DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
3/1	Hopkins	400
3/1	Martin	400
3/1	Selfridge	130
"	Johnson	110
"	Mittendorf	100
3/4	C	220
		225

MAR - 1 1957

South River Mining Company, Inc.
1732 Bankers Securities Building
Philadelphia 7, Pennsylvania

Re: Docket No. DMEA-1536 - Manganese
Vesuvius Mine
Augusta County, Virginia

Lamb
Nelson

Gentlemen:

Your application for aid for an exploration project and other data available to us in Washington concerning the above referenced property have been reviewed.

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

Careful study of all our information, although noting the occurrence of manganese ores on your property, indicates to us that the probability of disclosing minable ore reserves is not sufficiently promising to justify Government participation. Under these circumstances we regret to advise you that your application is denied.

Our denial, however, is made without prejudice to the property. If the proposed geological study of your property should indicate favorable areas for finding ore, and a feasible exploration program can be developed, we would be glad to consider a revised application for exploration assistance. The revised application should refer to the present docket and contain all the necessary supporting data required by Form MF-103.

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

Sincerely yours,

C. O. Mittendorf (for)

Administrator

Messrs. Gilbert DeHuff, Jr., USBM
T. H. Kilgaard, USBM

Hopkins:mm 3/1/57
Copy to: Docket
Code 400
Admr. R. File
Operating Committee
Field Team, Region V

8623

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
2/25	Hopkins	400
2/25	Martin	400
		130
		110
		100
		220

South River Mining Company, Inc.
1732 Bankers Securities Building
Philadelphia 7, Pennsylvania

Re: Docket No. DMEA 4536 - Manganese
Vesuvius mine
Augusta County, Virginia

Lamb
Nelson

Gentlemen:

Your application for aid for an exploration project and other data available to us in Washington concerning the above referenced property have been reviewed.

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

Careful study of all our information, although noting the occurrence of manganese ores on your property, indicates to us that the probability of disclosing minable ore reserves is not sufficiently promising to justify Government participation. Under these circumstances we regret to advise you that your application is denied.

Our denial, however, is made without prejudice to the property. [If at some future date additional work on the property discloses significant geological information which might alter our opinion, we shall be glad to consider a revised application for exploration assistance.] The revised application should refer to the present docket and contain all the necessary supporting data required by Form MF-103.

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

JHopkins:foc 2/25/57
cc to: Docket
Code 400
Admr. Read. File
Oper. Comm.
FT. REG. V
Messrs. Gilbert DeHuff, Jr., USBM
T. H. Kiilsgaard, USGS

Sincerely yours,

Administrator

8623

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C. 400

FEB 27 1957

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

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

Subject: Denial of application for exploration assistance

Docket No. DMEA-4536 - Manganese
South River Mining Company, Inc.
Vesuvius Mine
Augusta County, Virginia

Denial of the subject application is recommended by this Division on the basis of the following information:

South River Mining Company, Inc., the lessee of the above-mentioned property, made an application for exploration assistance, dated October 31, 1956. The property was examined on December 12 and 13, 1956 by an examining team consisting of H. L. Burmeister, U. S. Bureau of Mines and W. P. Williams, U. S. Geological Survey.

Applicant:

South River Mining Company, Inc.
1732 Bankers Securities Building
Philadelphia, Pennsylvania

Property and Ownership:

The property consists of approximately 350 acres in Augusta County, Virginia and is owned by Marcia Wilcox Farley et al.

Geology:

The geologic formations in the vicinity of the mine consist of the Antietam quartzite overlain by the Tomstown dolomite, both of lower Cambrian age. Locally they are covered with Tertiary gravel and clay.

The weathered dolomite-host of the manganese ores is composed of soft, finely laminated clay and ocher with some red and white layers and scattered chert fragments.

Ore minerals are psilomelane, manganite, pyrolusite and wad. Psilomelane may be found as rounded, botryoidal masses. All but wad may be found as small, rounded pellets or nodules.

The structure is monoclinal with the rocks dipping northwest. In the vicinity of the Vesuvius Mine, a synclinal fold has been superimposed upon the monoclinal structure. Formations in the fold are essentially vertical or possibly overturned. Because of the folding, the ore deposits might be expected to be aligned more or less along a northeasterly trend.

Development:

Ore has been obtained from three pits or trenches. Pit No. 1 is approximately 600 feet long by 300 feet wide and 70 feet deep. Pits No. 2 and 3 combined are calculated to show removal of a minimum of 3,600 cu. yds. in actual mining.

History and Production:

No accessible underground mine workings exist on the property today. Extensive underground openings were last worked in 1908 when 16 carloads of manganese ore of unknown grade were shipped.

Production by the present operators to the end of November, 1956, totalled 21 cars - nineteen cars were sold to GSA and two were sold privately. A recent letter from the Company stated that seven additional cars were shipped in January, 1957.

Proposed Work:

The operator proposed sinking "bucket" holes to explore for additional ore bodies. This work is to be supplemented by bull dozer trench, about 25 feet from, but parallel to the present No. 1 Pit. The trench is to be 1,000' long by 50-100 feet wide. No depth is given.

Ore Values and Reserves:

The examiners estimate Pit No. 1 to contain 300 to 500 tons of manganese concentrate, with none in Pit No. 2 and only a few tons in Pit No. 3.

Comments:

The examiners conclude that a project would have a poor chance of making a worthwhile discovery. They therefore recommend denial.

The Field Team concurs in the recommendation.

The Commodity Division of the Geological Survey and Bureau of Mines also concur.

This Division concurs in the conclusions, but recommends denial without prejudice, as it is felt that additional work by the operator might find a suitable target along the northeasterly synclinal trend.

W S Martin

W. S. Martin, Chief
Ferro-Alloys Division

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
2/26	Hopkins	400
2/26	Martin	400
		140

400

FEB 27 1957

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

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

Subject: Denial of application for exploration assistance

Docket No. DMEA-4536 - Manganese
South River Mining Company, Inc.
Vesuvius Mine
Augusta County, Virginia

Denial of the subject application is recommended by this Division on the basis of the following information:

South River Mining Company, Inc., the lessee of the above-mentioned property, made an application for exploration assistance, dated October 31, 1956. The property was examined on December 12 and 13, 1956 by an examining team consisting of H. I. Burmeister, U. S. Bureau of Mines and W. P. Williams, U. S. Geological Survey.

Applicant:

South River Mining Company, Inc.
1732 Bankers Securities Building
Philadelphia, Pennsylvania

Property and Ownership:

The property consists of approximately 350 acres in Augusta County, Virginia and is owned by Marcia Wilcox Farley et al.

Geology:

The geologic formations in the vicinity of the mine consist of the Antietam quartzite overlain by the Tomstown dolomite, both of lower Cambrian age. Locally they are covered with Tertiary gravel and clay.

The weathered dolomite-host of the manganese ores is composed of soft, finely laminated clay and ocher with some red and white layers and scattered chert fragments.

8623

Ore minerals are psilomelane, manganite, pyrolusite and wad. Psilomelane may be found as rounded, botryoidal masses. All but wad may be found as small, rounded pellets or nodules.

The structure is monoclinal with the rocks dipping northwest. In the vicinity of the Vesuvius Mine, a synclinal fold has been superimposed upon the monoclinal structure. Formations in the fold are essentially vertical or possibly overturned. Because of the folding, the ore deposits might be expected to be aligned more or less along a northeasterly trend.

Development:

Ore has been obtained from three pits or trenches. Pit No. 1 is approximately 600 feet long by 300 feet wide and 70 feet deep. Pits No. 2 and 3 combined are calculated to show removal of a minimum of 3,600 cu. yds. in actual mining.

History and Production:

No accessible underground mine workings exist on the property today. Extensive underground openings were last worked in 1908 when 16 carloads of manganese ore of unknown grade were shipped.

Production by the present operators to the end of November, 1956, totalled 21 cars - nineteen cars were sold to GSA and two were sold privately. A recent letter from the Company stated that seven additional cars were shipped in January, 1957.

Proposed Work:

The operator proposed sinking "bucket" holes to explore for additional ore bodies. This work is to be supplemented by bull dozer trench, about 25 feet from, but parallel to the present No. 1 Pit. The trench is to be 1,000' long by 50-100 feet wide. No depth is given.

Ore Values and Reserves:

The examiners estimate Pit No. 1 to contain 300 to 500 tons of manganese concentrate, with none in Pit No. 2 and only a few tons in Pit No. 3.

Comments:

The examiners conclude that a project would have a poor chance of making a worthwhile discovery. They therefore recommend denial.

The Field Team concurs in the recommendation.

The Commodity Division of the Geological Survey and Bureau of Mines also concur.

This Division concurs in the conclusions, but recommends denial without prejudice, as it is felt that additional work by the operator might find a suitable target along the northeasterly synclinal trend.

W. S. Martin

W. S. Martin, Chief
Ferro-Alloys Division

JHopkins:ms 2/26/57
Copy to: Docket
Code 400
Admr. R. File
Operating Committee

OFFICIAL FILE COPY
DMEA
RECEIVED FEB 14 1957

DATE	INITIALS	CODE
2-14	C	220
2/14	WSM	400

IN REPLY REFER TO:

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

February 13, 1957
Re: DMEA 4536
South River Mining Company, Inc.
Vesuvius Mine
Augusta County, Virginia
$20,438.00 - Manganese

Memorandum

To: W. S. Martin, Defense Minerals Exploration Administration

From: N. E. Nelson, U. S. Geological Survey

Subject: Review of Field Team Report.

The applicant requested assistance in exploring for manganese in an old mine from which 21 carloads of shippable concentrate was produced recently. This does not include 7 carloads shipped in January '57. The ore came largely from No. 1 Pit and consisted of cleanup material, left from underground and opencut mining.

In the opinion of the examiners the ore in No. 1 Pit had been exhausted except for perhaps 300 to 500 tons as of mid December 1956. Pits No. 2 and 3 were estimated to contain only a few tons of recoverable manganese ore.

The manganese minerals are found in residual clay, the breakdown product of Tomstown manganiferous dolomite. The principal minerals are psilomelane, manganite and wad. Some pyrolusite is present locally. The depth of the 'breakdown' varies and with it the depth of the ore. Apparently the bottom of the ore at No. 1 pit has been rather well determined by the underground work and the work in the pit. Prospecting by 'bucket' drilling, 5 holes, appears to have located no new deposits in the No. 1 area. The Wilbur A. Nelson, 1955, report says the 38 holes in the No. 2 area indicate the ore bearing clay is 10 feet thick and contains 4,000 tons of lump ore and 4,000 tons of shot ore. Of this work the examiners say "Apparently the results of the drilling are completely obscure because upon inquiry the applicant disclosed that subsequent trenching over supposed "ore" holes disclosed no ore whatsoever. Whether the cause was faulty sampling techniques or other reasons could not be determined. The important effect is that none of the previous drilling appears to be of use in evaluating the property. Many of the holes have since been filled in. None of the open holes that were examined showed manganese minerals."

The same reporter estimated the tonnage at Area No. 1 as 1,417 tons and at Area No. 3 at 3,472 tons.

In the opinion of the examiners the "lack of ore guides makes spotting of drill holes a random, arbitrary process. Under the present conditions the only exploration program that seems at all applicable would be a project of random surface stripping and drilling along the northeasterly-striking trend line between mineral occurrences. On the basis of what has been disclosed by the very considerable amount of stripping the applicant has completed, it appears that such a project would have a poor chance of making a worthwhile discovery. Under the present conditions it is recommended that this application be denied. Further work on the part of the applicant, or their submittal of a new, specific exploration program would possibly be cause for re-evaluation."

I concur with the recommendation of the examiners and the Field Team.

N. E. Nelson

N. E. Nelson

OFFICIAL FILE COPY DMEA RECEIVED FEB 13 1957		
DATE	INITIALS	CODE
2/13	C	220
2/13	WSM	400

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

Date February 12, 1957

DMEA Docket No. 4536
DMEA Contract No.
Commodity Mm
Name of applicant South River Mining Co., Inc.
Name of property Vesuvius Mine
Location of property Augusta County, Virginia
Estimated cost of project $20,438

Memorandum

To: W. S. Martin, DMEA

From: G. L. DeHuff, Jr. Commodity Specialist, Branch of Ferrous Metals and Ferroalloys

Subject: Review of Field Team Report
(Application, Field Team Report, etc.)

1. Date of subject document: 1/25/57. 2. Date received by reviewer: 2/1/57.

3. Prior reports on this property known to reviewer: Yes [X] No [ ]

4. Prior reports on nearby properties known to reviewer: Yes [X] No [ ]

5. Information available on past production: Yes [X] No [ ]

6. Other pertinent factors known to reviewer: Yes [ ] No [ ]

7. Explain items marked yes above: See my 11/21/56 memorandum.

8. Factors needing special consideration:
   a. Location [ ]
   b. Ownership [ ]
   c. Evidence of mineralization [ ]
   d. Geology [ ]
   e. Proposed exploration method [ ]
   f. Alternate exploration method [ ]
   g. Costs [ ]
   h. _____ [ ]

9. Action advised:
   a. Obtain information from applicant [ ]
   b. Refer to Field Team [ ]
   c. Denial [X]
   d. Agree with Field Team [ ]
   e. Disagree with Field Team [ ]
   f. Suggest alternate plan [ ]
   g. Request another examination [ ]
   h. Approval [ ]
   i. Consult with Mr. _____ at _____ AEC office.

10. Remarks: (Use back of page if necessary)

It is noted from the Field Examination Report, that applicant is hiring a full time geologist to study the mine and lay out a feasible exploration program, regardless of DMEA's action on the subject application. It is recommended that the present application be denied and that applicant be advised that a new application would be given careful consideration at a later date, if it contains a specific exploration program, well supported by data to show that the proposed work is exploration and not prospecting.

G L DeHuff Jr.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D.C.
ROOM 1310 FOB BLDG.
KNOXVILLE 2, TENN.

RECEIVED JAN 28 1957 D.M.E.A.

January 25, 1957

Memorandum

To: Operating Committee, DMEA, Washington, D. C.

From: Field Team, DMEA, Region V, Knoxville, Tennessee

Subject: Field Examination Report, DMEA-4536 - (Manganese)
South River Mining Company, Inc.
Vesuvius Mine, Augusta County, Virginia

Enclosed are four copies of the subject report. We agree with the field examiners' recommendation for denial.

Robert A. Laurence
Robert A. Laurence
Executive Officer

V. J. Lynch
Member, Bureau of Mines

Enclosures 4

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DMEA
RECEIVED JAN 28 1957

DATE	INITIALS	CODE
1-28	C	220
		130
2-4	C	220
2/9	WSM	400

Reviewed by
DMEA OPERATING COMMITTEE
2-1-57
(date)

Field Team's Report on Examination of Property

by

W. P. Williams and H. L. Burmeister[1/]

RECEIVED
JAN 28 1957
D.M.E.A.

Docket No. DMEA 4536 (manganese)
South River Mining Co., Inc.
1732 Bankers Securities Building,
Philadelphia 7, Pennsylvania
Vesuvius Mine, Augusta County, Virginia

Introduction and Summary

The South River Mining Company has applied to the Defense Minerals Exploration Administration, DMEA-4536, for assistance in exploring for manganese ore deposits. The property involved consists of a 350-acre tract which is the site of the old Vesuvius mine, Augusta County, Virginia.

The field examination was conducted on December 12, 13, 1956, by an examining team consisting of H. L. Burmeister, U.S.Bureau of Mines, and W. P. Williams, U.S.Geological Survey. The examining team was accompanied by R. C. Spurgeon, president of the applicant company, who is actively in charge of overall operations, and J. Cash, applicant's employee.

This property formerly worked as the Vesuvius mine, is held under lease. At the time of examination a small diesel shovel was operating in pit No. 1 but no ore was being produced and the mill was not operating. It is probable that very little additional ore will be recovered from existing workings.

Conclusions and Recommendations

The Vesuvius mine, now leased and operated by South River Mining Company, has every appearance of a mine that has "run out of ore". Furthermore, the operator is at a loss as to where to obtain, or even to search, for more ore.

