims. He has retained the American claims No. 1 to 8, inclusive. These are not to be confused with the American group owned by P. L. Cratton of El Paso, Texas and which were recently leased to the Florida Mines, Inc. The Cratton group of American claims was the subject of a report on an application for Government assistance, Docket DMA 859X. It is believed that all of the American claims were once under the ownership of Hillion and Cratton.

In June 1952, Hillion applied to the Defense Minerals Exploration Administration for Government assistance to explore his claims. This application, Docket DMEA 2605, was sent to the field by the DMEA Field Team in Denver for an examination of the property. The examination was made on July 31, 1952,[1] and the results obtained form the basis of this report. Hillion proposed to do 100 feet of drifting. The project was to have cost $9,431.97 but was amended by note to include an additional $600.00.

1/ Examination made by J. H. Soule' of the Bureau of Mines and J. H. Falck of the Geological Survey.

ACKNOWLEDGMENTS

Acknowledgment is due to E. B. Killion, applicant for Government assistance, for showing the DMEA examining team over his property and by furnishing pertinent information. Acknowledgment also is made of the following publications from which information was extracted: U. S. Bureau of Mines Report of Investigations 4536 by A. M. Evans; U. S. Bureau of Mines Report of Investigations 3620 by F. D. DeVaney, M. M. Fine and S. M. Shelton; and U. S. Geological Survey Bulletin 922-G by Samuel G. Lasky; and other material taken from the files of the U. S. Bureau of Mines at Tucson, Ariz.

LOCATION, TOPOGRAPHY AND PHYSICAL FEATURES

The American claims, owned by E. B. Killion, are located near the center of the Little Florida Mountains manganese mining district on the north east slope of the Little Florida mountains. The main mine workings are situated near the center of the NE¼ sec. 19, T. 24 S., R. 7 W., as shown on figure 1. These workings are about halfway between the Luna and Manganese Valley mines, the major producers of the district. The property is reached by travelling U. S. Highway 70-80 easterly from Deming, N. Mex. for about 8 miles, thence southerly over a graded road for about 2 miles.

The Little Florida mountains form a small desert range a few miles northeast of the rugged Florida mountains. The area in which the deposits occur varies from gently sloping in the east to rugged in the west where the veins extend up the mountain slopes. The mean altitude is about 4,500 feet above sea level.

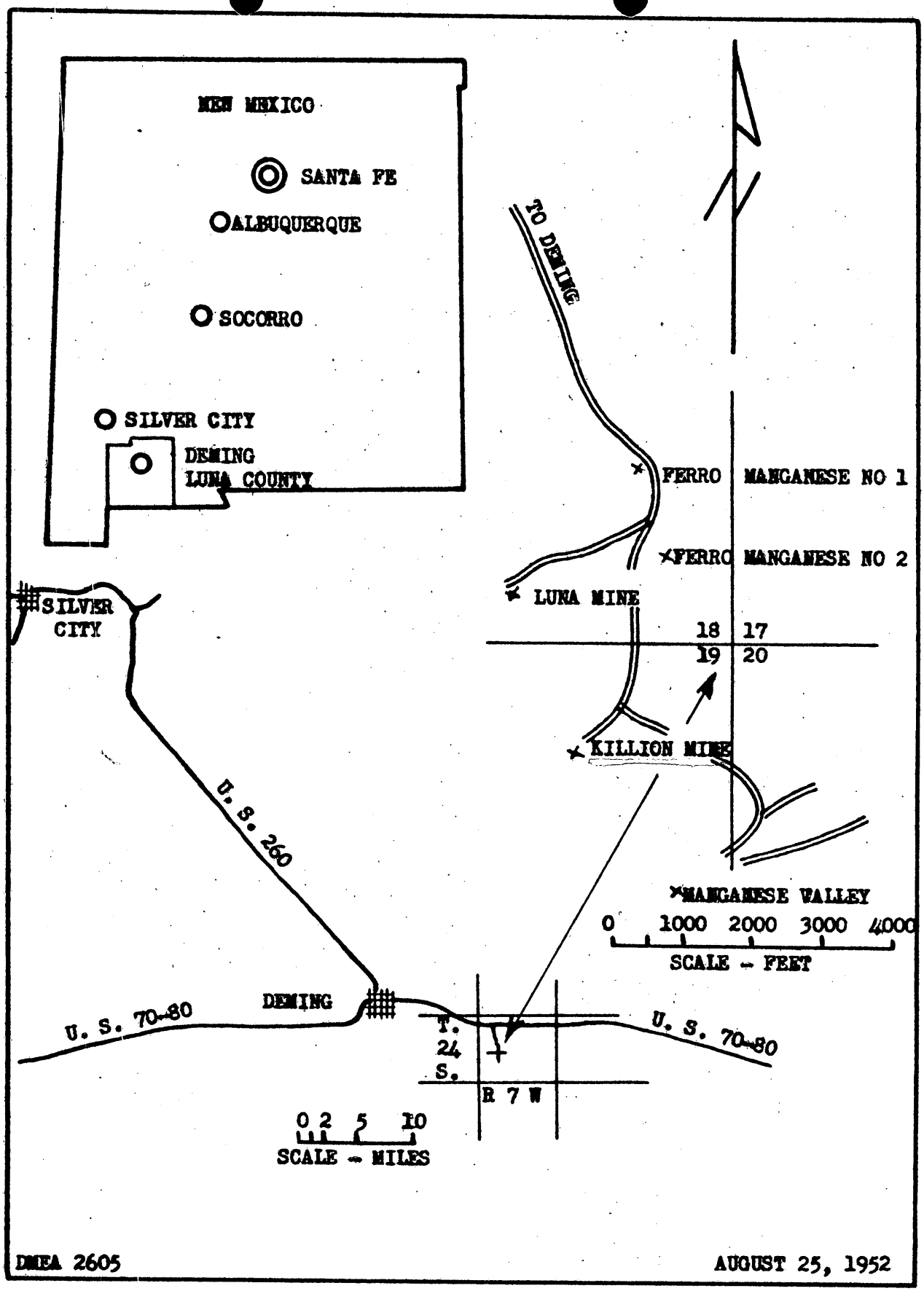

FIGURE 1. - LOCATION MAP, LITTLE FLORIDA MOUNTAINS MANGANESE DISTRICT, LUNA COUNTY, NEW MEXICO

Vegetation consists of grasses, cacti and various desert shrubs, none of which are suitable for mine timbers. The mean annual precipitation is about 9 inches, largely as summer thunder showers. Temperatures vary from below freezing in the winter to over 100 degrees in the summer. Extremely cold weather usually is not prolonged. The water table stands at an altitude of about 4,000 feet as indicated in the Luna shaft where a moderate flow was encountered.

