400

JUN 29 1956

Spangler Mining Corporation
P. O. Box 38
Narrows, Virginia

Re: Docket No. DMEA-4162, Manganese
Hoffman Mine, Hoffman-Givens
Prospect, Laing Prospect, and
Hoge-Laing Prospect
Giles and Craig Counties, Virginia

Gentlemen:

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

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

Careful study of our information, although noting manganese mineralization on each of the above-named prospects, indicates to us that the probability of disclosing significant manganese ore reserves thereon is not sufficiently promising to justify Government participation. Under these circumstances, we regret to advise you that your application is denied.

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

Sincerely yours,

G. E. Mittendorf

Administrator

cc: Docket
Code 400
Oper. Comm.
Adm. Read. File
T. Kiilsgaard, USGS
G. DeHuff, USBM
FT, Region V

SPHolt/ls
6/25/56

June 27, 1956

MEMORANDUM

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division, DMEA

Subject: Denial of request for exploration assistance in the amount of $11,664.90
Docket No. DMEA-4162, Manganese
Spangler Mining Corporation
Hoffman Mine, Hoffman-Givens Prospect, Laing Prospect, and Hoge-Laing Prospect
Giles and Craig Counties, Virginia

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

(1) The applicant, Spangler Mining Corporation, P. O. Box 38, Narrows, Virginia, requested exploration assistance in the amount of $11,664.90 for trenching and sampling on the Hoffman Mine, Hoffman-Givens Prospect, Laing Prospect, and Hoge-Laing Prospect properties.

(2) The applicant controls, by lease from the owners, Little Stony Game and Fish Preserve, Incorporated, the following property in Giles and Craig Counties, Virginia:

| | |
|---|---|
| Hoffman Mine | Laing Prospect |
| Hoffman-Givens Prospect | Hoge-Laing Prospect |

(3) The proposed program is to explore the Hoffman Mine, Hoffman-Givens Prospect, Laing Prospect, and Hoge-Laing Prospect by excavating trenches with large earth-moving equipment, trucking bulk samples of any manganese ore discovered in the trenches to a nearby pilot plant for testing by washing, jigging, concentrating and assaying.

(4) In the area of the four properties proposed for exploration manganese occurs as scattered lumps and nodules of psilomelane, manganite and wad in altered and weathered Knox dolomite and Cayuga sandstone, and in the residual clays and loam lying over the dolomite and sandstone.

(5) The Field Team notes that new work completed by the applicant consists only of two cuts on the Hoffman Mine property, in which the ore zone in the loam and underlying clay is thin , with nodules of psilomelane, manganite and wad sparsely and sporadically distributed throughout the

material in the cuts. Old cuts and pits on the other three prospects included in the project were caved or partially filled and could not be properly evaluated by the examiners.

The Field Team recommends that the application be denied at this time, but that if the applicant completes additional prospecting work on his leases and exposes better mineralization, the examining team should reappraise the property with a view towards possible DMEA assistance. The Field Team doubts, however, that the applicant will do further prospecting.

The Commodity Divisions of the Geological Survey and the Bureau of Mines concur in this recommendation.

W. S. Martin

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

CC: Docket
Code 400
Oper. Comm.
Adm. Read. File

SPHolt/ls
6/27/56

400

JUN 25 1956

June 22, 1956

Memorandum

To: W. S. Martin, DMEA

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

Subject: DMEA-4162. Manganese. Spangler Mining Corp., Craig and Giles Counties, Virginia

The Field Team report of June 8, 1956, following a field examination, recommends that subject application be denied at this time.

Total cost of the estimated project was $11,664.90. The work was to be divided among four prospects: Huffman, Huffman-Givens, Laing, and Hogo-Laing.

With reference to the Huffman, the only property on which the applicant has done any work, the Field Team concludes that "there is small probability that additional work would result in a significant discovery".

The Field Team sums up the situation with respect to the other three prospects, by stating, "In its present state, the proposed project clearly represents a prospecting venture".

I concur with the recommendation that this application be denied.

G. L. DeHuff, Jr.

IN REPLY REFER TO:

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

RECEIVED
JUN 18 1956

June 18, 1956

Re: DMEA 4162
Spangler Mining Corp.
Hoffman etc. properties
Craig and Giles Cos. Va.
$11,664.90 - Manganese

Copy retained 260

Memorandum

To: [illegible] Martin, Defense Minerals Exploration Administration

From: N. [illegible] Nelson, U. S. Geological Survey

Subject: Review of Field Team report.

The applicant requested assistance in exploring four properties by machine trenching, bulk sampling and concentration tests.

One property (Hoffman) is credited with a small production. The applicant claims that from 129 tons of material, taken from the pit and trucked 40 miles to a washing plant, was recovered 17.5 short tons of 40.9% manganese concentrate. According to the applicant a profit of $300.00 was made on the operation. From the ratio of concentration, 7½:1, it may be inferred the run of pit material assayed more or less like the 3-foot vertical sample taken by the examiners, that is 8.76% Mn. A six-foot vertical sample of similar looking material taken in the operating Carrie pit (Kessler mine) assayed 10.41% Mn.

No work appeared to have been done recently on the other 3 properties, the pits and trenches were sloughed and no estimate of potential could be made. Obviously work could not be recommended.

The examiners conclude that "work completed by the applicant on the Hoffman property indicates that there is small probability that additional work would result in a significant discovery", and recommend that the application be denied.

With the Field Team I concur with the recommendation.

N. E. Nelson

N. [illegible] Nelson

NENelson:btr
G 6/18/56

cc: Director's reading file (4212)
Branch reading file (4212)
DMEA(3)
Chron. file
Docket File Gilbert DeHuff, 3521

400

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

June 8, 1956

W/M

Memorandum

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

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

Subject: Field Examination Report - DMEA-4162 (Manganese)
Spangler Mining Corp., Narrows, Virginia
Prospects in Craig and Giles

Enclosed are four copies of the subject examination report.

It has been our observation that manganese prospects in Knox dolomite residuum offer virtually no promise as commercial producers.

We are in agreement with the examiners' recommendation for denial of the application. Unless further prospecting shows unusually favorable results, we doubt that a re-examination would be worth the time and expense involved.

Robert A. Laurence
Executive Officer

V. J. Lynch
Member, Bureau of Mines

RAL/mg
Enclosures 4
cc - Operating Committee (3)
Mr. V. J. Lynch
Mr. H. L. Burmeister
Mr. W. P. Williams
Files

Reviewed by
DMEA OPERATING COMMITTEE
(date)

# FIELD TEAM REPORT ON EXAMINATION OF PROPERTIES

by

W. F. Williams and H. L. Bernstein[1]

DMEA Docket No. 4368 (Manganese)

Applicant: Spangler Mining Corp., P.O. Box 38, Narrows, Va., Calvin D. Spangler, President.

## SUMMARY

The property involved in this application consists of four separate leased tracts known as 1) Hoffman mine, 2) Hoffman-Givens prospect, 3) Laing prospect, and 4) Hogg-Laing prospect. These tracts are in Craig and Giles Counties, Virginia, and are shown on figures 1 and 2.

Two small trenches on the Hoffman property comprise the total of prospecting or exploration done by the applicant on all four properties. These trenches were sampled. The caved remains of a few old trenches were found on the Laing and Hogg-Laing leases. All manganese mineralization seen was sparse and residual from the underlying Knox dolomite.

## CONCLUSIONS AND RECOMMENDATIONS

Test pits dug by the applicant on the Hoffman mine property show that the ore seam in the loam and underlying clay is thin, and that the ore grade changes markedly in lateral directions. The southeast cut is completely discouraging as far as further work is concerned.

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1/ W. F. Williams, Geologist, U. S. Geological Survey.
H. L. Bernstein, Engineer, U. S. Bureau of Mines.

Reviewed by
DMEA OPERATING COMMITTEE

(date)

Because the ore occurs as a result of erosion, solution, and re-deposition on a peneplained surface ore controls are not rigidly defined. The test cuts proposed by the applicant have no specific location or geologic target. Their position is entirely arbitrary and their purpose is to remove the surface debris in order to see what lies below.

Work completed by the applicant on the Hoffman property indicates that there is small probability that additional work would result in a significant discovery. For that reason TVRA participation in exploration work on the Hoffman prospect is not recommended.

Prospecting should be done on the Hoffman-Gilman, Ising, and Hogg-Ising prospects for TVRA evaluation purposes. The old prospect cuts should be cleaned out to allow a more thorough examination. In its present state, the proposed project clearly represents a prospecting venture.

It is recommended that the application be denied at this time. It is further recommended that the applicant be advised that if he should do considerable prospecting work on his leases resulting in expectancy of better mineralization, the examining team could reappraise the property with a view toward possible TVRA assistance.

THE STATE OF PROSPECTING

The examiners were accompanied by Mr. Calvin D. Spangler, President of the Spangler Mining Corp. Three days, March 27, 28, 29,

were spent in examining three of the four properties included in the application. The fourth (Hoffman-Gibbens) was verbally withdrawn by Mr. Spangler from consideration in the application.

NAME AND LOCATION OF PROPERTIES

Assistance in exploring for manganese was requested on four separate properties only two of which were contiguous.

The Hoffman and Hoffman-Gibbens prospects are both located in Craig County, Va., fig. 1, and are reached from Simmonsville by proceeding southeastward on Route 42 for a distance of 1.4 miles to a gate on the south. The Hoffman trenches are located on a hilltop about 0.2 mile southeast of the gate. The Hoffman-Gibbens may be reached by the same route.

The Laing prospect is located in Giles County, Va. and is reached from Newport by proceeding northeastward on Route 42 a distance of 1.9 miles to a farm road entering from the northwest, fig. 1. Proceed on foot to a barn and continue up the draw back of the barn for a distance of about 1/2 mile bearing always to the right to the old workings on a bench.

The Hogg-Laing prospect is located in Giles County and is reached from Mountain Lake by proceeding on unnumbered graveled roads as indicated in fig.2 for a distance of 2.9 miles to a wire gate and logging road entering from the northwest. Following this logging road on foot for 0.4 mile to a small and old caved trench on the left.

No roads lead from the highways to any of these prospects except the Hogg-Laing and in this case the highway is closed in winter.

## COMPETENCY OF APPLICANT

Mr. Spangler has had no experience in mining except removing a few yards of surface material on the Hoffman prospect.

Mr. Spangler is part owner and manager of a soft drink bottling works in Needles.

## APPLICANTS PROPERTY RIGHTS

The Applicant holds the four properties in this application under two leases from the Little Stony Game and Fish Preserve, Inc. Each lease states that it shall be subject to the provisions of the DMEA. "Comments to Lien" had not been executed previous to examination and although these forms were left with the applicant after examination, they have not been executed to the best of the engineer's knowledge.

## DESCRIPTION OF PROPERTY

The Hoffman prospect, figs. 1, 3 and 6, lies in open rolling country and is easily accessible by Route 42 to a point within approximately 1/4 mile of the trenches. The 1/4 mile of access road could be completed at low cost. Three channel samples were taken. Detail of trenches and sample locations are shown in fig. 6. No other workings and no facilities are found on this property.

The Laing prospect, figs. 1 and 4, lies approximately sev en miles southwest of the Hoffman prospect. The old workings lie at an elevation of about 350 ft. above the level of Route 42. A facilitating road would be expensive and at a high percentage of grade. No facilities are on the property. The workings consist of 5 narrow trenches and a number of small shallow pits 4 to 6 feet in diameter. All of these workings are old and nearly filled with debris and the material from

caved sides. No effort has been made to clean any of the trenches to make them available for examination. A few pieces of psilomelane were noted on the trench dumps and in their vicinity. No samples could be taken.

The Gessler lease shown on fig. 4 has no connection with the Laing prospect leased by Mr. Spangler. The Gessler lease will be discussed later in this report.

The Hoge-Laing prospect is situated in Giles County, Va. at an elevation of approximately 3250 feet about 2½ miles northeasterly from Mountain Lake. The terrain is extremely rugged and covered with medium size timber. The only working on the property consists of one small trench which probably was excavated many years past. The trench is nearly filled with debris and material caved from the walls. One ten pound piece of hard manganese ore was seen; it was not in place and very little manganese mineral was found on the old dump. It was not possible to take samples.

The operating Gessler lease, fig. 4 (not in the application), was visited because it is geologically comparable to the Hoffman and Laing prospects. The long dimension of the pit is in a northeasterly direction, roughly on the strike of the sediments. Approximately 25 feet of clay overlies the only manganese mineralization visible at the time of visit. This mineralization was in the form of a steeply limbed arch about 9 feet high and 15 feet wide in maximum dimension where visible. Sample No. 4 was channeled vertically in the center of mineralization. The present ratio of overburden and unmineralized material to ore is conservatively estimated as 10 to 1. Tables I

and II indicate that approximately 6½ tons of ore must be mined, transported and concentrated to produce one ton of concentrate.

## GEOLOGY AND ORE DEPOSITS

The applicant's property is located in Craig and Giles Counties, Virginia, in the Appalachian Valley Ridges subprovince which occupies the northwestern portion of the Appalachian Valley physiographic province.

The rocks are much folded and crushed, and one part of the applicant's property, the Laing prospect is associated with thrust faulting.

The applicant's property is divided into four relatively widely separated 'prospects'. The rocks, with their associated manganese, on the prospects include the Knox and Cayuga formations.

The Knox dolomite, of Cambrian and Ordovician age is composed of alternating thick beds of dolomite, thinner bedded blue magnesian limestone, and massive chert layers. The total thickness of the formation is about 4,000 feet. The manganese is thought to have been originally deposited with the Knox beds, later dissolved by circulating ground waters as the rocks weathered, and redeposited in the same beds or in residual clays and loams.

The Cayuga formation of Silurian age, in the vicinity of the property is a massive white to gray sandstone. On weathered surfaces the sandstone is rusty buff or yellowish gray color. Where weathered the sandstone usually crumbles easily. The Cayuga is probably about 175 feet thick. Manganese ore in the Cayuga formation may have been originally disseminated in some of the basal beds of

the overlying Grainsay formation. Later, the manganese was dissolved by descending ground waters and redeposited in the lower, brecciated sandstones.

The Hoffman prospect

"The prospect, fig. 3, is near the crest of a well-rounded hill about 2,400 feet above sea level. This and other near-by hills having the same elevation apparently mark a former, though now largely eroded, peneplain, herein called the valley-floor peneplain. The (area) is underlain by the Knox dolomite, though the dolomite is concealed by a thick deposit of residual clay in which there is at some places considerable chert.

"A shaft 84 feet deep in cherty clay, from which iron ore was mined. . . is located near the top of the hill, but it had caved . . . and the material on the dumps (is) so scattered that the presence or absence of manganese minerals in it could not be determined."[2]

At the time of the field examination new work completed by the applicant consisted of two cuts made near the crest of the hill with a front-end loader. These cuts are shown on figures 3 and 6. In the westernmost cut the excavation is about 8 feet deep in the deepest part. The upper 2 feet of exposed material consists of reddish brown clay and loam. The next lower 2 feet is brown to yellow clay containing chert fragments. The bottom 4 feet of the pit is greyish brown clay and chert with scattered fragments of dolomite.

Sparse nodules of psilomelane, manganite, and manganese wad are sporadically distributed through the material in the cuts. The

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2/ Stose, G. W., and Miser, H. D., Manganese Deposits of Western Virginia, Virginia Geol. Survey Bull. XXXXI, p. 117, 1922.

major portion of the nodules are of 1/8 inch to 1/4 inch diameter. Some of the nodules are as large as 6 inches to 1 foot in diameter but these are scarce. The manganese wad forms black, sooty streaks and bands as much as 2 or 3 inches thick in the clay and loam.

It appears that the amount of recoverable manganese in the form of lumps and nodules is greatest in the loam. The southeasterly cut, however, is entirely in reddish brown loam which has little recoverable manganese. This illustrates the fact that the best ore zone is thin and the manganese is erratically and unpredictably scattered laterally.

Hoffman-Givens prospect

The Hoffman-Givens prospect, figure 1, is located on the crest of a rounded hill about 1½ miles northeast of the Hoffman mine. As at the Hoffman property the manganese is in clay and loam derived from the Knox dolomite. The hilltop was part of the valley-floor peneplain.

The applicant has done no work at the Hoffman-Givens prospect. As far as could be learned only 1 ton of "ore" was dug many years ago from some shallow, now overgrown, excavations.

This prospect offers even less encouragement for further work than the Hoffman prospect. The applicant, in addition, was not enthusiastic about pursuing exploration work on the property and verbally withdrew this prospect from further consideration.

Laing prospect

The Laing prospect, figure 4, is on the crest of a shoulder of Sinking Creek Mountain. The prospect marks the level

of a former peneplain which has been destroyed by erosion. The property is underlain by the Knox dolomite which is exposed on the flank of the hill. On the crest of the hill the dolomite has broken down into yellow brown, cherty, residual clay. The dolomite dips southeast about 20 degrees. The dip is caused by the dolomite having been thrust up over younger rocks of Cayuga or Oriskany age which lie to the northwest and are exposed higher up on the mountain.

Half a dozen prospect pits were dug on the property years ago. The pits are now shoaled partly full and are overgrown with vegetation. The cuts are now only 3 or 4 feet deep, and the largest was about 30 feet long. The pits were dug in red and brown cherty clay that is residual from the Knox dolomite. A few hundred pounds of manganese nodules composed of manganite and psilomelane had been hand sorted, years ago, from the material from the pits and was piled at the pit edges. The nodules were quite heavy and a few were as much as 6 inches in diameter.

Although manganese nodules are present in the surficial loam and clay of the prospect it appears that hand-picking is at present the most feasible means of recovery. Some 'mash ore' is undoubtedly present also as the remnants of a small dump of screened nodules, 1/8 inch to 1/2 inch in diameter, can be found by one of the pits.

In view of the present condition of the Laing prospect it appears that prospecting should first be done by cleaning out the old pits and trenches, possibly with hand tools. If that were done the subsurface would be visible and the manganese-producing potential of the property could be evaluated and the desirability

of performing exploration work determined.

## Hogg-Laing prospect

The Hogg-Laing prospect, figure 5, on the north slope of Dan Mountain, consists of one large pit and a few very small scattered ones. The large pit, cut into the side of a steep slope, is about 20 feet long, 8 feet wide, and about 8 feet deep at the deepest place. All the pits are badly slumped and overgrown with vegetation.

Badly crushed rocks on the site consist of a buff-colored laminated sandstone of the Oswego formation of Silurian age. Pelloxenlane and manganite fill fissures and cracks in the sandstone and are also found as a replacement in the sandstone.

Before exploration work is undertaken on the property the old prospect pits should be cleaned out to allow examination of the potential ore zone. As far as could be learned only 4 tons of 'ore' had ever been produced from the prospect. Only scattered pieces of ore-grade material could be found on the old dumps.

In the course of the field examination an operating property was visited. This open-cut operation, figure 4, is now being operated by J. G. Gaucher on land that is owned in fee simple by R. V. Reynolds. The property is located on the northwest side of Virginia Route 42, about 2 miles northeast of Newport, Virginia. The site was formerly known as the Currie prospect. The Laing prospect is located only about 1,000 feet away, toward the southwest on the shoulder of the same mountain.

In the period February 1955 to the present the operator had bulldozed out a large cut in the side of the mountain. The cut was about 100 feet deep at the deepest part. An employee at the pit stated that in the same period 20 railroad cars of manganese concentrate had been washed from ore taken from the pit. The employee further stated that about 700 pounds of manganese concentrate was usually washed from a truckload of 6 tons of ore. This gives a concentration ratio of about 17 to 1, which is probably about average for that type deposit.

Ore was visible in the pit at only one place. A lens-like body of wad and nodular manganese was exposed in a bench of the pit. The lens was about 10 to 15 feet wide and the exposed thickness was about 4 feet.

The ore was covered with about 25 feet of overburden which consisted of yellow and yellowish brown cherty clay. The clay was derived from residual decay of the underlying Knox dolomite. Geologically, the Carrie prospect is much more similar to the Hoffman prospect than to the Laing prospect which is much closer. All three prospects, however, are underlain by the Knox dolomite.

## SAMPLING

Four trench samples were taken in the course of the field examination. At the Bureau of Mines laboratory at College Park, Maryland, the samples were agitated in a ball mill without a ball load. The samples were then screened with a 20 mesh screen. The

screen fractions were then concentrated by the sink-float method using an acetylene tetrabromide liquid medium.

Location, description, and laboratory and assay results covering the samples are given in Tables I and II.

Sample No. 4 was taken from the Gassler property, formerly known as the Carrie prospect. This sample is not directly connected with the application but was taken from the only operating pit in the vicinity for comparison purposes.

According to U. S. Bur. of Mines Information Circular 7145 the results of heavy media separation used on the samples would accurately forecast jigging results, which is the concentration method in general practical use.

From Tables I and II it may be seen that none of the samples from land described in the application are of commercial or acceptable manganese grade. Consequently, it does not seem necessary to determine what the penalties would be for silica plus aluminum, iron, and phosphorous.

TABLE 1

Results of Sampling

Spangler Mining Corporation, BMRA 4162
Harrison, Virginia

| Sample No. | Location | Description | Screen Fraction | | Weight in % | % Manganese | Manganese Distribution |
|---|---|---|---|---|---|---|---|
| 1 | Hoffman Prospect | 8' vert. channel. Top 2' -red, brown clay and loam; 2' brown clay and chert, bottom 4' gray clay and cherty dolomite. | -1/4" | +20 mesh | 32.3 | 9.35 | 34.5 |
| | | | | -20 mesh | 67.7 | 8.48 | 65.5 |
| | | | | Total | 100.0 | 8.76 | 100.0 |
| 2 | Hoffman Prospect | 1.5' vert. channel. Red-brown topsoil and loam. | -1/4" | +20 mesh | 32.6 | 8.58 | 61.9 |
| | | | | -20 mesh | 67.4 | 2.55 | 38.2 |
| | | | | Total | 100.0 | 4.52 | 100.1 |
| 3 | Hoffman Prospect | 4' vert. channel. Red-brown loamy clay. | -1/4" | +20 mesh | 36.2 | 0.50 | 64.0 |
| | | | | -20 mesh | 63.8 | 0.16 | 36.0 |
| | | | | Total | 100.0 | 0.28 | 100.0 |
| 4 | Currie Prospect | ± 6' vert. channel. Yellow and reddish brown clay. | -1/4" | +20 mesh | 48.2 | 11.00 | 50.9 |
| | | | | -20 mesh | 51.8 | 9.86 | 49.1 |
| | | | | Total | 100.0 | 10.41 | 100.0 |

TABLE II

Manganese Recovery from Samples

Spangler Mining Corporation, DMRA 4162
Marrows, Virginia

| Sample No. | Percent recovery of Mn from entire sample | Grade of concentrate % Mn | Pounds of concentrate recoverable from 1 ton of sampled material |
|---|---|---|---|
| 1 | 27.3 | 21.9 | 218 |
| 2 | 44.3 | 26.3 | 171 |
| 3 | 30.5 | 6.4 | 27 |
| 4 | 47.3 | 41.3 | 260 |

ORE RESERVES

There are no known, minable ore reserves on any of the properties. It is conceivable that a few hundred pounds of manganese nodules could be hand-picked from the four properties. Only a few tons of wash ore are in sight at the Hoffman mine. No wash ore can be inferred at the other three properties.