1/ W. P. Williams, geologist, U.S.Geological Survey
H. L. Burmeister, engineer, U.S.Bureau of Mines

Reviewed by
DMEA OPERATING COMMITTEE
2-1-57
(date)

Although the recent production of some 21 carloads of shippable concentrate may seem impressive, it must be remembered that 16 carloads were obtained from pit No. 1 from the site of the old underground workings. U.S. Geological Survey Bulletin 940-F states (p.194)" ... approximately 16 carloads of available manganese concentrates of good grade remains (in the underground workings)." The conclusion is all but inescapable that the present operator has nearly exhausted the ore body which was worked years ago by underground methods.

With the exception of the once fairly large ore body in pit No.1, the small scattered pods and lenses of ore, as shown by the applicant's trenching, do not lend themselves well to normal exploration methods. Lack of ore guides makes spotting of drill holes a random, arbitrary process. Under the present conditions the only exploration program that seems at all applicable would be a project of random surface stripping and drilling along the northeasterly-striking trend line between mineral occurrences. On the basis of what has been disclosed by the very considerable amount of stripping the applicant has completed, it appears that such a project would have a poor chance of making a worthwhile discovery. Under the present conditions it is recommended that this application be denied. Further work on the part of the applicant, or their submittal of a new, specific exploration program would possibly be cause for re-evaluation.

Location of Property

This property, known as the Vesuvius mine, is located in Augusta County, Va. at 79°10'30" west longitude, 37°55' north latitude, and is just north of the Augusta county, Rockbridge county line. The mine is reached from the village of Steeles Tavern on Rt. 11, by proceeding southeasterly on Rt. 56 for a distance of 1.0 mile to a church and a gravel road entering

Rt. 56 from the northeast. Follow the gravel road a distance of 0.8 mile, at which point turn right or southwesterly on another gravel road and continue for 0.7 mile to the private mine road on the left or north, Fig. 1. All roads between the mine and Steeles Tavern are blacktop or graveled and are all-year roads. The railroad shipping point is approximately 0.7 mile from the mill.

Competency of Applicant

Mr. Richard C. Spurgeon, president of the company and also in charge of mining and milling operations, states that he has explored for manganese over a period of four years. The manner in which the available manganese ore has been mined does not reflect a great deal of experience in operation. The heavy media mill is well equipped and appears to be efficiently operated under the direct supervision of Mr. Spurgeon's son.

The report made in May 1955 by Wilbur A. Nelson, consulting geologist, makes no recommendations for exploration nor does the application contain the map referred to in the report as locating test holes.

Financial responsibility of the applicant was not investigated but it is evident that a large sum has been spent on plant and equipment.

Applicant's Property Rights

The property concerned consists of about 350 acres, on which the mineral rights are owned by Marcia Wilcox Farley who, on March 4, 1955, leased these rights to Richard C. Spurgeon. The minimum term of lease terminates on Sept. 30, 1957, after which it may be terminated by 30 days' notice if the Lessee has not engaged in mining. If mining is carried on the lease remains in effect so long as royalties are paid and mineral is profitably mined each succeeding one-year term. The applicant's letter of transmittal covering submittal of the application, states that the lease

has been transferred to the South River Mining Co. Inc. and that copies of the transfer accompany the application. No transfer of lease is found in the examiner's copy of the application. Mr. Richard C. Spurgeon informed the examiners that his assignment of lease and executed copies of "Consent to Lien" had been submitted just previous to the date of this examination. Mr. Spurgeon also stated that there are no liens or mortgages on the property.

Description of Property

Mining and milling operations are on a hillside and scattered over an estimated area of about 40 acres as indicated in Fig. 1. In the course of present operations, a large percentage of this area has been bulldozed or subjected to the operation of carryalls. Some of the trenches have been made to get fill material for mill ore bin truck approach or mining trench approach, some for exploration and the main ones (Fig.2) in mining.

The mill employs the heavy media method of concentration and also a dry magnetic separator which removes the limonite which occurs in the ore. Mr. Spurgeon states that when the ratio of manganese mineral to total waste is approximately 1 to 12, the mill will process 40 tons of crude ore per hour. Rolls, log washers and vibratory screens prepare the feed for the heavy media section. Mill power is drawn from high voltage lines.

Ore has been obtained from three pits or trenches which have been roughly mapped by the examiners, Fig. 2, as no plan of the workings or working area was available. Pit No. 1 is by far the largest, it being partially benched and irregular in both width and depth, but attaining a maximum length of 300 feet and in the ore zone a depth of about 70 feet. It is calculated that about 14,800 cu.yds. of material have been removed from pit No.1, from which was recovered 800 tons of manganese concentrate. On this basis a minimum

of 30 to 32 tons of material were excavated to produce 1 ton of concentrates. Pits No. 2 and No. 3 combined are calculated to show removal of a minimum of 3,600 cu.yds. of material in actual mining. These two pits are credited with producing a combined maximum of 250 tons of concentrate. The ratio of tons of material excavated in these two pits, to tons of concentrates recovered, is 24 to 1. These combined data indicate that a maximum of 3.55 percent of material removed in direct mining operations consists of manganese concentrate.

Considering the average grade of concentrate sold during this operation a gross income of approximately $215,000 is indicated. This is not so good when consideration is given to the cost of new mill plant and equipment and the fact that the company has purchased 2 D-8 Caterpillar tractors, 1 nine cu.yd. and 1 thirteen cu.yd. carryall, rent a crawler-mounted diesel shovel at $15.00 per hour, and rent trucks for transporting ore and waste.

No accessible underground mine workings exist on the property today. Extensive underground openings were last worked in 1908, when 16 carloads of manganese ore was shipped.2/ Some of the underground workings have now been dug into during the course of excavating the large open cut No.1,fig.3.

Geology and Ore Reserves

The Vesuvius mine is located at the western foot of the Blue Ridge in the Appalachian Valley physiographic province.

The geologic formations in the vicinity of the mine consist of the Antietam (Erwin) quartzite overlain by the Tomstown (Shady) dolomite.Both are of ~~pre~~ lower-Cambrian age. Tertiary gravel and clay locally cover the rocks.

The Antietam quartzite is a massive white quartzite which outcrops on many of the prominent ridges and forms much of the western foothills of the Blue Ridge. The Antietam does not outcrop on the subject property but it does form the shoulder of the ridge just east of the property.

2/ Knechtel, M.M., Manganese Deposits of the Lyndhurst-Vesuvius District, Augusta & Rockbridge counties,Virginia.U.S.Geol.Sur.Bull.940-F, 1943

There the rock consists of buff to nearly white massive quartzite with some relatively minor dark gray, thin-bedded sandstone.

The Tomstown dolomite is composed largely of blue-gray to dark-gray, coarse-grained massive dolomite. In the vicinity of the property the dolomite is so deeply weathered that outcrops of fresh rock are practically non-existent. No fresh outcrops of the Tomstown were noted on the property. Except where stripped the surface is everywhere covered with underbrush, scrub pine and surface debris.

The weathered dolomite on the property is composed of soft, finely laminated yellow clay and ocher with some red and white layers and scattered chert fragments. Locally there may be found in the clay, masses of cavernous ferruginous chert breccia containing quartz druses in some of the cavities.

The structure of the rocks in the region containing the Vesuvius mine is monoclinal, with the rocks dipping generally to the northwest and striking northeast. In the immediate vicinity of the property a synclinal fold has been superimposed upon the monoclinal structure. The synclinal folding is of such magnitude that the geologic formations are essentially vertical or possibly slightly overturned. Because of this pronounced structure the ore deposits at Vesuvius mine might be expected to be aligned more or less along a northeasterly trend.

The ore minerals on the property are psilomelane (H_4MnO_5), manganite ($Mn_2O_3 \cdot H_2O$), and wad. Some pyrolusite ($MnO_2 \cdot H_2O$) is locally present. Psilomelane may be found as rounded, botryoidal masses. All but wad may be found as small, rounded pellets or nodules.

Present Status of Property

The present lessee has "opened up" the property by excavating three large open pits with heavy, earth-moving equipment. Pit No. 1, the largest, is about 600 feet long, 200 feet wide, and about 100 feet deep.

Typical residual Tomstown clay is exposed throughout the pit. The best show of ore on the whole property exists in this pit at a point that coincides with the position of the old underground workings. At this point lenses and pods of dark brown clay containing small manganese nodules and wad are found. The aggregate width of the mineralized zone is about 35 feet with a height of about 20 feet, fig. 3. The ratio of wad to ore nodules is so great as to allow an estimate of only perhaps 300 to 500 tons of recoverable manganese ore in sight in pit No. 1.

Pit No. 2 consists of two long intersecting trenches cut with bulldozer and carry-all (Tournapull), fig. 2. Typical Tomstown clay is infused locally with black manganese wad. Manganese pellets and nodules were very sparse. As a result no recoverable tonnage of ore can be credited to pit No. 2 at this time.

Pit No. 3, fig. 2, consists of a relatively small excavation that is about 20-30 feet higher in elevation than either of pits 1 and 2. At this pit small lenses of manganiferous material are found in yellow and reddish brown clay. One main lens is 15 to 20 feet wide and 2 feet thick. Much of the material in this lens is red manganiferous hematite. Another lens a few feet away is composed of wad and "shot" ore. This lens is 2 to 3 feet thick and 5 feet wide. The total amount of manganiferous material exposed in the pit would amount to only a few tons; and much of it is manganiferous hematite.

At the time of the field examination trenching operations were being carried on at pit No. 1. An attempt was being made to obtain some ore from pit No. 1. The mill was not in operation.

In addition to the trenching described above the applicant states the property has been explored by some 43 caisson, or "bucket" drill holes. Apparently the results of the drilling are completely obscure because upon inquiry the applicant disclosed that subsequent trenching over supposed "ore" holes disclosed no ore whatsoever. Whether the cause was faulty sampling techniques or other reasons could not be determined. The important effect is that none of the previous drilling appears to be of use in evaluating the property. Many of the holes have since been filled in. None of the open holes that were examined showed manganese minerals.

Production and Ore Reserves

The poor showings of manganese ore in pits Nos. 1 and 3 allow an estimate of only a few hundred tons of ore in sight. A few tens of tons more might be inferred.

South River Mining Company records show the following production record during the second half of 1956. As far as is known this represents all of the production of South River Mining Company to date. The values were taken from General Service Administration bills of lading.

Manganese concentrates -- South River Mining Co.

Car-load	Long dry tons	Date accepted	Date shipped
1	9.[illegible] 62,900 (lb.)	6/5/56	5/31/56
2	58.605	6/25/56	6/14/56
3	42.750	8/30/56	8/20/56
4	57.465	9/13/56	8/30/56
5	45.363	9/18/56	9/5/56
6	58.959	9/21/56	9/10/56
7	58.019	9/24/56	9/12/56
8	64.507	9/24/56	9/14/56
9	63.998	10/22/56	9/18/56
10) 11)	102.167	10/22/56	9/24/56 9/27/56
12	41.486	10/22/56	10/2/56
13	48.149	10/31/56	10/10/56
14	64.422	10/26/56	10/15/56
15	65.265	10/30/56	10/18/56
16	59.813	11/2/56	10/22/56
17) 18) 19)	158.876	11/19/56	11/1/56 11/9/56
19A*	45.676		11/20/56
19B*	62.160		11/29/56
	1126.070		

* Sold privately

The following indicate the grade and specifications of ore from the South River Mining Company property:

Assay by Andrew S. McCreath and Son
Harrisburg, Pennsylvania, 6/18/56

Moisture	3.36 percent
Mn	49.32 "
Fe	6.20 "
$SiO_2+Al_2O_3$	8.25 "
P	0.272 "
Cu+Pb+Zn	0.28 "
Cu	0.04 "

Assay taken from GSA Bill of Lading, 11/19/56

LDT	158.876
Mn	41.17 percent
Fe	8.20 "
$SiO_2+Al_2O_3$	14.33 "
P	0.116 "
Cu+Pb+Zn	0.26 "

The applicant stated that 16 carloads of the shipped product had come from pit No.1

Availability of Manpower, Supplies, etc.

Labor is plentiful in the area and good men may be employed as laborers at $1.25 per hour. A creek near the mill is more than adequate to supply the present operations and a high voltage line serves the mill. Most service could be secured in Staunton or Charlottesville and supplies can be trucked over good roads or hauled by railroad to a nearby siding.

Applicant's Exploration Proposal

The applicant proposed to explore by trenching and large diameter drilling. No specific proposals were made as to where or how much work was to be done. No concrete exploration program was advanced and no maps furnished.

At the time of field examination the applicant verbally proposed that the surface be stripped at more or less indiscriminate locations, then put down bucket drill holes where the stripped surface looked promising. Such an indecisive program does not seem suited for DMEA purposes.

The applicant stated that he was hiring a full time geologist whose duties would consist of studying the Vesuvius mine and of arriving at a feasible exploration program. The applicant stated that the work had been contemplated for company purposes only but that they would perhaps like to submit their exploration plans to DMEA at a later date as a supplement to their original application.

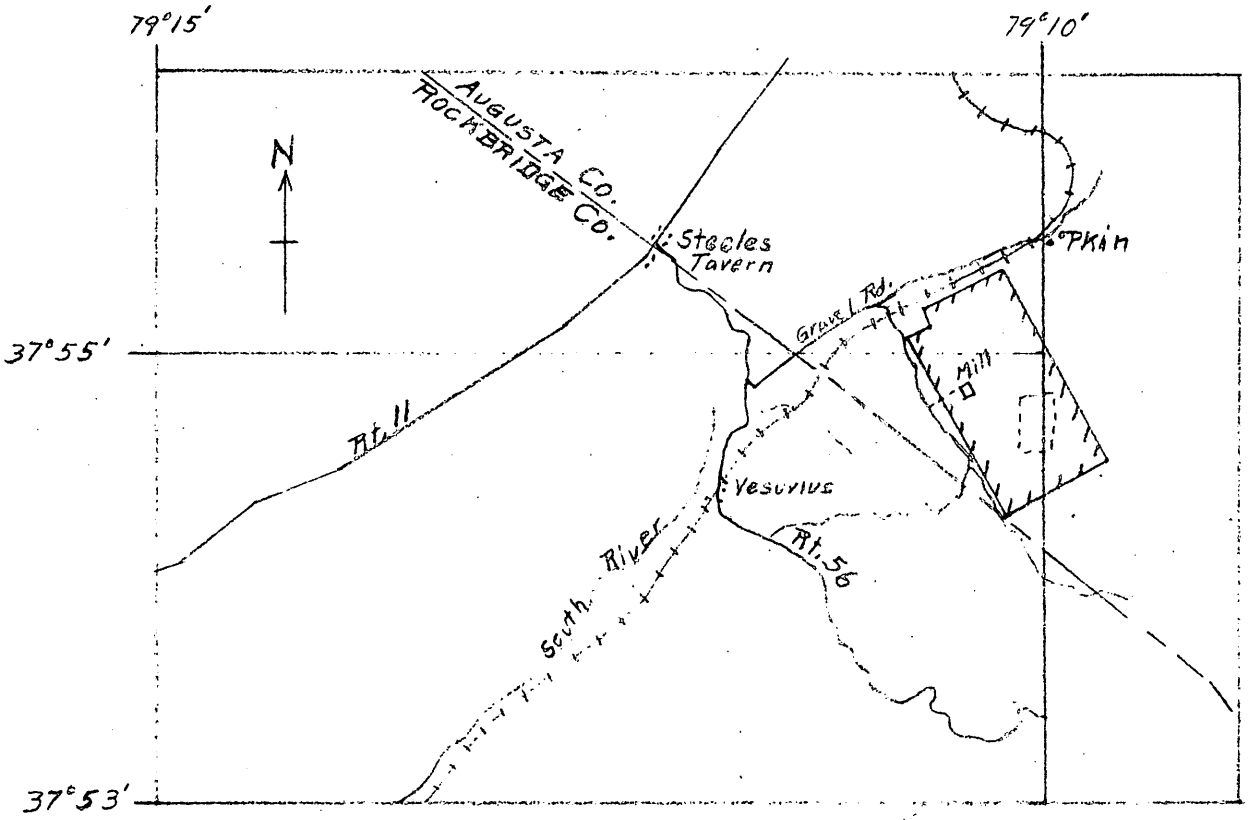
Costs as estimated by the applicant were more than adequate but not detailed. The bulldozer to be rented is owned by the operator. Proposed costs for supervision and consultant fees are not realistic. No alternate proposal is offered as any which might be suggested would embrace prospecting whath is probably a spotty deposit.