HISTORY AND PRODUCTION

The first recorded claims on the manganese deposits were located in 1916. These later became the Manganese Valley property. A small mill was erected in 1923 but this operation was not successful. Work was stopped in 1931, most of the production being hand-sorted ore. About 1941 or 1942, the Newalpitt Corp. leased the property and produced considerable ore for the Government stockpile at Deming. No work has been done on this property since about 1944.

The Luna claims were located in 1923 and intermittent operations followed. A small mill was built on the property but this proved unsuccessful. In 1951, Lawrence Yacomo leased the mine, re-equipped it and shipped a little ore to a mill built in Deming by the Florida Mines, Inc. This operation now is idle.

E. B. Killion, probably in partnership with D. L. Gratton, located about 30 American claims. Some of these locations were made as early as 1925. Killion retains the first 8 American claims, so numbered. The Newalpitt Corp., when operating in the district, leased or

relocated these claims, crosscut to the Killion vein and did about 500 feet of drifting on the vein. Very little ore was mined.

The total district production is probably less than 30,000 tons of sorted ore and concentrates. The greatestpart of this production was obtained from the Manganese Valley mine. Killion claims that 2,000 tons of ore was shipped from his claims but from the small extent of his mine workings and the remaining dumps, such a figure seems excessive. Available production records show that nearly 60 tons of manganese ore was shipped, which contained about 46 percent manganese. This production seems reasonable and all could have been mined from the area in which Killion desires Government aid.

OWNERSHIP AND DATES

The American claims Nos. 1 to 8, inclusive, are held by location by S. D. Killion of El Paso, Texas. The claims lie end to end and trend northeasterly from Number 1 to 8. The claims are not patented. The locations were made in 1925.

DESCRIPTION OF THE DEPOSIT 2/

The northeast slope of the Little Florida mountains is underlain by fanglomerate having a known thickness greater than 1,000 feet. This formation is cut by numerous northerly trending vertical, or steeply dipping faults that are filled with manganese minerals associated with gouge and breccia. The manganese minerals are manganite,

2/ Veich, John N., Geologist, U. S. Geological Survey

psilomelane, pyrolusite, and wad that have been formed by oxidation of manganiferous calcite. The manganese oxides fill cavities in the breccia, replace pre-mineral gouge and breccia, or replace fragments in the conglomerate. Locally the manganese minerals are sufficiently abundant to be of economic importance. Mineable ore occurs in shoots that rake nearly parallel to the dip of the veins. There is no significant change in the character of the ore to about 100 feet, the greatest depth to which exploration has extended.

MINABLE ORE RESERVES

Measured and indicated ore reserves on the Killion property are very small. The most promising workings were sampled by the Bureau of Mines during the operation of Project 300 and the results reported on figure 10 of the Bureau of Mines Report of Investigations 4536. A. M. Evans, Mining Engineer in charge of the Bureau project, states in the confidential section of his report; "The Killion-Gratton No. 2 Tunnel was sampled and showed 16 percent manganese ore over a length of 75 feet, but its height above the tunnel was too small and its ore too spotty to estimate ore reserves".

Some ore may be inferred. Using Evans' sample results and applying a 15 percent grade cutoff with a 2.5 feet mining width cutoff the following results are derived. Although 75 feet of drift was sampled, an additional 70 feet from the portal outward was stoped, thus indicating a total length of the mineralized zone of 145 feet. Only 9 of the 18 samples met the cutoff requirements, so only one

half, or 72.5 feet of this zone contains minable ore. The average width of the ore samples is 4.2 feet and the average grade, computed on a weighted basis, is 21.5 percent manganese. As the samples were taken horizontally, the vertical distance of 300 feet was used for the depth of mineralized zone, this figure being the approximate difference between workings at the surface and the Newalpitt tunnel. Then 300 times 72.5 times 4.2 equals 91,350 cubic feet of minable ore. Applying a tonnage factor of 13.5, nearly 6,800 long tons of manganese ore containing 21.5 percent manganese could be inferred. No consideration was given to any vertical variation in grade of thicknesses below the cutoff limits which would only reduce the above tonnage estimates.

PRESENT STATUS

There is no work being done on the Million property at this time. There is no equipment of any kind on the property, no rails, pipe, or other supplies.

The old mine workings consist of shallow drifts, shafts and trenches that explore the Million vein for a strike length of nearly 400 feet. The Newalpitt adit, about 300 feet below the upper workings, explores the vein at depth for about 500 feet laterally. This adit portals on the adjoining property and was driven on this property for about half of its 220-foot length. Little or no ore was shipped and

the vein does not look encouraging. However, it lacks some 400 feet from being under the best surface exposures. The oreshoots in the district pitch almost parallel to the dip of the veins.

PROJECT PROPOSALS AND COSTS

In the owner's application, he suggested extending the Kevalpitt crosscut westerly an additional 100 feet to intersect the Killion vein, not realizing that the vein was intersected by the crosscut near the point where he wanted to start his work. In addition, an open fissure almost on line with the crosscut extends the crosscut nearly the distance planned to be driven by the applicant. Such work would be duplication and would be wasted. One minor point is that the portal is on other property and the necessary agreements would have to be executed before any work could be started. It is entirely possible that such agreements could not be obtained. The mine plant and waste dumps would be on this other property.

The applicant's estimated costs were about $10,000, which for 100 feet of drifting would indicate a unit cost of $100 per foot. This is exorbitant. Disallowing certain cost estimates for items such as legal services and secretarial work would lower the unit costs but little.

A possible exploratory project would be to extend the Kevalpitt drift at least an additional 400 feet to the southwest. This would reach a point below the ore outcrops. There are two reasons why this is not feasible and both are economic. The first is that such a

project would cost not less than $17,500 which would include complete rehabilitation of the existing workings and the installation of a minimum mine plant on a rental basis. The applicant's share of the costs would be $4,375 which is beyond his financial resources. Killion stated to the examining team that he could afford up to a maximum of $1,000 as his share of a possible project.

The second reason for the unfeasibility of the possible project is based upon the following economic summary. As the inferred minable ore reserves contained 21.5 percent manganese, this material has a unit value of $23.05 (existing Yendon, Arizona stockpile prices applied to the Deming, New Mexico stockpile in lieu of recent Deming quotations). The royalty derived from this ore would be $1.15 per ton which when applied to the 6,800 tons of inferred ore totals $7,820. This amount is insufficient to repay the Government for its $13,125 share in the possible project.

CONCLUSIONS

The following conclusions were derived from an examination of L. D. Killion's American manganese prospect and from a study of available data existing in the files of the Bureau of Mines:

1. Based on Bureau of Mines sampling, measured and indicated ore reserves are very small. Maximum expectable minable inferred reserves are on the order of 6,800 long tons of ore containing 21.5 percent manganese.

2. The applicant's proposal is not feasible because extension of the crosscut could not locate the vein because it already has been intersected near the proposed starting point of the planned crosscut.

3. Possible exploration could be done by extending the Newalpitt drift at least 400 feet to the southwest. However, this work is not feasible because it would cost about $17,500 and the applicant is financially unable to contribute his share, or $4,375. The Government's share would be $13,125 while the maximum expectable royalties to pay this amount would be only $7,820.