PAST PRODUCTION

Bulletin No. 23, Virginia Geological Survey, 1922, credits the Hoffman prospect with a production of 200 tons of hand-picked lump ore. Neither the old trench workings nor recent limited extension of this work indicate the presence of manganese mineralization of higher grade than is represented by sample No. 1.

Mr. Spangler told the engineer that of the material taken from the trench represented by examiners samples Nos. 1 and 2, he had trucked 43 loads for a total of 129 tons, 40 miles to a washing

and jigging plant. From the 189 tons was recovered 27.5 short tons of manganese concentrates containing 40.9 percent manganese. A profit of $300.00 was made on the operation. It is difficult to credit these results in view of what was seen during examination and the results of analyses of samples Nos. 1 and 2.

AVAILABILITY OF MANPOWER, SUPPLIES, WATER, ETC.

Labor is available in this area at the rate of $1.25 per hour. Water is available but would in each case have to be pumped several thousand feet against heads of from 200 to 500 feet to reach the mineralized areas. Electric power would be available at considerable cost for installation of facilitating lines.

APPLICANT'S PROPOSAL

The applicant proposes to explore for manganese ore on his four leased properties by digging cuts, or trenches, with and loader and carryall equipment. Bulk samples of any ore discovered would be trucked to a pilot plant at Newport, Virginia, for washing, jigging, concentrating and assaying. Following is a summary of the work proposed for the four properties:

<u>Hoffman mine:</u>

30 excavations - 21 samples. (Total samples, 124 cu.yds.)

<u>Hoffman-Stoves prospect:</u>

4 excavations - 4 samples. (Total samples, 8 cu.yds.)

<u>Laing prospect:</u>

7 excavations - 15 samples. (Total samples, 80 cu.yds.)

<u>Hogg-Laing prospect:</u>

4 excavations - 12 samples. (Total samples, 52 cu.yds.)

The applicant's estimated total of $11,665.00 would have been adequate to meet all costs of the proposed exploration.

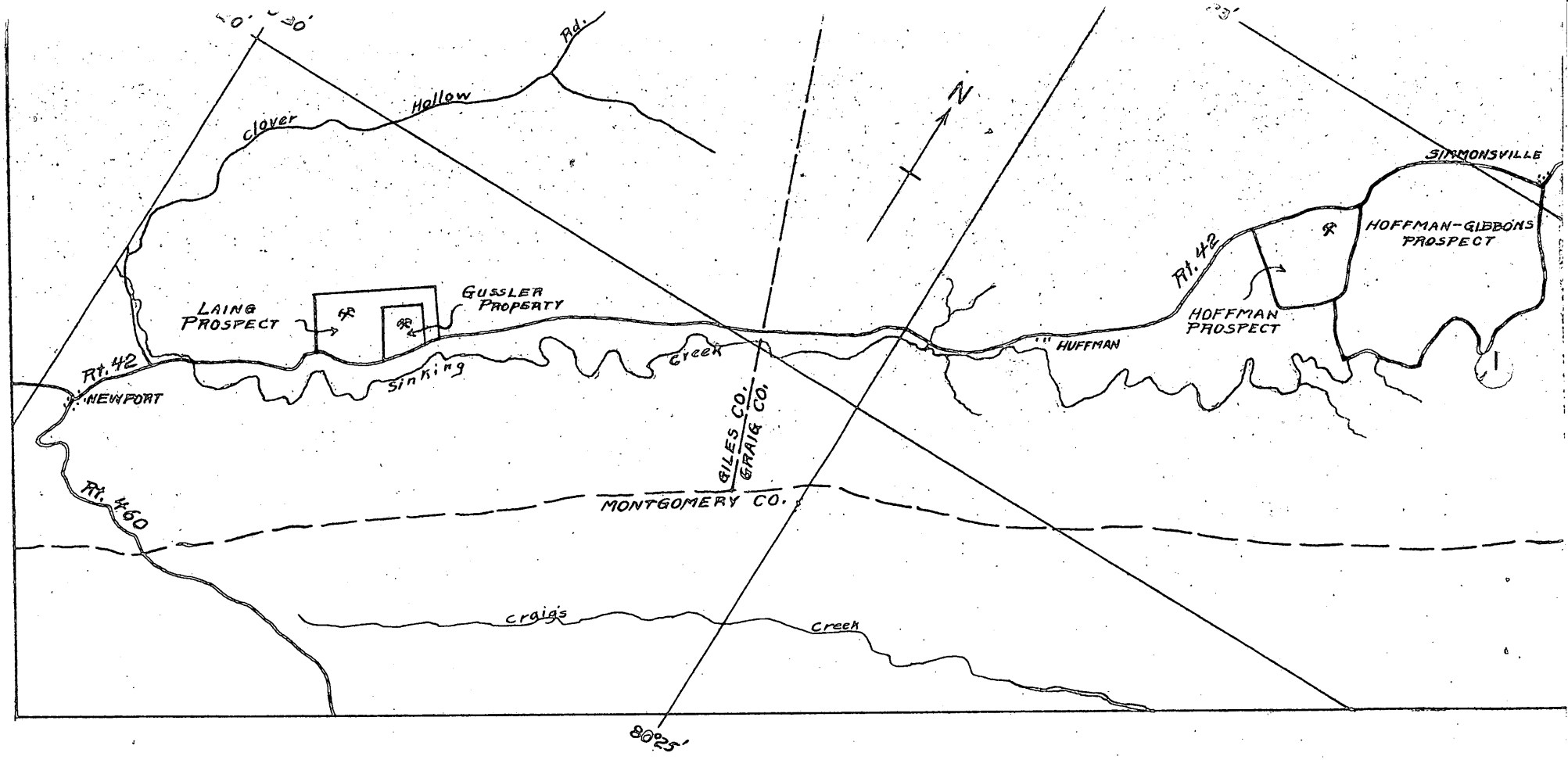
The entire project was reviewed with the applicant with the result that it is considered doubtful that further prospecting will be done.

W P Williams

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

H. L. Burmeister

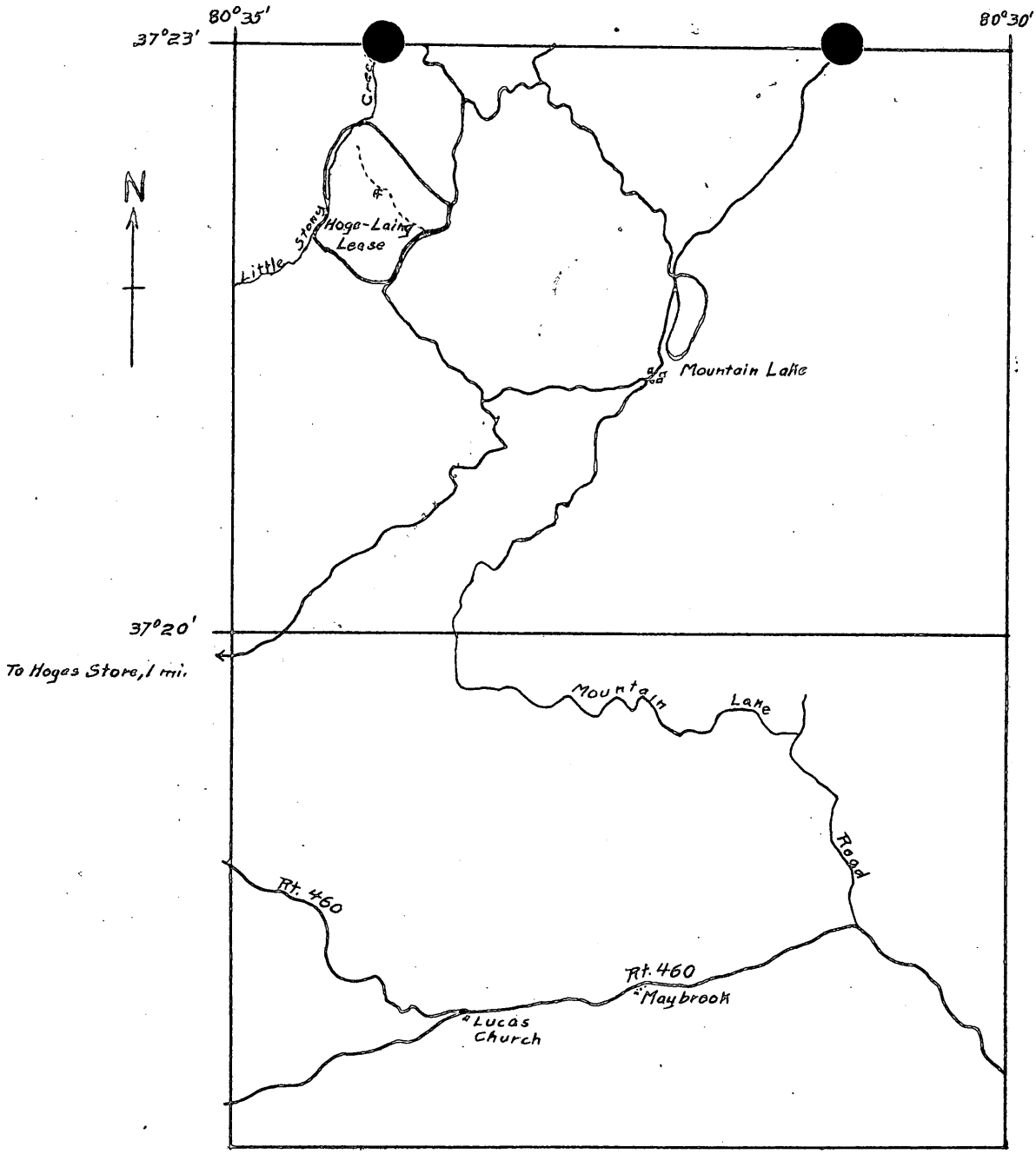
H. L. Burmeister, Engineer
U. S. Bureau of Mines




SPANGLER MINING CORP.
DOCKET No. DMEA 4162
HOFFMAN, HOFFMAN-GIBBONS and LAING PROSPECTS
GILES and CRAIG COUNTIES
U.S.G.S. WAITEVILLE, VA.-W. VA. QUAD
APRIL 1956

0 miles 1

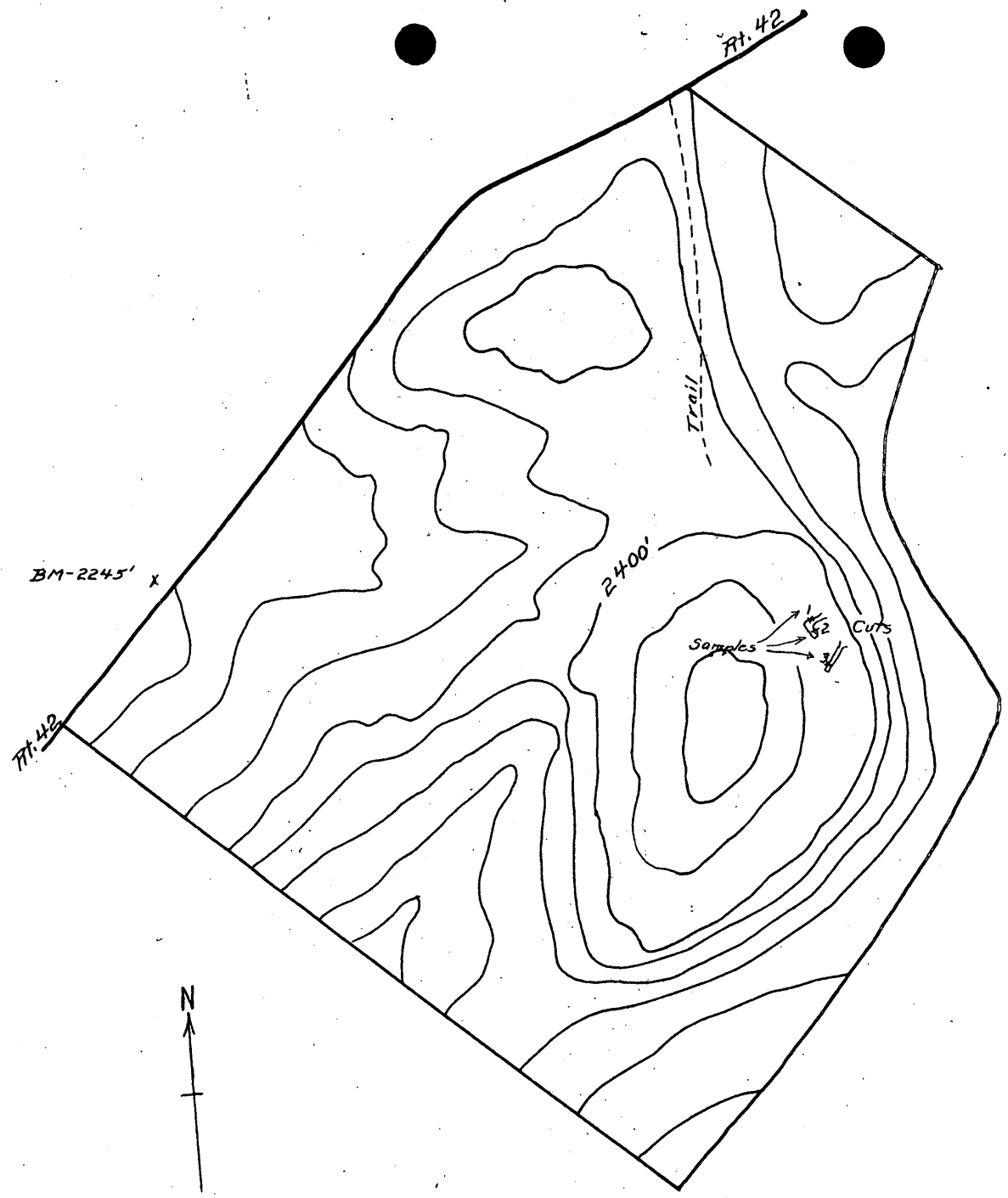
FIG. 1




SPANGLER MINING CORP.
DOCKET DMEA 4162
HOGE-LAING PROSPECT
GILES COUNTY, VA.
U.S.G.S. PEARISBURG, VA.-W. VA. QUAD.
APRIL 1956