H. L. Burmeister, engineer
U. S. Bureau of Mines

W. P. Williams, geologist
U. S. Geological Survey

January 14, 1957

RECEIVED
JAN 28 1957
D.M.E.A.



Co. Lease

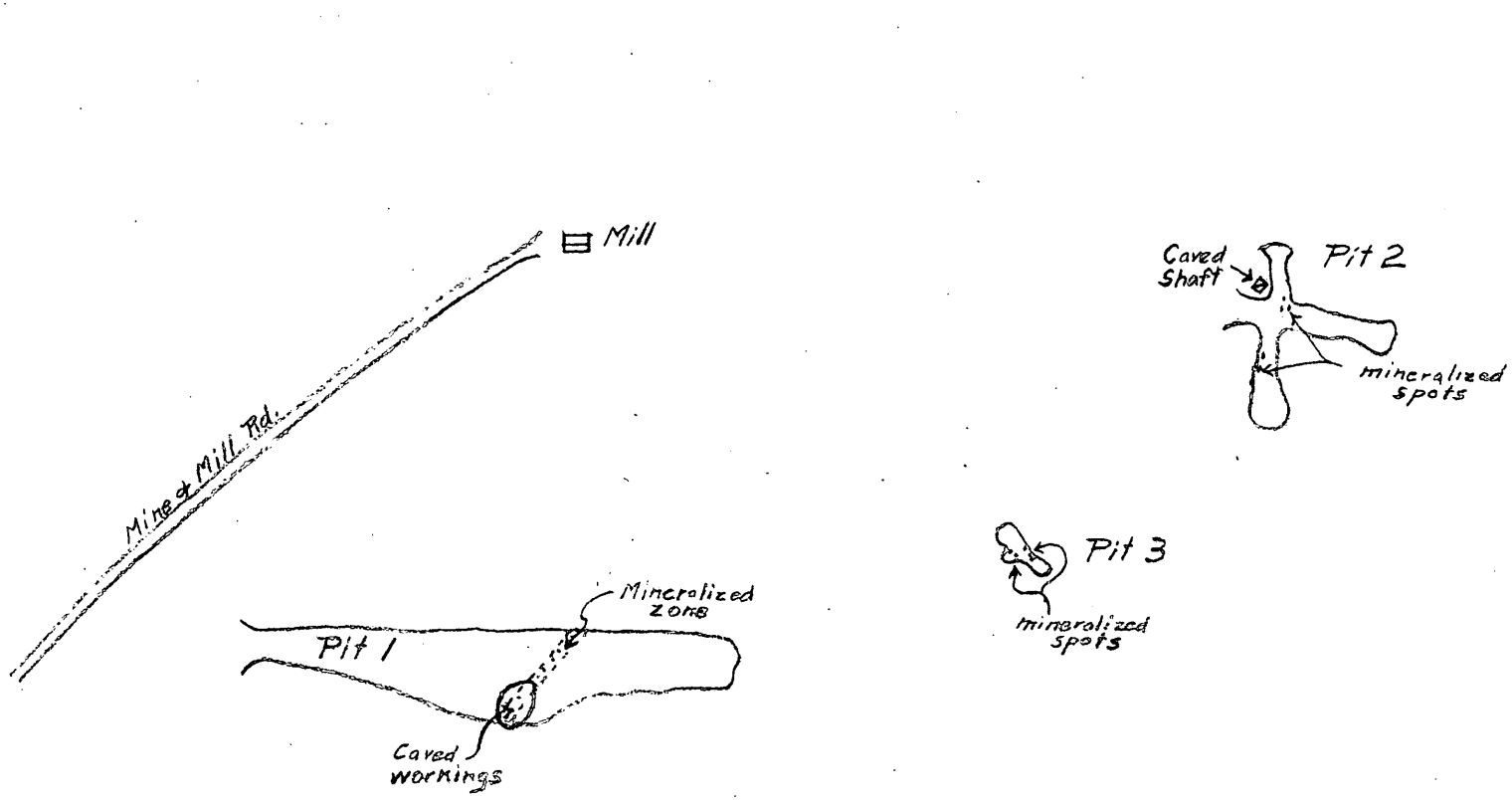
Approx. Explor. area

SOUTH RIVER MINING CO.
DMEA 4536, — VESUVIUS MINE
AUGUSTA COUNTY, VA.

USGS, VESUVIUS, VA. QUAD.

0 miles 1

FIG. 1

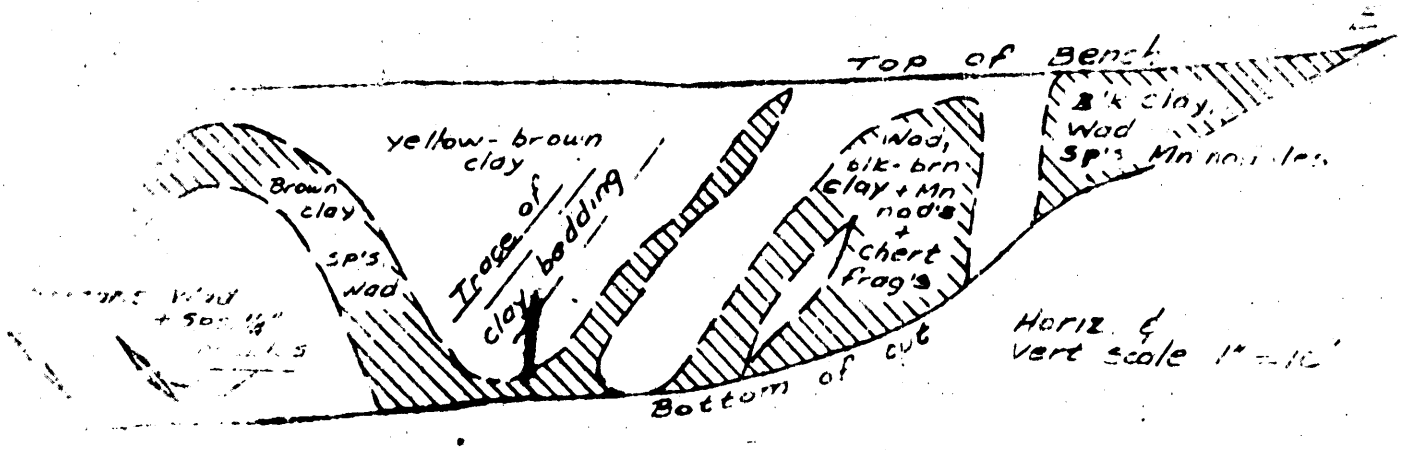


SOUTH RIVER MINING CO.
DMEA 4536, — VESUVIUS MINE
AUGUSTA COUNTY, VA.

APPROX. PLAN, MINING & EXPLOR. AREA

0 feet 200

FIG. 2



VERTICAL LONG. SECT.

— BENCH ALONG NORTH RIM, PIT No. 1 —

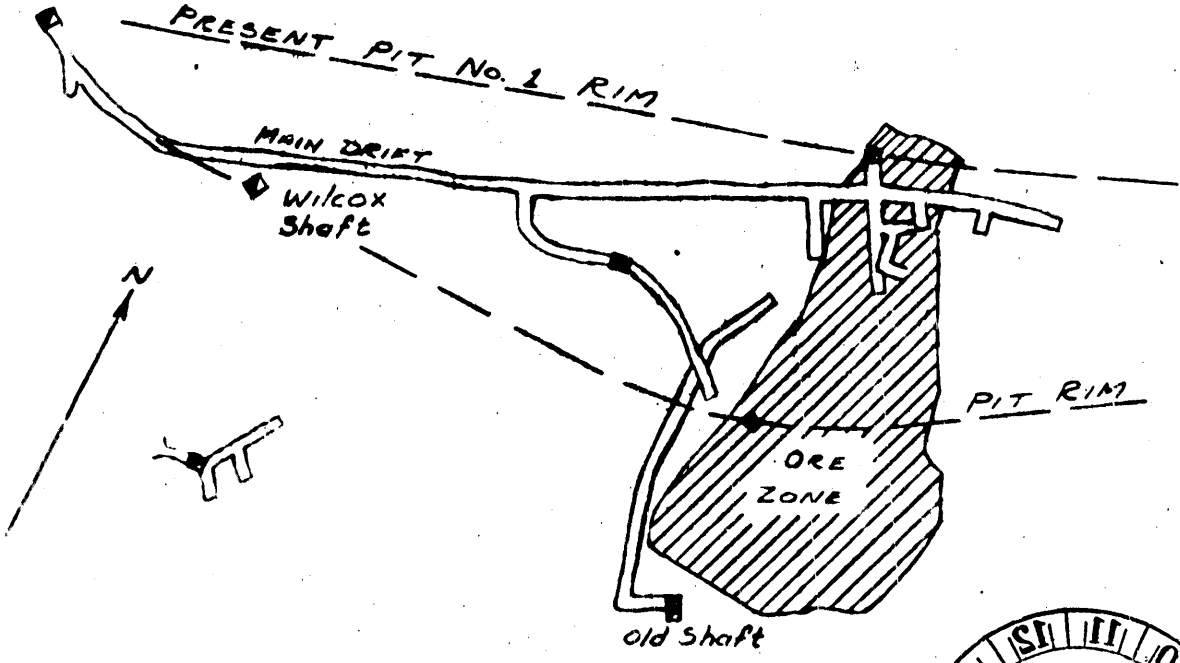


FIG. 3

VESUVIUS MINE

PLAN OF OLD UNDERGROUND WORKINGS

(From U.S.G.S. Bull. 840-F)

SCALE 1" = 100'
D.M.E.A.
RECEIVED
MAR 28 1921

DMEA 4556 - SOUTH RIVER MINING CO.

AUGUSTA COUNTY, VIRGINIA

MF-500

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

REFERENCE SLIP

DATE 1/28/57

REFERRED TO:
1. Legal
2.
3.
4.

FOR:

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

REMARKS: It seems to me that their letter begs the question. If mining stops the lease terminates. That's what we don't approve of. Do they want to post a bond? WSM

Check (X) before the items needing attention.

W. S. Martin

Initials of sender.

GPO 16—63815-1

LAW OFFICES
FOX, ROTHSCHILD, O'BRIEN & FRANKEL
BANKERS SECURITIES BUILDING
JUNIPER AND WALNUT STREETS
PHILADELPHIA 7, PA.
KINGSLEY 5-0400

JAMES J. O'BRIEN
BERNARD L. FRANKEL
DANIEL LOWENTHAL
NOCHEM S. WINNET
LEONARD J. SCHWARTZ
A. ARTHUR MILLER
NATHAN L. POSNER
CHARLES M. SOLOMON
J. VICTOR O'BRIEN
FRANCIS X. HOPE, JR.
ROBERT PERRY FRANKEL
STEPHEN J. KORN
JOSEPH SMUKLER

CHARLES EDWIN FOX
1907-1937
JEROME J. ROTHSCHILD
COUNSEL

OFFICIAL FILE COPY
DMEA
RECEIVED JAN 28 1957

DATE	INITIALS	CODE
1-28	C	220
1/28	WSM	400

January 25, 1957

United States Department of the Interior
Defense Minerals Exploration Administration
Washington 25, D. C.

Attention Mr. C. O. Mittendorf

Re - Docket No. DMEA 4536 - Manganese
South River Mining Company, Inc.
Vesuvius Mine
Augusta County, Virginia

Dear Mr. Mittendorf:

In accordance with the request in your letter of January 15, 1957, we return herewith five copies of the Consent to Lien and Subordination Agreement signed by both Marcia Wilcox Farley, the owner of the mineral rights, and her husband.

In explanation of the fact that the Consent to Lien and Subordination Agreement refers to an instrument recorded in "Deed Book 82 at page 534" and the Mineral Rights Lease refers to an instrument recorded in "Deed Book 94, page 519", please note:

John W. Fauver first separated the mineral rights from the surface rights, and by deed dated December 15, 1879, conveyed the mineral rights to Cowley & Company. This deed of conveyance was recorded in Deed Book 94, page 519. This deed, however, did not describe the 350-acre tract by metes and bounds. It merely stated that the tract was the same as lots Nos. 1, 2, 5 and 6 as set forth in a certain plat, etc., and described in detail in an earlier deed which is recorded in Deed Book 82 at page 534.

The description in Deed Book 82 at page 534 is a detailed description. The deed recorded in Deed Book 94, page 519 contains a description by reference to the earlier deed.

You have expressed some concern that the minimum term of the lease expires September 30, 1957. The minimum term provision is no longer applicable nor is the minimum monthly rental burdensome.

You will note that under paragraph 3(c) of the lease agreement that in the event mining operations are put into effect prior

United States Department of the Interior
Attention Mr. C. O. Mittendorf
January 25, 1957

Re - Docket No. DMEA 4536 - Manganese
South River Mining Company, Inc.
Vesuvius Mine
Augusta County, Virginia

to the end of the minimum term, then the lease continues in full force and effect so long as the minerals mined by the lessee shall be in paying quantities and the lessee shall in good faith profitably mine and sell such minerals.

A plant has been set up at a cost of over $200,000 and the lessee has put into effect mining operations in May, 1956. The royalties payable to the lessor since May are considerably in excess of $200 a month. The lease, therefore, now will remain in full force and effect so long as the company continues such operations.

You will also please note that the term "discontinuance of mining operations " as defined in paragraph 5(b) means the failure of the lessee to mine and take away minerals for a period of twelve consecutive months. In January, 1957, the company has already shipped seven cars of ore and the company expects to continue shipping ore in the foreseeable future.

We, therefore, suggest it is unnecessary to secure from the lessor a new lease for a minimum period of two years with the right of renewal since the company now has a non-terminable lease so long as it continues its mining.

Insofar as minimum royalties are concerned, the $200 figure is moot since monthly royalties payable are in considerably higher amounts.

We will very much appreciate your advising us, in view of the above explanations, whether you regard the application in satisfactory form.

Very truly yours,

S J Schwartz

For FOX, ROTHSCHILD, O'BRIEN & FRANKEL

LJS:FJ
ENC. 5

Referring to the mineral rights in that certain 350-acre tract of land in the County of Augusta, State of Virginia, which tract of land consists of four separate tracts known as the Groah Tract, each tract being No. 1, No. 2, No. 5 and No. 6 and which is described in deed recorded in the Clerk's Office of the Circuit Court of Augusta County, Virginia, in Deed Book 82 at Page 534 as follows:

"No. 1-Beginning at a stake corner to Wm. S. McCormick and with three of said lines S 40 E 42-1/8 poles to P.O. (Black Oak) pointers on the bank of Grove branch then S 34 E 114 poles to red oak and chestnut pointers on the bank of Grove branch, then S 25 E 10 poles to a chestnut oak stump and pointers on top of a small ridge then N 9-1/2 233 poles to a stake at the corner of a fence then N 52 deg. 44 poles to a stake, then S 58 deg. 23 poles to the beginning, containing 70 acres 2 roods and 25 poles.

"No. 2-Beginning at a stake at a double white oak close to the North edge of public road and corner to I.D. McGuffin thence with his line S 45-1/2 E 48 poles to a stake in said line, thence new lines S 57 W 56-1/2 poles to a stake in a field 3-1/2 poles past a stone at pointers N 39-1/2 W 54-1/2 poles to a stake, thence across and with the road N 64-1/2 E 51 poles to the beginning, containing 16 acres, 1 rood and 10 poles.

"No. 5-Beginning at a heap of stones corner to Lots Number 3 and 4 thence up the road N 73 deg. E 84 poles to a stone S 61 E 11 poles to a stake corner to Joseph McCormick's lot and with the same S 39-1/2 deg. E 54-1/2 poles to a stake N 57 deg. E 56-1/2 poles to a stone in J. D. McGuffin's line and with the same S 45-1/2 E 43 poles to a stake S 57 W 144 poles to a stake at a cedar corner to Lot No. 1, N. 51-1/2 W 43-1/2 poles to small dogwood corner to Lot Number 3 and with the same N 41 deg. W 37 poles to a white oak dogwood and cherry N 61 E 14-1/2 poles to a stake N 42 deg. W 53 poles to beginning, containing 78 acres, 1 rood and 14 poles.