RECOMMENDATIONS

Based upon the above conclusions, it is recommended that Docket DMA 2005, application for Government aid in exploring L. S. Killion's American manganese claims, be denied.

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

221 New Customhouse
Denver 2, Colorado

September 9, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
SEP 15 1952

Mr. E. B. Killion
2705 North Kansas Street
El Paso, Texas

Re: DMEA Docket 2605

Dear Mr. Killion:

Reference is made to your application for Government aid in exploration work on the American claims.

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

A careful study of your property and data available to this agency reveals that the probability of disclosing mineable reserves by your proposed exploration program is not considered sufficiently promising to justify Government participation. Under these circumstances, we regret to advise you that your application for Government aid is denied.

Very truly yours,

W. H. King

W. H. King
Field Team, Region IV

A. H. Koschmann

A. H. Koschmann
Field Team, Region IV

HMC:oc

cc: Administrator - DMEA
WRStorms
Subject
Chron.
Koschmann (2)

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

224 New Customhouse
Denver 2, Colorado

September 9, 1952

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: 210

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 2605 (Manganese) E. R. Killion, American Claims, Luna County, New Mexico

Enclosed are four copies of the final report on DMEA-2605 two copies of Form 3b, and a copy of the letter of denial to the applicant.

W. H. King
W. H. King

A. H. Koschmann
A. H. Koschmann

Enclosures

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
SEP 15 1952

3b detached in Docket & Control - 9/15/52 - B.S.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

September 9, 1952

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 2605, (Manganese) E. B. Killion, American Claims, Luna County, New Mexico

Enclosed are nine copies of the final engineering report on DMEA-2605 by John H. Soule' of the Bureau of Mines.

The applicant requested $10,031.97 to drive 100 feet of crosscut to a vein which he did not realize had already been intersected near the point he intended to start his work.

The examining engineer recommends the application be denied and we concur in this recommendation.

W. H. King

W. H. King

MINING DIVISION
REGION IV

September 2, 1952

Memorandum

To : W. H. King, Acting Chief, Mining Div., Region IV

From : Chief, Arizona-New Mexico Br., Mining Div., Region IV

Subject : Final Report, DMA Docket 2605, E. D. Rillion's American Manganese Claims, Little Florida Mountains Mining District, Luna County, N. Mex.

Enclosed are original and eight copies of the section on Summary, Conclusions and Recommendations by J. N. Faick of the Geological Survey and J. H. Soule' of the Bureau of Mines, and the section on Engineering by Soule' for the above report. A separate section on Geology will be submitted by the Geological Survey.

The examiners believe that the proposed project is not feasible. I concur with their recommendations that the loan be denied.

Brochure is enclosed.

Walter R. Storms

Walter R. Storms, Chief
Arizona-New Mexico Branch
Mining Division, Region IV

CC W. H. King (8)
A. F. Shride
DMEA-2605
DF

WRStorms:frj

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

200 New Customhouse
Denver 2, Colorado

September 5, 1952

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 2605, E. B. Killion, American Claims, Luna County, New Mexico. Manganese.

Enclosed are the original and 8 copies of the geological report by John N. Faick of the U. S. Geological Survey, covering the above docket.

It has been recommended that the loan be denied.

A. H. Koschmann
A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (9)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P.O. Box 4126, University Station
Tucson, Arizona

August 29, 1952

Memorandum

To: A. H. Koschmann, Denver, Colorado

From: J. M. Peick, Tucson, Arizona

Subject: Report on Docket DMLA 2609, B. D. Million, American Claims (Manganese), Luna County, New Mexico

Enclosed are the original and 8 copies of a geological report by John M. Peick on the above subject. An engineering report on the same subject is being submitted by Mr. J. M. Soule. It is recommended that the application be denied.

John M. Peick
Geologist

Enclosures 9

UNITED STATES
DEPARTMENT OF THE INTERIOR
OSCAR L. CHAPMAN, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA-2605, E. B. Killion's American Manganese Claims

Little Florida Mountains Mining District

Luna County, New Mexico

John N. Faick, Geologist
U. S. Geological Survey

John H. Soule', Mining Engineer
U. S. Bureau of Mines

August 1952

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

By J. N. Faick[1] and J. H. Soule[2]

On June 24, 1952, E. B. Killion applied for Government assistance to explore a portion of his group of American manganese claims in the Little Florida Mountains Mining District, Luna County, N. Mex. The application, Docket DMEA-2605, outlined a project to consist of 100 feet of crosscutting from the Newalpitt adit. This program was to have cost $9,431.97, plus $600.00 for stenographic and legal services, or a total of $10,031.97. The brochure was sent to the field for an examination of the property, and this examination was made on July 31, 1952.

The American claims were located in 1925 and are situated in Secs. 18 and 19, T. 24 S., R. 7 W., on the northeast slopes of the Little Florida mountains, a small desert range about 10 miles southeast of Deming, N. Mex. Vegetation is sparse and temperature extremes usually are not prolonged. Rainfall is scanty.

The first claims in the district were located in 1918 and operations have been intermittent since that time. The total district production probably is less than 30,000 long tons of manganese ore and concentrates. Most of the production was derived from the Manganese Valley mine with a small amount of ore and concentrates shipped from the Luna mine. Judging by the small mine workings on the American

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1/ Geologist, U. S. Geological Survey
2/ Mining Engineer, U. S. Bureau of Mines

claims, no more than a few hundred tons could have been mined from the property. Available production records indicate the sale of nearly 80 long tons of ore containing 46 percent manganese.

The northeast part of the Little Florida mountains is underlain with fanglomerate having a known thickness exceeding 1,000 feet. This fanglomerate is composed of slightly rounded to angular fragments, ranging in size from as much as 4 feet in diameter to the finest dust. The whole is well indurated. The color is generally reddish brown. Crude sorting and vague stratification are characteristic.

Numerous northward trending and steeply dipping faults traverse the area of manganese mineralization. Displacement ranges from a few to as much as 200 feet and many steeply pitching grooves suggest movement nearly parallel to the dips of the fissures. Gouge and breccia constitute the bulk of the fissure filling, and in places, manganese minerals occur in sufficient quantity to make ore shoots. Manganite, pyrolusite, psilomelane, and wad are the important manganese minerals. They occur as fracture and breccia filling, as replacement of premineral gouge and breccia, and as a replacement of fragments of the fanglomerate. The ore minerals were derived from the oxidation of manganiferous calcite which was present in portions of the veins.

No measured nor indicated ore reserves can be calculated, but about 11,000 long tons of mineralized material may be inferred that contains nearly 17 percent manganese. By applying a grade cutoff of

15 percent and a minimum mining width of 2.5 feet, there may be inferred nearly 6,800 long tons of minable ore containing 21.5 percent manganese.