0 miles 1

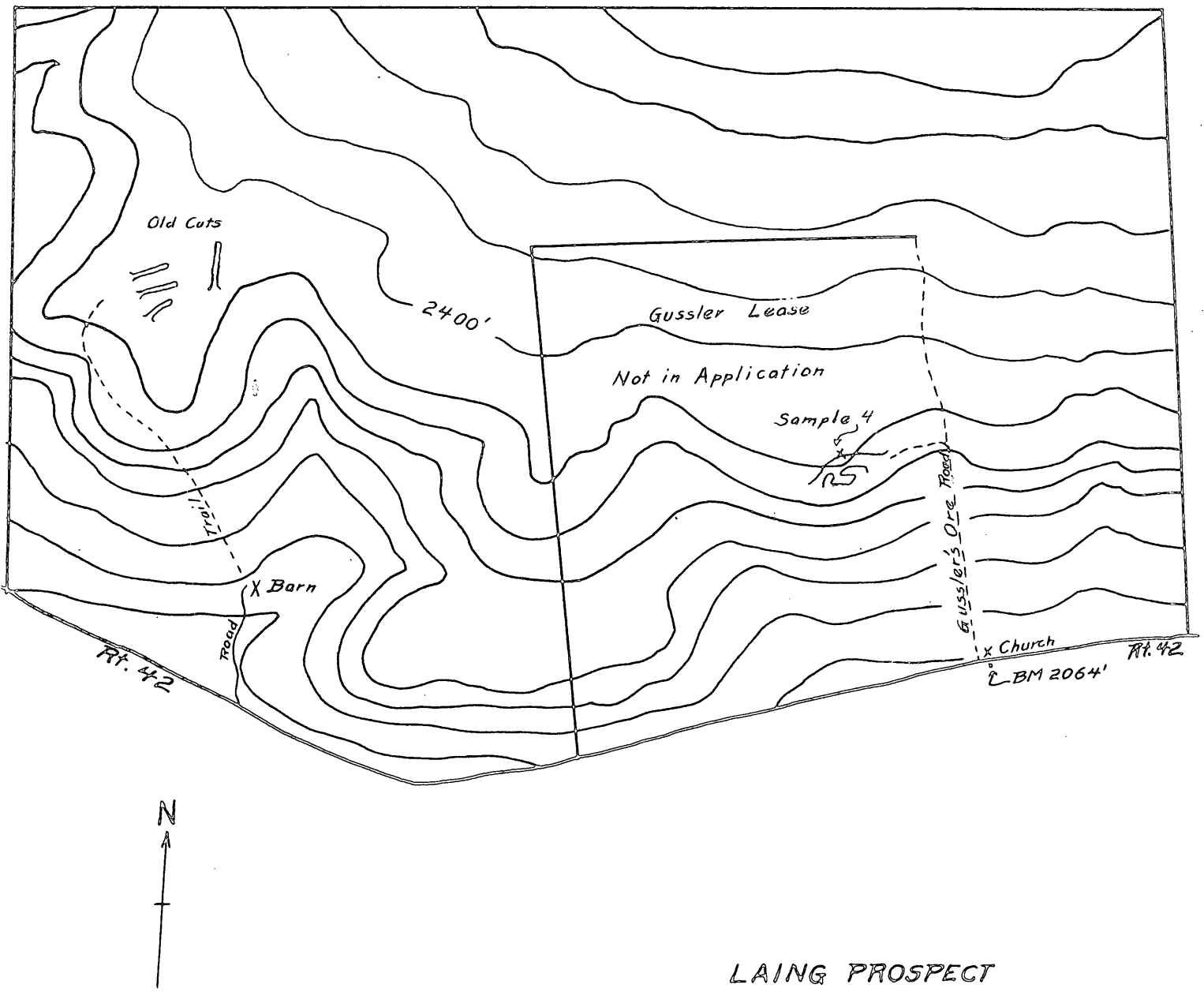
FIG.-2




HOFFMAN PROSPECT
CRAIG COUNTY, VA.
DOCKET, DMEA No. 4162
AFTER APPLICANT'S MAP, WITH ADDITIONS

SCALE 1:7882

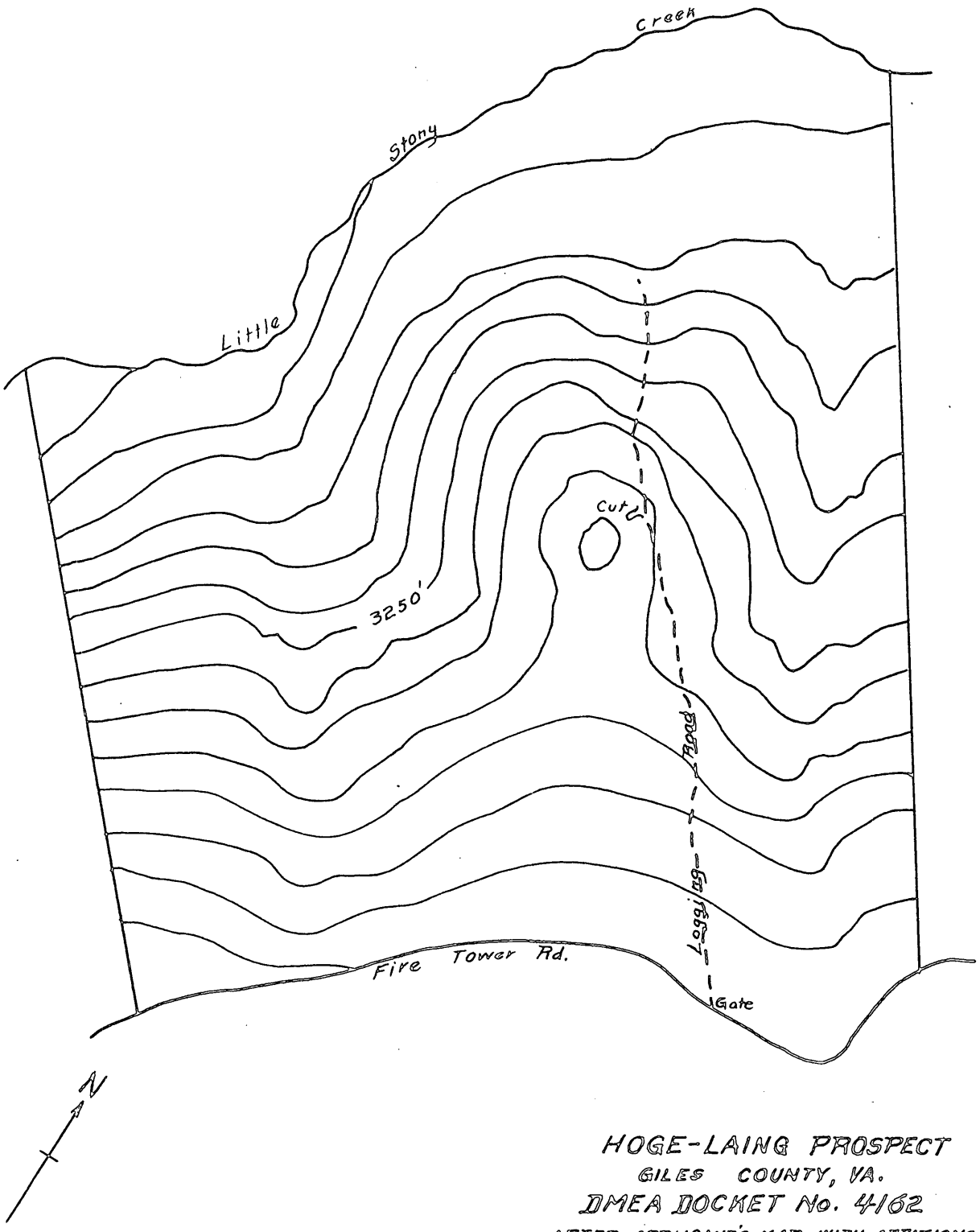
FIG.-3




LAING PROSPECT
CRAIG COUNTY, VA.
DMEA DOCKET No. 4162
AFTER APPLICANT'S MAP, WITH ADDITIONS

SCALE 1: 7882

FIG.-4




HOGE-LAING PROSPECT
GILES COUNTY, VA.
DMEA DOCKET No. 4162
AFTER APPLICANT'S MAP, WITH ADDITIONS

scale 1:7882

FIG.-5

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
MARCH 1950

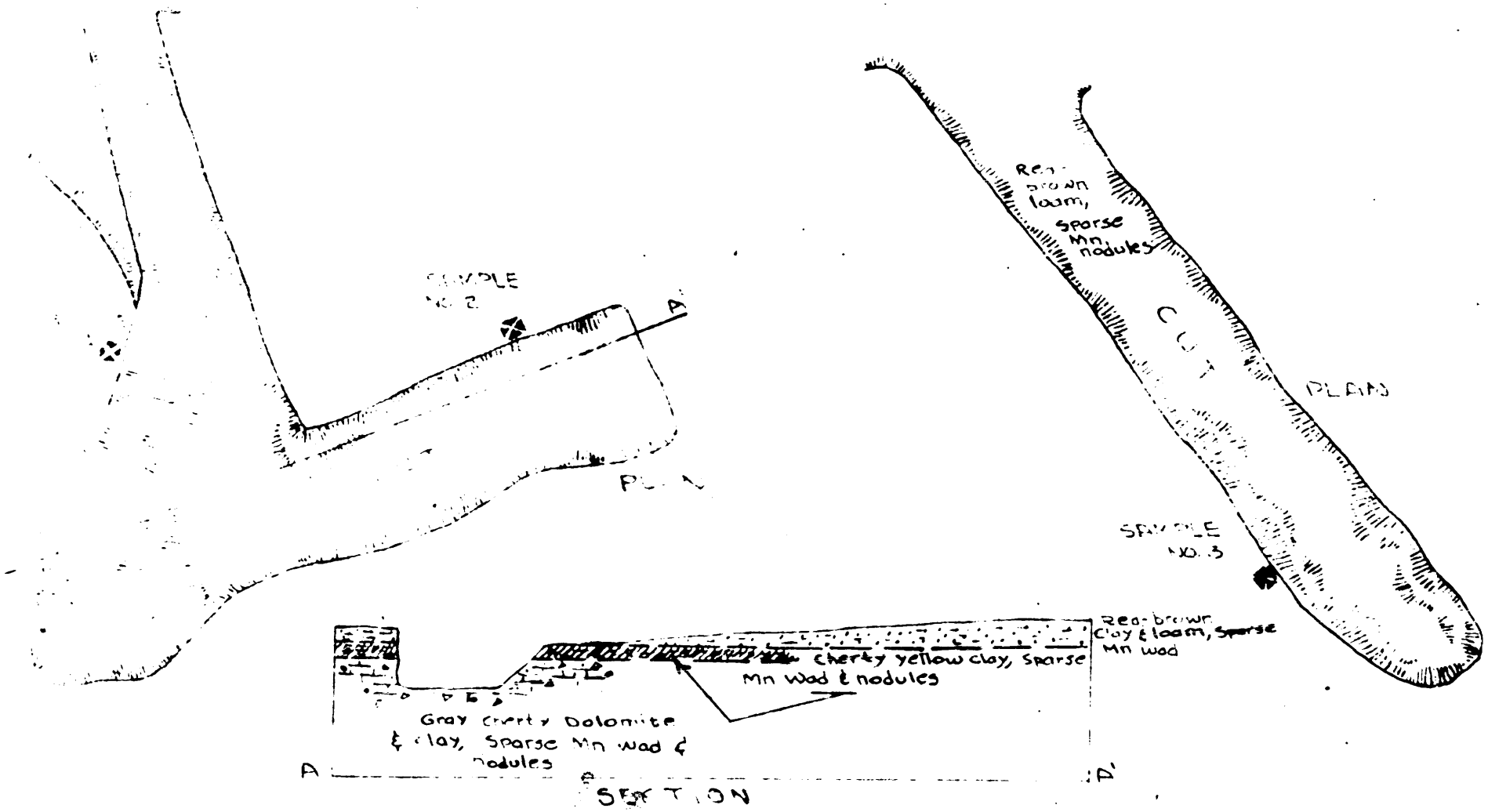



FIG. 6 HOFFMAN PROSPECT, CRAIG COUNTY, OKLAHOMA
COMPANY, CORPORATION, NEW YORK
HOFFMAN [illegible] 1" = 2'

400

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 1000 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

RECEIVED
MAR 21 1956

March 19, 1956

Memorandum

To: W. T. Miller, Mining Engineer, College Park, Md.

From: Executive Officer, DMEA - Region V - Knoxville

Subject: DMEA-4162- Manganese, Spangler Mining Corporation
Hoffman Mine, Giles and Craig Counties, Virginia

Enclosed herewith is the application and pertinent data on the subject application requested in your telegram of March 16.

Robert A. Lawrence

TM,
cc:
Spr. Gen.-2
Lynch
Files

400

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 5 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

RECEIVED
MAR 14 1956

March 12, 1956

4162

Spangler Mining Corporation
P.O. Box 38
Narrows, Virginia

Copy retained 400

Gentlemen:

Your application for DMEA assistance in the exploration of manganese deposits in Giles and Craig counties, Virginia has been referred to this office for review and possible field examination.

A geologist of Geological Survey and an engineer of the Bureau of Mines will be assigned to make a field examination in the near future. Mr. W. T. Millar, of the Bureau of Mines office, College Park, Maryland will write you soon to set a date and make any other necessary arrangements to complete the examination.

Very truly yours,

V. J. Lynch, Acting
Executive Officer, DMEA
Field Team, Region V

VJL/sm
cc:
Opr. Com-2
Millar
Lynch
Files

400

MAR 7 1956

Spangler Mining Corporation
Box 38
Narrows, Virginia

Re: Docket No. DMEA 4362 - Manganese
Hoffman Mine, Hoffman Givens Prospect
and Laing Prospect
Giles County and Craig County,
Virginia

Gentlemen:

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

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

Sincerely yours,

G. O. Mittendorf

Administrator

TLChapman:foc 3/6/56
cc to: Docket
Code 400
Adm. Read. File
Operating Comm.
FT. REG. V
Messrs. Gilbert DeHuff, Jr., USBM
H. E. Nelson, USGS

400

MAR 7 1956

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

Re: Docket No. DMEA 4162 - Manganese
Spangler Mining Corporation
Hoffman Mine, Hoffman Gibson
Prospect and Laing Prospect
Giles County and Craig County,
Virginia

Dear Mr. Laurence:

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

Copies of memoranda dated February 10 and 29, 1956, by N. E. Nelson, Geological Survey, and G. L. DeHuff, Jr., Bureau of Mines, respectively, relating to the project are enclosed for your information.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

Enclosure

TLChapman:fec 3/6/56
cc to: Docket
Code 400
Admr. Read. File
Operating Comm.
FT. REG. V
Messrs. DeHuff, USBM
Nelson, USGS

APPROVED:

/s/ Robert W. Geehan

Member, Bureau of Mines

Thor H. Kiilsgaard

Member, Geological Survey

400

RECEIVED
FEB 20 1956

February 19, 1956

Memorandum

To: W. S. Martin, MMA

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

Subject: DMEA-4162 - Manganese - Spangler Mining Corp.,
Craig and Giles Counties, Virginia

Application is made for aid to explore for manganese applicant's leased property at two locations in Craig County and two locations in Giles County, Virginia. Planned exploration work consists of stripping and trenching, and total estimated cost is $11,664.00.

All four locations are old prospects described in Virginia Geological Survey Bulletin XXXII, "Manganese Deposits of Western Virginia", by Stose and Ulrich. The Huffman mine is located in Craig County 1-1/2 miles southwest of Simmonsville. Applicant has done some trenching here with a bulldozer and and loader and has taken five samples from the property, analyses for which showed a manganese content between 41 and 54 percent manganese. Applicant states that 100 tons of hand-picked ore were produced here from 1942 to 1950. The Huffman and Givens prospect is also located in Craig County 1-1/2 miles from the Huffman mine. The Laing prospect is in Giles County 2 miles northwest of Newport and next to a property known as the Currie prospect which applicant states has produced good ore during the past year. Applicant has two samples from the Laing prospect analyzing 44 to 48 percent manganese. The Rupp-Laing prospect is also in Giles County 2 miles northwest of Mountain Lake.

In view of the above information it is recommended that this application be referred to the Field Team for their consideration.

G. L. DuHoff, Jr.

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

400

RECEIVED
FEB 20 1956

February 29, 1956

Memorandum

To: W. S. Martin, DMEA

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

Subject: DMEA-4162 - Manganese - Spangler Mining Corp.,
Craig and Giles Counties, Virginia

Application is made for aid to explore for manganese applicant's leased property at two locations in Craig County and two locations in Giles County, Virginia. Planned exploration work consists of stripping and trenching, and total estimated cost is $11,664.90.

All four locations are old prospects decribed in Virginia Geological Survey Bulletin XXIII, "Manganese Deposits of Western Virginia", by Stose and Miser. The Hoffman mine is located in Craig County 1-1/2 miles southwest of Simmonsville. Applicant has done some trenching here with a bulldozer and and loader and has taken five samples from the property, analyses for which showed a manganese content between 41 and 54 percent manganese. Applicant states that 100 tons of hand-picked ore were produced here from 1918 to 1920. The Hoffman and Givens prospect is also located in Craig County 1-1/2 miles from the Hoffman mine. The Laing prospect is in Giles County 2 miles northeast of Narport and next to a property known as the Carrie prospect which applicant states has produced good ore during the past year. Applicant has two samples from the Laing prospect analyzing 44 to 46 percent manganese. The Hogo-Laing prospect is also in Giles County 2 miles northwest of Mountain Lake.

In view of the above information it is recommended that this application be referred to the Field Team for their consideration.

G. L. DeHuff, Jr.

400

IN REPLY REFER TO:

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

RECEIVED
FEB 10 1956

February 10, 1956

Copy obtained 400

Re: DMEA 4162
Spangler Mining Corporation
Hoffman, Laing, etc. prospects
Giles and Craig Cos., Virginia
$11,664.90 - Manganese

Memorandum

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

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

Subject: Review of application.

The applicant requests the Government to participate in stripping and trenching operations on four prospects.

The estimated cost of the proposed work is:--

| | Prospect | | | | |
|---|---|---|---|---|---|
| | Hoffman | Hoffman-Givens | Laing | Hoge-Laing | Total |
| Excavation | $1,917.54 | $224.00 | $1,736.28 | $791.82 | $ 4,669.64 |
| Hours | 201.0 | 28.0 | 182 | 83 | |
| Labor, supervision | | | | | 2,450.00 |
| Consultants | | | | | 475.00 |
| Travel allowance | | | | | 322.00 |
| Operating equipment, rental, etc. | | | | | 630.00 |
| Sampling, testing, analyses | | | | | 1,981.52 |
| Accounting, etc. | | | | | 700.00 |
| Workmen's compensation | | | | | 176.50 |
| Miscellaneous | | | | | 260.24 |
| | | | Total | | $11,664.90 |

Trenching has been done on the Hoffman prospect by the applicant. Manganese was found. Descriptions of the other prospects in Bulletin No. XXIII, Manganese deposits of Western Virginia, by Stose and Miser (1918), give information concerning the other three prospects. No work has been done by the applicant.

Referral of the application to the Field Team with a request for appropriate action is recommended.

NENelson:iml
G-2/10/56
cc: Director's reading, 4212
Branch reading, 4212
DMEA (3); Docket file; G. DeHuff, 3521

N. E. Nelson

N. E. Nelson

CW

400

DOCKET
Surname:
Holt
Martin
Yopes
Kilogaard
Selfridge
Johnson

JUN 29 1956

Spangler Mining Corporation
P. O. Box 38
Narrows, Virginia

Re: Docket No. DMEA-4162, Manganese
Hoffman Mine, Hoffman-Givens
Prospect, Laing Prospect, and
Hoge-Laing Prospect
Giles and Craig Counties, Virginia

Gentlemen:

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

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

Careful study of our information, although noting manganese mineralization on each of the above-named prospects, indicates to us that the probability of disclosing significant manganese ore reserves thereon is not sufficiently promising to justify Government participation. Under these circumstances, we regret to advise you that your application is denied.

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

Sincerely yours,

G. O. Mittendorf

Administrator

cc: Docket
Code 400
Oper. Comm.
Adm. Read. File
T. Kiilsgaard, USGS
G. DeHuff, USBM
FT, Region V

SPHolt/ls
6/25/56

400 DOCKET Surname: Holt Martin Jones

June 27, 1956

MEMORANDUM

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division, DMEA

Subject: Denial of request for exploration assistance in the amount of $11,664.90
Docket No. DMEA-4162, Manganese
Spangler Mining Corporation
Hoffman Mine, Hoffman-Givens Prospect, Laing Prospect, and Hoge-Laing Prospect
Giles and Craig Counties, Virginia

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

(1) The applicant, Spangler Mining Corporation, P. O. Box 38, Narrows, Virginia, requested exploration assistance in the amount of $11,664.90 for trenching and sampling on the Hoffman Mine, Hoffman-Givens Prospect, Laing Prospect, and Hoge-Laing Prospect properties.

(2) The applicant controls, by lease from the owners, Little Stony Game and Fish Preserve, Incorporated, the following property in Giles and Craig Counties, Virginia:

| | |
|---|---|
| Hoffman Mine | Laing Prospect |
| Hoffman-Givens Prospect | Hoge-Laing Prospect |

(3) The proposed program is to explore the Hoffman Mine, Hoffman-Givens Prospect, Laing Prospect, and Hoge-Laing Prospect by excavating trenches with large earth-moving equipment, trucking bulk samples of any manganese ore discovered in the trenches to a nearby pilot plant for testing by washing, jigging, concentrating and assaying.

(4) In the area of the four properties proposed for exploration manganese occurs as scattered lumps and nodules of psilomelane, manganite and wad in altered and weathered Knox dolomite and Cayuga sandstone, and in the residual clays and loam lying over the dolomite and sandstone.

(5) The Field Team notes that new work completed by the applicant consists only of two cuts on the Hoffman Mine property, in which the ore zone in the loam and underlying clay is thin , with nodules of psilomelane, manganite and wad sparsely and sporadically distributed throughout the

material in the cuts. Old cuts and pits on the other three prospects included in the project were caved or partially filled and could not be properly evaluated by the examiners.

The Field Team recommends that the application be denied at this time, but that if the applicant completes additional prospecting work on his leases and exposes better mineralization, the examining team should reappraise the property with a view towards possible DMEA assistance. The Field Team doubts, however, that the applicant will do further prospecting.

The Commodity Divisions of the Geological Survey and the Bureau of Mines concur in this recommendation.

W. S. Martin

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

CC: Docket
Code 400
Oper. Comm.
Adm. Read. File

SPHolt/ls
6/27/56

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

June 27, 1956

MEMORANDUM

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division, DMEA

Subject: Denial of request for exploration assistance in the amount of $11,664.90
Docket No. DMEA-4162, Manganese
Spangler Mining Corporation
Hoffman Mine, Hoffman-Givens Prospect, Laing Prospect, and Hoge-Laing Prospect
Giles and Craig Counties, Virginia

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

(1) The applicant, Spangler Mining Corporation, P. O. Box 38, Narrows, Virginia, requested exploration assistance in the amount of $11,664.90 for trenching and sampling on the Hoffman Mine, Hoffman-Givens Prospect, Laing Prospect, and Hoge-Laing Prospect properties.

(2) The applicant controls, by lease from the owners, Little Stony Game and Fish Preserve, Incorporated, the following property in Giles and Craig Counties, Virginia:

| | |
|---|---|
| Hoffman Mine | Laing Prospect |
| Hoffman-Givens Prospect | Hoge-Laing Prospect |

(3) The proposed program is to explore the Hoffman Mine, Hoffman-Givens Prospect, Laing Prospect, and Hoge-Laing Prospect by excavating trenches with large earth-moving equipment, trucking bulk samples of any manganese ore discovered in the trenches to a nearby pilot plant for testing by washing, jigging, concentrating and assaying.

(4) In the area of the four properties proposed for exploration manganese occurs as scattered lumps and nodules of psilomelane, manganite and wad in altered and weathered Knox dolomite and Cayuga sandstone, and in the residual clays and loam lying over the dolomite and sandstone.

(5) The Field Team notes that new work completed by the applicant consists only of two cuts on the Hoffman Mine property, in which the ore zone in the loam and underlying clay is thin , with nodules of psilomelane, manganite and wad sparsely and sporadically distributed throughout the

material in the cuts. Old cuts and pits on the other three prospects included in the project were caved or partially filled and could not be properly evaluated by the examiners.

The Field Team recommends that the application be denied at this time, but that if the applicant completes additional prospecting work on his leases and exposes better mineralization, the examining team should reappraise the property with a view towards possible DMEA assistance. The Field Team doubts, however, that the applicant will do further prospecting.

The Commodity Divisions of the Geological Survey and the Bureau of Mines concur in this recommendation.

W S Martin

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

Docket

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

RECEIVED
JUN 25 1956

June 22, 1956

Memorandum

To: W. S. Martin, DMEA

WSM

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

Subject: DMEA-4162. Manganese. Spangler Mining Corp., Craig and Giles Counties, Virginia

The Field Team report of June 8, 1956, following a field examination, recommends that subject application be denied at this time.

Total cost of the estimated project was $11,664.90. The work was to be divided among four prospects: Hoffman, Hoffman-Givens, Laing, and Hoge-Laing.

With reference to the Hoffman, the only property on which the applicant has done any work, the Field Team concludes that "there is small probability that additional work would result in a significant discovery".

The Field Team sums up the situation with respect to the other three prospects, by stating, "In its present state, the proposed project clearly represents a prospecting venture".

I concur with the recommendation that this application be denied.

G. L. DeHuff, Jr.

Copy retained 400

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

RECEIVED
JUN 25 1956

June 22, 1956

Memorandum

To: W. S. Martin, IMKA

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

Subject: IMKA-4162. Manganese. Spangler Mining Corp., Craig and Giles Counties, Virginia

The Field Team report of June 8, 1956, following a field examination, recommends that subject application be denied at this time.

Total cost of the estimated project was $11,664.90. The work was to be divided among four prospects: Hoffman, Hoffman-Givens, Laing, and Hoge-Laing.

With reference to the Hoffman, the only property on which the applicant has done any work, the Field Team concludes that "there is small probability that additional work would result in a significant discovery".

The Field Team sums up the situation with respect to the other three prospects, by stating, "In its present state, the proposed project clearly represents a prospecting venture".

I concur with the recommendation that this application be denied.

G. L. DeHuff, Jr.

ARCHIVES
JUN 27 1956

June 22, 1956

Memorandum

To: W. S. Martin, DMEA

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

Subject: DMEA-4162. Manganese. Spangler Mining Corp., Craig and Giles Counties, Virginia

The Field Team report of June 8, 1956, following a field examination, recommends that subject application be denied at this time.

Total cost of the estimated project was $11,664.90. The work was to be divided among four prospects: Hoffman, Hoffman-Givens, Laing, and Hoge-Laing.

With reference to the Hoffman, the only property on which the applicant has done any work, the Field Team concludes that "there is small probability that additional work would result in a significant discovery".

The Field Team sums up the situation with respect to the other three prospects, by stating, "In its present state, the proposed project clearly represents a prospecting venture".

I concur with the recommendation that this application be denied.

G. L. DeHuff, Jr.

Docket

IN REPLY REFER TO:

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

RECEIVED
JUN 18 1956

June 18, 1956

Re: DMEA 4162
Hoffman etc. properties
Craig and Giles Cos. Va.
$11,664.90 - Manganese

Copy retained 400

WSM

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 four properties by machine trenching, bulk sampling and concentration tests.

One property (Hoffman) is credited with a small production. The applicant claims that from 129 tons of material, taken from the pit and trucked 40 miles to a washing plant, was recovered 17.5 short tons of 40.9% manganese concentrate. According to the applicant a profit of $300.00 was made on the operation. From the ratio of concentration, 7½:1, it may be inferred the run of pit material assyed more or less like the 8-foot vertical sample taken by the examiners, that is 8.76% Mn. A six-foot vertical sample of similar looking material taken in the operating Carrie pit (Gussler mine) assayed 10.41% Mn.

No work appeared to have been done recently on the other 3 properties, the pits and trenches were sloughed and no estimate of potential could be made. Obviously work could not be recommended.

The examiners conclude that "work completed by the applicant on the Hoffman property indicates that there is small probability that additional work would result in a significant discovery", and recommend that the application be denied.

With the Field Team I concur with the recommendation.

N. E. Nelson

N. E. Nelson

IN REPLY REFER TO:

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

RECEIVED
JUN 18 1956

June 18, 1956

Re: DMEA 4182
Spangler Mining Corp.
Hoffman etc. properties
Craig and Giles Cos., Va.
11,664.90 - Manganese

Memorandum

To: [illegible] Martin, Defense Minerals Exploration Administration

From: N. [illegible] Nelson, U. S. Geological Survey

Subject: Review of field team report.

The applicant requested assistance in exploring four properties by machine trenching, bulk sampling and concentration tests.

The property (Hoffman) is credited with a small production. The applicant claims that from 129 tons of material, taken from the pit and trucked 40 miles to a washing plant, was recovered 17.5 short tons of 46.9% manganese concentrate. According to the applicant a profit of $300.00 was made on the operation. From the ratio of concentration, 7½:1, it may be inferred the run of pit material assayed more or less like the 3-foot vertical sample taken by the examiners, that is 8.76% Mn. A six-foot vertical sample of similar looking material taken in the operating Currie pit (Quester mine) assayed 10.41% Mn.

No work appeared to have been done recently on the other 3 properties, the pits and trenches were sloughed and no estimate of potential could be made. Obviously work could not be recommended.