"No. 6-Beginning at two red oaks Fauber (Fauver's) corner on a line of Lot No. 5 thence S 56-1/2 W 76 poles to a stake corner to Lot No. 1 and with the same S 12 deg. E 238 poles crossing a run to a fallen chestnut oak and chestnut oak now marked on a ridge in the forks of a branch, N 82 deg. E 174 poles to Fauber's (Fauver's) corner N 35 W 276 poles to the beginning, containing 185 acres, more or less."

transferred and conveyed by Marcia Wilcox Farley of Montgomery County, Pennsylvania, to South River Mining Company, Incorporated, a Virginia corporation, under the terms of a Mineral Rights Lease dated March 4, 1955, and recorded in the County Clerk's Office of the Circuit Court of Augusta County, Virginia, in Deed Book 410, Page 77.

MF-205
(Combines and supercedes MF-201 and MF-203)
June 1956

For Government's Use Only
EXPLORATION PROJECT CONTRACT
Operator _____
Docket No. DMEA- _____
Contract No. Idm-E _____
Contract Date _____

RECEIVED JAN 28 1957 D.M.E.A.

CONSENT TO LIEN
and
SUBORDINATION AGREEMENT 1/

To the United States of America:

Referring to that certain land in the County of _____, State of _____, described as follows: 2/

_____

_____

_____

_____,

which is the subject of a proposed exploration project contract, hereinafter called the "contract," with the United States of America, hereinafter called the "Government;" in consideration of the contract and as an inducement to the Government to enter into it, the undersigned hereby--

1. Undertakes and agrees that property in which the Government may acquire an interest or equity under the contract may be dismantled, severed from the land, and removed, as may be provided in the contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned;

2. Grants to the Government a lien upon all of the undersigned's right, title, and interest in the land and upon any production of minerals therefrom, to secure the payment to the Government of a percentage royalty on production as may be provided for by the Contract;

3. Subordinates the undersigned's right, title, claim, or interest in or against the land and in any production therefrom to the rights of the Government under the contract with respect to royalty on production and liens to secure same;

4. Represents and undertakes that there is no claim, lien, or encumbrance upon the undersigned's right, title, claim, or interest in or against the land other than the following: (If "none" insert the word "none." Do not leave lines blank.)

None

_____

_____

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

2/ 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.

5. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this Agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land, or any production therefrom furnishing the Government with two copies of such notice; and

6. Consents to all amendments (including an agreement of termination) and assignments of the contract without notice thereof, and undertakes and agrees that this Agreement shall extend and apply thereto.

7. Added provision: None (State "None" or "See Annex No.____")

Dated this 18th day of December, 1956.

Marcia Wilcox Farley Marcia Wilcox Farley	[Seal]	Worcester Township Montgomery County, Pa.	[Address]
Radcliffe D. Farley Radcliffe D. Farley	[Seal]	Worcester Township Montgomery County, Pa.	[Address]
	[Seal]		[Address]
	[Seal]		[Address]
	[Seal]		[Address]
	[Seal]		[Address]

I, _____ certify that I am the _____ (Secretary, etc.) of the corporation named herein; that _____ who signed this agreement was then _____ (President or Vice-President, etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____

[Corporate Seal]

Referring to the mineral rights in that certain 350-acre tract of land in the County of Augusta, State of Virginia, which tract of land consists of four separate tracts known as the Groah Tract, each tract being No. 1, No. 2, No. 5 and No. 6 and which is described in deed recorded in the Clerk's Office of the Circuit Court of Augusta County, Virginia, in Deed Book 82 at Page 534 as follows:

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MF-205
(Combines and supercedes MF-201 and MF-203)
June 1956

For Government's Use Only
EXPLORATION PROJECT CONTRACT
Operator _____
Docket No. DMEA- _____
Contract No. Idm-E _____
Contract Date 5/16/57

RECEIVED JAN 28 1957 D.M.E.A.

CONSENT TO LIEN
and
SUBORDINATION AGREEMENT 1/

To the United States of America:

Referring to that certain land in the County of _____, State of _____, described as follows: 2/

_____

_____

_____

_____,

which is the subject of a proposed exploration project contract, hereinafter called the "contract," with the United States of America, hereinafter called the "Government;" in consideration of the contract and as an inducement to the Government to enter into it, the undersigned hereby--

1. Undertakes and agrees that property in which the Government may acquire an interest or equity under the contract may be dismantled, severed from the land, and removed, as may be provided in the contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned;

2. Grants to the Government a lien upon all of the undersigned's right, title, and interest in the land and upon any production of minerals therefrom, to secure the payment to the Government of a percentage royalty on production as may be provided for by the Contract;

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None

_____

_____

_____

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7. Added provision: None (State "None" or "See Annex No.____")

Dated this 18th day of December, 1956.

Marcia Wilcox Farley Marcia Wilcox Farley	[Seal]	Worcester Township Montgomery County, Pa.	[Address]
Radcliffe D. Farley Radcliffe D. Farley	[Seal]	Worcester Township Montgomery County, Pa.	[Address]
	[Seal]		[Address]
	[Seal]		[Address]
	[Seal]		[Address]
	[Seal]		[Address]

I, _____ certify that I am the _____ (Secretary, etc.) of the corporation named herein; that _____ who signed this agreement was then _____ (President or Vice-President, etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____

[Corporate Seal]

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F-205
(Combines and supercedes MF-201 and MF-203)
June 1956

For Government's Use Only
EXPLORATION PROJECT CONTRACT
Operator_____
Docket No. DMEA-_____
Contract No. Idm-E_____
Contract Date_____

RECEIVED
JAN 28 1957
D.M.E.A.

CONSENT TO LIEN
and
SUBORDINATION AGREEMENT 1/

To the United States of America:

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_____

_____

_____

_____,

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7. Added provision: None (State "None" or "See Annex No.____")

Dated this 18th day of December, 1956

Marcia Wilcox Farley	[Seal]	Worcester Township Montgomery County, Pa.	[Address]
Marcia Wilcox Farley Radcliffe B. Farley	[Seal]	Worcester Township Montgomery County, Pa.	[Address]
	[Seal]		[Address]
	[Seal]		[Address]
	[Seal]		[Address]
	[Seal]		[Address]

I, _____ certify that I am the _____ (Secretary, etc.) of the corporation named herein; that _____ who signed this agreement was then _____ (President or Vice-President, etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____

[Corporate Seal]

Referring to the mineral rights in that certain 350-acre tract of land in the County of Augusta, State of Virginia, which tract of land consists of four separate tracts known as the Groah Tract, each tract being No. 1, No. 2, No. 5 and No. 6 and which is described in deed recorded in the Clerk's Office of the Circuit Court of Augusta County, Virginia, in Deed Book 82 at Page 534 as follows:

"No. 1-Beginning at a stake corner to Wm. S. McCormick and with three of said lines S 40 E 42-1/8 poles to P.O. (Black Oak) pointers on the bank of Grove branch then S 34 E 114 poles to red oak and chestnut pointers on the bank of Grove branch, then S 25 E 10 poles to a chestnut oak stump and pointers on top of a small ridge then N 9-1/2 233 poles to a stake at the corner of a fence then N 52 deg. 44 poles to a stake, then S 58 deg. 23 poles to the beginning, containing 70 acres 2 roods and 25 poles.

"No. 2-Beginning at a stake at a double white oak close to the North edge of public road and corner to I.D. McGuffin thence with his line S 45-1/2 E 48 poles to a stake in said line, thence new lines S 57 W 56-1/2 poles to a stake in a field 3-1/2 poles past a stone at pointers N 39-1/2 W 54-1/2 poles to a stake, thence across and with the road N 64-1/2 E 51 poles to the beginning, containing 16 acres, 1 rood and 10 poles.

"No. 5-Beginning at a heap of stones corner to Lots Number 3 and 4 thence up the road N 73 deg. E 84 poles to a stone S 61 E 11 poles to a stake corner to Joseph McCormick's lot and with the same S 39-1/2 deg. E 54-1/2 poles to a stake N 57 deg. E 56-1/2 poles to a stone in J. D. McGuffin's line and with the same S 45-1/2 E 43 poles to a stake S 57 W 144 poles to a stake at a cedar corner to Lot No. 1, N. 51-1/2 W 43-1/2 poles to small dogwood corner to Lot Number 3 and with the same N 41 deg. W 37 poles to a white oak dogwood and cherry N 61 E 14-1/2 poles to a stake N 42 deg. W 53 poles to beginning, containing 78 acres, 1 rood and 14 poles.

"No. 6-Beginning at two red oaks Fauber (Fauver's) corner on a line of Lot No. 5 thence S 56-1/2 W 76 poles to a stake corner to Lot No. 1 and with the same S 12 deg. E 238 poles crossing a run to a fallen chestnut oak and chestnut oak now marked on a ridge in the forks of a branch, N 82 deg. E 174 poles to Fauber's (Fauver's) corner N 35 W 276 poles to the beginning, containing 185 acres, more or less."

transferred and conveyed by Marcia Wilcox Farley of Montgomery County, Pennsylvania, to South River Mining Company, Incorporated, a Virginia corporation, under the terms of a Mineral Rights Lease dated March 4, 1955, and recorded in the County Clerk's Office of the Circuit Court of Augusta County, Virginia, in Deed Book 410, Page 77.

MF-205
(Combines and supercedes MF-201 and MF-203)
June 1956

For Government's Use Only
EXPLORATION PROJECT CONTRACT
Operator _____
Docket No. DMEA- _____
Contract No. Idm-E _____
Contract Date _____

RECEIVED
JAN 28 1957
D.M.E.A.

CONSENT TO LIEN
and
SUBORDINATION AGREEMENT 1/

To the United States of America:

Referring to that certain land in the County of _____, State of _____, described as follows: 2/

_____

_____

_____

_____,

which is the subject of a proposed exploration project contract, hereinafter called the "contract," with the United States of America, hereinafter called the "Government;" in consideration of the contract and as an inducement to the Government to enter into it, the undersigned hereby--

1. Undertakes and agrees that property in which the Government may acquire an interest or equity under the contract may be dismantled, severed from the land, and removed, as may be provided in the contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned;

2. Grants to the Government a lien upon all of the undersigned's right, title, and interest in the land and upon any production of minerals therefrom, to secure the payment to the Government of a percentage royalty on production as may be provided for by the Contract;

3. Subordinates the undersigned's right, title, claim, or interest in or against the land and in any production therefrom to the rights of the Government under the contract with respect to royalty on production and liens to secure same;

4. Represents and undertakes that there is no claim, lien, or encumbrance upon the undersigned's right, title, claim, or interest in or against the land other than the following: (If "none" insert the word "none." Do not leave lines blank.)

_____

_____

_____

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

2/ 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.

5. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this Agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land, or any production therefrom furnishing the Government with two copies of such notice; and

6. Consents to all amendments (including an agreement of termination) and assignments of the contract without notice thereof, and undertakes and agrees that this Agreement shall extend and apply thereto.

7. Added provision: None (State "None" or "See Annex No.____")

Dated this 18th day of December 1956

Marie Wilcox Farley	[Seal]	Worcester Township Montgomery County, Pa.	[Address]
Radcliffe D. Farley	[Seal]	Worcester Township Montgomery County, Pa.	[Address]
	[Seal]		[Address]
	[Seal]		[Address]
	[Seal]		[Address]
	[Seal]		[Address]

I, _____ certify that I am the _____ (Secretary, etc.) of the corporation named herein; that _____ who signed this agreement was then _____ (President or Vice-President, etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____

[Corporate Seal]

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"No. 5-Beginning at a heap of stones corner to Lots Number 3 and 4 thence up the road N 73 deg. E 84 poles to a stone S 61 E 11 poles to a stake corner to Joseph McCormick's lot and with the same S 39-1/2 deg. E 54-1/2 poles to a stake N 57 deg. E 56-1/2 poles to a stone in J. D. McGuffin's line and with the same S 45-1/2 E 43 poles to a stake S 57 W 144 poles to a stake at a cedar corner to Lot No. 1, N. 51-1/2 W 43-1/2 poles to small dogwood corner to Lot Number 3 and with the same N 41 deg. W 37 poles to a white oak dogwood and cherry N 61 E 14-1/2 poles to a stake N 42 deg. W 53 poles to beginning, containing 78 acres, 1 rood and 14 poles.

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transferred and conveyed by Marcia Wilcox Farley of Montgomery County, Pennsylvania, to South River Mining Company, Incorporated, a Virginia corporation, under the terms of a Mineral Rights Lease dated March 4, 1955, and recorded in the County Clerk's Office of the Circuit Court of Augusta County, Virginia, in Deed Book 410, Page 77.

MF-205
(Combines and supercedes MF-201 and MF-203)
June 1956

For Government's Use Only
EXPLORATION PROJECT CONTRACT
Operator _____
Docket No. DMEA- _____
Contract No. Idm-E _____
Contract Date _____

RECEIVED JAN 28 1957 DMEA

CONSENT TO LIEN
and
SUBORDINATION AGREEMENT 1/

To the United States of America:

Referring to that certain land in the County of _____, State of _____, described as follows: 2/

_____

_____

_____

_____,

which is the subject of a proposed exploration project contract, hereinafter called the "contract," with the United States of America, hereinafter called the "Government;" in consideration of the contract and as an inducement to the Government to enter into it, the undersigned hereby--

1. Undertakes and agrees that property in which the Government may acquire an interest or equity under the contract may be dismantled, severed from the land, and removed, as may be provided in the contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned;

2. Grants to the Government a lien upon all of the undersigned's right, title, and interest in the land and upon any production of minerals therefrom, to secure the payment to the Government of a percentage royalty on production as may be provided for by the Contract;

3. Subordinates the undersigned's right, title, claim, or interest in or against the land and in any production therefrom to the rights of the Government under the contract with respect to royalty on production and liens to secure same;

4. Represents and undertakes that there is no claim, lien, or encumbrance upon the undersigned's right, title, claim, or interest in or against the land other than the following: (If "none" insert the word "none." Do not leave lines blank.)

None

_____

_____

_____

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

2/ 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.

5. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this Agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land, or any production therefrom furnishing the Government with two copies of such notice; and

6. Consents to all amendments (including an agreement of termination) and assignments of the contract without notice thereof, and undertakes and agrees that this Agreement shall extend and apply thereto.

7. Added provision: None (State "None" or "See Annex No.____")

Dated this 18th day of December, 1956.

Marvin Wilcox Farley	[Seal]	Worcester Township Montgomery County, Pa.	[Address]
Radcliffe D. Farley	[Seal]	Worcester Township Montgomery County, Pa.	[Address]
	[Seal]		[Address]
	[Seal]		[Address]
	[Seal]		[Address]
	[Seal]		[Address]

I, _____ certify that I am the _____ _____ (Secretary, etc.) of the corporation named herein; that _____ _____ who signed this agreement was then _____ (President or Vice-President, etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____

[Corporate Seal]

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
1/11	[illegible]	400
1/11	Martin	400
		~~140~~
1/14	[illegible]	120
	[illegible]	110
1/14	[illegible]	100
		220

JAN 15 1957

Mr. Leonard J. Schwartz
Fox, Rothschild, O'Brien and Frankel
Bankers Securities Building
Juniper and Walnut Streets
Philadelphia, Pennsylvania

Re: Docket No. DMEA 4536 - Manganese, 1-15 CW 220
South River Mining Company, Inc.
Vesuvius Mine
Augusta County, Virginia

400

Dear Mr. Schwartz:

Thank you for submitting the following documents pertaining to the above-subject application for exploration assistance:

1. Five executed copies of Consent to Lien and Subordination Agreement signed by the lessor of the mineral rights in the tract of land to be explored.

2. Five copies of an assignment of mineral rights from Richard C. Spurgeon and his wife Marie Spurgeon to the South River Mining Company, Inc., applicant in the exploration project.

The assignment from Richard C. Spurgeon and his wife to the South River Mining Company, Inc., is in proper legal form.

The Consent to Lien and Subordination Agreement is signed only by Marcia Wilcox Farley. It should be signed also by her husband, who signed the lease. Attached are the five copies which you sent of the Consent to Lien and Subordination Agreement so that you can have Mr. Radcliffe D. Farley sign them also.