The applicant planned to drive 100 feet of crosscut from a point about 220 feet from the portal of the Newalpitt crosscut to intersect his vein. He did not realize that the vein had been intersected near the point he intended to start his work. A study of the surface shows no second vein and such work would have been wasted. Possible exploration could be done by extending the Newalpitt drift to the southeast at least 400 feet to explore, at depth, the best outcrops. Such a project would cost at least $17,500. This is beyond the financial capabilities of the applicant who can contribute no more than $1,000 as his share of a possible project. The possible revenue to be derived from the inferred minable ore amounts to $7,820 which is insufficient to repay the Government for its $13,125 share of the possible project.

It is recommended that the application for exploration assistance, Docket DMEA-2605, be denied.

John M. Dick

Walter R. Storms.

AMERICAN (MANGANESE) CLAIMS
E. B. KILLION
LUNA COUNTY, NEW MEXICO
DMEA 2605

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AMERICAN (MANGANESE) CLAIMS
E. B. KILLION
LUNA COUNTY, NEW MEXICO
DMEA 2605

Geology

By
John N. Faick
Geologist, U. S. Geological Survey

INTRODUCTION

Application for financial assistance in exploring for manganese near Deming, New Mexico has been made to the Defense Minerals Exploration Administration, Docket No. 2605, by E. B. Killion, 2705 N. Kansas Street, El Paso, Texas.

The E. B. Killion property consists of the unpatented group of American claims 1-8 inclusive, which are located (Fig. 1) in sections 18 and 19, T. 24 S., R. 7 W. on the northeastern slope of the Little Florida Mountains in Luna County, New Mexico. The property is easily reached from Deming, New Mexico by 9 miles of paved Highway No. 70-80 and by 2 miles of dirt access road.

The first recorded claims on the manganese deposits in the Little Florida Mountains were located in September 1918, and these became the nucleus of the largest property in the district, the Manganese Valley Mine. The second largest property, the Luna Mine is located about one mile north of the Manganese Valley Mine and the Killion property is approximately midway between the Luna and Manganese Valley Mines. Mr. E. B. Killion acquired his claims by location in 1925 and the property has been operated intermittently since that time. During 1942 and 1943 the property was controlled by the Newalpitt Corporation, which intensively explored the property.

GENERAL GEOLOGY

The northeast part of the Little Florida Mountains, where the manganese deposits are situated, is underlain with fanglomerate[1/] having a known thickness of at least 1,000 feet. The deposits is composed of slightly rounded to angular fragments ranging from boulders as

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1/ Lasky, S. B., Manganese Deposits in the Little Florida Mountains, Luna County, New Mexico: U. S. Geol. Survey Bull. 922-C, p. 60, 1940.

much as 4 feet in diameter down to the finest dust. The material is crudely assorted but there is no orientation of the fragments and only vague stratification. The angular fragments are cemented with what appears to be fine-grained sandstone or grit. The formation as a whole is well-indurated and generally reddish-brown in color. The crude bedding or banding dips from 10 to 20 degrees eastward.

Along the northeast flanks of the Little Florida Mountains the fanglomerate has been cut by numerous northerly trending, vertical or steeply dipping faults having displacements ranging from a few feet to about 200 feet. In the footwall of some of these faults there are many steeply pitching grooves that suggest movement nearly parallel to the dips of the fissure. The fault zones are filled with gouge, breccia and manganese minerals, thus forming fissure veins of economic importance.

ORE DEPOSITS

The veins appear to be confined to the fanglomerate and all the ore is localized along or near the prominent faults.

The ore consists of the oxide minerals of manganite, psilomelane, pyrolusite, and wad that (1) fill cracks in breccia and the shattered walls of the fissure, (2) replace premineral gouge and breccia, (3) and replace the finer grained parts of the fanglomerate and some of the coarse fragments. No sulfides have been recognized. Much of the ore consists of fragments of rock, each commonly with a crust of hard psilomelane and each partly replaced by manganese oxide and commonly with a matrix of soft clayey material composed largely of wad and pyrolusite. A noteworthy amount of the ore is a brown wad having an amazingly low specific gravity which makes it difficult to concentrate the ore by gravity methods.

The ore minerals were derived by oxidation of manganiferous calcite and the distribution of calcite along the productive veins suggests that the present shoots of oxides occupy roughly the position of the original calcite shoots. The ore forms definite shoots that rake along the dip of the vein, roughly parallel to the deep grooves in the footwall and thus presumably parallel to the direction of movement along the fissure.

KILLION MINE

The Killion vein, Figure 2, occupies a fissure in fanglomerate and is exposed on the surface more or less continuously for a distance of about 2000 feet. The vein width ranges from a few inches to about 6 feet but only scattered, isolated parts of it are sufficiently mineralized to constitute ore. The ore is typical of the district and consists of manganite, pyrolusite, psilomelane and wad. These ore minerals cement or replace gouge and breccia or fill cracks and open spaces in the fissure walls.

The vein has been developed by several small open stopes at the surface, by two drifts about 50 and 100 feet long respectively, and by a shaft reported to be about 150 feet deep. The vein has also been explored by a crosscut adit, Fig. 2, about 260 feet long from which has been driven about 500 feet of drifts along the vein, and about 100 feet of miscellaneous crosscuts and raises. Most of the surface workings were made during a period of several years preceding the last war but the crosscut adit and related drifts were driven by the Newalpitt Corporation about 1942 and 1943.

Several hundred tons of ore apparently were mined from open cuts along the surface but there is no evidence to indicate that underground mining was done or that any commercial ore was obtained