The examiners conclude that "work completed by the applicant on the Hoffman property indicates that there is small probability that additional work would result in a significant discovery", and recommend that the application be denied.

With the field team I concur with the recommendation.

N. E. Nelson

NENelson:btr
G 6/18/56

N. E. Nelson

cc: Director's reading file (4212)
Branch reading file (4212)
DMEA(3)
Chron. file
Docket File

IN REPLY REFER TO:

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

RECEIVED
JUN 18 1956

June 18, 1956

Re: DMA 4162
Spangler Mining Corp.
Hoffman etc. properties
Craig and Giles Cos. Va.
411,664.90 - Manganese

Memorandum

To: [illegible] Martin, Defense Minerals Exploration Administration

From: N. [illegible] Nelson, U. S. Geological Survey

Subject: Review of field examination report.

The applicant requested assistance in exploring four properties by machine trenching, bulk sampling and concentration tests.

The property (Hoffman) is credited with a small production. The applicant claims that from 120 tons of material, taken from the pit and trucked 40 miles to a washing plant, was recovered 17.5 short tons of 40.9 manganese concentrate. According to the applicant a profit of $300.00 was made on the operation. From the ratio of concentration, 7½:1, it may be inferred the run of pit material assayed more or less like the 8-foot vertical sample taken by the examiners, that is 8.76% Mn. A six-foot vertical sample of similar looking material taken in the operating Carrie pit (Spangler mine) assayed 10.41% Mn.

No work appeared to have been done recently on the other 3 properties, the pits and trenches were sloughed and no estimate of potential could be made. Obviously work could not be recommended.

The examiners conclude that "work completed by the applicant on the Hoffman property indicates that there is small probability that additional work would result in a significant discovery", and recommend that the application be denied.

With the field team I concur with the recommendation.

N. S. Nelson

N. S. Nelson

N-Nelson:btr
G 6/18/56

cc: Director's reading file (4212)
Branch reading file (4212)
DMA(3) V
Chron. file
Docket file

Docket

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

RECEIVED

June 8, 1956

Memorandum

WSM

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

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

Subject: Field Examination Report - DMEA-4162 (Manganese)
Spangler Mining Corp., Narrows, Virginia
Prospects in Craig and Giles

Enclosed are four copies of the subject examination report.

It has been our observation that manganese prospects in Knox dolomite residuum offer virtually no promise as commercial producers.

We are in agreement with the examiners' recommendation for denial of the application. Unless further prospecting shows unusually favorable results, we doubt that a re-examination would be worth the time and expense involved.

Robert A. Laurence
Robert A. Laurence
Executive Officer

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

Enclosures 4

Reviewed by
DMEA OPERATING COMMITTEE
6-15-56
(date)

# FIELD TEAM REPORT ON EXAMINATION OF PROPERTIES

by

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

DMEA Docket No. 4162 (Manganese)

Applicant: Spangler Mining Corp., P.O. Box 38, Narrows, Va., Calvin D. Spangler, President.

## SUMMARY

The property involved in this application consists of four separate leased tracts known as 1) Hoffman mine, 2) Hoffman-Givens prospect, 3) Laing prospect, and 4) Hoge-Laing prospect. These tracts are in Craig and Giles Counties, Virginia, and are shown on figures 1 and 2.

Two small trenches on the Hoffman property comprise the total of prospecting or exploration done by the applicant on all four properties. These trenches were sampled. The caved remains of a few old trenches were found on the Laing and Hoge-Laing leases. All manganese mineralization seen was sparse and residual from the underlying Knox dolomite.

## CONCLUSIONS AND RECOMMENDATIONS

Test pits dug by the applicant on the Hoffman mine property show that the ore zone in the loam and underlying clay is thin, and that the ore grade changes markedly in lateral directions. The southeast cut is completely discouraging as far as further work is concerned.

---

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

Reviewed by
DMEA OPERATING COMMITTEE
6-15-56
(date)

Because the ore occurs as a result of erosion, solution, and re-deposition on a peneplained surface ore controls are not rigidly defined. The test cuts proposed by the applicant have no specific location or geologic target. Their position is entirely arbitrary and their purpose is to remove the surface debris in order to see what lies below.

Work completed by the applicant on the Hoffman property indicates that there is small probability that additional work would result in a significant discovery. For that reason DMEA participation in exploration work on the Hoffman prospect is not recommended.

Prospecting should be done on the Hoffman-Givens, Laing, and Hoge-Laing prospects for DMEA evaluation purposes. The old prospect cuts should be cleaned out to allow a more thorough examination. In its present state, the proposed project clearly represents a prospecting venture.

It is recommended that the application be denied at this time. It is further recommended that the applicant be advised that if he should do considerable prospecting work on his leases resulting in exposure of better mineralization, the examining team could reappraise the property with a view toward possible DMEA assistance.

TIME SPENT ON PROPERTIES

The examiners were accompanied by Mr. Calvin D. Spangler, President of the Spangler Mining Corp. Three days, March 27, 28, 29,

were spent in examining three of the four properties included in the application. The fourth (Hoffman-Gibbons) was verbally withdrawn by Mr. Spangler from consideration in the application.

## NAME AND LOCATION OF PROPERTIES

Assistance in exploring for manganese was requested on four separate properties only two of which were contiguous.

The Hoffman and Hoffman-Gibbons prospects are both located in Craig County, Va., fig. 1, and are reached from Simmonsville by proceeding southwestward on Route 42 for a distance of 1/4 miles to a gate on the south. The Hoffman trenches are located on a hilltop about 0.2 mile southwest of the gate. The Hoffman-Gibbons may be reached by the same route.

The Laing prospect is located in Giles County, Va. and is reached from Newport by proceeding northeastward on Route 42 a distance of 1.9 miles to a farm road entering from the northwest, fig. 1. Proceed on foot to a barn and continue up the draw back of the barn for a distance of about 1/2 mile bearing always to the right to the old workings on a bench.

The Hoge-Laing prospect is located in Giles County and is reached from Mountain Lake by proceeding on unnumbered graveled roads as indicated in fig.2 for a distance of 2.9 miles to a wire gate and logging road entering from the northwest. Following this logging road on foot for 0.4 mile to a small and old caved trench on the left.

No roads lead from the highways to any of these prospects except the Hoge-Laing and in this case the highway is closed in winter.

## COMPETENCY OF APPLICANT

Mr. Spangler has had no experience in mining except removing a few yards of surface material on the Hoffman prospect.

Mr. Spangler is part owner and manager of a soft drink bottling works in ~~Needles~~ Narrows, Va.

## APPLICANTS PROPERTY RIGHTS

The Applicant holds the four properties in this application under two leases from the Little Stony Game and Fish Preserve, Inc. Each lease states that it shall be subject to the provisions of the DMEA. "Consents to Lien" had not been executed previous to examination and although these forms were left with the applicant after examination, they have not been executed to the best of the engineer's knowledge.

## DESCRIPTION OF PROPERTY

The Hoffman prospect, figs. 1, 3 and 6, lies in open rolling country and is easily accessible by Route 42 to a point within approximately 1/4 mile of the trenches. The 1/4 mile of access road could be completed at low cost. Three channel samples were taken. Detail of trenches and sample locations are shown in fig. 6. No other workings and no facilities are found on this property.

The Laing prospect, figs. 1 and 4, lies approximately sev en miles southwest of the Hoffman prospect. The old workings lie at an elevation of about 350 ft. above the level of Route 42. A facilitating road would be expensive and at a high percentage of grade. No facilities are on the property. The workings consist of 5 narrow trenches and a number of small shallow pits 4 to 6 feet in diameter. All of these workings are old and nearly filled with debris and the material from

caved sides. No effort has been made to clean any of the trenches to make them available for examination. A few pieces of psilomelane were noted on the trench dumps and in their vicinity. No samples could be taken.

The Gussler lease shown on fig. 4 has no connection with the Laing prospect leased by Mr. Spangler. The Gussler lease will be discussed later in this report.

The Hoge-Laing prospect is situated in Giles County, Va. at an elevation of approximately 3280 feet about 2½ miles northeasterly from Mountain Lake. The terrain is extremely rugged and covered with medium size timber. The only working on the property consists of one small trench which probably was excavated many years past. The trench is nearly filled with debris and material caved from the walls. One ten pound piece of hard manganese ore was seen; it was not in place and very little manganese mineral was found on the old dump. It was not possible to take samples.

The operating Gussler lease, fig. 4 (not in the application), was visited because it is geologically comparable to the Hoffman and Laing prospects. The long dimension of the pit is in a northeasterly direction, roughly on the strike of the sediments. Approximately 25 feet of clay overlies the only manganese mineralization visible at the time of visit. This mineralization was in the form of a steeply limbed arch about 9 feet high and 15 feet wide in maximum dimension where visible. Sample No. 4 waa channeled vertically in the center of mineralization. The present ratio of overburden and unmineralized material to ore is conservatively estimated as 10 to 1. Tables I

and II indicate that approximately $8\frac{1}{2}$ tons of ore must be mined, transported and concentrated to produce one ton of concentrate.

GEOLOGY AND ORE DEPOSITS

The applicant's property is located in Craig and Giles Counties, Virginia, in the Appalachian Valley Ridges subprovince which occupies the northwestern portion of the Appalachian Valley physiographic province.

The rocks are much folded and crushed, and one part of the applicant's property, the Laing prospect is associated with thrust faulting.

The applicant's property is divided into four relatively widely separated 'prospects'. The rocks, with their associated manganese, on the prospects include the Knox and Cayuga formations.

The Knox dolomite, of Cambrian and Ordovician age is composed of alternating thick beds of dolomite, thinner bedded blue magnesian limestone, and massive chert layers. The total thickness of the formation is about 4,000 feet. The manganese is thought to have been originally deposited with the Knox beds, later dissolved by circulating ground waters as the rocks weathered, and redeposited in the same beds or in residual clays and loams.

The Cayuga formation of Silurian age, in the vicinity of the property is a massive white to gray sandstone. On weathered surfaces the sandstone is rusty buff or yellowish gray color. Where weathered the sandstone usually crumbles easily. The Cayuga is probably about 175 feet thick. Manganese ore in the Cahuga formation may have been originally disseminated in some of the basal beds of

the overlying Oriskany formation. Later, the manganese was dissolved by descending ground waters and redeposited in the lower, brecciated sandstones.

The Hoffman prospect

"The prospect, fig. 3, is near the crest of a well-rounded hill about 2,400 feet above sea level. This and other near-by hills having the same elevation apparently mark a former, though now largely eroded, peneplain, herein called the valley-floor peneplain. The (area) is underlain by the Knox dolomite, though the dolomite is concealed by a thick deposit of residual clay in which there is at some places considerable chert.

"A shaft 84 feet deep in cherty clay, from which iron ore was mined. . . is located near the top of the hill, but it had caved . . . and the material on the dumps (is) so scattered that the presence or absence of manganese minerals in it could not be determined."2/

At the time of the field examination new work completed by the applicant consisted of two cuts made near the crest of the hill with a front-end loader. These cuts are shown on figures 3 and 6. In the westernmost cut the excavation is about 8 feet deep in the deepest part. The upper 2 feet of exposed material consists of reddish brown clay and loam. The next lower 2 feet is brown to yellow clay containing chert fragments. The bottom 4 feet of the pit is grayish brown clay and chert with scattered fragments of dolomite.

Sparse nodules of psilomelane, manganite, and manganese wad are sporadically distributed through the material in the cuts. The

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2/ Stose, G. W., and Miser, H. D., Manganese Deposits of Western Virginia, Virginia Geol. Survey Bull. XXIII, p. 117, 1922.

major portion of the nodules are of 1/8 inch to 1/4 inch diameter. Some of the nodules are as large as 6 inches to 1 foot in diameter but those are scarce. The manganese wad forms black, sooty streaks and bands as much as 2 or 3 inches thick in the clay and loam.

It appears that the amount of recoverable manganese in the form of lumps and nodules is greatest in the loam. The southeasterly cut, however, is entirely in reddish brown loam which has little recoverable manganese. This illustrates the fact that the best ore zone is thin and the manganese is erratically and unpredictably scattered laterally.

Hoffman-Givens prospect

The Hoffman-Givens prospect, figure 1, is located on the crest of a rounded hill about 1½ miles northeast of the Hoffman mine. As at the Hoffman property the manganese is in clay and loam derived from the Knox dolomite. The hilltop was part of the valley-floor peneplain.

The applicant has done no work at the Hoffman-Givens prospect. As far as could be learned only 1 ton of "ore" was dug many years ago from some shallow, now overgrown, excavations.

This prospect offers even less encouragement for further work than the Hoffman prospect. The applicant, in addition, was not enthusiastic about pursuing exploration work on the property and verbally withdrew this prospect from further consideration.

Laing prospect

The Laing prospect, figure 4, is on the crest of a shoulder of Sinking Creek Mountain. The prospect marks the level

of a former peneplain which has been destroyed by erosion. The property is underlain by the Knox dolomite which is exposed on the flank of the hill. On the crest of the hill the dolomite has broken down into yellow brown, cherty, residual clay. The dolomite dips southeast about 28 degrees. The dip is caused by the dolomite having been thrust up over younger rocks of Cayuga or Oriskany age which lie to the northwest and are exposed higher up on the mountain.

Half a dozen prospect pits were dug on the property years ago. The pits are now slumped partly full and are overgrown with vegetation. The cuts are now only 3 or 4 feet deep, and the largest was about 30 feet long. The pits were dug in red and brown cherty clay that is residual from the Knox dolomite. A few hundred pounds of manganese nodules composed of manganite and psilomelane had been hand sorted, years ago, from the material from the pits and was piled at the pit edges. The nodules were quite heavy and a few were as much as 6 inches in diameter.

Although manganese nodules are present in the surficial loam and clay of the prospect it appears that hand-picking is at present the most feasible means of recovery. Some 'wash ore' is undoubtedly present also as the remnants of a small dump of screened nodules, 1/8 inch to 1/2 inch in diameter, can be found by one of the pits.

In view of the present condition of the Laing prospect it appears that prospecting should first be done by cleaning out the old pits and trenches, possibly with hand tools. If that were done the subsurface would be visible and the manganese-producing potential of the property could be evaluated and the desirability

of performing exploration work determined.

## Hoge-Laing prospect

The Hoge-Laing prospect, figure 5, on the north slope of Doe Mountain, consists of one large pit and a few very small scattered ones. The large pit, cut into the side of a steep slope, is about 20 feet long, 8 feet wide, and about 8 feet deep at the deepest place. All the pits are badly slumped and overgrown with vegetation.

Badly crushed rocks on the site consist of a buff-colored laminated sandstone of the Cayuga formation of Silurian age Psilomelane and manganite fill fissures and cracks in the sandstone and are also found as a replacement in the sandstone.

Before exploration work is undertaken on the property the old prospect pits should be cleaned out to allow examination of the potential ore zone. As far as could be learned only 4 tons of 'ore' had ever been produced from the prospect. Only scattered pieces of ore-grade material could be found on the old dumps.

In the course of the field examination an operating property was visited. This open-cut operation, figure 4, is now being operated by J. G. Gussler on land that is owned in fee simple by H. B . Reynolds. The property is located on the northwest side of Virginia Route 42, about 2 miles northeast of Newport, Virginia. The site was formerly known as the Carrie prospect. The Laing prospect is located only about 1,000 feet away, toward the southwest on the shoulder of the same mountain.

In the period February 1955 to the present the operator had bulldozed out a large cut in the side of the mountain. The cut was about 100 feet deep at the deepest part. An employee at the pit stated that in the same period 20 railroad cars of manganese concentrate had been washed from ore taken from the pit. The employee further stated that about 700 pounds of manganese concentrate was usually washed from a truckload of 6 tons of ore. This gives a concentration ratio of about 17 to 1, which is probably about average for that type deposit.

Ore was visible in the pit at only one place. A lens-like body of wad and nodular manganese was exposed in a bench of the pit. The lens was about 10 to 15 feet wide and the exposed thickness was about 4 feet.

The ore was covered with about 25 feet of overburden which consisted of yellow and yellowish brown cherty clay. The clay was derived from residual decay of the underlying Knox dolomite. Geologically, the Carrie prospect is much more similar to the Hoffman prospect than to the Laing prospect which is much closer. All three prospects, however, are underlain by the Knox dolomite.

## SAMPLING

Four trench samples were taken in the course of the field examination. At the Bureau of Mines laboratory at College Park, Maryland, the samples were agitated in a ball mill without a ball load. The samples were then screened with a 20 mesh screen. The

screen fractions were then concentrated by the sink-float method using an acetylene tetrabromide liquid medium.

Location, description, and laboratory and assay results covering the samples are given in Tables I and II.

Sample No. 4 was taken from the Gussler property, formerly known as the Carrie prospect. This sample is not directly connected with the application but was taken from the only operating pit in the vicinity for comparison purposes.

According to U. S. Bur. of Mines Information Circular 7145 the results of heavy media separation used on the samples would accurately forecast jigging results, which is the concentration method in general practical use.

From Tables I and II it may be seen that none of the samples from land described in the application are of commercial or acceptable manganese grade. Consequently, it does not seem necessary to determine what the penalties would be for silica plus aluminum, iron, and phosphorous.

TABLE 1

Results of Sampling

Spangler Mining Corporation, DMEA 4162
Narrows, Virginia

| Sample No. | Location | Description | Screen Fraction | | Weight in % | % Manganese | Manganese Distribution |
|---|---|---|---|---|---|---|---|
| 1 | Hoffman Prospect | 8' vert. channel. Top 2' -red, brown clay and loam; 2' brown clay and chert, bottom 4' gray clay and cherty dolomite. | -1/4" | +20 mesh | 32.3 | 9.35 | 34.5 |
| | | | | -20 mesh | 67.7 | 8.48 | 65.5 |
| | | | | Total | 100.0 | 8.76 | 100.0 |
| 2 | Hoffman Prospect | 1.5' vert. channel. Red-brown topsoil and loam. | -1/4" | +20 mesh | 32.6 | 8.58 | 61.9 |
| | | | | -20 mesh | 67.4 | 2.55 | 38.2 |
| | | | | Total | 100.0 | 4.52 | 100.1 |
| 3 | Hoffman Prospect | 4' vert. channel. Red-brown loamy clay. | -1/4" | +20 mesh | 36.2 | 0.50 | 64.0 |
| | | | | -20 mesh | 63.8 | 0.16 | 36.0 |
| | | | | Total | 100.0 | 0.28 | 100.0 |
| 4 | Carrie Prospect | ± 6' vert. channel. Yellow and reddish brown clay. | -1/4" | +20 mesh | 48.2 | 11.00 | 50.9 |
| | | | | -20 mesh | 51.8 | 9.86 | 49.1 |
| | | | | Total | 100.0 | 10.41 | 100.0 |

TABLE II

Manganese Recovery from Samples

Spangler Mining Corporation, DMEA 4162
Narrows, Virginia

| Sample No. | Percent recovery of Mn from entire sample | Grade of concentrate % Mn | Pounds of concentrate recoverable from 1 ton of sampled material |
|---|---|---|---|
| 1 | 27.3 | 21.9 | 218 |
| 2 | 44.3 | 26.3 | 171 |
| 3 | 30.5 | 6.4 | 27 |
| 4 | 47.3 | 41.3 | 240 |

## ORE RESERVES

There are no known, minable ore reserves on any of the properties. It is conceivable that a few hundred pounds of manganese nodules could be hand-picked from the four properties. Only a few tons of wash ore are in sight at the Hoffman mine. No wash ore can be inferred at the other three properties.

## PAST PRODUCTION

Bulletin No. 23, Virginia Geological Survey, 1922, credits the Hoffman prospect with a production of 100 tons of hand-picked lump ore. Neither the old trench workings nor recent limited extension of this work indicate the presence of manganese mineralization of higher grade than is represented by sample No. 1.

Mr. Spangler told the engineer that of the material taken from the trench represented by examiners samples Nos. 1 and 2, he had trucked 43 loads for a total of 129 tons, 40 miles to a washing

and jigging plant. From the 129 tons was recovered 17.5 short tons of manganese concentrates containing 40.9 percent manganese. A profit of $300.00 was made on the operation. It is difficult to credit these results in view of what was seen during examination and the results of analyses of samples Nos. 1 and 2.

## AVAILABILITY OF MANPOWER, SUPPLIES, WATER, ETC.

Labor is available in this area at the rate of $1.25 per hour. Water is available but would in each case have to be pumped several thousand feet against heads of from 200 to 500 feet to reach the mineralized areas. Electric power would be available at considerable cost for installation of facilitating lines.

## APPLICANT'S PROPOSAL

The applicant proposes to explore for manganese ore on his four leased properties by digging cuts, or trenches, with end loader and carryall equipment. Bulk samples of any ore discovered would be trucked to a pilot plant at Newport, Virginia, for washing, jigging, concentrating and assaying. Following is a summary of the work proposed for the four properties:

Hoffman mine:

10 excavations - 21 samples. (Total samples, 124 cu.yds.)

Hoffman-Givens prospect:

4 excavations - 4 samples. (Total samples, 8 cu.yds.)

Laing prospect:

7 excavations - 15 samples. (Total samples, 80 cu.yds.)

Hoge-Laing prospect:

4 excavations - 12 samples. (Total samples, 52 cu.yds.)

The applicant's estimated total of $11,665.00 would have been adequate to meet all costs of the proposed exploration.