This same Consent to Lien and Subordination Agreement refers to an instrument recorded in "Deed Book 82 at page 534" and describes the land by metes and bounds, whereas the lease refers to an instrument recorded in "Deed Book 94, page 519" and describes the land differently. Your advice will be appreciated as to whether the reference to Deed Book 82, page 534 is correct, and whether the land described is the same as that referred to in the lease.

Inasmuch as the minimum term of the lease expires September 30, 1957, we doubt that a program under an exploration contract could be completed by that date, if such a contract were recommended. Possibly you could secure from the owner a new lease for a period of at least two years, with the right of renewal, and the provision that the lease would

R.C.S.

8623

continue in full force and effect so long as work of exploration, as well as actual mining of ore, was being carried out diligently and in good faith. The new lease, if obtained, should cover the lands set forth in the application. The minimum royalty of $200.00 per month seems high, as it could become burdensome to the applicant if he were engaged in an exploration contract, with no money coming in from ore shipments.

Sincerely yours,

G. O. Pommerenk

Administrator

Enclosure

SPHolt:am 1-7-57 - SPHolt:am 1-11-57
cc to: Docket
Code 400
Admr. Read. File
Oper. Comm.
FT REG V
Messrs. G. DeHuff, USBM
T. H. Kiilsgaard, USGS

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SOLICITOR
WASHINGTON 25, D. C.

JAN - 3 1956

Memorandum

To: The Administrator, DMEA
Attention: Chief, Iron and Ferro-Alloys Division

From: Associate Solicitor, Division of Mineral Resources

Subject: Docket No. DMEA-4536, South River Mining Co., Inc. (Manganese)

This responds to Mr. Holt's note on routing slip dated December 27, 1956, asking whether the documents furnished by the applicant's attorney with letter of December 18 are adequate to protect the Government.

The assignment from Richard C. Spurgeon and his wife to the applicant is in proper legal form.

The Consent to Lien and Subordination Agreement is signed only by Marcia Wilcox Farley. It should also be signed by her husband who signed the lease. The Consent to Lien and Subordination Agreement also refers to an instrument recorded in "Deed Book 82 at Page 534" and describes the land by metes and bounds, whereas the lease refers to an instrument recorded in "Deed Book 94, page 519," and describes the land differently. The applicant's attorney should be requested to advise whether the reference to Deed Book 82, Page 534, is correct, and whether the land described is the same as that referred to in the lease.

Your attention is called to the fact that the minimum term of the lease expires on September 30, 1957. You may wish to consider whether this provides sufficient time within which to complete whatever exploration work may be agreed upon.

Robert P. Dwyer

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SOLICITOR
WASHINGTON 25, D. C.

JAN 3 1958

Memorandum

To: The Administrator, DMEA
Attention: Chief, Iron and Ferro-Alloys Division

From: Associate Solicitor, Division of Mineral Resources

Subject: Docket No. DMEA-4336, South River Mining Co., Inc. (Manganese)

This responds to Mr. Holt's note on routing slip dated December 27, 1956, asking whether the documents furnished by the applicant's attorney with letter of December 18 are adequate to protect the Government.

The assignment from Richard C. Spurgeon and his wife to the applicant is in proper legal form.

The Consent to Lien and Subordination Agreement is signed only by Marcia Wilson Farley. It should also be signed by her husband who signed the lease. The Consent to Lien and Subordination Agreement also refers to an instrument recorded in "Deed Book 82 at Page 534" and describes the land by metes and bounds, whereas the lease refers to an instrument recorded in "Deed Book 94, page 519, and describes the land differently. The applicant's attorney should be requested to advise whether the reference to Deed Book 82, Page 534, is correct, and whether the land described is the same as that referred to in the lease.

Your attention is called to the fact that the minimum term of the lease expires on September 30, 1957. You may wish to consider whether this provides sufficient time within which to complete whatever exploration work may be agreed upon.

Robert P. Dwyer

Robert P. Dwyer

PIndritz/cmd
Copy to: Solicitor's Docket (2)
DMEA Docket
W. S. Martin (2)
R. P. Dwyer
chron.
P. Indritz

Docket

LAW OFFICES

FOX, ROTHSCHILD, O'BRIEN & FRANKEL

BANKERS SECURITIES BUILDING

JUNIPER AND WALNUT STREETS

PHILADELPHIA 7, PA.

KINGSLEY 5-0400

JAMES J. O'BRIEN
BERNARD L. FRANKEL
DANIEL LOWENTHAL
NOCHEM S. WINNET
LEONARD J. SCHWARTZ
A. ARTHUR MILLER
NATHAN L. POSNER
CHARLES M. SOLOMON
J. VICTOR O'BRIEN
FRANCIS X. HOPE, JR.
ROBERT PERRY FRANKEL
STEPHEN J. KORN
JOSEPH SMUKLER

CHARLES EDWIN FOX
1907-1937

JEROME J. ROTHSCHILD
COUNSEL

mn

December 18, 1956

RECEIVED
DEC 19 1956
D.M.E.A.

United States Department of the Interior
Defense Minerals Exploration Administration
Iron and Ferro-Alloys Division
Washington 25, D. C.

Re - South River Mining Company, Incorporated
Subject: DMEA-4536
Exploration Assistance
Vesuvius Mine

WSM

Gentlemen:

In the above matter, we enclose herewith the following:

1. Five executed copies of Consent to Lien and Subordination Agreement signed by the lessor of the mineral rights in the tract of land to be explored.

2. Five copies of the assignment of mineral rights from Richard C. Spurgeon joined in by his wife, Marie Spurgeon, to the South River Mining Company, Incorporated, applicant in the exploration project.

Very truly yours,

Leonard J. Schwartz

For FOX, ROTHSCHILD, O'BRIEN & FRANKEL

LJS:FJ
Enc. 10

THIS AGREEMENT, made in duplicate, this 26th day of September, 1956, by and between RICHARD C. SPURGEON of Montgomery County, State of Pennsylvania (hereinafter referred to as the "Grantor"), and SOUTH RIVER MINING COMPANY, INCORPORATED, a corporation organized under the laws of the State of Virginia (hereinafter referred to as the "Grantee");

W I T N E S S E T H: That

WHEREAS, under the terms of a Mineral Rights Lease dated March 4, 1955, and recorded in the Clerk's Office of the Circuit Court for Augusta County, Virginia, in Deed Book No. 410, page 77, Marcia Wilcox Farley of Montgomery County, State of Pennsylvania, leased unto the Grantor as Lessee the exclusive right to explore and drill for and mine and take away and dispose of all minerals subject to the terms of said Mineral Rights Lease upon, within and underlying a certain three hundred fifty (350) acres of land located near Vesuvius, Virginia, and which are more fully described in a deed dated December 13, 1879, duly recorded in the County Clerk's Office of Augusta County, Virginia, in Deed Book No. 94, page 519, in which John W. Fauver conveyed said mineral rights to Cowley & Company, as follows:

> "...situated in the County of Augusta, State of Virginia, near Steele's Tavern belonging to John W. Fauver, party of the first part, containing about 350 acres adjoining the lands of Echols, Bell, and Catlett and Cyrus McCormick on the south, Shelton and Caldwell on the North, I. Newton on the East, John W. Fauver on the west, known as the Groah property - the whole of said property is embraced in lots No. 1, 2, 5 and 6 as seen in the Plat made by Jas. H. Callison, James Henry and A. M. Moore Commissioners in the cause of Groah's

Admrs'. vs. Groah's heirs, a decided cause, the papers of which are filed up in the Circuit Court Clerk's Office of Augusta County, State of Virginia, and for the more particular description by metes and bounds of said tract reference is hereby to the said Plat aforesaid..."

and which is further described in a deed of March 15, 1949, in which Peyton Cochran, Special Commissioner of the Circuit Court of Augusta County, Virginia, transferred said mineral rights to Mary L. Wilcox, widow of A. C. Wilcox, as follows:

"FIRST: All the estate, property, rights, title, interest, mineral rights, privileges, easements and servitudes (conveyed to the firm of Cowley & Company by deed of John W. Fauver, dated December 15, 1879, and recorded in the Clerk's Office of the Circuit Court of Augusta County, Virginia, in Deed Book 94, at page 519) in, upon and under that certain tract of land in Riverheads Magisterial District, Augusta County, Virginia, near South River and the N. & W. Ry. Co., near Vesuvius, adjoining the lands formerly belonging to Echols, Bell & Catlett, McCormick and Shelton and known as the Groah tract, containing 350 acres, more or less, comprising all the mineral of whatsoever kind or description, including all iron ore, manganese and fire clay under and upon the premises, with the exclusive right to excavate, search for, dig and mine the same, by shafts or otherwise, to use and occupy the surface and erect buildings and machinery for such purposes, and rights of ingress and egress, making roads or railways, using stone watercourses, etc. for such purpose, together with the right to any timber on said premises for the opening of the mines or any of the purposes mentioned, at its fair market value, as fully as the said rights and easements were embraced in the above mentioned deed'; and"

and

WHEREAS, the Grantor was acting for and on behalf of the Grantee in the acquisition by him of the aforesaid Mineral Rights Lease from the said Marcia Wilcox Farley;

NOW, THEREFORE, the Grantor, in consideration of the foregoing and for the consideration hereinafter set forth, and

intending to be legally bound hereby, does hereby assign, transfer and set over and grant to the Grantee all right, title and interest of the Grantor in the said Mineral Rights Lease and with respect to and in and to the natural resources and deposits in the form of gas, fluids or solids, such as but not being limited to gas, ore and mineral substances (hereinafter called "Minerals") upon, within and underlying the lands hereinbefore described upon condition that the Grantee perform all the obligations and conditions required to be performed by the Grantor under the terms of the said Mineral Rights Lease dated March 4, 1955, and upon the further condition that the Grantee shall indemnify and save the Grantor harmless from any and all claims of whatsoever kind arising out of or in connection with the aforesaid Mineral Rights Lease dated March 4, 1955.

This Agreement shall be binding upon and inure to the benefit of the heirs, executors, administrators, successors and assigns of the respective parties hereto.

MARIE SPURGEON, wife of RICHARD C. SPURGEON, the Grantor herein named, joins in this Agreement and agrees that any rights she may have by reason of the Mineral Rights Lease dated March 4, 1955, as the wife of the Grantor are and shall be subordinate to the rights of the Grantee.

The Grantor and MARIE SPURGEON agree that they will execute any and all instruments that may be necessary under the laws of the State of Virginia in order to perfect the grant of the right, title and interest of RICHARD C. SPURGEON in the Mineral

Rights Lease dated March 4, 1955, to the Grantee.

IN WITNESS WHEREOF, the individual parties hereto have hereunto set their hands and seals and the said corporation has caused these presents to be executed and its common or corporate seal hereto affixed the day and year first above written.

Witness:

Richard C. Spurgeon (SEAL)
Richard C. Spurgeon

Marie Spurgeon (SEAL)
Marie Spurgeon

SOUTH RIVER MINING COMPANY,
INCORPORATED

Attest:

By
President

Secretary

COMMONWEALTH OF PENNSYLVANIA:
ss
COUNTY OF PHILADELPHIA :

I, MABEL H. MacCAIN, a Notary Public in and for the county aforesaid, do hereby certify that RICHARD C. SPURGEON and MARIE SPURGEON, whose names are signed to the foregoing writing bearing date the 26th day of September, 1956, have acknowledged the same before me in my county aforesaid.

Mabel H. MacCain
Notary Public
My Commission Expires 3/28/1959

MABEL H. MacCAIN
Notary Public, Philadelphia County, Pa.
My Commission Expires March 28, 1959

TRANSFER OF MINERAL RIGHTS LEASE

Between

RICHARD C. SPURGEON

MARIE SPURGEON

and

SOUTH RIVER MINING COMPANY, INCORPORATED

Premises: 350-acre Tract near Vesuvius, Virginia

Dated: September [illegible], 1956

LAW OFFICES
FOX, ROTHSCHILD, O'BRIEN & FRANKEL
BANKERS SECURITIES BUILDING
PHILADELPHIA 7, PA.

THIS AGREEMENT, made in duplicate, this 26th day of September, 1956, by and between RICHARD C. SPURGEON of Montgomery County, State of Pennsylvania (hereinafter referred to as the "Grantor"), and SOUTH RIVER MINING COMPANY, INCORPORATED, a corporation organized under the laws of the State of Virginia (hereinafter referred to as the "Grantee");

W I T N E S S E T H: That

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> "...situated in the County of Augusta, State of Virginia, near Steele's Tavern belonging to John W. Fauver, party of the first part, containing about 350 acres adjoining the lands of Echols, Bell, and Catlett and Cyrus McCormick on the south, Shelton and Caldwell on the North, I. Newton on the East, John W. Fauver on the west, known as the Groah property - the whole of said property is embraced in lots No. 1, 2, 5 and 6 as seen in the Plat made by Jas. H. Callison, James Henry and A. M. Moore Commissioners in the cause of Groah's

Admrs'. vs. Groah's heirs, a decided cause, the papers of which are filed up in the Circuit Court Clerk's Office of Augusta County, State of Virginia, and for the more particular description by metes and bounds of said tract reference is hereby to the said Plat aforesaid..."

and which is further described in a deed of March 15, 1949, in which Peyton Cochran, Special Commissioner of the Circuit Court of Augusta County, Virginia, transferred said mineral rights to Mary L. Wilcox, widow of A. C. Wilcox, as follows:

"FIRST: All the estate, property, rights, title, interest, mineral rights, privileges, easements and servitudes (conveyed to the firm of Cowley & Company by deed of John W. Fauver, dated December 15, 1879, and recorded in the Clerk's Office of the Circuit Court of Augusta County, Virginia, in Deed Book 94, at page 519) in, upon and under that certain tract of land in Riverheads Magisterial District, Augusta County, Virginia, near South River and the N. & W. Ry. Co., near Vesuvius, adjoining the lands formerly belonging to Echols, Bell & Catlett, McCormick and Shelton and known as the Groah tract, containing 350 acres, more or less, comprising all the mineral of whatsoever kind or description, including all iron ore, manganese and fire clay under and upon the premises, with the exclusive right to excavate, search for, dig and mine the same, by shafts or otherwise, to use and occupy the surface and erect buildings and machinery for such purposes, and rights of ingress and egress, making roads or railways, using stone watercourses, etc. for such purpose, together with the right to any timber on said premises for the opening of the mines or any of the purposes mentioned, at its fair market value, as fully as the said rights and easements were embraced in the above mentioned deed'; and"

and

WHEREAS, the Grantor was acting for and on behalf of the Grantee in the acquisition by him of the aforesaid Mineral Rights Lease from the said Marcia Wilcox Farley;

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IN WITNESS WHEREOF, the individual parties hereto have hereunto set their hands and seals and the said corporation has caused these presents to be executed and its common or corporate seal hereto affixed the day and year first above written.

Witness:

Richard C. Spurgeon (SEAL)
Richard C. Spurgeon

Marie Spurgeon (SEAL)
Marie Spurgeon

SOUTH RIVER MINING COMPANY,
INCORPORATED

Attest:

Secretary

By
President

COMMONWEALTH OF PENNSYLVANIA:
ss
COUNTY OF PHILADELPHIA :

I, MABEL H. MacCAIN, a Notary Public in and for the county aforesaid, do hereby certify that RICHARD C. SPURGEON and MARIE SPURGEON, whose names are signed to the foregoing writing bearing date the 26th day of September, 1956, have acknowledged the same before me in my county aforesaid.

Mabel H. MacCain
Notary Public
My Commission Expires 3/28/1959

MABEL H. Ma[illegible]
Notary Public, Philadelphia [illegible] Co.
My Commission Expires [illegible] 1959

TRANSFER OF MINERAL RIGHTS LEASE

Between

RICHARD C. SPURGEON

MARIE SPURGEON

and

SOUTH RIVER MINING COMPANY, INCORPORATED

Premises: 350-acre Tract near Vesuvius, Virginia

Dated: September 26, 1956

LAW OFFICES
FOX, ROTHSCHILD, O'BRIEN & FRANKEL
BANKERS SECURITIES BUILDING
PHILADELPHIA 7, PA.