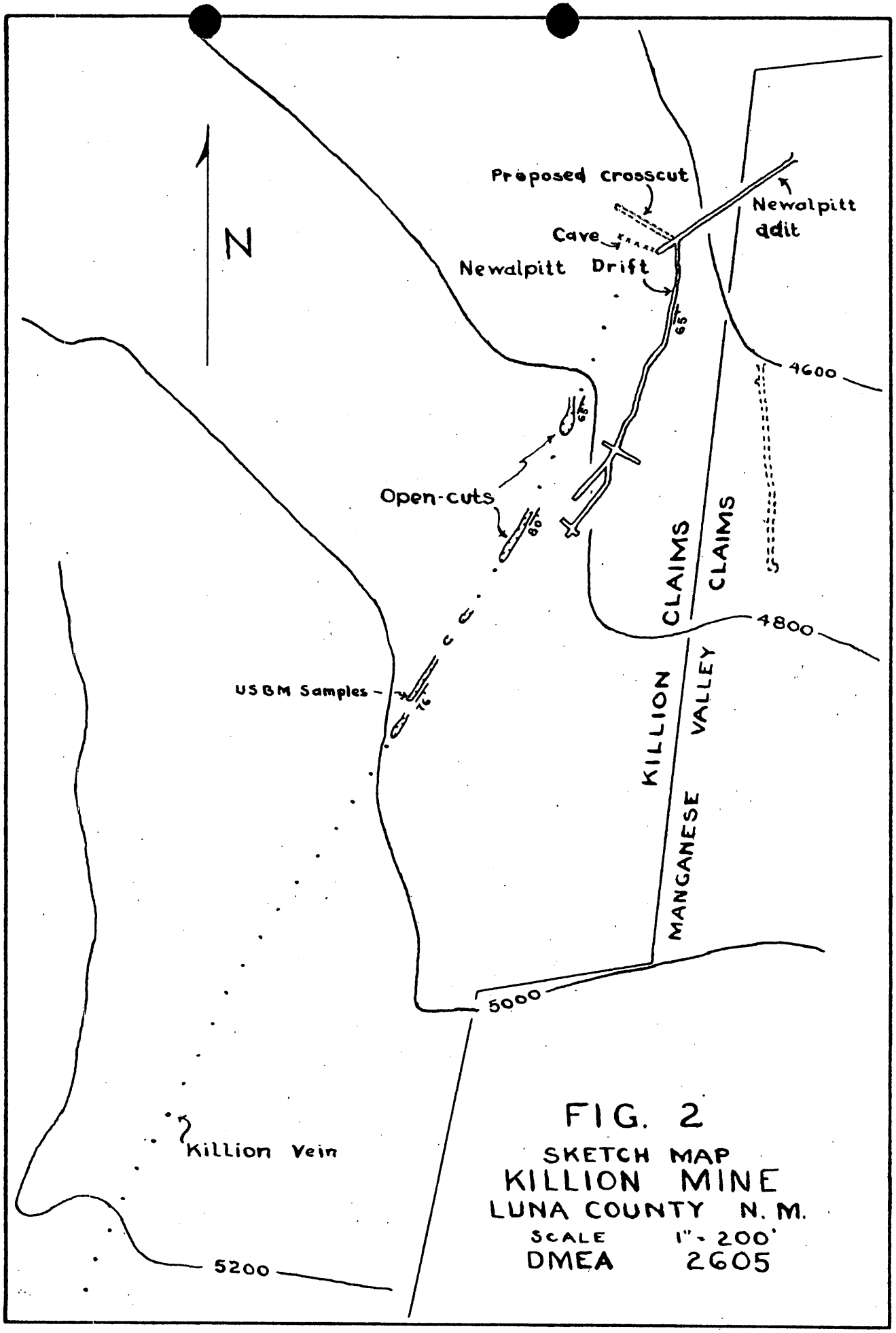

FIG. 2
SKETCH MAP
KILLION MINE
LUNA COUNTY N. M.
SCALE 1" = 200'
DMEA 2605

from the crosscut and drift. Most of the ore appears to have been mined from 2 open cuts near the south end of the developed portion of the mine, for it is here that the vein is widest, reaching a maximum of about 6 feet. Remaining ore remnants indicate that some of the highest grade ore is present in this area. A. M. Evans[2/] sampled some of the workings and obtained the results given in the following table:

SAMPLES FROM UPPER DRIFT ADIT, KILLION MINE

Sample No.	Width	Percent Manganese
659	5.0	8.1
660	4.4	9.4
661	5.5	16.1
662	4.9	23.6
663	0.5	41.5
664	3.1	32.0
665	3.3	23.2
666	3.5	23.5
667	3.8	8.5
668	3.7	19.2
669	2.7	19.2
670	2.2	9.6
671	2.3	6.9
672	2.3	10.0
673	2.9	11.5

2/ Evans, A. M., Investigation of Manganese Deposits, Little Florida Mountains Mining District, Luna County, New Mexico: U. S. Bur. of Mines R. I. 4536, Fig. 10, 1949.

The approximate location of the samples is shown on Figure 2. They were taken in an adit driven on the vein extending southward from an open stope and indicate an average vein width of 3.3 feet for a drift length of 75 feet and the average grade is 17.5 percent manganese. This ore shoot has a strike length of about 145 feet. This is the best mineralized portion of the vein open for examination and part of it has been mined from the drift level to the surface.

If this ore shoot rakes parallel to the dip of the vein, as is the habit of the ore shoots in the district, then the projection of it at greater depth would be about 400 feet south of the present drift of the Newalpitt crosscut adit.

Mr. Killion reports that about 2500 tons of ore containing between 40 and 45 percent manganese has been shipped from his property, but this estimate may be exaggerated. The ore produced obviously is a product of much hand-sorting as indicated by the size and distribution of the waste dumps. Records of ore shipments are not available to this writer except for four cars as follows:

Date	Shipped to	Tons Dry	Percent Mn	Unit Price	Gross Value
1928	Birmingham, Ala.	25.07	47.75	$ 0.60	$717.65
1928	" "	21.21	50.8	0.60	646.48
1939	Pueblo, Colo.	31.65	42.1	0.295	393.09
1939	Not available	39	43	Not available	

Although the crude ore is relatively low grade, an excellent product can be made by hand-sorting or by concentrating. Available analysis and shipping records indicate that a product can be obtained that will contain from 40 to 50 percent manganese, 5 to 10 percent iron, 2 to 5 percent silica and will be within allowable limits of base metals, phosphorous and aluminum.

ORE RESERVES

In this examiner's opinion the applicant has erroneously interpreted the geology of his property and assumes that a vein exists where there probably is none; consequently no ore reserves can be allotted for the project. The one noteworthy vein on the property has been explored by surface stopes and by an adit and drift, and near surface exposures indicate that an ore shoot may exist near the south end of the old workings. This ore shoot is about 145 feet long, averages about 3.5 feet in width and contains about 36 tons of ore per foot of depth. About 11,000 tons of ore containing about 17 percent manganese is inferred to be present above the Newalpitt adit level; however, it is possible that about 40 percent of this ore shoot may be too narrow or too low grade to mine. The ore is worth about $12.00 at the Deming, New Mexico stockpile, but at this price and the present costs of production it could not be profitably exploited; however, at some future time it may deserve favorable consideration.

POSSIBLE AND PROPOSED EXPLORATION

Mr. Killion's proposal is to drive a 100 foot crosscut (Fig. 2) in a direction N. 60 E. from the intersection of the Newalpitt adit and drift. This crosscut is intended to intersect another manganiferous vein zone which he believes exists west of the main drift. Mr. Killion believes the Newalpitt drift was driven on a fault parallel to the main Killion vein and not the vein from which ore was formerly produced.

Observation by the examiners and data from available maps indicate that there is only one vein zone present, and that the Newalpitt drift and the old surface stopes are on it as may be interpreted from Figure 2. The vein dips eastward at angles of

65 to 80 degrees and to the unwary gives the impression that the surface stopes and Newalpitt drift are on separate veins, although the attitude, mineralogy, and character of the vein is nearly identical in both places. There is no evidence on the surface to indicate that more than one vein is present.