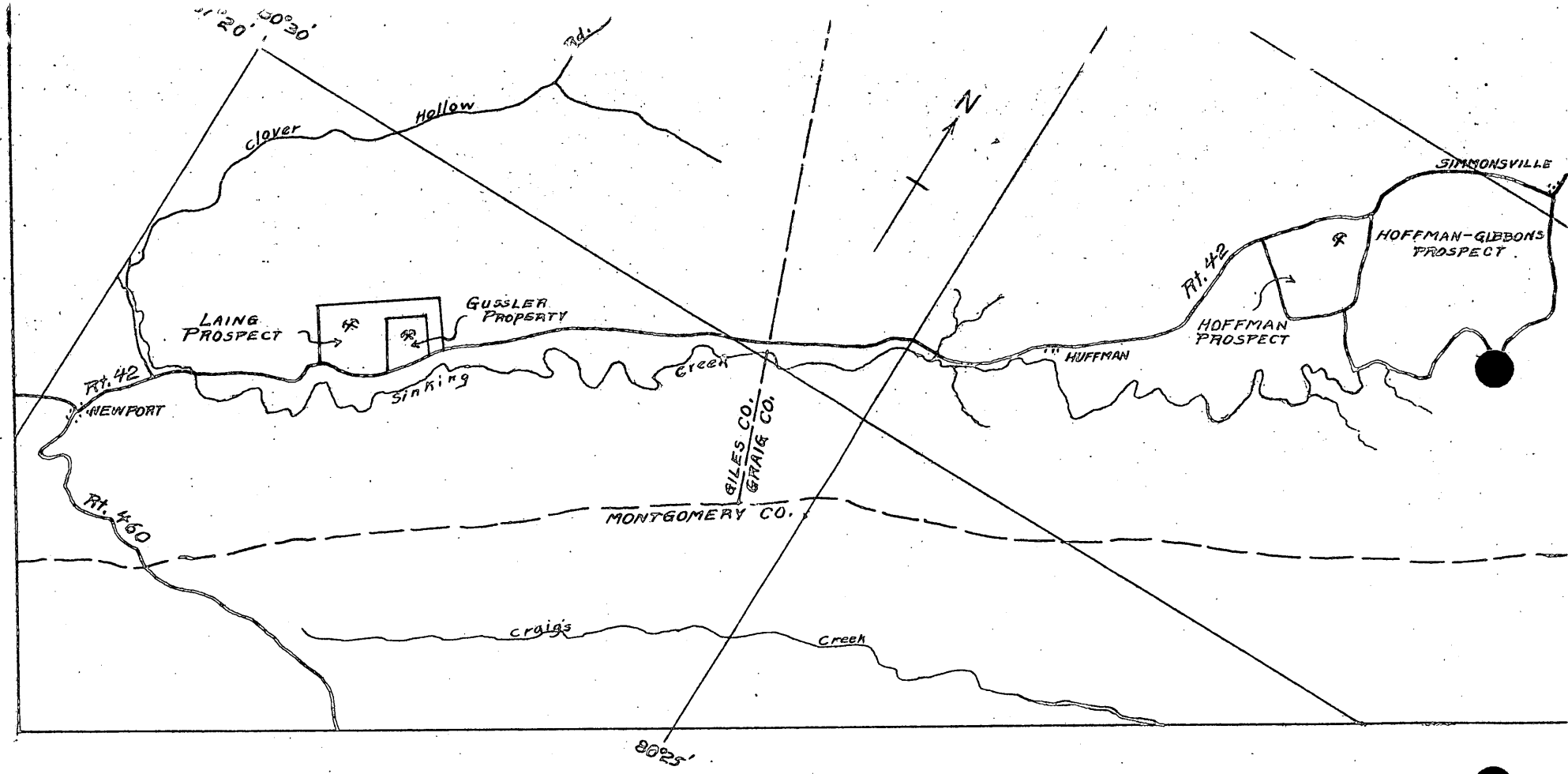
The entire project was reviewed with the applicant with the result that it is considered doubtful that further prospecting will be done.

W P Williams

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

H L Burmeister

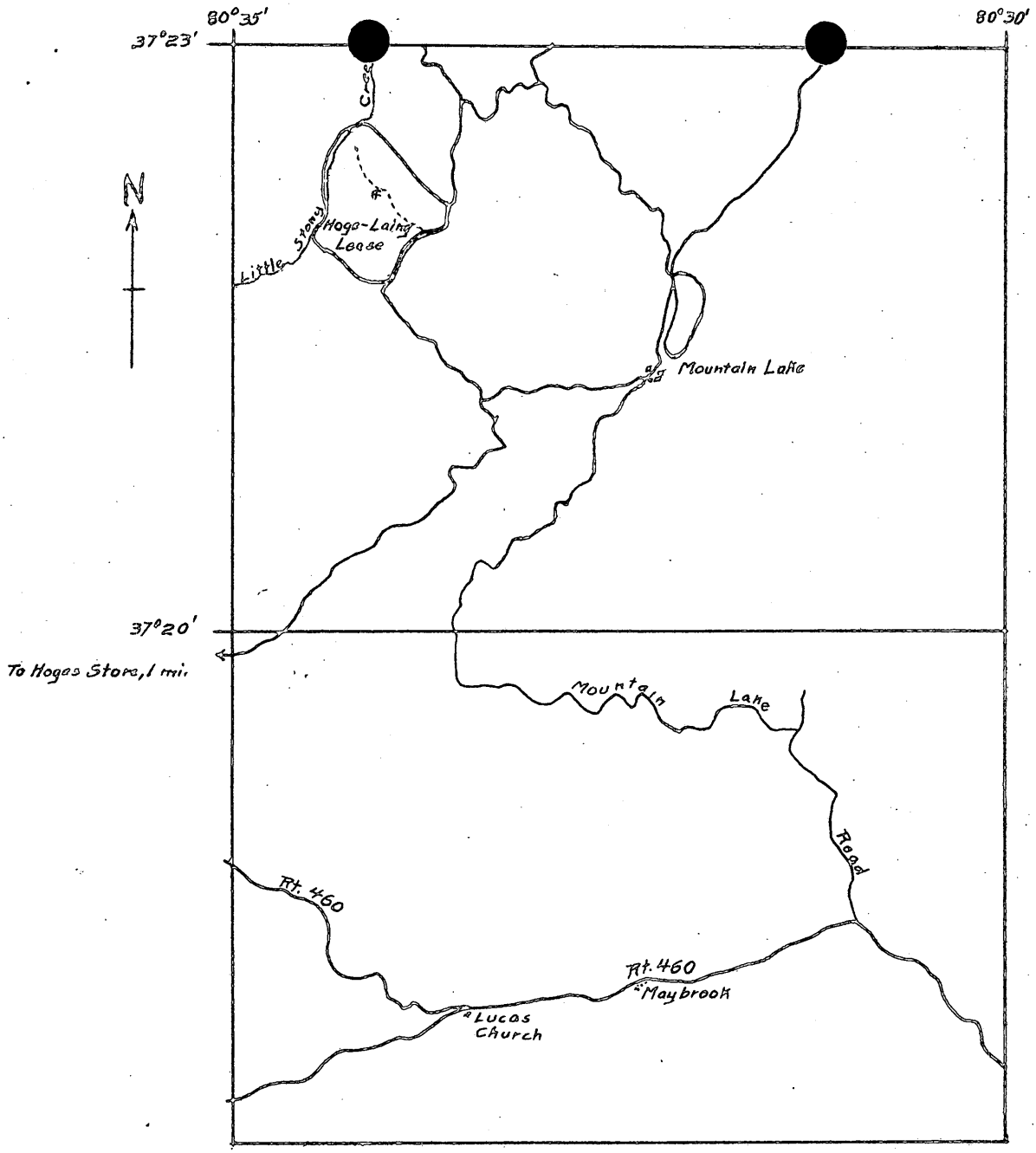
H. L. Burmeister, Engineer
U. S. Bureau of Mines




SPANGLER MINING CORP.
DOCKET No. DMEA 4162
HOFFMAN, HOFFMAN-GIBBONS and LAING PROSPECTS
GILES and CRAIG COUNTIES
U.S.G.S. WAITEVILLE, VA.-W. VA. QUAD
APRIL 1956

0 miles 1

FIG.- 1

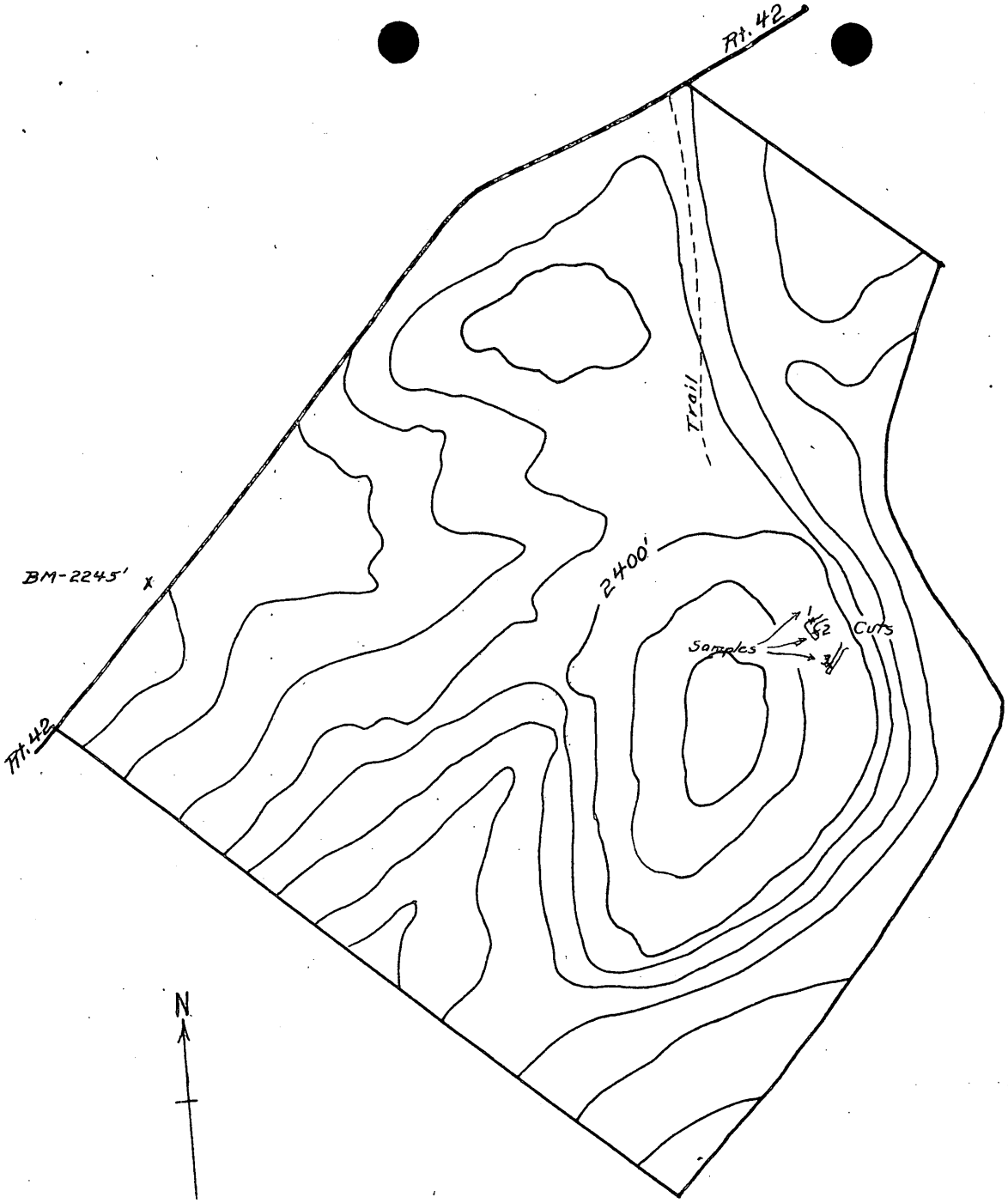



SPANGLER MINING CORP.
DOCKET DMEA 4162
HOGE-LAING PROSPECT
GILES COUNTY, VA.

U.S.G.S. PEARISBURG, VA.-W. VA. QUAD.
APRIL 1956

0 miles 1

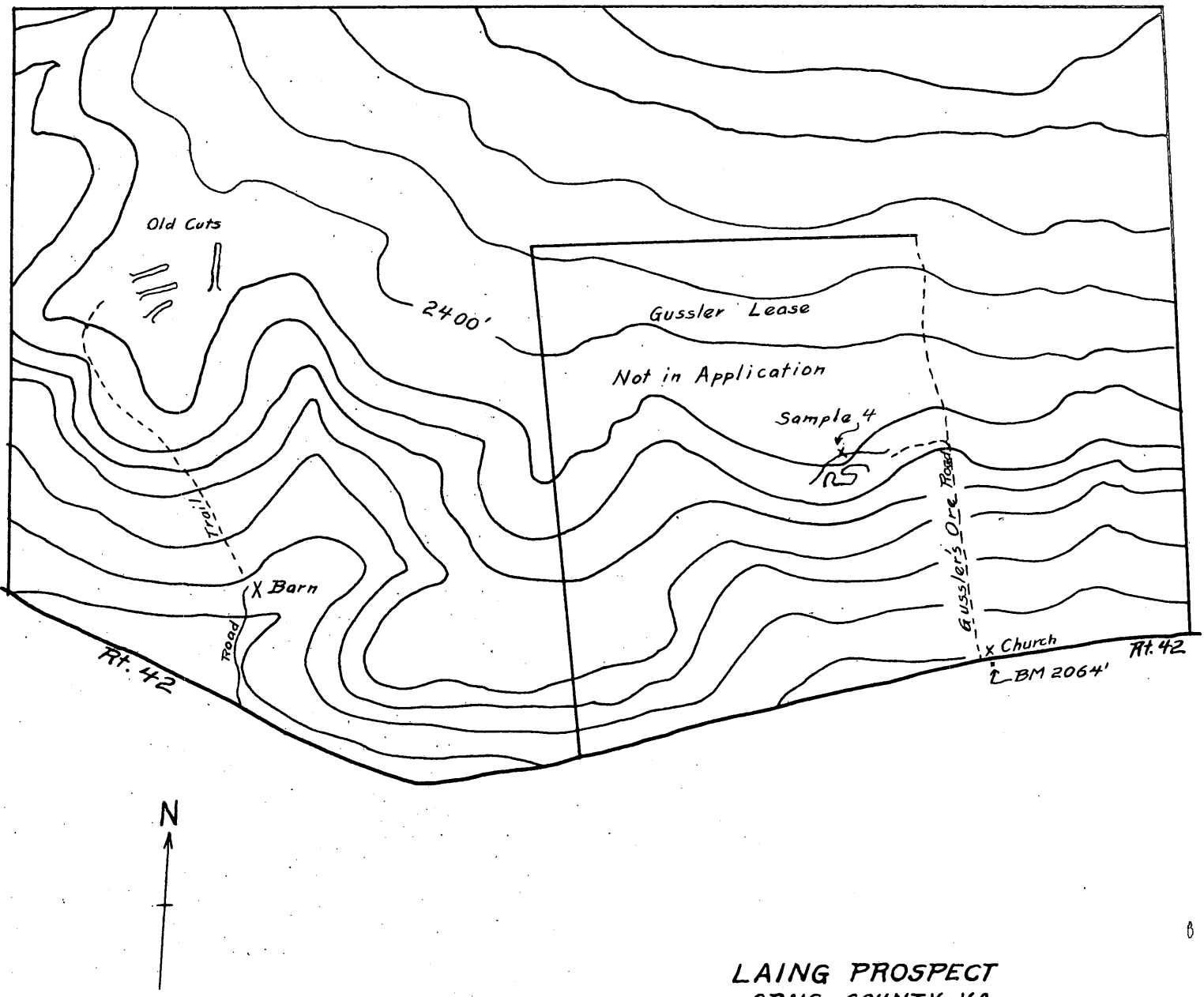
FIG.-2




HOFFMAN PROSPECT
CRAIG COUNTY, VA.
DOCKET, DMEA No. 4162
AFTER APPLICANT'S MAP, WITH ADDITIONS

SCALE 1:7882

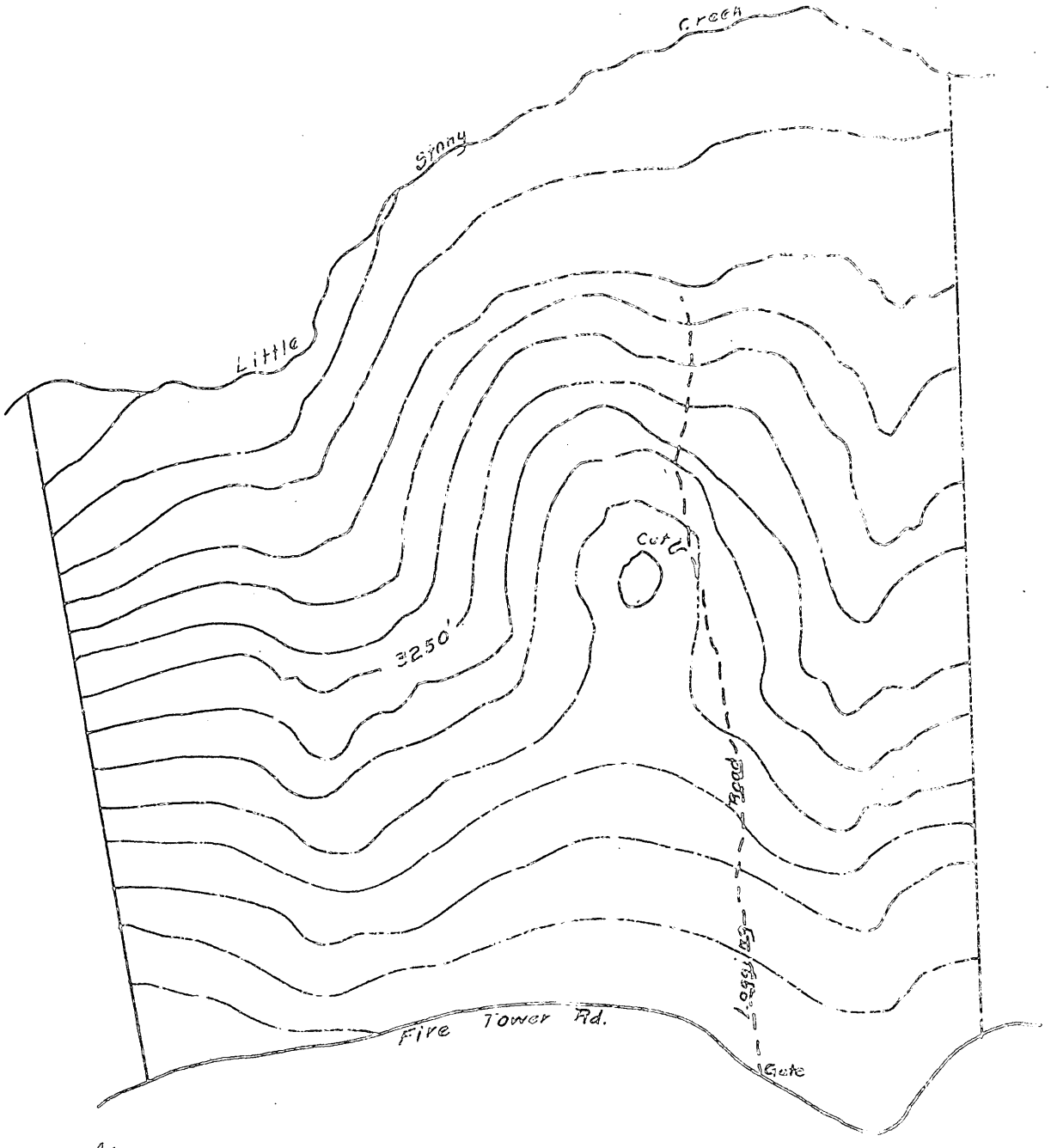
FIG.-3




LAING PROSPECT
CRAIG COUNTY, VA.
DMEA DOCKET No. 4162
AFTER APPLICANT'S MAP, WITH ADDITIONS

SCALE 1: 7882

FIG.-4




N

HOGE-LAING PROSPECT
GILES COUNTY, VA.
DMEA DOCKET No. 4462
AFTER APPLICANT'S MAP, WITH ADDITIONS

Scale 1" = 1320'

FIG.-5

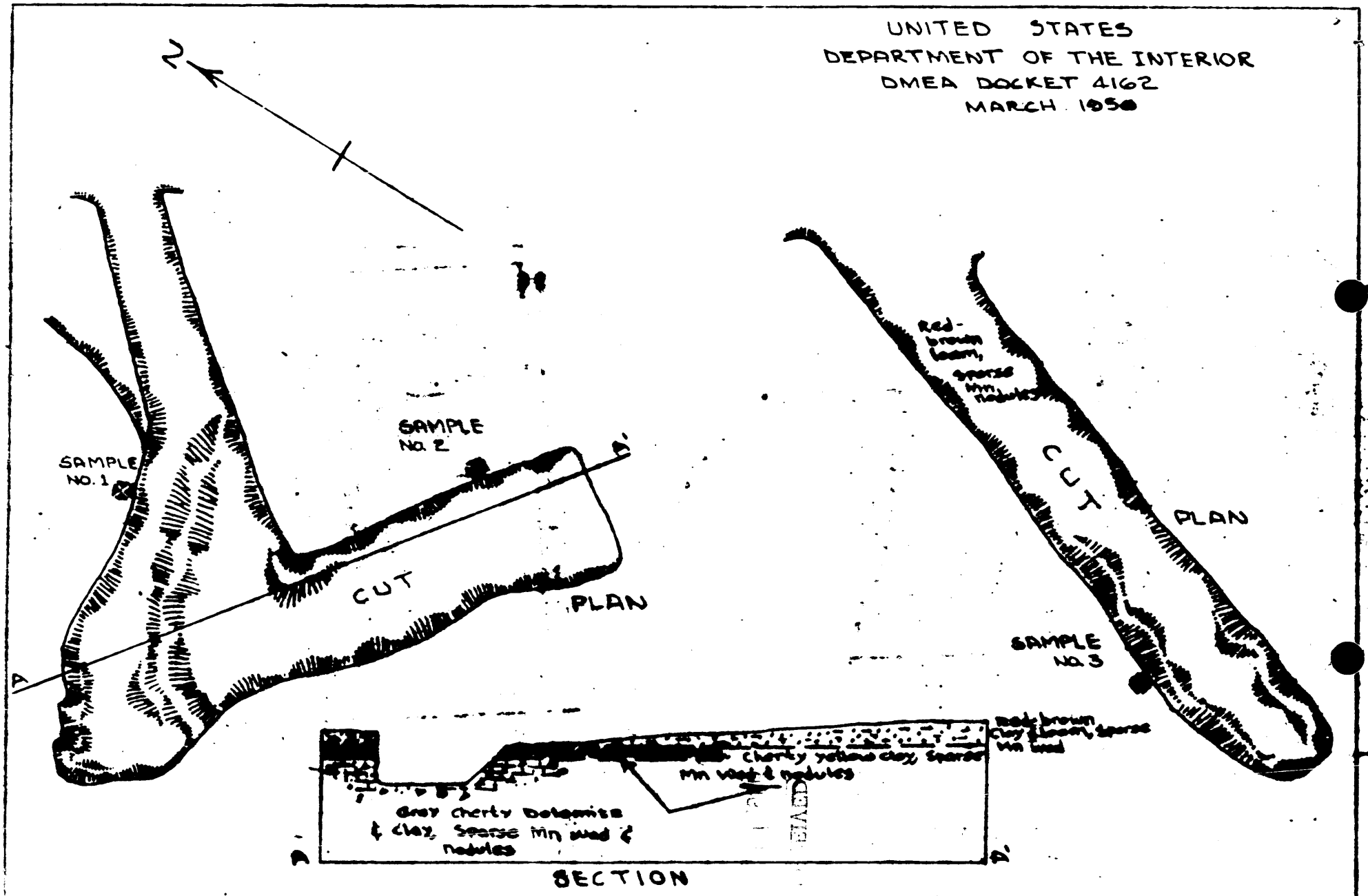



FIG. 6 HOFFMAN PROSPECT, CRAIG COUNTY, VIRGINIA
SPANGLER MINING CORPORATION, NARROWS, VA.