THIS AGREEMENT, made in duplicate, this 26th day of September, 1956, by and between RICHARD C. SPURGEON of Montgomery County, State of Pennsylvania (hereinafter referred to as the "Grantor"), and SOUTH RIVER MINING COMPANY, INCORPORATED, a corporation organized under the laws of the State of Virginia (hereinafter referred to as the "Grantee");

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> "...situated in the County of Augusta, State of Virginia, near Steele's Tavern belonging to John W. Fauver, party of the first part, containing about 350 acres adjoining the lands of Echols, Bell, and Catlett and Cyrus McCormick on the south, Shelton and Caldwell on the North, I. Newton on the East, John W. Fauver on the west, known as the Groah property - the whole of said property is embraced in lots No. 1, 2, 5 and 6 as seen in the Plat made by Jas. H. Callison, James Henry and A. M. Moore Commissioners in the cause of Groah's

Admrs'. vs. Groah's heirs, a decided cause, the papers of which are filed up in the Circuit Court Clerk's Office of Augusta County, State of Virginia, and for the more particular description by metes and bounds of said tract reference is hereby to the said Plat aforesaid..."

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IN WITNESS WHEREOF, the individual parties hereto have hereunto set their hands and seals and the said corporation has caused these presents to be executed and its common or corporate seal hereto affixed the day and year first above written.

Witness:

Sarah Deewan

Richard C. Spurgeon (SEAL)
Richard C. Spurgeon

Marie Spurgeon (SEAL)
Marie Spurgeon

SOUTH RIVER MINING COMPANY,
INCORPORATED

Attest:

Sarah Deewan
Secretary

By Richard C. Spurgeon
President

COMMONWEALTH OF PENNSYLVANIA:
ss
COUNTY OF PHILADELPHIA :

I, MABEL H. MacCAIN, a Notary Public in and for the county aforesaid, do hereby certify that RICHARD C. SPURGEON and MARIE SPURGEON, whose names are signed to the foregoing writing bearing date the 26th day of September, 1956, have acknowledged the same before me in my county aforesaid.

Mabel H MacCain
Notary Public
My Commission Expires 3/28/1959

MABEL H. M[illegible]
Notary Public, Phila[illegible] Co.
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MINERAL RIGHTS LEASE

Between

RICHARD C. SPURGEON

MARIE SPURGEON

and

SOUTH RIVER MINING COMPANY,
INCORPORATED

Premises: 350-acre Tract near
Vesuvius, Virginia

Dated: September 26, 1956

LAW OFFICES
FOX, ROTHSCHILD, O'BRIEN & FRANKEL
BANKERS SECURITIES BUILDING
PHILADELPHIA 7, PA.

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_____ (SEAL)
Richard C. Spurgeon

_____ (SEAL)
Marie Spurgeon

SOUTH RIVER MINING COMPANY,
INCORPORATED

Attest:

_____
Secretary

By _____
President

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SS
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Mabel H MacCain
Notary Public
My Commission Expires 3/28/1959

MABEL H. M[illegible]
Notary Public, Philadelphia [illegible]
My Commission [illegible]

TRANSFER OF
MINERAL RIGHTS LEASE

Between

RICHARD C. SPURGEON

MARIE SPURGEON

and

SOUTH RIVER MINING COMPANY,
INCORPORATED

Premises: 350-acre Tract near
Vesuvius, Virginia

Dated: September 26, 1956

LAW OFFICES
FOX, ROTHSCHILD, O'BRIEN & FRANKEL
BANKERS SECURITIES BUILDING
PHILADELPHIA 7, PA.

SECRETARY
BUREAU NO. 148
DUPLICATING NO. 9560
TO 3538
ROOM NO. -8
BUNDLES

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_____ (SEAL)
Richard C. Spurgeon

_____ (SEAL)
Marie Spurgeon

SOUTH RIVER MINING COMPANY,
INCORPORATED

Attest:

_____
Secretary

By _____
President

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ss
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Mabel H MacCain
Notary Public
My Commission Expires 3/28/1959

MABEL [illegible]
Notary Public, Phil[illegible]
My Commission [illegible]

TRANSFER OF
MINERAL RIGHTS LEASE

Between

RICHARD C. SPURGEON

MARIE SPURGEON

and

SOUTH RIVER MINING COMPANY,
INCORPORATED

Premises: 350-acre Tract near
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Dated: September 26, 1956

LAW OFFICES
FOX, ROTHSCHILD, O'BRIEN & FRANKEL
BANKERS SECURITIES BUILDING
PHILADELPHIA 7, PA.

DOCKET
SURNAME
Holt
Martin
Lamb
Killgaard
Selfridge
Johnson

NOV 28 1956

South River Mining Company, Inc.
1732 Bankers Securities Building
Philadelphia 7, Pennsylvania

Re: Docket No. DMEA 4536 - Manganese
Vesuvius Mine
Augusta County, Virginia

Gentlemen:

The above-docketed application for exploration assistance for manganese ores has been reviewed by the Iron and Ferroy-Alloys Division of the Defense Minerals Exploration Administration and referred to Mr. Robert A. Laurence, Executive Officer, DMEA Field Team, Region V, Room 13, Post Office Building, Knoxville 2, Tennessee, for a field examination of the property.

Any assistance that you can give the members of the Field Team will be appreciated.

Sincerely yours,

C. C. Mittendorf

Administrator

SPHolt:am 11-27-56
cc to: Docket
Code 400
Admr. Read. File
Oper. Comm.
FT. REG. V
Messrs. G. DeHuff, USBM
T. H. Killgaard, USGS

400

DOCKET
SURNAME
Holt
Martin
Selfridge
Fitzsimon

NOV 27 1956

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Building
Knoxville 2, Tennessee

Re: Docket No. DMEA 4536 - Manganese
South River Mining Company
Vesuvius Mine
Augusta County, Virginia

Dear Mr. Laurence:

The above-docketed application for exploration assistance is being referred to your office for a field examination of the property.

Copies of memoranda dated November 20 and November 23, 1956, by W. P. Williams, Geological Survey, and G. L. DeHuff, Jr., Bureau of Mines, respectively, relating to the application, are enclosed.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee

APPROVED:

Frank D. Lamb
Member, Bureau of Mines

Thor H. Kiilsgaard
Member, Geological Survey

SPHolt:am 11-27-56
cc to: Docket V
Code 400
Admr. Read. File
Oper. Comm.
FT. REG. V
Messrs. G. DeHuff, USBM
T. H. Kiilsgaard, USGS

Enclosures

C

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

RECEIVED NOV 26 1956 D.M.E.A.

Date November 23, 1956

DMEA Docket No. 4536
DMEA Contract No.
Commodity Manganese
Name of applicant So. River Mining Co., Inc.
Name of property Vesuvius Mine
Location of property Augusta County, Va.
Estimated cost of project $20,438

Memorandum

To: W. S. Martin, DMEA

From: G. L. DeHuff, Jr., Commodity Specialist
Branch of Ferrous Metals and Ferroalloys

Subject: Review of application
(Application, Field Team Report, etc.)

1. Date of subject document: 11/8/56. 2. Date received by reviewer: 11/13/56.

3. Prior reports on this property known to reviewer: Yes [X], No [ ].

4. Prior reports on nearby properties known to reviewer: Yes [X], No [ ].

5. Information available on past production: Yes [X], No [ ].

6. Other pertinent factors known to reviewer: Yes [ ], No [ ].

7. Explain items marked yes above: U.S.G.S. Bulletin 940-F, "Mn Deposits of Lyndhurst - Vesuvius District, Augusta & Rockbridge Counties, Va.", says 16 carloads manganese ore shipped from Vesuvius Mine in 1916 and a carload shipped in 1941.

Monthly U.S.B.M. Div. of Mineral Industries tabulations through September, 1956, report the following production for South River Mining Co. (location given only as Virginia) in long tons: 89@48.5%Mn, for June, Aug. 100@48%; Sept. 448@43%; (Total 637 long tons)

8. Factors needing special consideration:

a. Location [ ]
b. Ownership [X]
c. Evidence of mineralization [ ]
d. Geology [ ]
e. Proposed exploration method [X]
f. Alternate exploration method [ ]
g. Costs [X]
h. [ ]

9. Action advised:

a. Obtain information from applicant [ ]
b. Refer to Field Team [X]
c. Denial [ ]
d. Agree with Field Team [ ]
e. Disagree with Field Team [ ]
f. Suggest alternate plan [ ]
g. Request another examination [ ]
h. Approval [ ]
i. Consult with Mr. _____ at _____ AEC office.

10. Remarks: (Use back of page if necessary)

G. L. DeHuff, Jr.

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

IN REPLY REFER TO:

RECEIVED NOV 21 1956 D.M.E.A.

Docket

November 20, 1956

Memorandum

To: W. S. Martin, Defense Minerals Exploration Administration

From: W. P. Williams, U. S. Geological Survey

WSM

Subject: Review of application, DMEA 4536, South River Mining Company, Vesuvius Mine, Augusta County, Virginia (manganese).

The applicant proposes to explore for new manganese ore reserves at the site of the Vesuvius Mine. According to the applicant he has shipped about 1,000 tons of ore to the General Services Administration and is now milling and shipping about 20 tons of ore a day.

The proposed work is not clearly described. It may be deduced, from the applicant's Estimate of Costs that the work would consist of large diameter drilling, probably with a bucket drill or some similar device, and stripping and trenching with bulldozer. The applicant's small scale map does not adequately show in detail either the nature or the location of the work. The Executive Officer, Region V, has pointed out to the applicant the desirability of a better map. Total estimated cost of the project is $20,438.

The property is located in a region where manganese ore is known and has been produced. In the interest of achieving appropriate action on the application in the shortest time I recommend that the application be referred to the Field Team for field examination and report.

W. P. Williams

W. P. Williams

Copy retained 400
Copy retained 400

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

November 13, 1956

South River Mining Company, Inc.
1732 Bankers Securities Bldg.
Philadelphia 7, Penn.

Subject: DMEA-4536
Re: Exploration Assistance
Vesuvius Mine

Gentlemen

Your application for exploration assistance, dated October 31, 1956 submitted to our office at Knoxville, has been assigned Docket Number DMEA-4536 and referred to the Iron and Ferro-Alloys Division in the Washington office. Kindly identify all future correspondence relating to your application by this Docket Number.

Sincerely yours,

Allen S. Dakan, Chief
Operations Control and
Statistics Division

Copy to:

Region V. Knoxville, Tennessee

Code 400

3571

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.
ROOM 13 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

RECEIVED NOV 13 1956 D.M.E.A.

November 8, 1956

Memorandum

To: Operating Committee, DMEA, Washington, D. C.

From: Field Team, DMEA, Region V, Knoxville, Tennessee

Subject: Application from South River Mining Company, Inc.
Vesuvius Mine, Augusta County, Virginia (Manganese)

Enclosed are the original and two copies of the subject application, received here, with three copies of our letter to the Applicant. The fourth copy of the application is being kept here.

Robert A. Laurence
Robert A. Laurence
Executive Officer

V. J. Lynch
V. J. Lynch
Member, Bureau of Mines

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UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D.C.~~
KNOXVILLE 2, TENN.

November 8, 1956

RECEIVED NOV 13 1956 D.M.E.A.

Mr. Leonard J. Schwartz
Fox, Rothschild, O'Brien & Frankel
Bankers Securities Building
Juniper and Walnut Streets
Philadelphia 7, Pennsylvania

Dear Mr. Schwartz:

The application of South River Mining Company, Inc., for aid in exploring for manganese ores at the Vesuvius mine, Augusta County, Virginia, has been forwarded to our Washington office, in accordance with established procedure. We will notify you in advance if a field examination is to be made.

As the property is held under lease, it is necessary to have Form MF-205, Consent to Lien, executed by the land owner. Please have the land owner, Marcia Wilcox Farley, sign all seven of the enclosed copies of Form MF-205. Six copies should be returned to me and the seventh kept by Mrs. Farley. Also, we should have a copy of the assignment of the lease by Richard C. Spurgeon to South River Mining Company, Inc.

The map showing the property and proposed area to be explored is adequate for the review and field examination. However, if a contract should be approved, a more accurate map would be necessary. This could be plotted, without an actual survey, from the metes and bounds in the deed if there is a tie-in to some permanent landmark as a reference point. If the exploration area to be included in the contract is to be less than the area of the lease, that area should also be plotted precisely, and unless its boundaries can be plotted accurately from existing data, an actual survey would be needed.

Very truly yours,

Robert A. Laurence
Executive Officer
DMEA Field Team, Region V

RAL/mc
Enclosures 7

cc - Operating Committee (3)
Mr. V. J. Lynch Mr. W. T. Millar Files

LAW OFFICES
FOX, ROTHSCHILD, O'BRIEN & FRANKEL
BANKERS SECURITIES BUILDING
JUNIPER AND WALNUT STREETS
PHILADELPHIA 7, PA.

RECEIVED
NOV 5 - 1956

RECEIVED
NOV 13 1956
DMEA

November 1, 1956

Defense Minerals Exploration Administration
Room 13, Post Office Building
Knoxville 2, Tenn.

Attention: Mr. Laurent

Re: South River Mining Company, Incorporated
Application for Aid in Exploration Project

Dear Mr. Laurent:

We are enclosing herewith in quadruplicate Application for Aid in Exploration Project Pursuant to DMEA Order No. 1. We shall very much appreciate your advising us whether you desire any further information.

We have attached to each copy of the Application a photostatic copy of the Mineral Rights Lease to Richard C. Spurgeon, under which the company is operating. Richard C. Spurgeon has assigned all his right, title and interest in the Mineral Rights Lease to the South River Mining Company, Incorporated.

We have also attached to each copy of the Application photostatic copy of a Report by Wilbur A. Nelson, Consulting Geologist, dated May 5, 1955.

We have also attached to each copy of the Application a small map outlining the property in which the company has the Mineral Rights, and indicating the location of the area where it is intending to carry on the exploration work. However, the outlines indicated on the map should be taken as approximate, and the area noted for exploration should likewise be taken as approximate. If it will be helpful, a careful survey will be arranged by the company and the exploration area on the property itself will be marked out so that it cannot be mistaken.

We also enclose herewith a general area map.

We hope that you will find the Application in satisfactory order. If not, we shall appreciate your early advices.

Very truly yours,

Leonard J. Schwartz

Leonard J. Schwartz
For FOX, ROTHSCHILD, O'BRIEN & FRANKEL

LJS:ee
Encls.

(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

RECEIVED NOV 13 1956 D.M.E.A.

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. 4536
Metal or Mineral Manganese
Date Received 11-13-56
Estimated Cost $20,438
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: South River Mining Company, Incorporated, a corporation organized under the laws of the State of Virginia, 1732 Bankers Securities Building, Philadelphia 7, Pennsylvania. President-Richard C. Spurgeon, R.D.#2, Lansdale, Pa.; Treasurer-Glendon E. Robertson, 22 Ambler Rd., Merchantville, N.J.; Secretary-Leonard J. Schwartz, 6224 N. 12th St., Phila., Pa.

(*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

Land located in Vesuvius, Augusta County, Virginia. See attached detailed description.

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

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

Lessee of mineral rights.

(*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

RECEIVED NOV 5 - 1956 U. S. Geological Survey Knoxville, Tenn.

(*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*) State the mineral or minerals for which you wish to explore Mangane

See rider attached with respect to items 4, 5, 6 and 7.

(*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 [ ] Use of equipment owned by you [ ] Other

Explain in detail on accompanying 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 October 31, 1960

South River Mining Company, Incorporated
(Applicant)

By Howard Hartwig Secy

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

RECEIVED
Nov 13 1956
D.M.E.A.

RIDER

4. (a) The applicant has engaged in exploring for manganese and mining of manganese on the land described since shortly prior to acquisition of the mineral rights, March 4, 1955. After determining the existence of sufficient minimum ore, a heavy media plant was constructed on the property for the use of the applicant, including log washers and crushers, water reservoirs and settling basins. The applicant has also acquired for mining a caterpillar bulldozer with pan and scraper, a power shovel, power wagon, trucks and other motor equipment.

(b) The applicant has shipped to the General Services Administration approximately 1,000 tons of manganese ore and is now processing and shipping at the average rate of approximately 20 tons a day. The ore shipped is classified in the G.S.A. regulations as Type 2 ore. The analysis of the ore shipped has varied from 41.67% manganese to 49.32% manganese. The silica content has varied from 8.25% to 14.66%. The phosphorous varied from .092% to .272%. All cars shipped by the applicant have been accepted by Defense Material Service.