When this possible interpretation was pointed out to Mr. Killion, he seemed to agree with it, and stated that the other interpretation originated with someone else, and that he doubted its validity. Another factor of importance is that the end of the Newalpitt adit penetrated a vertical, cave-like opening about 70 feet long, 3 feet wide, and reported to be about 60 feet deep below the adit level. This opening trends N. 68° E. and apparently marks the position of a fault. This is at an angle of about 40 degrees with the vein and may have displaced the vein, although actual conditions could not be ascertained. The vein is very weakly mineralized near this fault and its extension beyond the fault was not seen by the examiners.

The proposed exploration has little merit because it is unlikely that another vein exists and if it does exist, then it must be faulted by a cross-fault and the location of the extension is unknown. Not over 150 of "backs" could be present in this area between the tunnel level and the surface. Considering these adverse factors the proposed exploration cannot be justified.

If the drift from the Newalpitt adit were advanced southward along the vein from 400 to 500 feet, it would probably penetrate the down-dip extension of the largest ore shoot mined at the surface. This alternative exploration possibility was discussed with the applicant and he was willing to participate for 100 feet of drifting

but could not finance his share of a 400 or 500 foot drift. As 100 feet of drifting is not enough to explore the vein, the project should not be undertaken.

CONCLUSIONS AND RECOMMENDATIONS

As a result of the examination of the American manganese claims 1 to 8 inclusive, it is concluded that no vein exists in the area for which exploration is proposed and its inferred presence is based on an error in geological interpretation. The Killion vein has been explored by open-cut stopes and trenches at the surface and by the Newalpitt adit and drift. Near the south end of the formerly productive area, which is reported to have produced about 2,500 tons of ore, there is an ore shoot that is inferred to contain about 11,000 tons of ore containing about 17 percent manganese. It is possible that about 40 percent of this ore shoot may be too narrow or too low grade to mine. The Newalpitt drift would probably penetrate this ore shoot if advanced southward a distance of 400 to 500 feet. However, the applicant is not financially able to contribute his share of the cost of 400 to 500 feet of drifting.

Because there probably is no vein in the zone the applicant proposes to explore, and because he is unable to finance his part of a larger exploration project, it is recommended that the application for Government assistance be denied.

DMEA-2605, E. B. KILLION'S
AMERICAN MANGANESE CLAIMS
LITTLE FLORIDA MOUNTAINS MINING DISTRICT
LUNA COUNTY, NEW MEXICO

Engineering Report

By John H. Soule'
Mining Engineer
U. S. Bureau of Mines

September 1952

DMEA-2605, E. B. KILLION'S
AMERICAN MANGANESE CLAIMS
LITTLE FLORIDA MOUNTAINS MINING DISTRICT
LUNA COUNTY, NEW MEXICO

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INTRODUCTION

The manganese deposits in the Little Florida mountains have been worked intermittently since 1918. Only two mines have produced appreciable quantities of ore with the bulk of the district production being credited to the Manganese Valley mine. Some ore has been mined from Luna mine. Operations have been limited to periods of high manganese prices and when low-grade ores were acceptable.

E. B. Killion of El Paso, Texas worked in the district during some of the early operations, and in 1925 located the American group of claims. He has retained the American claims No. 1 to 8, inclusive. These are not to be confused with the American group owned by P. L. Gratton of El Paso, Texas and which were recently leased to the Florida Mines, Inc. The Gratton group of American claims was the subject of a report on an application for Government assistance, Docket DMA 859X. It is believed that all of the American claims were once under the ownership of Killion and Gratton.

In June 1952, Killion applied to the Defense Minerals Exploration Administration for Government assistance to explore his claims. This application, Docket DMEA 2605, was sent to the field by the DMEA Field TEam in Denver for an examination of the property. The examination was made on July 31, 1952,[1] and the results obtained form the basis of this report. Killion proposed to do 100 feet of drifting. The project was to have cost $9,431.97 but was amended by note to include an additional $600.00.

1/ Examination made by J. H. Soule' of the Bureau of Mines and J. N. Faick of the Geological Survey.

ACKNOWLEDGMENTS

Acknowledgment is due to E. B. Killion, applicant for Government assistance, for showing the DMEA examining team over his property and by furnishing pertinent information. Acknowledgment also is made of the following publications from which information was extracted: U. S. Bureau of Mines Report of Investigations 4536 by A. M. Evans; U. S. Bureau of Mines Report of Investigations 3620 by F. D. DeVaney, M. M. Fine and S. M. Shelton; and U. S. Geological Survey Bulletin 922-C by Samuel G. Lasky; and other material taken from the files of the U. S. Bureau of Mines at Tucson, Ariz.

LOCATION, TOPOGRAPHY AND PHYSICAL FEATURES

The American claims, owned by E. B. Killion, are located near the center of the Little Florida Mountains manganese mining district on the north east slope of the Little Florida mountains, The main mine workings are situated near the center of the NE$\frac{1}{4}$ sec. 19, T. 24 S., R. 7 W., as shown on figure 1. These workings are about halfway between the Luna and Manganese Valley mines, the major producers of the district. The property is reached by travelling U. S. Highway 70-80 easterly from Deming, N. Mex. for about 8 miles, thence southerly over a graded road for about 2 miles.

The Little Florida mountains form a small desert range a few miles northeast of the rugged Florida mountains. The area in which the deposits occur varies from gently sloping in the east to rugged in the west where the veins extend up the mountain slopes. The mean altitude is about 4,500 feet above sea level.