HORIZ. & VERT. SCALE 1" = 20'

Docket

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

RECEIVED
MAR 21 1956

March 19, 1956

Memorandum

Copy [illegible]

To: W. T. Miller, Mining Engineer, College Park, Md.

From: Executive Officer, DMEA - Region V - Knoxville

Subject: DMEA-4162- Manganese, Spangler Mining Corporation
Hoffman Mine, Giles and Craig Counties, Virginia

WSM

Enclosed herewith is the application and pertinent data on the subject application requested in your telegram of March 16.

Robert A. Laurence

LM.
cc:
Opr. Com.-2
Lynch
Files

Docket

RECEIVED
MAR 14 1956

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

March 12, 1956

Memorandum

WSM

To: W. T. Millar, Mining Engineer, College Park, Maryland

From: Acting Executive Officer, DMEA - Region V - Knoxville

Subject: Field Examination - Spangler Mining Corp. Giles and Craig Counties, Virginia

Please arrange to have an engineer make a field examination of the Spangler Mining Corporation properties in Giles and Craig Counties, Virginia, Docket No. DMEA-4162 - manganese.

Bob Laurence has requested Bill Williams of the Geological Survey to go on the examination, so you can arrange the date and other details of the examination with Mr. Williams.

I think you have a copy of the application, if not, I can send you our copy.

V. J. Lynch

VJL/nm

cc:

Lynch
Laurence
Opr. Com.

F

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

RECEIVED
MAR 14 1956

March 12, 1956

Spangler Mining Corporation
P.O. Box 38
Narrows, Virginia

Copy initialed 300

Gentlemen:

Your application for DMEA assistance in the exploration of manganese deposits in Giles and Craig counties, Virginia has been referred to this office for review and possible field examination.

A geologist of Geological Survey and an engineer of the Bureau of Mines will be assigned to make a field examination in the near future. Mr. W. T. Miller, of the Bureau of Mines office, College Park, Maryland will write you soon to set a date and make any other necessary arrangements to complete the examination.

Very truly yours,

V. J. Lynch, Acting
Executive Officer, DMEA
Field Team, Region V

VJL/sm
cc:
Opr. Com-2
Miller
Lynch
Files

DOCKET
SURNAME

400 Chapman
Martin
Kilsgaard
Gehen
Selfridge
Fryhman

MAR 7 1956

Spangler Mining Corporation
Box 38
Narrows, Virginia

Re: Docket No. DMEA 4162 - Manganese
Hoffman Mine, Hoffman Givens Prospect
and Laing Prospect
Giles County and Craig County,
Virginia

Gentlemen:

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

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

Sincerely yours,

W. O. Mittendorf

Administrator

TLChapman:foc 3/6/56
cc to: Docket
Code 400
Adm. Read. File
Operating Comm.
FT. REG. V
Messrs. Gilbert DeHuff, Jr., USBM
N. E. Nelson, USGS

R.E.G.

DOCKET
SURNAME
Chapman
400 Martin
Selfridge
Hoffman

MAR 7 1956

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

Re: Docket No. IMEA 4162 - Manganese
Spangler Mining Corporation
Hoffman Mine, Hoffman Giveaway
Prospect and Laing Prospect
Giles County and Craig County,
Virginia

Dear Mr. Laurence:

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

Copies of memoranda dated February 10 and 29, 1956, by H. E. Nelson, Geological Survey, and G. L. DeHuff, Jr., Bureau of Mines, respectively, relating to the project are enclosed for your information.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (GCS)

Enclosure

TLChapman:foc / 3/6/56
cc to: Docket
Code 400
Admr. Read. File
Operating Comm.
FT. REG. V
Messrs. DeHuff, USBM
Nelson, USGS

APPROVED:

/s/ Robert W. Geehan (GCS)
Member, Bureau of Mines

Thor H. Kiilsgaard (GCS)
Member, Geological Survey

Dorkel

IN REPLY REFER TO:

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

RECEIVED
FEB 10 1956

February 10, 1956

Re: DMEA 4162
Spangler Mining Corporation
Hoffman, Laing, etc. prospects
Giles and Craig Cos., Virginia
$11,664.90 - Manganese

Copy obtained 400

Memorandum

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

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

WSM

Subject: Review of application.

The applicant requests the Government to participate in stripping and trenching operations on four prospects.

The estimated cost of the proposed work is:--

| | Prospect | | | | |
|---|---|---|---|---|---|
| | Hoffman | Hoffman-Givens | Laing | Hoge-Laing | Total |
| Excavation | $1,917.54 | $224.00 | $1,736.28 | $791.82 | $ 4,669.64 |
| Hours | 201.0 | 28.0 | 182 | 83 | |
| Labor, supervision | | | | | 2,450.00 |
| Consultants | | | | | 475.00 |
| Travel allowance | | | | | 322.00 |
| Operating equipment, rental, etc. | | | | | 630.00 |
| Sampling, testing, analyses | | | | | 1,981.52 |
| Accounting, etc. | | | | | 700.00 |
| Workmen's compensation | | | | | 176.50 |
| Miscellaneous | | | | | 260.24 |
| | | | Total | | $11,664.90 |

Trenching has been done on the Hoffman prospect by the applicant. Manganese was found. Descriptions of the other prospects in Bulletin No. XXIII, Manganese deposits of Western Virginia, by Stose and Miser (1918), give information concerning the other three prospects. No work has been done by the applicant.

Referral of the application to the Field Team with a request for appropriate action is recommended.

N. E. Nelson

N. E. Nelson

Docket

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

RECEIVED
FEB 29 1956

February 29, 1956

Memorandum

WBM

To: W. S. Martin, DMEA

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

Subject: DMEA-4162 - Manganese - Spangler Mining Corp.,
Craig and Giles Counties, Virginia

Application is made for aid to explore, for manganese, applicant's leased property at two locations in Craig County and two locations in Giles County, Virginia. Planned exploration work consists of stripping and trenching, and total estimated cost is $11,664.90.

All four locations are old prospects decribed in Virginia Geological Survey Bulletin XXIII, "Manganese Deposits of Western Virginia", by Stose and Miser. The Hoffman mine is located in Craig County 1-1/2 miles southwest of Simmonsville. Applicant has done some trenching here with a bulldozer and end loader and has taken five samples from the property, analyses for which showed a manganese content between 41 and 54 percent manganese. Applicant states that 100 tons of hand-picked ore were produced here from 1918 to 1920. The Hoffman and Givens prospect is also located in Craig County 1-1/2 miles from the Hoffman mine. The Laing prospect is in Giles County 2 miles northeast of Newport and next to a property known as the Carrie prospect which applicant states has produced good ore during the past year. Applicant has two samples from the Laing prospect analyzing 44 to 46 percent manganese. The Hoge-Laing prospect is also in Giles County 2 miles northwest of Mountain Lake.

In view of the above information it is recommended that this application be referred to the Field Team for their consideration.

G L DeHuff Jr

G. L. DeHuff, Jr.

February 9, 1956

Subject: DMEA-4162
Re: Exploration Assistance
Hoffman Mine, Hoffman-Givens
Prospects & Laing Prospect,
Hoge-Laing Prospect

Spangler Mining Corporation
Box 38
Narrows, Virginia

Gentlemen:

The receipt of your application dated January 30, 1956, for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-4162 and referred to the Iron & Ferro-Alloys Division.

Kindly identify all future correspondence relating to your application by this docket number.

Sincerely yours,

Robert E. Adams, Chief
Operations Control and
Statistics Division

60932

February 9, 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region V

From: Chief, Operation's Control and Statistics Division

Subject: Assignment of Docket Number

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

DMEA - 4162 Spangler Mining Corporation

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

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

RECEIVED
FEB - 7 1956

February 6, 1956

Memorandum

To: George C. Selfridge, Chairman DMEA Operating Committee, Room 4457, Interior Building, Washington, D. C.

From: H. L. Burmeister, U. S. Bureau of Mines, College Park, Md.

Subject: DMEA Application (Manganese), Spangler Mining Corporation, Box 38, Narrows, Virginia

We have today received four copies of the subject application and ten separate copies of "Consent to Lien".

Enclosed are three copies of the application together with the ten separate copies of "Consent to Lien" and a copy of the Spangler Mining Corporation's covering letter.

One copy of the Application and a copy of the Corporation's covering letter are being sent to the Executive Officer, Knoxville, Tennessee.

It is of interest to note that we have a letter from Mr. Calvin Spangler under date of March 2, 1955, stating that they have equipment. A copy of this letter is attached. The application includes costs for rented equipment.

H. L. Burmeister
Acting for
W. T. Millar
Mining Engineer

Enclosures

cc: R.A.Laurence

C O P Y

SPANGLER MINING CORPORATION
Post Office Box 38
Narrows, Virginia

February 2,1956

RECEIVED
FEB - 7 1956

Mr. W. T. Millar
U. S. Department of the Interior
Defense Minerals Exploration Administration
College Park, Maryland

Dear Mr. Millar:

Enclosed are four (4) copies of our application for aid in an exploration project.

You will recall my visit with you on May 25, 1955, in which we discussed the various phases of your program. I called at your office the last of December '55 and talked with Mr. Allerson, your assistant.

After many days in the field, research and some actual exploration work, we have completed the application and I feel that all pertinent information relating to the application is included in this material. You will also note that a copy of Owners Consent to Lien is attached to each application and there are also ten (10) other copies enclosed, making a total of fourteen (14) copies, as was explained to me in a note from your office May 25, 1955.

I hope that this application will warrant further investigation by your office. If there are any further questions, please do not hesitate to let me know. You may call Narrows, Virginia, PArk 6-3227 collect or I can arrange to meet with you in Washington if advisable or you may have your representative visit with us.

Thanking you for your cooperation in the past and awaiting your reply, I remain,

Very truly yours,

SPANGLER MINING CORPORATION

(S) Calvin D. Spangler
President

S/h
enc.

COPY

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FEB - 7 1956

Box 38
Narrows, Virginia
March 2, 1955

D. E. M. A. Representative
U. S. Bureau of Mines
Eastern Experiment Station
College Park, Md.

Area 4162

Dear Sir:

Would you please advise me as to the possibility of receiving D. E. M. A. financial support for exploratory and development work done, preliminary to the mining of manganese.

We have leased several good mining prospects and feel that this area offers an excellent opportunity. Several geological surveys have been made of this area and I feel that we can get additional information if needed.

We have invested quite a bit in tractor loaders, bulldozers, air compressor, drills and dump trucks. We have all the necessary equipment to begin work except a washer.

Would you send me all the information that you have concerning D. E. M. A. regulations, shipment and the certain chemical and physical specifications necessary to ship and sellmanganese ore to the government.

Thank you for your kind and prompt attention to this matter.

Yours very truly,

s/ CALVIN D. SPANGLER

Calvin D. Spangler

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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

*Not to be filled in by applicant*

Docket No. DMEA-4162
Metal or Mineral Manganese
Date Received 2-7-56
Estimated Cost $11,664.90
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: Spangler Mining Corporation
Box 38
Narrows, Virginia

(*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. See page 1

(*c*) If a corporation, add to above statement, titles, names and addresses of officers. See page 1

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

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

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
See pages 1, 2 and 9 thru 20.

(*b*) State any mine name by which the property is known. See page 2

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

(*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. See pages 9 thru 20.

(*e*) If you own the land, describe any liens or encumbrances on it
Not applicable.

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

4. *Physical description.*—(*a*) Describe in detail any mining or exploration operations which have been or now are being conducted upon the land, including existing mine workings and production facilities. State your interest, if any, in such operations. Also describe accessibility of mine workings for examination purposes. See pages 28 thru 33.

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades. See pages 34 and 35.

(*c*) Describe the geologic features of the property, including mineralization, type of deposit (vein, bedded, etc.), and your reasons for wishing to explore. Illustrate with maps or sketches. Send with your application (but not necessarily as a part of it) any geologic or engineering report, assay maps, or other technologic information you may have, indicating on each whether you require its return to you. See pages 35 and 36.

(*d*) State the facts with respect to the accessibility of the project: Access roads, distances to shipping, supply and residence points. See page 36.

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power. See page 36.

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

(*b*) Describe fully the proposed work, including a map or sketch of the property showing a plan (and cross sections if needed) of any present mine workings, and the location of the proposed exploration work as related to such features as contacts, veins, ore-bearing beds, etc. See pages 37 thru 55.

(*c*) The work will start within 30 days and be completed within 7 months from the date of an exploration project contract.

(*d*) State the operating experience and background of the applicant with relation to the ability to carry out such exploration project, and also that of the person or persons who will supervise the operations. See page 56.

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. See page 8

(*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.). See pages 4 thru 5 and 57 thru 64.

(*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. See page 5.

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel. Not applicable.

(*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. See pages 6 and 57 thru 65.

(*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. Not applicable.

(*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. Not applicable

(*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. See pages 6, 7 and 66 thru 67.

(*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. See page 7.

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

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

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

Explain in detail on acompanying paper.

## CERTIFICATION

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

Dated January 30, 1956

SPANGLER MINING CORPORATION
(Applicant)

By Calvin D. Spangler
Calvin D. Spangler, Pres.

**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

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Spangler Mining Corporation
Narrows, Virginia

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

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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:

Spangler Mining Corporation
Box 38
Narrows, Virginia

(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:

Incroporated in the State of Virginia.

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

Calvin D. Spangler-President
Narrows, Virginia

S. P. Morgan-Vice President & Treasurer
Bluefield, W. Va.

Mrs. Mae S. Hudson-Secretary
Pearisburg, Virginia

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

Not applicable.

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:

The legal description of the lands upon which we wish to explore may be found in the Clerk's office of Giles and Craig County, Virginia;

Giles County: 4A A tract of 126.5 acres by deed from W. P. Reynolds and wife dated May 7, 1890 and recorded in Deed Book "R", page 66.

Spangler Mining Corporation
Narrows, Virginia

Craig County: 6P Four tracts aggregating 700 acres by deed from Lloyd Huffman et al dated July 10, 1890 and recorded in Deed Book "G", page 161.

Craig County: 7C A tract of 253¼ acres on Sinking Creek by deed from J. D. Sibold and wife dated September 14, 1907 and recorded in Deed Book "M", page 390.

Craig County: Eighth A tract of 69.4 acres on Sinking Creek by deed from Miles L. Givens and wife dated February 29, 1908 and recorded in Deed Book "N", page 111.

No copies of these deeds are given because they are quite elaborate in their description and it is felt that it is best not to incorporate them in this application. However, they are on record in the Clerk's office and may be inspected at any time.

All of the lands that we control that may be benefited by the exploration are found on pages 9 thru 20.

All of the lands found on the pages mentioned above are not to be included in this application except sections 4A, 7C, Eighth and all of the lands of 6P lying south and south-east of Route 42 known as the Blue-Grass Trail. These sections are set forth in the deed of record made the 21st day of May, 1937 and recorded in the Clerk's Office of Giles and Craig Counties, State of Virginia, a copy of which may be found on pages 21 thru 27. The Doe Mountain Tract, a description of which is found in a lease dated January 19, 1956 between Little Stony Game and Fish Preserve, Inc. and Calvin D. Spangler, a copy of which may be found on pages 15 thru 20 is also included in the application.

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

Craig County properties are known as the Hoffman Mine and Hoffman-Givens Prospects.

Giles County properties are known as the Laing Prospect and the Hoge-Laing Prospect.

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

Our interest in the land is that of the Lessee.

(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.

A copy of our leases under which we control the properties may be found on pages 9 thru 20.

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

Not applicable.

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

Not applicable.

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

The answers to the above questions may be found on pages 28 thru 33.

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

The answers to the above questions may be found on pages 34 thru 35.

(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.

A portion of the answers to these questions are found on pages 35 thru 36. The answer to the other questions will be found throughout the application.

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

The answers to these questions will be found on page 36.

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

The answer to this question can be found on page 36.

5. The exploration project.--(a) State the mineral or minerals for which you wish to explore:

The mineral for which we wish to explore is manganese.

(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.:

The answer to these questions may be found on pages 37 thru 55.

(c) The work will start within 30 days and be completed within 7 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:

The answer to this question may be found on page 56.

6. Estimate of costs. Furnish a detailed estimate of the costs of the proposed work (you will have to use a seperate 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.)

No actual contracts are to be awarded. Arrangements have been made for the rental of necessary

equipment by the hour of actual work performed and it appears that it will be much cheaper and more efficent to do the exploration work in this manner. See pages 57 thru 64 for a cost breakdown.

Estimated cost of proposed excavations on the various prospects are as follows:

| | HOFFMAN PROSPECT # 1 | HOFFMAN-GIVENS PROSPECT #2 | LAING PROSPECT #3 | HOGE-LAING PROSPECT #4 |
|---|---|---|---|---|
| Estimated hours for excavation | 201 | 28 | 182 | 83 |
| Estimated cost for excavation | $1917.54 | $224.00 | $1736.28 | $791.82 |

Total estimated equipment rental hours to complete proposed excavations are 494.

Cost for equipment rental complete with operator, fuel, oil, grease, parts and maintenance are as follows:

466 hours @$9.54 per hour- - -$4,445.64
28 hours @$8.00 per hour- - - 224.00
$4,669.64

Total estimated cost to excavate proposed excavations- - - - - - - - - - - - - - - - - - - - $4,669.64

(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:

Fee for supervision of all proposed excavations and keeping of records on same is $2,450.00.

Alloted amount for engineering and Geological Consultants for the entire operation is $475.00.

Total cost of this portion of the exploration $2,925.00

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

Not applicable.

(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.

Operating equipment to be rented: Cost of rental for all excavation appears under 6a.

Crawler equipment rental cost per hour includes operator, fuel, etc.

1-International Model TD-9 Crawler Tractor with end loader- - - - - - - - - - - -@$8.00 per hour.
1-International Model TD-6 Crawler Tractor with winch and angle dozer blade- - - @$7.10 per hour.
1-International Model TD-9 Crawler Tractor equipped with a 4 yard pan- - - - - - - - @$9.54 per hour.

1-4 wheel drive vehicle- - - - - - - - - - - - $450.00

Cost of transportation of equipment to job:

| | |
|---|---|
| 1-International TD-9 and Loader- - - - - - - | $ 50.00 |
| 1-International TD-6 with winch & dozer- - - | 40.00 |
| 1-4 yard pan- - - - - - - - - - - - - - - - - - | 40.00 |
| 1-TD-9 to pull pan- - - - - - - - - - - - - - - | 50.00 |

Reasons for accepting the above quotation may be found on pages 57 thru 65.

(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.

Not applicable.

(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.

Not applicable.

(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.

Analytical work: See pages 66 thru 67 for two proposals on laboratory testing of manganese ore. We used the cheaper of the two quotations to arrive at our estimated cost of laboratory testing.

Cost of sampling a portion of the excavated ore-bearing materials:

| | HOFFMAN MINE PROSPECT # 1 | HOFFMAN-GIVENS PROSPECT # 2 | LAING PROSPECT # 3 | HOGE-LAING PROSPECT # 4 |
|---|---|---|---|---|
| Number of cubic yards of material recommended to be sampled | 124 | 8 | 80 | 52 |
| Cost to load | $ 62.00 | $ 4.00 | $ 38.00 | $ 28.00 |
| Cost to haul to Pilot Plant, Newport, Virginia | 93.00 | 8.00 | 50.00 | 104.00 |
| Cost to wash and process at Pilot, Plant, Newport, Virginia | 558.00 | 36.00 | 360.00 | 234.00 |
| Cost of analyzing milled product | 157.01 | 47.64 | 112.15 | 89.72 |
| Total cost of sampling each prospect as listed above | $870.01 | $95.64 | $560.15 | $455.72 |

| | |
|---|---|
| Total cost of analytical work as listed above- - - - | $1,981.52 |
| Postage fees for shipping samples to be tested - - - | 76.50 |
| Accounting and Secretarial Aid- - - - - - - - - - - - - | 700.00 |
| State Unemployment- - - - - - - - - - - - - - - - - - - | 99.22 |
| Federal Umemployment- - - - - - - - - - - - - - - - - - | 11.02 |
| Social Security- - - - - - - - - - - - - - - - - - - - - | 73.50 |
| Workmens Compensation- - - - - - - - - - - - - - - - - | 176.50 |

(h) Contingencies.--Give 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.

Travel allowance for supervision- - - - - - - - - -$322.00

Spangler Mining Corporation
Narrows, Virginia

TOTAL COST OF PROPOSED EXPLORATION CONTRACT- - - - $11,664.90.

7. (a) Are you prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation?

Yes

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

Money.

Spangler Mining Corporation
Narrows, Virginia

3. (d)

This INDENTURE OF LEASE made this the 22nd day of April, 1955, between LITTLE STONY GAME & FISH PRESERVE, INCORPORATED, a Virginia Corporation, hereinafter known as the Lessor, party of the first part, and CALVIN D. SPANGLER of Narrows, Virginia, hereinafter known as the Lessee, party of the second part;

W I T N E S S E T H:

That for and in consideration of the sum of Ten Dollars ($10) cash paid in hand, the receipt of which is hereby acknowledged, and in further consideration of the agreements and covenants hereinafter contained, the Lessor doth hereby lease unto the Lessee, all of the minerals and rights which it may own upon the lands hereinafter described, for the sole and exclusive right and privilege of prospecting and removing minerals from said lands, which lie in Giles and Craig Counties, Virginia, and are further described as follows: The lands which are fully described and set forth in paragraphs "4", "5", "6", "7" and "8" in a deed from Craig-Giles Iron Company to Little Stony Game & Fish Preserve, Incorporated, dated May 21, 1937, which is of record in the Clerk's Office of Giles County, Virginia, in Deed Book No. 53, at page 319; and, in the Clerk's Office of Craig County, Virginia, in Deed Book No. 3, page 167, to which said deed reference is hereby made for a specific description of the lands conveyed by this lease, and the rights owned by the Lessor

in said lands.