(c) On May 5, 1955, Mr. Wilbur A. Nelson, consulting geologist, of Charlottesville, Virginia, at the request of the applicant investigated and reported with respect to the occurrence of manganese on the property. This report describes the geologic features of the property and type of deposit. We attach hereto a photostat of the report. It is not required that this photostat of report be returned to the applicant.

The applicant in its exploration has determined the existence of manganese at various depths in varying quantities and grade suitable for mining. The applicant has uncovered what appears to be a sizable body of ore in an area which has been identified as "Trench No. 2", and the applicant and Dr. Wilbur A. Nelson, consulting geologist, believe from the study of the geology of the area that it would be advisable to explore a section of the leased property lying 25 feet from the existing "Trench No. 2" running parallel with the existing "Trench No. 2".

(d) The property is readily accessible and can be reached by following Route 11 to Steele's Tavern, Virginia, at which point a good macadam road leads to Vesuvius, approximately 2 miles from which point a smooth, hard dirt road covered with crushed stone (approximately 3/4 mile) leads to the mine property. The railroad siding is approximately 1 mile from the plant.

(e) The applicant has all the manpower it requires for mining and operating the plant. The plant is highly efficient in the preparation of ore for shipment and water and electric power requirements are amply supplied.

5. <u>The Exploration Project.</u>

(a) Manganese is the mineral to be explored.

(b) The proposed work of exploration is to be done on the property, a sketch of which is enclosed, on the strip to be marked out 25 feet from "Trench No. 2" running parallel therewith, and in width 50 feet to 100 feet, and in length 1,000 feet. The section to be explored, noted as "Trench No. 3", will be carefully marked on the land.

(c) The exploration work will start within 10 days after this application is approved and be completed within 6 weeks after the starting date.

(d) The exploration project will be under the supervision of Richard C. Spurgeon, president of the applicant. Mr. Spurgeon has explored for manganese over a period of 4 years, has supervised the exploration operation of the applicant company on the company's leased property, and under his supervision good bodies of manganese ore have been discovered and developed. He is also in charge of all mining operations of the applicant. Dr. Wilbur A. Nelson, who will be employed as consulting geologist, is chairman of the University of Virginia Corcoran and Rogers Department of Geology, formerly State Geologist of Virginia and Tennessee.

6. Estimate of Costs involved in the exploration program are as follows:

Drilling-caisson drilling work will be performed, holes 3 ft. in diameter at $15 an hour, 10 hr. a day, 5-day week, 6 weeks, app. cost	$5,000
Rental - 2 bulldozers at $12 an hr. each, 10 hr. a day, 5-day week, 6 weeks, app. cost	7,200
Supervision - Richard C. Spurgeon, $60 a day, 6-day week, 6 weeks	2,160
Sampling - Sampling to be done by applicant, 2 men, 10-hr. day, $1.25 an hr., 6-day week, 6 weeks	900
1 Dump Truck -to be rented - $1.50 an hr., 10-hr. day, 6-day week, 6 weeks	540
Laboratory Work Analysis -Andrew McCreath & Son, app. $___ per sample, total estimated cost	1,000
Operating Expenses and Supervisors - automobile & sampling truck, $5 a day, 6-day week, 6 weeks	180
Dynamite caps and fuse, app.	100
Legal expenses	500
Consulting geologist, $150 to $200 a day, total cost app.	1,000
	$18,580
10% for contingencies	1,858
Total cost	$20,438

The only work to be contracted will be the drilling and laboratory analysis at the cost above indicated.

7. (a) The applicant is prepared to share the cost of the proposed project in accordance with the regulations on Government participation.

(b) The applicant's share of the proposed cost will be by allocation of $5,086 cash to be used to pay 25% of the extimated expense of the project.

34974

THIS AGREEMENT, made in duplicate this 4th day of March, 1955, by and between MARCIA WILCOX FARLEY, of Montgomery County, State of Pennsylvania (hereinafter referred to as "Lessor"); and RICHARD C. SPURGEON, of Montgomery County, State of Pennsylvania (hereinafter referred to as "Lessee");

W I T N E S S E T H: That

WHEREAS, the Lessor is the owner of all the mineral rights in certain three hundred fifty (350) acres of land (hereinafter referred to as "Lessor's Lands") located near Vesuvius, Virginia, and which are more fully described in a deed dated December 13, 1879, duly recorded in the County Clerk's Office of Augusta County, Virginia, in Deed Book No. 94, page 519, in which John W. Fauver conveyed said mineral rights to Cowley & Company, as follows:

> "...situated in the County of Augusta, State of Virginia, near Steele's Tavern belonging to John W. Fauver, party of the first part, containing about 350 acres adjoining the lands of Echols, Bell, and Catlett and Cyrus McCormick on the south, Shelton and Caldwell on the North, I. Newton on the East, John W. Fauver on the west, known as the Groah property - the whole of said property is embraced in lots No. 1, 2, 5 and 6 as seen in the Plat made by Jas. H. Callison, James Henry and A. M. Moore Commissioners in the cause of Groah's Admrs'. vs. Groah's heirs, a decided cause, the papers of which are filed up in the Circuit Court Clerk's Office of Augusta County, State of Virginia, and for the more particular description by metes and bounds of said tract reference is hereby to the said Plat aforesaid..."

and which is further described in a deed of March 15, 1949, in

which Peyton Cochran, Special Commissioner of the Circuit Court of Augusta County, Virginia, transferred said mineral rights to Mary L. Wilcox, widow of A. C. Wilcox, as follows:

> "FIRST: All the estate, property, rights, title, interest, mineral rights, privileges, easements and servitudes (conveyed to the firm of Cowley & Company by deed of John W. Fauver, dated December 15, 1879, and recorded in the Clerk's Office of the Circuit Court of Augusta County, Virginia, in Deed Book 94, at page 519(in, upon and under that certain tract of land in Riverheads Magisterial District, Augusta County, Virginia, near South River and the N. & W. Ry. Co., near Vesuvius, adjoining the lands formerly belonging to Echols, Bell & Catlett, McCormick and Shelton and known as the Groah tract, containing 350 acres, more or less, compromising all the mineral of whatsoever kind or description, including all iron ore, manganese and fire clay under and upon the premises, with the exclusive right to excavate, search for, dig and mine the same, by shafts or otherwise, to use and occupy the surface and erect buildings and machinery for such purposes, and rights of ingress and egress, making roads or railways, using stone watercourses, etc. for such purpose, together with the right to any timber on said premises for the opening of the mines or any of the purposes mentioned, at its fair market value, as fully as the said rights and easements were embraced in the above mentioned deed'; and,"

NOW, THEREFORE, the Lessor, for the consideration hereinafter set forth, does hereby let unto the Lessee the exclusive right to enter upon Lessor's Lands to search, explore and drill for natural resources and deposits in the form of gas, fluids or solids, such as but not being limited to gas, oil and mineral substances (hereinafter called "Minerals"), and does hereby grant unto the Lessee the exclusive right to mine, carry away and dispose of all Minerals upon, within and underlying Lessor's Lands upon the following terms and conditions:

1. Minimum Rental Payment: Lessee shall pay to the Lessor One Thousand Dollars ($1,000), the receipt of which is hereby acknowledged by the Lessor upon the execution of the within Agreement.

2. Royalties:

(a) Lessee, during the term of this Lease, shall pay to the Lessor Monthly Minimum Royalties of Two Hundred Dollars ($200) beginning with October 1, 1955, and similar Minimum Royalty Payments of Two Hundred Dollars ($200) shall be paid on the first day of each month thereafter.

(b) In the event Minerals are mined and carried away from Lessor's Lands and are sold by the Lessee, the Lessee shall pay to the Lessor as Royalty ten per cent (10%) of the sales prices received by the Lessee for such Minerals.

(c) "Sales prices" shall mean the sales prices received by the Lessee less discounts allowed.

(d) Lessee shall submit to Lessor on the 25th day of each month a statement of the quantity of Minerals mined and removed from Lessor's Lands, and shall also submit a separate statement of all Minerals sold by the Lessee in the preceding calendar month, which said Minerals were removed from Lessor's Lands and the sales prices received therefor, and shall remit to the Lessor payment of Royalties hereinbefore provided.

(e) The Two Hundred Dollars ($200) Monthly Minimum Royalties required to be paid under paragraph (a) hereof shall be

treated and applied as payment on account of Royalties in the following manner:

(1) "Royalty Payment Period" shall mean the three (3) calendar-month period beginning with and including the calendar month in which Minerals from the Lessor's Lands are first sold by the Lessee and each successive three (3) calendar-month period thereafter.

(2) The Six Hundred Dollars ($600) Monthly Minimum Royalties paid by the Lessee in each Royalty Payment Period shall be applied as a payment on account of the Royalties due to the Lessor under paragraph (b) hereof.

(3) Lessee shall not make any payments of Royalties to the Lessor under paragraph (b) hereof until such Royalties due to the Lessor in any Royalty Payment Period aggregate a sum in excess of Six Hundred Dollars ($600), the Minimum Royalty Payments made for such period.

3. Term:

(a) Minimum Term: This Lease shall remain in full force and effect until September 30, 1957, which shall be the Minimum Term of this Lease.

(b) Term so Long as There Are No Mining Operations: In the event the Lessee fails to put into effect the work and operations of mining prior to the end of the Minimum Term, either party may terminate this Lease at the expiration of the Minimum Term by giving to the other thirty (30) days' notice of intention

so to do prior to the end of the Minimum Term; but in default of such notice, this Lease, with all the conditions and convenants thereof, shall continue for the additional term of one (1) year and so on from year to year so long as the Lessee fails to put into effect the work and operations of mining until terminated by either party giving to the other thirty (30) days' notice of intention to terminate said Lease at the expiration of said current term, whereupon this Lease shall terminate and be of no effect.

(c) Term in the Event of Mining Operations: In the event the Lessee has, prior to the end of the Minimum Term or prior to the end of any additional term thereafter, put into effect any work and operations of mining, then this Lease shall continue in full force and effect so long as the Minerals mined by the Lessee shall be found in paying quantities and the Lessor shall in good faith profitably mine and sell such Minerals.

4. Default in Minimum Royalty Payments: In the event Lessee fails to make the Minimum Royalty Payments of Two Hundred Dollars ($200) per month due as hereinbefore set forth in any three (3) successive months and the Lessee, upon notice from the Lessor that such default exists, fails within ten (10) days from the date of such notice to make payment of the full Minimum Royalty Payments due in full, this Lease shall absolutely terminate at the option of the Lessor to be signified by written notice to that effect to the Lessee.

5. Discontinuance of Mining Operations:

(a) Upon the discontinuance of mining operations, this Lease shall absolutely terminate at the option of the Lessor provided the Lessor has given notice to the Lessee that the Lessee has discontinued mining operations and requiring the Lessee to resume mining operations within sixty (60) days from the date of notice, and if the Lessee fails to resume such mining operations within said sixty (60) days, the Lease shall terminate. Upon the failure of the Lessee to comply with the notice of the Lessor to resume mining operations, this Lease shall terminate and be void and of no effect.

(b) The term "discontinuance of mining operations" shall mean the failure of the Lessee to mine and take away Minerals from the Lessor's Lands for a period of twelve (12) consecutive months if such failure is not caused by strikes, riots, conditions created by state of war, Government regulations, fire or other casualty, act of God or other causes beyond the control of the Lessee.

6. Removal of Equipment by Lessee: Upon the termination of this Lease, the Lessee shall have ninety (90) days after the date of termination to remove all machinery, buildings, equipment and all other improvements placed by the Lessee in or on Lessor's Lands by Lessee.

7. Indemnity: Lessee shall indemnity and save the Lessor harmless from any and all claims or damages of whatsoever

kind arising out of the activities of the Lessee on the Lessor's Lands.

8. Assignment: The Lessee shall have the right to transfer this Lease or sell or transfer the whole or any part of the Lessee's right under this Lease without the consent of the Lessor.

9. Lessor's Warranty: Lessor covenants with the Lessee that she is lawfully seized and owns the Mineral rights and interests hereby leased and that the same are free from all liens, encumbrances and easements and that she has the good right to lease the same as aforesaid and that she will, and her heirs, executors and administrators shall, warrant and defend the same to the Lessee, his heirs, administrators, successors and assigns, forever against the claim of all persons.

10. Notice: All notices required under the terms of this Lease shall be in writing and shall be mailed by registered mail to the last known address of the party to whom the notice is directed. The date of the mailing shall be the date of the notice.

11. Agreement Binding Upon and For the Benefit of Successors and Assigns:

(a) This Agreement shall be a covenant running with the Lands and the terms and conditions of this Agreement shall inure to the benefit of and be binding upon the heirs, administrators, successors, grantees and assigns of the Lessor.

(b) The terms of this Agreement shall inure to

the benefit of and be binding upon the Lessee, his heirs, administrators, successors and assigns.

12. Recording of Lease: The Lessee shall have the right to record this Lease and make it a matter of record in the Office for Recording of Deeds and Mortgages in and for Township, County, Virginia.

13. Joinder of Husband: Radcliffe D. Farley, husband of Marcia Wilcox Farley, joins in this Lease and agrees that any right he may have in Lessor's Lands as husband of the Lessor is and shall be subordinate to the rights of the Lessee as hereinbefore set forth.

14. Supplemental Documents: Lessor and Radcliffe D. Farley agree that they will execute any and all instruments that may be necessary under the law of the State of Virginia in order to perfect the aforesaid lease to the Lessee.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands and seals the day and year first above written.

Witness:

Catherine M. Bowe

Leonard Stewart

Marcia Wilcox Farley (SEAL)
Marcia Wilcox Farley

Radcliffe D. Farley (SEAL)
Radcliffe D. Farley

Richard C. Spurgeon (SEAL)
Richard C. Spurgeon

COMMONWEALTH OF PENNSYLVANIA:
COUNTY OF Montgomery : SS

I, Anna A. Moyer, a Notary Public in and for the county aforesaid, do hereby certify that MARCIA WILCOX FARLEY and RADCLIFFE D. FARLEY, whose names are signed to the foregoing writing bearing date the 4th day of March, 1955, have acknowledged the same before me in my county aforesaid.

Anna A. Moyer
Notary Public

STATE OF PENNSYLVANIA, } SS:
COUNTY OF MONTGOMERY, }

I, SAMUEL M. WILSON, PROTHONOTARY of the Court of Common Pleas of said County of Montgomery, in the State aforesaid (said Court being a Court of Record), DO HEREBY CERTIFY, That Anna A. Moyer, the NOTARY PUBLIC, before whom the within acknowledgment or deposition was made, was at the time of taking the same authorized by the laws of the State of Pennsylvania to take the acknowledgments and proofs of deeds or conveyances for land, tenements and hereditaments situate, lying and being in said State of Pennsylvania. And further that I am well acquainted with the handwriting of such Notary and verily believe that the signature to said certificate of proof, acknowledgment or deposition is genuine.

IN TESTIMONY WHEREOF, I have hereunto set my hand and seal of the said Court at Norristown, this 4th day May, 1955

Samuel M. Wilson Prothonotary

In the Clerk's Office of the Circuit Court for Augusta County

MAY 13 1955, 2:10 P.M.

Lease Agreement between Marcia Wilcox Harley et al, and Richard C. Spurgeon

[illegible] the Sta[illegible] 8.70 being [illegible] the [illegible] admitted to record

[illegible] J. M. Blackburn CLERK

34974

LEASE AGREEMENT

Between

MARGIA WILCOX FARLEY

and

RICHARD C. SPURGEON

Premises: 350-acre Tract near Vesuvius, Virginia

RECORDED in the Clerk's Office of the Circuit Court for Augusta County, in DEED BOOK No. [illegible] Page [illegible] and Examined

Teste J. M. Blackburn Clerk

Dated: March 4, 1955

STATE TAX - $ 8.70

COMM. REV. - $

REG. & RECD. - $ 5.00

TOTAL - $ [illegible]

LAW OFFICES

FOX, ROTHSCHILD, O'BRIEN & FRANKEL

BANKERS SECURITIES BUILDING

PHILADELPHIA 7, PA.