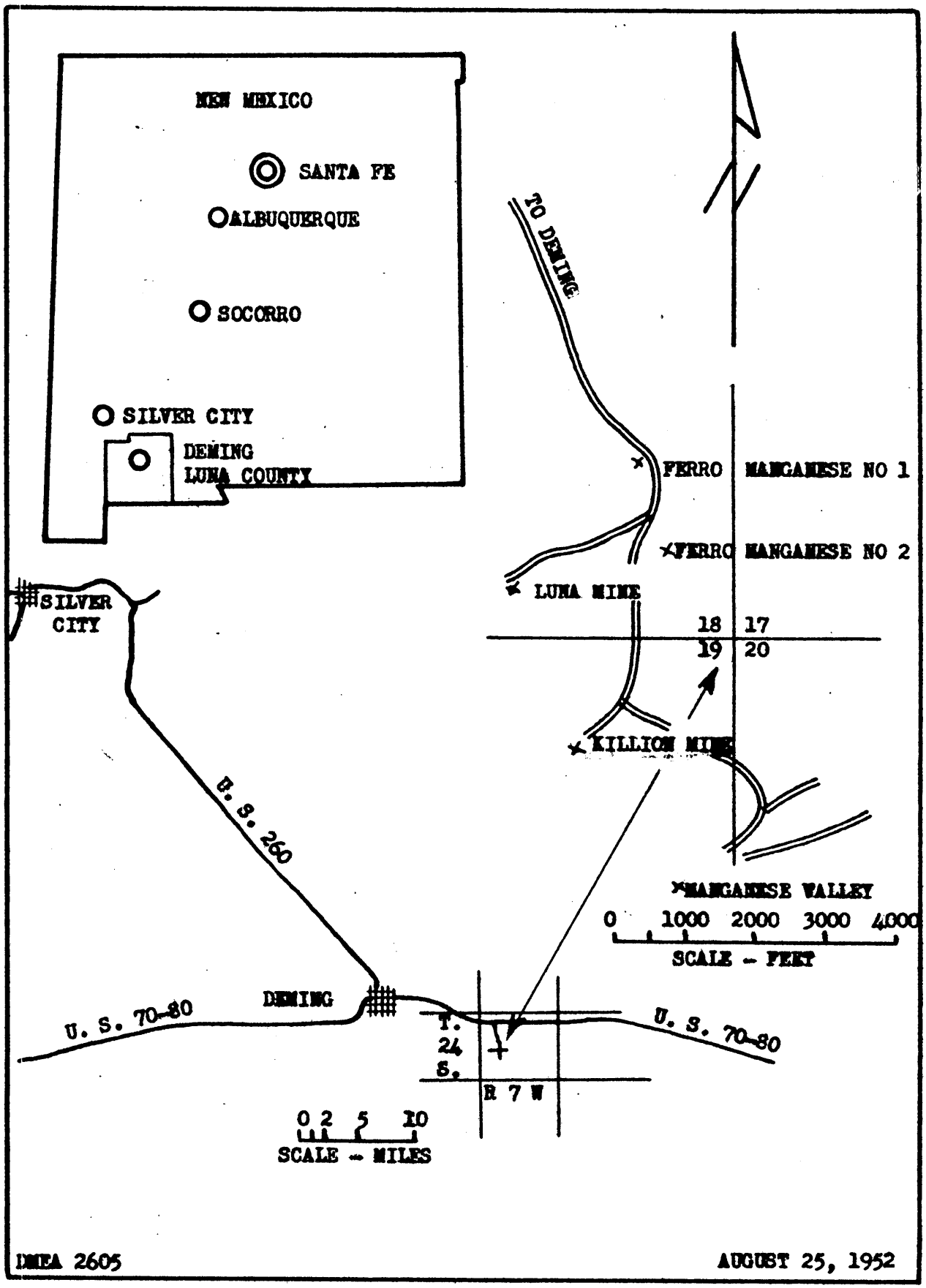

FIGURE 1. - LOCATION MAP, LITTLE FLORIDA MOUNTAINS MANGANESE DISTRICT, LUNA COUNTY, NEW MEXICO

Vegetation consists of grasses, cacti and various desert shrubs, none of which are suitable for mine timbers. The mean annual precipitation is about 9 inches, largely as summer thunder showers. Temperatures vary from below freezing in the winter to over 100 degrees in the summer. Extremely cold weather usually is not prolonged. The water table stands at an altitude of about 4,000 feet as indicated in the Luna shaft where a moderate flow was encountered.

HISTORY AND PRODUCTION

The first recorded claims on the manganese deposits were located in 1918. These later became the Manganese Valley property. A small mill was erected in 1923 but this operation was not successful. Work was stopped in 1931, most of the production being hand-sorted ore. About 1941 or 1942, the Newalpitt Corp. leased the property and produced considerable ore for the Government stockpile at Deming. No work has been done on this property since about 1944.

The Luna claims were located in 1923 and intermittent operations followed. A small mill was built on the property but this proved unsuccessful. In 1951, Lawrence Yacomo leased the mine, re-equipped it and shipped a little ore to a mill built in Deming by the Florida Mines, Inc. This operation now is idle.

E. B. Killion, probably in partnership with P. L. Gratton, located about 30 American claims. Some of these locations were made as early as 1925. Killion retains the first 8 American claims, so numbered. The Newalpitt Corp., when operating in the district, leased or

relocated these claims, crosscut to the Killion vein and did about 500 feet of drifting on the vein. Very little ore was mined.

The total district production is probably less than 30,000 tons of sorted ore and concentrates. The greatest part of this production was obtained from the Manganese Valley mine. Killion claims that 2,500 tons of ore was shipped from his claims but from the small extent of his mine workings and the remaining dumps, such a figure seems excessive. Available production records show that nearly 80 tons of manganese ore was shipped, which contained about 46 percent manganese. This production seems reasonable and all could have been mined from the area in which Killion desires Government aid.

OWNERSHIP AND EXTENT

The American claims Nos. 1 to 8, inclusive, are held by location by E. B. Killion of El Paso, Texas. The claims lie end to end and trend northeasterly from Number 1 to 8. The claims are not patented. The locations were made in 1925.

DESCRIPTION OF THE DEPOSIT 2/

The northeast slope of the Little Florida Mountains is underlain by fanglomerate having a known thickness greater than 1,000 feet. This formation is cut by numerous northerly trending vertical, or steeply dipping faults that are filled with manganese minerals associated with gouge and breccia. The manganese minerals are manganite,

2/ Faick, John N., Geologist, U. S. Geological Survey

psilomelane, pyrolusite, and wad that have been formed by oxidation of manganiferous calcite. The manganese oxides fill cavities in the breccia, replace pre-mineral gouge and breccia, or replace fragments in the fanglomerate. Locally the manganese minerals are sufficiently abundant to be of economic importance. Minable ore occurs in shoots that rake nearly parallel to the dip of the veins. There is no significant change in the character of the ore to about 500 feet, the greatest depth to which exploration has extended.

MINABLE ORE RESERVES

Measured and indicated ore reserves on the Killion property are very small. The most promising workings were sampled by the Bureau of Mines during the operation of Project 309 and the results reported on figure 10 of the Bureau of Mines Report of Investigations 4536. A. M. Evans, Mining Engineer in charge of the Bureau project, states in the confidential section of his report; "The Killion-Gratton No. 2 Tunnel was sampled and showed 16 percent manganese ore over a length of 75 feet, but its height above the tunnel was too small and its ore too spotty to estimate ore reserves".

Some ore may be inferred. Using Evans' sample results and applying a 15 percent grade cutoff with a 2.5 foot mining width cutoff the following results are derived. Although 75 feet of drift was sampled, an additional 70 feet from the portal outward was stoped, thus indicating a total length of the mineralized zone of 145 feet. Only 9 of the 18 samples met the cutoff requirements, so only one

half, or 72.5 feet of this zone contains minable ore. The average width of the ore samples is 4.2 feet and the average grade, computed on a weighted basis, is 21.5 percent manganese. As the samples were taken horizontally, the vertical distance of 300 feet was used for the depth of mineralized zone, this figure being the approximate difference between workings at the surface and the Newalpitt tunnel. Then 300 times 72.5 times 4.2 equals 91,350 cubic feet of minable ore. Applying a tonnage factor of 13.5, nearly 6,800 long tons of manganese ore containing 21.5 percent manganese could be inferred. No consideration was given to any vertical variation in grade of thicknesses below the cutoff limits which would only reduce the above tonnage estimates.