It is understood and agreed between the parties hereto that this lease, on said lands, is of such rights, and that only, as may be owned by the Lessor, and should the Lessor have no rights upon any tract which may be described in the aforementioned deed, then the Lessee shall take no rights on said tract hereunder.

The term of this lease shall be two years from the date hereof with the right in the Lessee to renew said lease, upon the same terms and conditions as are herein set forth, for additional terms of two years each, until all of the minerals are exhausted upon said lands, if the Lessee is operating upon said lands at the end of the first term or at the end of any subsequent term, however, in the event the Lessee desires to renew the lease for an additional term, he shall make his intentions known to the Lessor, in writing, at least sixty days prior to the expiration date of the original term, or any subsequent term.

It is in the comtemplation of the parties that the Lessee shall immediately go upon said lands for the purpose of exploration for mining, and if, for any reason, the Lessee fails, refuses or neglects to so operate upon said lands for a period of six months during the term hereof, or any subsequent term, then this lease shall automatically terminate and the Lessee shall have no further rights hereunder.

Should the Lessee at any time during the term of this lease, or any subsequent term, elect to terminate his operation upon said lands, the said Lessee covenants that he will immediately notify the Lessor of such election and this lease shall be terminated.

In consideration for this lease, the Lessee shall pay unto the Lessor through its attorney a royalty of 7% on the gross sale price received from all minerals which may be sold from said lands during the term hereof, which royalty shall be payable by the Lessee to the Lessor within 48 hours after receipt of payment by the Lessee.

The Lessee covenants and agrees to deliver unto the Lessor on the first day of each month after the commencement of operation upon said lands a statement, in writing, setting forth in detail all shipments of minerals which have been made from said lands during the previous month, and a statement showing all payments received for minerals during the previous month.

The Lessor shall have the right at all times, during the term of this lease, to examine all shipment and payment records of the Lessee and such other records as may pertain to shipments made and payments received.

Subsequent to the execution of this lease, the Lessee, Calvin D. Spangler, shall have the right and privilege to form a corporation, in which he will be a part owner, and assign this lease by said corporation,

for the performance of the terms of said lease by said corporation, however, after such assignment the corporation so formed shall not have the right or privilege of assigning this lease to any other person, firm or corporation,nor shall any part of the property herein leased be sub-leased, without the consent of the Lessor, in writing, and if such assignment be for a consideration, then the Lessor shall be entitled to receive 50% thereof, and the assignee shall be required to perform said lease, or leases, in strict accordance with the terms hereof.

The Lessee, Calvin D. Spangler, shall not have the right to assign this lease, without the written consent of the Lessor, except as hereinbefore stated.

The Lessee shall have the same rights and privileges in respect to operation upon said lands as are owned by the Lessor upon the individual tracts leased herein, and reference is hereby made to the records of the Clerk's Offices in Giles and Craig Counties, Virginia, for a description of the rights which are owned by the Lessor in respect to each tract, it being agreed that the Lessee shall, by an examination of said records, determine the extent of such rights and comply therewith, so as to save the Lessor harmless by reason of any operation which may be conducted hereunder.

It is understood between the parties hereto that no representation has been made by the Lessor to the Lessee, or any other person, firm or corporation, as to any min-

eral rights, or other rights, which may be owned by the Lessor, it being further understood and agreed that the Lessee shall have the obligation and the responsibility for determining such rights as may be owned by the Lessor on the lands described herein, and to hereafter operate on said lands in full accordance with the limits of said rights as may be found to be owned by the Lessor.

It is understood and agreed that the Lessor does not own any of the surface of the lands described herein.

It is further agreed that this lease shall be subject to the provisions of the Defense Minerals Exploration Program, United States Department of Interior, with owners full consent to lien as provided by said program.

IN WITNESS WHEREOF, Little Stony Game & Fish Preserve, Incorporated, has caused this writing to be executed by Margaret Nelson Laing, its President, and its corporate seal to be hereto affixed, duly attested by James Laing, its Secretary, and the party of the second part has hereunto set his hand and seal this the day, month and year first above written.

LITTLE STONY GAME & FISH PRESERVE, INC.

By Margaret Nelson Laing /s/
President
Calvin D. Spangler /s/ (SEAL)

Attest:

James Laing /s/
Secretary

Spangler Mining Corporation
Narrows, Virginia

STATE OF VIRGINIA,

COUNTY OF GILES, TO-WIT:

I, C. Henry Toler /s/, a Notary Public in and for the State of Virginia, at large, do certify that Margaret Nelson Laing, President, and James Laing, Secretary, of Little Stony Game & Fish Preserve, Inc., whose names are signed to the foregoing writing bearing date of April 22, 1955, have each this day personally appeared before me and acknowledged the same in my State aforesaid.

Given under my hand this the 30 day of April, 1955.

My commission expires on the 18 day of February, 1958.

C. Henry Toler /s/
Notary Public

STATE OF VIRGINIA,

COUNTY OF GILES, TO-WIT:

I, Catherine T. Chambers /s/, a Notary Public in and for the County aforesaid, State of Virginia, do certify that Calvin D. Spangler, whose name is signed to the foregoing writing bearing date of April 22, 1955, has this day personally appeared before me and acknowledged the same in my County and State aforesaid.

Given under my hand this the 30th day of April, 1955.

My commission expires on the 4th day of Sept., 1955.

Catherine T. Chambers /s/
Notary Public

3. (d) continued

This INDENTURE OF LEASE made this the 19 day of January, 1956, between LITTLE STONY GAME & FISH PRESERVE, INCORPORATED, a Virginia Corporation, hereinafter known as the Lessor, party of the first part, and CALVIN D. SPANGLER of Narrows, Virginia, hereinafter known as the Lessee, party of the second part;

W I T N E S S E T H:

That for and in consideration of the sum of Ten Dollars ($10) cash paid in hand, the receipt of which is hereby acknowledged, and in further consideration of the agreements and covenants hereinafter contained, the Lessor doth hereby lease unto the Lessee, all of the minerals and rights which it may own upon certain lands hereinafter described, for the sole and exclusive right and privilege of prospecting, mining, taking out and removing any merchantable minerals which are on or in the lands of the Lessor, with the rights to explore, prospect, search for and bore on said lands, with all necessary rights of ingress and egress, water rights, construction of and using quarries, pits, levels, drains, water courses, reserviors, constructing, erecting, maintaining buildings, machinery and machinery installations on said lands in the prospecting and mining of minerals from said lands which lie in Giles County, Virginia.

It is understood and agreed between the parties hereto that this lease, on said lands, is of such rights, and that only, as may be owned by the Lessor, and should the

Lessor have no rights upon any tract which may be described in the aforementioned deed, then the Lessee shall take no rights on said tract hereunder.

The term of this lease shall be two years from the date hereof with the right in the Lessee to renew said lease, upon the same terms and conditions as are herein set forth, for additional terms of two years each, until all of the minerals are exhausted upon said lands, if the Lessee is prospecting, mining or operating upon said lands at the end of the first term or at the end of any subsequent term, however, in the event the Lessee desires to renew the lease for an additional term, he shall make his intentions known to the Lessor, in writing, at least sixty days prior to the expiration date of the original term, or any subsequent term.

It is in the contemplation of the parties that the Lessee shall go upon said lands for the purpose of exploration for mining, and if, for any reason, the Lessee fails, refuses, or neglects to so operate upon said lands for a period of twelve months during the term hereof, or any subsequent term, then this lease shall automatically terminate and the Lessee shall have no further rights hereunder.

Should the Lessee at any time during the term of this lease, or any subsequent term, elect to terminate his operation upon said lands, the said Lessee covenants that he will immediately notify the Lessor of such election

and this lease shall be terminated.

In consideration for this lease, the Lessee shall pay unto the Lessor, through its attorney, a royalty of 7% on the gross sale price received from all minerals which may be sold from said lands during the term hereof, which royalty shall be payable by the Lessee to the Lessor within 48 hours after receipt of payment by the Lessee.

The Lessee covenants and agrees to deliver unto the Lessor on the first day of each month after the commencement of operation upon said lands a statement, in writing, setting forth in detail all shipments of minerals which have been made from said lands during the previous month, and a statement showing all payments received for minerals during the previous month.

The Lessor shall have the right at all times, during the term of this lease, to examine all shipment and payment records of the Lessee and such other records as may pertain to shipments made and payments received.

The Lessee, Calvin D. Spangler, shall have the right and privilege to assign this lease to a corporation, owned principally by him, for the performance of the terms of said lease by said corporation, however, after such assignment the corporation shall not have the right or privilege of assigning this lease to any other person, firm or corporation, nor shall any part of the property herein leased be sub-leased without the consent to the Lessor, in writing, and if such assignment to be for a

consideration, then the Lessor shall be entitled to receive 50% thereof, and the assignee shall be required to perform said lease, or leases, in strict accordance with the terms hereof.

The Lessee, Calvin D. Spangler, shall not have the right to assign this lease, without the written consent of the Lessor, except as hereinbefore stated.

The Lessee shall have the same rights and privileges in respect to operation upon said lands as are owned by the Lessor upon the individual tracts leased herein. The lands are fully described and set forth as follows: All of the lands, mineral and mining rights owned by the Lessor which lie west, north and south of the road which runs from Pacers Gap to the fire tower on Butte Mountain, being known as follows: The Doe Mountain Tract, the Laurel Lodge Tract, the John J. Snidow Tract, the Sugar Camp Tract, the Williams Tract, the Feed Branch Tract to the east of said road, its boundries are: running from Pacers Gap to Little Stony Creek, thence with Hoge-Reynolds, thence with Mountain Lake Hotel, property to point of beginning and also the 300 foot reservation on each side of Little Stony Creek which has been reserved by the Lessor, which consists of 4,000 acres more or less.

The Lessee, his heirs or assigns, hereby covenants and agrees that no act shall be done upon said lands which shall effect in any way directly or indirectly the purity of the water of Little Stony Creek and its tributaries, or

effect in any way the fish therein or fishing thereon, nor shall the Lessee, his heirs or assigns, diminish the water in a detrimental way in Little Stony Creek.

It is understood between the parties hereto that no representation has been made by the Lessor to the Lessee, or any other person, firm or corporation, as to any mineral rights, or other rights, which may be owned by the Lessor, it being further understood and agreed that the Lessee shall have the obligation and the responsibility for determining such rights as may be owned by the Lessor on the lands described herein, and to hereafter operate on said lands in full accordance with the limit of said rights as may be found to be owned by the Lessor.

It is further agreed that this lease shall be subject to the provisions of the Defense Minerals Exploration Program, United States Department of Interior, with owners full consent to lien as provided by said program.

IN WITNESS WHEREOF, Little Stony Game & Fish Preserve, Incorporated, has caused this writing to be executed by Margaret Nelson Laing, its President, and its corporate seal to be hereto affixed, duly attested by James Laing, its Secretary, and the party of the second part has hereunto set his hand and seal this the day, month and year first above written.

/s/Calvin D. Spangler

LITTLE STONY GAME & FISH PRESERVE, INC.

Attest:

By /s/ Margaret Nelson Laing
President

/s/James Laing, Secretary

Spangler Mining Corporation
Narrows, Virginia

STATE OF VIRGINIA,

COUNTY OF GILES, TO-WIT:

I, C. Henry Toler, a Notary Public in and for the State of Virginia at large, do certify that Margaret Nelson Laing, President, and James Laing, Secretary, of Little Stony Game & Fish Preserve, Inc., whose names are signed to the foregoing writing bearing date of January 19,1956 have each this day personally appeared before me and acknowledged the same in my State aforesaid.

Given under my hand this the 19th day of January 1956.

My commission expires on the 18th day of February, 1958.

/s/C. Henry Toler
Notary Public

STATE OF VIRGINIA,

COUNTY OF GILES, TO-WIT:

I, Catherine T. Chambers, a Notary Public in and for the County aforesaid, State of Virginia, do certify that Calvin D. Spangler, whose name is signed to the foregoing writing bearing date of January 19, 1956 has this day personally appeared before me and acknowledged the same in my County and State aforesaid.

Given under my hand this the 30th day of January, 1956.

My Commission expires on the 6th day of Sept. 1959.

/s/ Catherine T. Chambers
Notary Public

3.

This deed made this 21st day of May, 1937, between Craig-Giles Iron Company, a West Virginia corporation, party of the first part, and Little Stony Game and Fish Preserve, Incorporated, a Virginia corporation, party of the second part.

WITNESSETH:

That for and in consideration of the sum of Twenty three-hundred and twenty-five ($2,325.00) Dollars, to be paid three years after the date hereof, with interest from date, payable quarterly, the same being evidenced by one note of the party of the second part bearing even date herewith, the party of the first part doth hereby grant and convey, with covenants of General Warranty, unto the party of the second part, the following described land and interests in lands now owned by the party of the first part and situate in Giles and Craig counties, Virginia, to-wit:

FIRST: Not Applicable

SECOND: Not Applicable

THIRD: Not Applicable

FOURTH: All the minerals and mining rights in and upon certain lands on Sinking Creek, in Giles county, which were conveyed to A. B. Humphreys by certain deeds of record in the clerk's office of said county, as follows:

4 A. A tract of 126.5 acres by deed from W. P.

Reynolds and wife, dated May 7, 1890, and recorded in Deed Book "R", page 66.

4 B. A tract of 103 acres by deed from J. D. Sibold and wife, dated July 16, 1890, and recorded in Deed Book "R", page 67.

4 C. A tract of 193 acres by deed from T. J. Sibold and wife, dated July 16, 1890, and recorded in Deed Book "R", page 69.

4 D. A tract of 69 acres by deed from A. P. Taylor and wife, dated July 10, 1890, and recorded in Deed Book "R", page 70.

4 E. A tract of 62 acres by deed from J. C. Miller and wife, dated July 10, 1890, and recorded in Deed Book "R", page 72; all of which minerals and mining rights were subsequently acquired by the party of the first part by and through a regular succession of conveyances duly recorded in said clerk's office.

FIFTH: All of the minerals and mining rights in and upon certain lands on Sinking Creek, in Giles county, which were conveyed to R. L. Telford, Trustee, by certain deeds of record in the clerk's office of said county, as follows:

5 A. A tract of 109.13 acres by deed from J. L. Hickerson and wife, dated Sept 11, 1907, and recorded in Deed Book 28, page 60.

5 B. A tract of 184.93 acres by deed from W. W.

Echols and wife, dated Sept 7, 1907, and recorded in Deed Book 28, page 62.

5 C. A tract of 260.42 acres by deed from A. F. Wysong and wife, dated Sept 14, 1907, and recorded in Deed Book 28, page 65.

5 D. A tract of 215.75 acres by deed from C. B. Dowdy and wife, dated Sept 14, 1907, and recorded in Deed Book 28, page 68.

5 E. A tract of 21.54 acres by deed from C. B. Hickerson and wife, dated Sept 11, 1907, and recorded in Deed Book 28, page 125; all of which minerals and mining rights were subsequently acquired by the party of the first part by and through a regular succession of conveyances duly recorded in said clerk's office.

SIXTH: All the minerals and mining rights in and upon certain lands in Sinking Creek, in Craig County, which were conveyed to A. B. Humphreys and Frand Woodman by certain deeds of record in the clerk's office of said county, as follows:

6 A. A tract of 175 acres, being part of a tract of 213 1/2 acres conveyed by deed from G. T. Huffman and wife, dated May 9, 1890, and of record in Deed Book "E", page 402.

6 B. A tract of 127 acres by deed from S. C. Keffer and wife, dated May 5, 1890, and recorded in Deed Book "E", page 403.

6 C. A tract of 128 acres by deed from Eliz. J. Huffman et al, dated May 8, 1890, and recorded in Deed Book "E", page 404.

6 D. A tract of 100 acres by deed from J. Hill Keffer and wife, dated May 8, 1890, and recorded in Deed Book "E", page 405.

6 E. A tract of 200 acres by deed from P. G. Huffman and wife, dated May 8, 1890, and recorded in Deed Book "E", page 406.

6 F. A tract of 40 acres by deed from Jefferson Fisher, dated May 8, 1890, and recorded in Deed Book "E", page 407.

6 G. A tract of 150 acres by deed from P. P. Hutchinson and wife, dated May 6, 1890, and recorded in Deed Book "E", page 408.

6 H. A tract of 275 acres by deed from M. A. Huffman and wife, dated May 9, 1890, and recorded in Deed Book "E", page 409.

6 I. A tract of 259 acres by deed from James A. Echols et al, dated May 8, 1890, and recorded in Deed Book "E", page 410.

6 J. A tract of 130 acres by deed from A. E. Humphreys, dated May 23, 1890, and of record in Deed Book "E", page 411.

6 K. A tract of 150 acres by deed from A. W. Keffer and wife, dated May 20, 1890, and recorded in Deed Book

"E", page 412.

6 L. A tract of 170 acres by deed from R. C. Tranor, dated May 27, 1890, and recorded in Deed Book "E",page 412.

6 M. A tract of 164 acres by deed from M. L. Huffman and wife, dated May 9, 1890, and recorded in Deed Book "E", page 414.

6 N. A tract of 180 acres by deed from S. H. Taylor and wife, dated July 10, 1890, and recorded in Deed Book "E", page 415.

6 O. A tract of 100 acres by deed from Wm. B. Lugar and wife, dated July 10, 1890, and recorded in Deed Book "E", page 416.

6 P. Four tracts aggregating 700 acres by deed from Lloyd Huffman et al, dated July 10, 1890, and of record in Deed Book "G", page 161; all of which minerals and mining rights were subsequently acquired by the party of the first part by and through a regular succession of conveyances duly recorded in said clerk's office.

SEVENTH: All the minerals and mining rights in and upon certain lands in Craig County, which were conveyed to R. L. Telford Trustee, by certain deeds of record in the clerk's office of said county, as follows:

7 A. A tract of about 123 acres on Sinking Creek by deed from Samuel B. Smith et al, dated March 15, 1907, and recorded in Deed Book "M", page 140.

7 B. A tract of 120 acres on Johns creek by deed

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from J. E. Ellis et al, dated Aug. 22, 1907, and recorded in Deed Book "M", page 301.

7 C. A tract of 253 1/4 acres on Sinking Creek by deed from J. D. Sibold and wife, dated Sept 14, 1907, and recorded in Deed Book "M", page 390; all of which were subsequently acquired by the party of the first part by and through a regular succession of conveyances duly recorded in said clerk's office.

EIGHTH: All minerals and mining rights in and upon a tract of 69.4 acres on Sinking Creek, in Craig County, conveyed by Miles L. Givens and wife to Laing Mining Company by a deed dated Feb. 29, 1908, and recorded in the clerk's office of said county, in Deed Book "N", page 111, and subsequently acquired by the party of the first part by deed from Laing Mining Company and duly recorded in said clerk's office.

NINTH: Not Applicable

In witness whereof the party of the first part has caused this deed to be duly executed by John B. Laing, its president, and its corporate seal to be hereto affixed and attested by James Laing, its secretary, as of the date first herein written.

CRAIG-GILES IRON COMPANY, a corporation

By /s/ John B. Laing, President

(SEAL)
Attest:

/s/ James Laing, Secretary

C O P Y

Spangler Mining Corporation
Narrows, Virginia

Virginia, Giles County, to-wit:

I, A. L. Farrier, a notary public in and for the county aforesaid, in the state of Virginia, hereby certify that John B. Laing, president, and James Laing, secretary, of Craig-Giles Iron Company, a West Virginia corporation, whose names are signed to the foregoing deed bearing date on May 21, 1937, have this day acknoledged the same before me in my county aforesaid.

My commission expires on Aug. 7, 1939.

Given under my hand this the 31st day of May, 1937.

/s/ A. L. Farrier
Notary Public

C
O
P
Y

recorded:
Giles county Deed Book no. 53 page 319
Craig county Deed Book no. 3 page 167

4. (a) HOFFMAN MINE-Prospect # 1

This property is located about one and one-half miles southwest of Simmonsville, Virginia and one mile north of Sinking Creek in Craig County. This is the only prospecting that has been done with equipment by Spangler Mining Corporation.

The prospect is near the crest of a well-rounded hill about 2,440 feet above sea level. Spangler Mining Corporation has made an ell shaped cut by the use of a bulldozer and an end loader. The longest arm of the cut is approximately 10 feet wide, by 30 feet long and an average depth of 6 feet. The other arm of the ell is smaller. The approximate dimensions are 20 feet long, by 7 feet wide, by an average depth of 2 feet. Another cut was made approximately 150 yards to the south with approximately 18 cubic yards of earth removed and still two other cuts made to the west of the ell shaped cuts with approximately 25 yards of earth moved.

The ell shaped cuts yielded manganese in its entire length. The ore is of good quality and it appears that it will yield a good tonnage of ore.

The old dump that is there, which remain from the work done by C. G. Chevalier in 1918-1919, shows a good quantity of fine ore that can be recovered by the use of a log washer and jigs. In prospecting this property, a bed of red surficial loam from a few inches to 3½ feet thick was encountered which contained a very high ratio of ore to soil. Then a sticky yellow clay containing chert fragments and a good quantity of manganese was encountered. The manganese continued to go to and appears to extend below the bottom of the cut. Much of the ore found in the yellow clay was in the form of large boulders but due to the fact that no explosives were used to loosen the soil, which was very dry at the time of operation, these boulders were broken into small pieces by the dozers. A small portion of the "wash ore", obtained by bulldozing out of the ell cut mentioned above, has been hauled to Hollybrook, Virginia, a distance of approximately 40 miles to a log washer to be processed for sampling, but to date the mill has been too busy with their own operation to wash this material.

The following are samples of ore that we have taken from this property and analyzed:

Lab. No. 18121-890, performed by Anderson S. McCreath & Son, Analytical and Consulting Chemist, 236-242 Liberty Street, Harrisburg, Pennsylvania.