May 13, 1955 - 7:10 P.M.

A REPORT ON THE MANGANESE PROPERTIES
OF THE
VESUVIUS MINING COMPANY
VESUVIUS, VIRGINIA

NOV 13 1956

This report is made for Mr. Richard Spurgeon, the owner of this property, to determine, from the prospecting carried on under the direction of Mr. Lewis C. Straughan, the amount of manganese ore proven by the testing done to date.

LOCATION

The property of the Vesuvius Mining Company is located at the western foot of the Blue Ridge Mountains on the north side of Dogwood Hollow about two miles north of Vesuvius, a station on the Norfolk & Western Railway. The property is in Augusta County, Virginia, just north of the Rockbridge County line.

GEOLOGY

The original source of the manganese ores occurring in this district is a dolomite formation formerly known as the Shady colomite but in more recent reports referred to as the Tomstown dolomite.

In the lower part of the Tomstown dolomite there originally occurred disseminated layers of manganese carbonate which were taken in solution and redeposited as manganese oxide ores at favorable structural places on this property. At the base of the Tomstown dolomite there occurs several hundred feet of yellow and white clays which separate the Tomstown dolomite from the Antietam quartzite, formerly known as the Erwin quartzite.

In the yellow and white clays lying between the Tomstown dolomite and the Antietam quartzite there occur irregular lenses of limonite ore which are not of sufficient thickness on this property to be of any value.

The Antietam quartzite makes massive high resistent ridges which are well exposed on the northeast side of this property.

The Tomstown dolomite and yellow and white clays are deeply weathered and exposures seldom are seen of these two formations.

It is in the deeply weathered clay of the Tomstown dolomite that the ore deposits occur.

STRUCTURE

The geologic structure of the Vesuvius area is made up of a series of anticlines and synclines trending northeastward. The synclinal area of the fold occurring on the Vesuvius property is occupied by the weathered Tomstown dolomite and a concentration of manganese ore in the clay derived from this dolomite.

ORE MINERALS

The manganese ore minerals on this property occur wholly in the form of oxides. The manganese minerals are pyrolusite and psilomelane, mixed in places with considerable iron ore in the form of limonite.

In one locality there is considerable wad, which is a type of manganese ore which cannot be recovered in mining.

The manganese ore occurs in irregular lumps and in fine particles which are referred to as "shot ore". Many of the irregular lumps are in the form of nodules, having botryoidal surfaces. Such nodules are locally referred to as "kidneys".

The manganese ore is easily distinguished from the limonite or iron ore, as both of the manganese minerals have a dark blueish color and, in addition to the distinct feature of the nodules, give a jet black or brownish black streak on a white plate. The limonite shot ore is brown in color and gives a distinct yellow streak on a white plate. The limonite shot ore attaches itself to a magnet and the magnetic property of this ore permits a complete and easy separation of the limonite ore from the manganese ores which do not have this property.

OCCURRENCE

The manganese ore deposits on this property have been prospected in three distinct areas. A map showing these three areas and the location of all three foot test holes accompanies this report.

Area No. 1

Area No. 1 is where the vein ore occurs and is located slightly to the southeast and adjacent to Area No. 2. Five prospect holes were dug into and through this vein. The area prospected is 350' long by 175' wide and the ore vein was encountered in

Hole No. 1 between 12' and 17'
Hole No. 2 between 10' and 11'
Hole No. 3 between 12' and 17'
Hole No. 4 between 17' and 25', and
Hole No. 44 between 8' and 11'
Hole No. 44 started in pocket of ore 2' thick

These prospect holes were 3' in diameter and were dug by a well drilling machine. All of these holes were dug in clay formed by the weathering of the Tomstown dolomite.

All of the vein material from Hole No. 1 was washed and averaged 250 pounds to the cubic yard in manganese ore. This screening and washing of the ore was done before the property was visited but the buckets in which the recovered ore was placed were examined by me and the weights checked. It is an excellent grade of ore.

Area No. 2

Area No. 2 is where the manganese ore occurs in clay overlying the weathered Tomstown dolomite. Part of this area is a remnant of the gravel covered old valley floor peneplane, which, at the present time, makes a terrace near the western foot of the Blue Ridge Mountains. The ore in Area No. 2, which is from the clay and, in places, from clay and gravel, is derived from the breakdown of the vein ore such as was prospected in Area No. 1. Due to the great erosion of the Tomstown dolomite, in which this vein occurred, this eroded vein material has collected in the clay in the lower slopes of the Blue Ridge below the old outcrop of the manganese vein and by hillside creep has spread out in a fan shape. This is the area prospected and referred to as Area No. 2.

The ore occurs in lump form and also in fine particles which are referred to as "shot ore". There is also a considerable amount of shot limonite ore in this area. There were thirty-eight 3' test pits dug in this area, numbered from 5 to 43. The area prospected is 800' down the gentle slope of the mountain side with an average width of 250'.

In addition to the test pits a trench was cut across the upper part of this ore area by a bulldozer. This trench was about 8' deep at its center. A 5' channel sample was taken at this point.

Two other channel samples were taken in pit 23 and pit 30. The channel sample taken in the bulldozer cut was 5' x 10" x 2½". The channel sample in pit 23 was 8' x 6" x 1½". The channel sample in pit 30 was 4½' x 10" x 1½". A longer channel sample would have been taken in this pit but the lower part of the pit was full of water.

A cubic yard sample was taken by Mr. Straughan from the ore occurring in Hole No. 5. This sample weighed 3,240 pounds and 385 pounds of ore were recovered from this cubic yard. There were, however, several large lumps of manganese ore in this particular sample.

Clay containing manganese ore was encountered in

Hole No. 5 between 0' and 14'
Hole No. 6 between 0' and 10'
Hole No. 7 between 0' and 6'
Hole No. 8 between 0' and 5'
Hole No. 9 between 0' and 6'
Hole No. 10 between 0' and 8'
Hole No. 11 between 0' and 8'
Hole No. 12 between 0' and 15'
Hole No. 15 between 0' and 21'
Hole No. 16 between 0' and 14'
Hole No. 17 between 0' and 9'
Hole No. 18 between 0' and 8'
Hole No. 19 between 0' and 8'
Hole No. 20 between 0' and 5'
Hole No. 22 between 0' and 6'
Hole No. 23 between 0' and 14'
Hole No. 24 between 0' and 18'
Hole No. 27 between 0' and 4'
Hole No. 28 between 0' and 4'
Hole No. 29 between 0' and 14'
Hole No. 30 between 0' and 11'
Hole No. 31 between 0' and 5'
Hole No. 36 between 0' and 21'
Hole No. 37 between 0' and 14'
Hole No. 39 between 0' and 6'
Hole No. 40 between 0' and 9', and
Hole No. 43 between 0' and 4'

No ore occurs in Holes Nos. 21, 26, 33, 34, 38 and 41. Very little ore was found in Holes Nos. 25, 32 and 35. Clay containing scattered ore varies in thickness from 5' in Hole No. 8 to 21' in Hole No. 36.

Most of these test pits were examined and the figures on a number of them checked.

The entire list of test holes, giving the thicknesses of ore, are taken from Mr. Straughan's notebook.

The three channel samples taken on April 28 and April 30 were washed and screened under my direction and the iron ore removed by magnet with the following results:

Sample No. 1 from the bulldozer trench had a net weight of 118 pounds. After the removal of the clay by screening and washing there remained 22 pounds of rock. Out of this rock there was recovered 4 pounds of lump manganese ore and 3½ pounds of shot manganese ore.

Sample from Pit No. 23 had a net weight of 108 pounds from which were recovered 4 pounds of lump manganese ore and 4 pounds of shot manganese ore.

Sample from Pit No. 30 had a net weight of 115 pounds from which was recovered 5 pounds of lump manganese ore and 4 pounds of shot manganese ore.

These three channel samples were taken, one from near the top of Area No. 2, one near the middle and the final one near the lower end of this area.

From these figures it is estimated that a cubic foot of the manganese bearing clay will average 4 pounds of lump manganese ore and 4 pounds of shot manganese ore. None of the lump ore in these three channel samples was over 3" in diameter. However, many large lumps of manganese ore up to 8" in diameter were seen in the ore bearing clay.

It is estimated from a study of the 38 test pits put down in Area No. 2 that the ore bearing clay will have at least an average thickness of 10'.

Area No. 3

Area No. 3 occurs to the south of a small hollow north of which are located Areas Nos 1 and 2, and is another area in which the manganese vein outcrops. This area was tested by 18 test pits, numbers 45 to 63. These pits occur in an area 600' long by 250' wide. Vein ore was encountered in

Hole No. 46 between 22' and 30' – 8
Hole No. 48 between 22' and 32' – 10
Hole No. 49 between 22' and 26' – 4
Hole No. 50 between 17' and 22', and 5
Hole No. 51 between 5' and 9'.

In Hole No. 51 a second vein of ore was encountered at 82' but was not dug through as the well drilling machine could not dig any deeper.

Ore was encountered in

Hole No. 52 between 10' and 12'
Hole No. 53 between 0' and 8'
Hole No. 54 between 0' and 8'
Hole No. 56 between 0' and 12'
Hole No. 57 between 0' and 12'
Hole No. 60 between 0' and 4' and 15' and 17' (between two horizons)
Hole No. 61 between 2' and 5'
Hole No. 62 between 2' and 5'
Hole No. 63 between 2' and 5', and
Hole No. 64 between 2' and 5'

Hole No. 45 was drilled to a depth of 20' at which depth it caved in and was abandoned.

Hole No. 47 was dug to a depth of 44' and encountered no ore.

Hole No. 55 was ;dug to a depth of 22' and encountered no ore.

Hole No. 58, dug to a depth of 44', and Hole No. 59, dug to a depth of 19', encountered nothing but wad ore.

ORE TONNAGE

Area No. 1 tested with 5 test pits is 350' long by 175' wide with an estimated 5' thickness of the ore vein. This area contains 306,250 cubic feet, or 11,342 cubic yards of ore vein, which it is estimated will average 250 pounds of manganese ore to the cubic yard or 1,417 tons of manganese ore.

Area No. 2, tested by 38 test pits and one bulldozer trench, is 800' by 250', with an estimated average of 10' of ore-bearing clay. This area contains 2 million cubic feet of ore-bearing clay, and on the

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basis of 8 pounds of manganese ore to the cubic foot it contains 8,000 tons of manganese ore, of which 4,000 tons is lump ore and 4,000 tons is shot ore.

Area No. 3, tested by 18 test pits, is 600' by 250', with an estimated average thickness of the ore vein of 5'. This area contains 750,000 cubic feet of ore vein, or ~~2,777~~ 27,777 cubic yards, which should average the same as the ore vein in Area No. 1, that is 250 pounds of manganese ore to the cubic yard. Area No. 3 contains 3,472 tons of manganese ore. 3472 2000 OK

The total tonnage proven up by test pits and bulldozing in the three areas is 12,889 tons of manganese ore, of which 4,000 tons is shot ore, leaving 8,889 tons of lump ore.

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B

CONCLUSIONS

It is considered that all of the ore tested in Areas 1, 2 and 3 can be mined by open pit methods. The analyses which have been made of this ore by the Vesuvius Mining Company show that it averages over 40% manganese. Such ore should be acceptable to the Government for stock piling.

Respectfully submitted,

Wilbur A. Nelson

Wilbur A. Nelson
Consulting Geologist

Charlottesville, Virginia
May 5, 1955

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VESUVIUS QUADRANGLE
VIRGINIA
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Mapped, edited, and published by the Geological Survey
Surveyed by plane-table methods in 1935-1936
Revised in 1950
Polyconic projection. 1927 North American datum
10,000-foot grids based on Virginia coordinate system, north and south zones

TRUE NORTH
MAGNETIC NORTH
4°
APPROXIMATE MEAN DECLINATION, 1936

SCALE 1:62500

1 ½ 0 1 2 3 4 MILES

3000 0 3000 6000 9000 12000 15000 18000 21000 FEET

1 .5 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 50 FEET
DATUM IS MEAN SEA LEVEL

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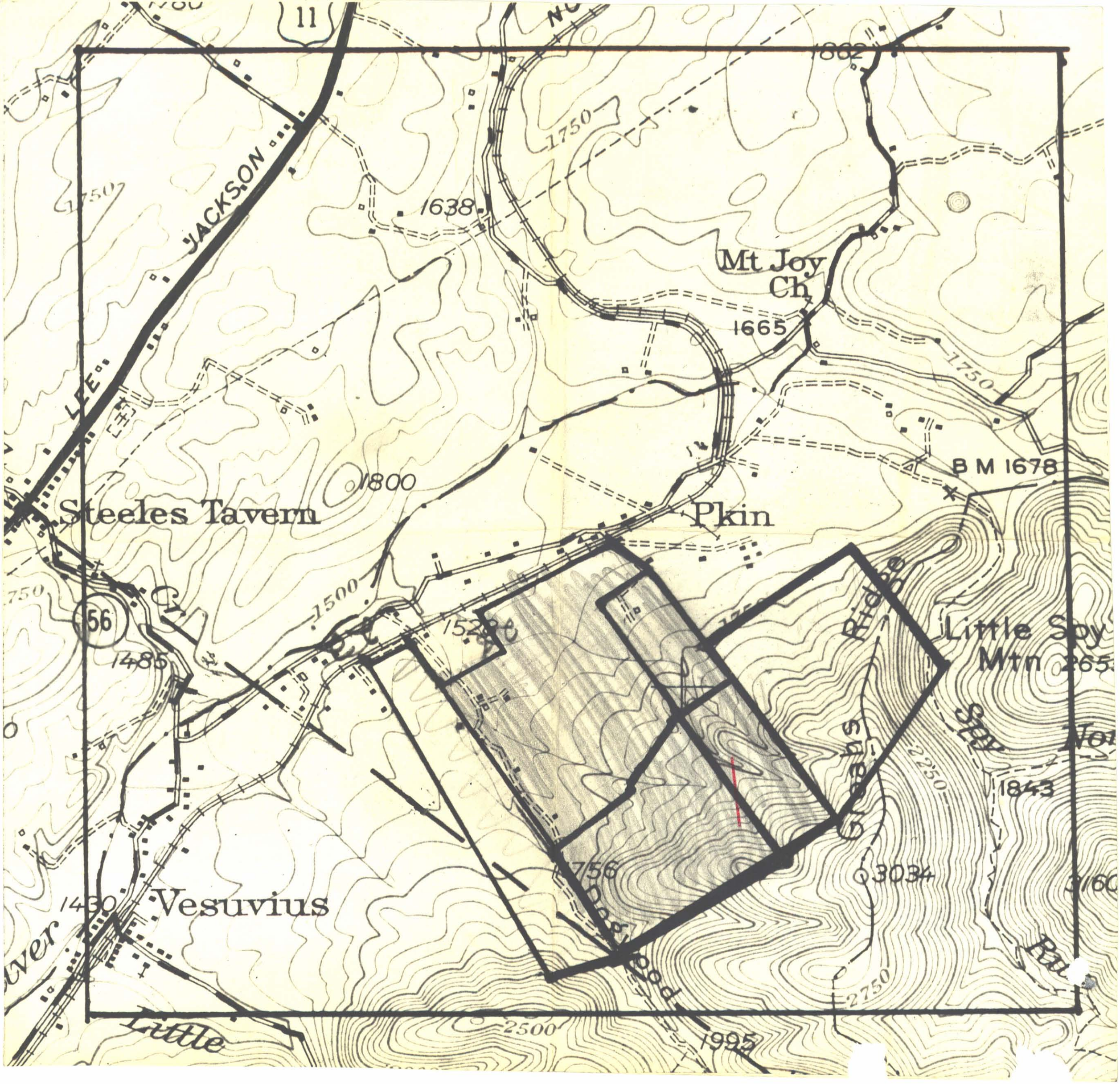
ROAD CLASSIFICATION

HARD-SURFACE ALL WEATHER ROADS		DRY WEATHER ROADS
Heavy-duty	4 LANE / 2 LANE	Improved dirt
Medium-duty	4 LANE / 2 LANE	Unimproved dirt
Loose-surface, graded, or narrow hard-surface		

U. S. Route — State Route

VESUVIUS, VA.
N3745-W7900/15

EDITION OF 1951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