PRESENT STATUS

There is no work being done on the Killion property at this time. There is no equipment of any kind on the property, no rails, pipe, or other supplies.

The old mine workings consist of shallow drifts, shafts and trenches that explore the Killion vein for a strike length of nearly 400 feet. The Newalpitt adit, about 300 feet below the upper workings, explores the vein at depth for about 500 feet laterally. This adit portals on the adjoining property and was driven on this property for about half of its 220-foot length, Little or no ore was shipped and

the vein does not look encouraging. However, it lacks some 400 feet from being under the best surface exposures. The oreshoots in the district pitch almost parallel to the dip of the veins.

PROJECT PROPOSALS WITH COSTS

In the owner's application, he suggested extending the Newalpitt crosscut westerly an additional 100 feet to intersect the Killion vein, not realizing that the vein was intersected by the crosscut near the point where he wanted to start his work. In addition, an open fissure almost on line with the crosscut extends the crosscut nearly the distance planned to be driven by the applicant. Such work would be duplication and would be wasted. One minor point is that the portal is on other property and the necessary agreements would have to be executed before any work could be started. It is entirely possible that such agreements could not be obtained. The mine plant and waste dumps would be on this other property.

The applicant's estimated costs were about $10,000, which for 100 feet of drifting would indicate a unit cost of $100 per foot. This is exorbitant. Disallowing certain cost estimates for items such as legal services and secretarial work would lower the unit costs but little.

A possible exploratory project would be to extend the Newalpitt drift at least an additional 400 feet to the southwest. This would reach a point below the ore outcrops. There are two reasons why this is not feasible and both are economic. The first is that such a

project would cost not less than $17,500 which would include complete rehabilitation of the existing workings and the installation of a minimum mine plant on a rental basis. The applicant's share of the costs would be $4,375 which is beyond his financial resources. Killion stated to the examining team that he could afford up to a maximum of $1,000 as his share of a possible project.

The second reason for the unfeasibility of the possible project is based upon the following economic summary. As the inferred minable ore reserves contained 21.5 percent manganese, this material has a unit value of $23.05 (existing Wenden, Arizona stockpile prices applied to the Deming, New Mexico stockpile in lieu of recent Deming quotations). The royalty derived from this ore would be $1.15 per ton which when applied to the 6,800 tons of inferred ore totals $7,820. This amount is insufficient to repay the Government for its $13,125 share in the possible project.

CONCLUSIONS

The following conclusions were derived from an examination of E. B. Killion's American manganese prospect and from a study of available data existing in the files of the Bureau of Mines:

1. Based on Bureau of Mines sampling, measured and indicated ore reserves are very small. Maximum expectable minable inferred reserves are on the order of 6,800 long tons of ore containing 21.5 percent manganese.

2. The applicant's proposal is not feasible because extension of the crosscut could not locate the vein because it already has been intersected near the proposed starting point of the planned crosscut.

3. Possible exploration could be done by extending the Newalpitt drift at least 400 feet to the southwest. However, this work is not feasible because it would cost about $17,500 and the applicant is financially unable to contribute his share, or $4,375. The Government's share would be $13,125 while the maximum expectable royalties to pay this amount would be only $7,820.

RECOMMENDATIONS

Based upon the above conclusions, it is recommended that Docket DMEA 2605, application for Government aid in exploring E. B. Killion's American manganese claims, be denied.

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

~~XXXXXXXXXXXXXXX~~
Joplin, Missouri
June 30, 1952

JUL 2 - 1952

Mr. E. B. Killion
2705 N. Kansas Street
El Paso, Texas

Dear Mr. Killion:

I have received your letter of June 24, 1952 together with four filled-out copies of DMEA application form MF-103 and attachments and I have also received the sack of samples you sent.

In sending these things to me, you followed the instructions given you in the letter dated May 23, 1952 from Fred W. Murkland. Doubtless in replying to you Mr. Murkland had your Texas address only and therefore referred you to this office. However, the manganese deposit concerned is in New Mexico and therefore falls within the jurisdiction of the Region IV office at Denver, Colorado.

I am therefore forwarding to the Denver office all the documents and samples you sent me. I trust you will hear from them soon.

Sincerely yours,

David Gallagher
Executive Officer
DMEA Field Team, Region VI

/jd

cc: Operating Committee, DMEA
DMEA, Denver, Colorado

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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

Not to be filled in by applicant

Docket No. DMEA-2605
Metal or Mineral
Date Received 7-7-52
Estimated Cost
Participation (Government %)

INSTRUCTIONS

E. B. Killion

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: E. B. Killion, 2705 North Kansas Street, El Paso, Texas

(*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. Sole owner, E. B. Killion

(*c*) If a corporation, add to above statement, titles, names and addresses of officers. Sole owner, E. B. Killion

(*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. General

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 American # 1. Book 6, P. 297-8. Am. # 2. B-6 P-298. AM. # 3. B-6-P-299. AM. # 4. B-6-P-299-300. AM. # 5. B-6-P-301. AM. # 6. B-6-P-301. Am. # 7. B-6-P-302. Am. # 8. B-6-P-302 & 303. All in sections 18 & 19, Township 24-South Range 7 West. Luna County, State of N. Mexico

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

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

(*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 None

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. Refer to paragraph 3 - (a) above.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 7 - 1952

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. Open cut 50' long, 20' deep 8' wide on outcropping.

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades. Refer to engineers report enclosed.

(*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. Refer to Mn. deposits, little Florida Mts. Luna County, New Mexico. Geological Survey Bul. #922-C, 1940-enclosed.

(*d*) State the facts with respect to the accessibility of the project. Access roads, distances to shipping, supply and residence points. Eleven miles. 2-miles graveled, 9 miles paved. Tunnel portal To Gov't. Mn. stock pile at Deming New Mexico.

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power. Shipping and all supplies, Deming, Eleven Miles. See separate sheet.

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore High grade Manganese ores (see separate sheet)

(*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. Refer to separate sheet. Also photographs

(*c*) The work will start within ..... days and be completed within ..... months from the date of an exploration project contract. On or before 30 days. Completion on or before 90 days. See separate sheet

(*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. Refer to separate for all details.

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.). Refer to separate sheet for costs details.

(*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. Refer to separate sheet. Contract work on 100 lineal ft. X-Cut tunnel @ $33.00 per ft.

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

(*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. Itemized on separate sheet.

(*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. None on buildings, see separate sheet.

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

(*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. All insurance and taxes by Contractor

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

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)? Yes

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

☐ Money ☐ 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 June 24, 1952

E. B. Killion E. B. Killion
(Applicant)

By .....

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

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

Refer to-Sec. 7. DMEA-No.1.
Money and equipment as follows.-

Portable light plant	value	$500.00
(Formerly Gov.) ½ ton pickup	"	600.00

6-24-52

E. B. Killion