Spangler Mining Corporation
Narrows, Virginia

| | | |
|---|---|---|
| Manganese | 44.80 | per cent |
| Iron | 1.99 | " " |
| Silica & Alumina | 5.55 | " " |
| Phosphorus | .206 | " " |
| Copper & Lead & Zinc | .38 | " " |
| Copper | .03 | " " |

Three samples by H. B. Greever, Chemist of Hollybrook, Virginia.

| | | | |
|---|---|---|---|
| (1) | Manganese | 42.45 | per cent |
| | Insolubles | 5.20 | " " |
| | Estimated Iron | 8.00 | " " |
| (2) | Manganese | 41.34 | per cent |
| (3) | Manganese | 43.36 | per cent |
| | Insolubles | 8.80 | " " |
| | Estimated Iron | 2.50 | " " |

We also had the Industrial and Agricultural Department of the Norfolk and Western Railway Company, Roanoke, Virginia, test a sample of this ore. They found 54.07 per cent manganese. However, we feel that some mistake must have been made.

The following is an excerpt of a survey made by the Virginia Geological Survey, University of Virginia, Thomas Leonard Watson, Ph.D., Director. The bulletin is No.XXlll, entitled"Manganese Deposits of Western Virginia", written by G. W. Stose and H. D. Miser. This bulletin has been quite helpful to us as well as to all of the producers of manganese in this area. We only have the one copy which has been very difficult to obtain and if permissible we will quote the information given by the authors. If the Bureau of Mines needs our copy, we will forward same but ask that it be returned to us. The following excerpts are taken from the above mentioned bulletin and are found on pages 117-118 and 119.

HOFFMAN MINE (Prospect # 1)

"The Hoffman mine is on the C. L. Hoffman place about 1½ miles southwest of Simmonsville and 1 mile north of Sinking Creek. The mineral right of the property is owned by the Laing Brothers but the work at time of visit (Sept. 2, 1918) was being done by C. G. Chevalier, of Baltimore, who had mined and placed on the dump about 100 tons of hand-picked lump ore. Preparations were being made to haul this ore by truck to Newcastle, a distance of about 21 miles, for shipment.

"The prospect is near the crest of a well-rounded hill about 2,700 feet (actually 2,440 feet) above sea level. This and other near-by hills having the same elevation apparently mark a former, though now largely eroded, peneplain, herein called the valley-floor peneplain. This part of Sinking Creek Valley is underlain by the Knox dolomite, though the dolomite is concealed by a thick deposit of residual clay in which there is at some places considerable chert.

"A shaft 84 feet deep in cherty clay, from which iron ore was mined (actually prospected for) 30 years ago, is located near the top of the hill, but it had caved before the time of visit and the material on the dumps had become so scattered that the presence or absence of manganese minerals in it could not be determined.

"Work at the time of visit was being confined to a shallow cut which revealed a bed of red surficial loam as much as 4 feet thick and below this a sticky yellow clay containing chert fragments. Masses of manganese ore have been found in both the clay and loam. The ore in the loam apparently occurs in the ratio of one part of ore to two parts of ore-bearing loam. The quantity of it in the clay is apparently less than that in the loam, but the clay had not been throughly prospected. The masses are irregular in shape; range in size from fine particles to boulders weighing 1 ton; are more or less porous and include some clay; and some contain chert fragments. The ore consists of psilomelane, manganite, and wad, which are generally intermixed; some of the manganite occurs as radiating needles in plumose and nodular aggregates."

This property is approximately ½ mile off of a hard surfaced road and can be easily examined.

4. (a) continued

The following information on the Hoffman-Givens Prospect can be found on page 119 of the same mentioned bulletin.

HOFFMAN AND GIVENS PROSPECT-Prospect # 2

"The Laing Brothers are said to hold the mining rights on F. H. Hoffman's place, to the northeast across the draw from the Hoffman mine, and on L. P. Hoffman's farm 1½ miles northwest of the mine. These properties have been pros-

pected to a shallow depth by William Echols, of Newcastle, and one ton of ore was said to have been taken out at the time the writers were in the region. They are on hilltops that were parts of the valley-floor peneplain and are underlain by Knox dolomite, and the occurrence and character of the ore are probably the same as those of the ore at the Hoffman Mine. Good showings of ore are also reported by William Echols on land owned by M. L. Givens on a hill of similar elevation, northeast of F. H. Hoffman's place.

"These properties were not visited by the writers but would appear to be favorable ground for prospecting."

Spangler Mining Corporation has done no prospecting with equipment on this tract but we have spent much time in this area and from our observation it appears to be the same ore lead as the Hoffman Mine and these prospects are located at about the same elevation and from all appearances are the same type of ore. Fine "wash ore", as well as some larger lumps, can be found over quite an area in this vicinity. You will note the statement of the author of the bulletin, "but would appear to be favorable ground for prospecting". To my knowledge this is the only statement to this effect found in this bulletin.

This property is close to the paved road and is very easy to get to for examination.

4. (a) continued

LAING PROSPECT-Prospect # 3
(Pages 120-121-122 in bulletin)

"The Laing prospect is on the Bud Reynolds place, 2 miles northeast of the village of Newport. The mineral right of the property is owned by the Laing Brothers and at the time of visit (Aug. 29, 1918) work was being done for them by Haven Hoge.

"The main group of openings is three-fourths of a mile north of Sinking Creek and is on and near the crest of a hill. The crest of this hill and of others in the vicinity are about 2,600 feet (actually 2,400 feet) above sea level and apparently mark the level of a former peneplain that has been largely destroyed by erosion. This part of the valley of Sinking Creek, including the hill on which the prospect occurs is underlain by the

Knox dolomite which has yielded a thick residual clay that contains more or less chert. This dolomite is not exposed on the hill on which the prospect occurs but is exposed on the south slope of Sinking Creek Mountain to the northwest. Sandstones of Silurian age with a high dip to the south are exposed higher on the mountain. The field relations at this locality as well as to the southwest and northeast, indicate that the Knox dolomite has been brought into contact with the younger sandstones by a thrust fault from the southeast. The prospect under discussion is in the residual clay and chert of the Knox near this fault.

"The openings, which consist of pits and cuts as much as 15 feet deep, have been made over an area of approximately one acre. Red and yellow clays exposed in the pits contain sandstone and chert fragments and there are irregular masses of manganese ore associated with these fragments. A pit 15 feet deep had yielded the greatest quantity of ore. The ore consists of psilomelane and manganite, varies from porous to compact, contains a few fragments of chert and sandstone, and is in masses that vary in size from a fraction of an inch to 200 pounds. At the time of visit close to 7 tons of lump ore, carrying about 45 per cent manganese, had been hand-picked from the ore-bearing clay and placed by itself on the dump, whereas the finer particles of ore had been left in the clay. The ore-bearing parts of the clay apparently contain ore in the ratio of 1 part of concentrates to 4 or 5 parts of clay, and washing would be required to separate the finer particles from the clay.

"It was planned at the time of visit to haul the ore a distance of 10 miles by wagon road to Pembroke where it would be shipped.

"Other openings consist of a narrow cut 50 feet long and 8 feet deep at the deepest place and a short tunnel in the side of the cut. These are in a field on the east side of a hollow, south of the main openings and about one-fourth mile north of the main wagon road in Sinking Creek valley. The materials penetrated consist of 2 or 3 feet of rocky red to brown surficial loam and yellow laminated clay which has a high dip to the south. About 200 pounds of psilomelane and manganite in

fragments weighing as much as 25 pounds each were observed on the dump. Most of these were apparently obtained from the surficial loam and may have been carried as wash from the above-described deposit higher on the slope to the north. No manganese ore was observed in the laminated clay at the time of visit but the foreman reported the occurrences of a small amount of ore in it."

We have done no prospecting on this property with machinery to date. It has been examined and samples have been taken; the results are as follows:

| | | | |
|---|---|---|---|
| Sample # 1 | Manganese | 44.68 | per cent |
| | Insolubles | 7.80 | " " |
| Sample # 2 | Manganese | 45.90 | " " |
| | Insolubles | 7.20 | " " |

These analysis were performed by H. B. Greever, Hollybrook, Virginia.

The encouraging factor about this prospect (Laing) is the fact that the Carrie Prospect, page 119 and 120, lies adjoining this property. (Spangler Mining Corporation does not have the mineral right). In the past year considerable prospecting and mining has been done here (Carrie Prospect). A very high grade of ore has been found and hauled a distance of approximately 35 miles to be processed. From informed sources, we find that approximately 1600 long tons of ore, averaging 47 per cent have been mined, processed and shipped from this Carrie Prospect. The ore on our prospect (Laing) is the same type, characteristics, etc. and we feel that this prospect has a good potentiality.

A sketch of the Laing Prospect illustrating the occurrence of the deposit of manganese ore is attached and is marked sketch #1.

This prospect is very near a hard surfaced road and is easily accessible for observation.

4. (a) continued

HOGE-LAING PROSPECT-Prospect # 4
(Page 124 in bulletin)

"The Hoge-Laing prospect is 4 miles northeast of Hoges Store, 2 miles northwest of Mountain Lake, and is on the north slope of Doe Mountain, 275 feet below the saddle through which a wagon road passes to the south. Work was being done at

the time of visit (Aug. 28, 1918) by Haven Hoge, of Hoges Store. At that time 2 wagon loads of hand-picked manganese ore had been hauled to Pembroke, a distance of 8 miles by wagon road, and about 2 tons of ore were still on the dumps of the openings, which were small cuts.

"A buff-colored laminated sandstone, which is apparently of Cayuga age, was penetrated in the openings. The sandstone has been extensively crushed so that no measurement of the dip could be made, but it apparently overlies the Scolithus-bearing sandstone at the top of the Clinton Formation. Psilomelane and manganite, which are intimately mixed, not only fill fissures along joints and cracks in the sandstone but also occur in the sandstone as replacement material. Most of the ore is free from sand, so that much of it can be separated from the sandstone by hand-picking, but to separate the greater part of it from the sandstone would require crushing and jigging."

We have done no mechanical prospecting but it has been visited several times. This prospect is away from the other mentioned prospects and we have very little information to give.

To the people who have visited this prospect, it has an appearance of being very similar to the type formation that is yielding a great quantity of ore at Hollybrook, Virginia, a distance of approximately 40 miles. Both bodies of ore are found in the Oriskay or Cayuga age in a buff-colored laminated sandstone.

4. (b) <u>Prospect # 1-Hoffman Mine</u>

Past production 1918-1920; 100 tons hand-picked ore.

Current production; no actual production but ore is present in prospecting work done to date.

Ore reserves and quantities; unknown.

Grades; approximately 44 per cent manganese.

<u>Prospect # 2-Hoffman-Givens</u>

Past production; 1 ton.

Current production; none.

Ore reserves and quantities; unknown.

Grades; similar to prospect # 1.

Prospect # 3-Laing Prospect

Past production; 7 tons.

Current production; none.

Ore reserve and quantities; unknown.

Grades; average 45 per cent manganese.

Prospect # 4-Hoge-Laing Prospect

Past production; approximately 4 tons.

Current production; none.

Ore reserves and quantities; unknown.

Grades; not definitely known.

4. (c) continued

Prospect # 1-Hoffman Mine

All questions previously answered except type of deposit and reason for wishing to explore.

All deposits are bedded in clays and vary in size from a few ounces to large boulders.

Our reasons for wishing to explore are quite simple.

First of all we realize the need for manganese and the part it plays in the economic picture of our country, both from peacetime as well as wartime application.

We feel that we can employ workers in this rural area who are so in need of work. We are classified as 4B by the O.D.M., which as you know, is an area in need of employment for its' people. We live adjacent to the coalfields of West Virginia with its problem of unemployment. We feel that with the exploration and future development of our manganese deposits, we will be able in some small way to help build a better community, state and nation.

Now our physical reasons for wishing to explore are based on the past production and prospecting also present prospecting and production on adjoining properties.

All of the proposed prospecting tracts have float ore and other surface indications which are encouraging. A processing plant is being constructed at Newport, Virginia, a distance of 8 miles from the fartherest prospect and 2

miles from the nearest. Another advantage is that in our lease we have several sites which were purchased years ago. This eliminates the problem of a site for a plant after the ore has been proven.

4. (d) All of the proposed prospects are:

1. Easily accessable with the exception of prospect # 4, the Hoge-Laing prospect, which is approximately seven miles from a paved road. The other three prospects are very near a paved road leading to a processing plant and on to the shipping point.

2. After the ore would be processed, we would be approximately 8 miles from the shipping point.

3. We are in a location easily served by manufacturers representatives and supplies would be no problem. We have foundries and shops of all types as well as wholesale and retail suppliers of every description.

4. All employees would live in the community near the prospect with the exception of the management.

4. (e)

1. Excellent manpower is available in an area that is in great need of additional work to employ the residents.

2. Materials, supplies, equipment and water are very easily had at a minimum of expense.

Power, in the form of electricity, is readily available, at present it is 220 V, single phase. However, in the event that it could be justifiable, 3 phase current can be supplied.

Spangler Mining Corporation
Narrows, Virginia

5. (b)

HOFFMAN MINE

Explanation of Hoffman Mine-Prospect # 1
Sketch # 3

1. Present work done by Spangler Mining Corporation also sight of work done in 1918-1919 by C. G. Chevalier. Old dump remaining from work done 1918-1919 also located here.

2. Present cut made in red clay.

3. Remains of old shaft dug several years ago.

4. Proposed cut: 15 feet wide at top, tapering to 7 feet in bottom by 75 feet long by 12 feet deep. Approximately 366.6 cubic yards of material to be excavated.
Estimated hours to complete excavation--52
Estimated cost of excavation- - - - - - - - - - - $496.08
Recommend sampling of 36 cubic yards
Cost to load- - - - - - - - - - - - - - - - - - - - 18.00
Cost to haul to Pilot Plant, Newport, Virginia- - 27.00
Cost to wash and process at Pilot Plant, Newport, Virginia- - - - - - - - - - - - - - - - - - -162.00
Cost of analyzing milled product consisting of three samples:

Sample # 1 Taken from coarse jig.
Recommend that two determinations be made.

| | |
|---|---|
| Manganese- - - - - - - - - - | -2.63 |
| Silica- - - - - - - - - - - - | 2.63 |

Sample # 2 Taken from fine jig.
Recommend that two determinations be made.

| | |
|---|---|
| Manganese- - - - - - - - - - | -2.63 |
| Silica- - - - - - - - - - - - | 2.63 |

Sample # 3 Composite sample.
Recommend that five determinations be made.

| | |
|---|---|
| Manganese | 2.63 |
| Silica | 2.63 |
| Iron | 2.10 |
| Phosphrous | 1.92 |
| Alumina | 2.63 |

5. Proposed cut: 14 feet wide at top, tapering to 7 feet in bottom by 80 feet long by 9 feet deep. Approximately 280.0 cubic yards of material to be excavated.

Estimated hours to complete excavation--35
Estimated cost of excavation- - - - - - - - - - - $333.90
Recommend sampling of 28 cubic yards
Cost to load- - - - - - - - - - - - - - - - - - - - - 14.00
Cost to haul to Pilot Plant, Newport, Virginia- - 21.00
Cost to wash and process at Pilot Plant, New-
port, Virginia- - - - - - - - - - - - - - - - - - - -126.00
Cost of analyzing milled product consisting of
three samples:

Sample # 1 Taken from coarse jig.
Recommend that two determinations be made.
Manganese- - - - - - - - - - -2.63
Silica- - - - - - - - - - - - 2.63

Sample # 2 Taken from fine jig.
Recommend that two determinations be made.
Manganese- - - - - - - - - - -2.63
Silica- - - - - - - - - - - - 2.63

Sample # 3 Composite sample.
Recommend that five determinations be made.
Manganese- - - - - - - - - - -2.63
Silica- - - - - - - - - - - - 2.63
Iron- - - - - - - - - - - - - 2.10
Phosphrous- - - - - - - - - - 1.92
Alumina- - - - - - - - - - - -2.63

6. Proposed cut: 9 feet wide by 30 feet long by
7 feet deep.
Approximately 62.2 cubic yards of material to be
excavated.
Estimated hours to complete excavation--10
Estimated cost of excavation- - - - - - - - - - - -$95.40
Recommend sampling of 4 cubic yards
Cost to load- - - - - - - - - - - - - - - - - - - - - 2.00
Cost to haul to Pilot Plant, Newport, Virginia- - 3.00
Cost to wash and process at Pilot Plant, New-
port, Virginia- - - - - - - - - - - - - - - - - - - - 18.00
Cost of analyzing milled product consisting of
three samples:

Sample # 1 Taken from coarse jig.
Recommend that two determinations be made.
Manganese- - - - - - - - - - -2.63
Silica- - - - - - - - - - - - 2.63

Sample # 2 Taken from fine jig.
Recommend that two determinations be made.
Manganese- - - - - - - - - - -2.63
Silica- - - - - - - - - - - - 2.63

Sample # 3 Composite sample.
Recommend that five determinations be made.

Manganese- - - - - - - - - - -2.63
Silica- - - - - - - - - - - - 2.63
Iron- - - - - - - - - - - - - 2.10
Phosphrous- - - - - - - - - - 1.92
Alumina- - - - - - - - - - - -2.63

7. Proposed cut: Present cut to be enlarged to 15 feet wide at top, tapering to 7 feet in bottom by 30 feet long by 10 feet deep.
Approximately 153.7 cubic yards of material to be excavated.
Estimated hours to complete excavation--24
Estimated cost of excavation- - - - - - - - - - $228.96
Recommend sampling of 16 cubic yards
Cost to load- - - - - - - - - - - - - - - - - - - - 8.00
Cost to haul to Pilot Plant, Newport, Virginia- - 12.00
Cost to wash and process at Pilot Plant, Newport, Virginia- - - - - - - - - - - - - - - - - - - - 72.00
Cost of analyzing milled product consisting of three samples:

Sample # 1 Taken from coarse jig.
Recommend that two determinations be made.

Manganese- - - - - - - - - - -2.63
Silica- - - - - - - - - - - - 2.63

Sample # 2 Taken from fine jig.
Recommend that two determinations be made.

Manganese- - - - - - - - - - -2.63
Silica- - - - - - - - - - - - 2.63

Sample # 3 Composite sample.
Recommend that five determinations made.

Manganese- - - - - - - - - - -2.63
Silica- - - - - - - - - - - - 2.63
Iron- - - - - - - - - - - - - 2.10
Phosphrous- - - - - - - - - - 1.92
Alumina- - - - - - - - - - - -2.63

8. Proposed cut: 7 feet wide at top, tapering to 5 feet at bottom by 25 feet long by 7 feet deep.
Approximately 38.8 cubic yards of material to be excavated.
Estimated hours to complete excavation--7
Estimated cost of excavation- - - - - - - - - - -$66.78
Recommend sampling of 4 cubic yards
Cost to load- - - - - - - - - - - - - - - - - - - - 2.00
Cost to haul to Pilot Plant, Newport, Virginia- - 3.00
Cost to wash and process at Pilot Plant, Newport, Virginia- - - - - - - - - - - - - - - - - - - - 18.00

Cost of analyzing milled product consisting of three samples:

Sample # 1 Taken from coarse jig.
Recommend that two determinations be made.
Manganese- - - - - - - - - - -2.63
Silica- - - - - - - - - - - - 2.63

Sample # 2 Taken from fine jig.
Recommend that two determinations be made.
Manganese- - - - - - - - - - -2.63
Silica- - - - - - - - - - - - 2.63

Sample # 3 Composite sample.
Recommend that five determinations be made.
Manganese- - - - - - - - - - -2.63
Silica- - - - - - - - - - - - 2.63
Iron- - - - - - - - - - - - - 2.10
Phosphrous- - - - - - - - - - 1.92
Alumina- - - - - - - - - - - -2.63

9. Proposed cut: 15 feet wide at top, tapering to 7 feet at bottom by 50 feet long by 12 feet deep. Approximately 233.3 cubic yards of material to be excavated.
Estimated hours to complete excavation--42
Estimated cost of excavation- - - - - - - - - - - $400.68
Recommend sampling of 24 cubic yards
Cost to load- - - - - - - - - - - - - - - - - - - - - 12.00
Cost to haul to Pilot Plant, Newport, Virginia- - 18.00
Cost to wash and process at Pilot Plant, Newport, Virginia- - - - - - - - - - - - - - - - - - - -108.00
Cost of analyzing milled product consisting of three samples:

Sample # 1 Taken from coarse jig.
Recommend that two determinations be made.
Manganese- - - - - - - - - - -2.63
Silica- - - - - - - - - - - - 2.63

Sample # 2 Taken from fine jig.
Recommend that two determinations be made.
Manganese- - - - - - - - - - -2.63
Silica- - - - - - - - - - - - 2.63

Sample # 3 Composite sample.
Recommend that five determinations be made.
Manganese- - - - - - - - - - -2.63
Silica- - - - - - - - - - - - 2.63
Iron- - - - - - - - - - - - - 2.10
Phosphrous- - - - - - - - - - 1.92
Alumina- - - - - - - - - - - -2.63

10. Proposed cut: Around side of hill, to be triangular in shape, with a 10 foot cut at the base and a bank 6 feet in height by 125 feet in length.
Approximately 138.8 cubic yards of material to be excavated.
Estimated hours to complete excavation--31
Estimated cost of excavation- - - - - - - - - - -$295.74
Recommend sampling of 12 cubic yards
Cost to load- - - - - - - - - - - - - - - - - - - - - 6.00
Cost to haul to Pilot Plant, Newport, Virginia- - 9.00
Cost to wash and process at Pilot Plant, Newport, Virginia- - - - - - - - - - - - - - - - - - - -54.00
Cost of analyzing milled product consisting of three samples:

Sample # 1 Taken from coarse jig.
Recommend that two determinations be made.
Manganese- - - - - - - - - - -2.63
Silica- - - - - - - - - - - - 2.63

Sample # 2 Taken from fine jig.
Recommend that two determinations be made.
Manganese- - - - - - - - - - -2.63
Silica- - - - - - - - - - - - 2.63

Sample # 3 Composite sample.
Recommend that five determinations be made.
Manganese- - - - - - - - - - -2.63
Silica- - - - - - - - - - - - 2.63
Iron- - - - - - - - - - - - - 2.10
Phosphrous- - - - - - - - - - 1.92
Alumina- - - - - - - - - - - -2.63

Spangler Mining Corporation
Narrows, Virginia

5. (b)

HOFFMAN-GIVENS

Explanation of Hoffman-Givens Prospect-Prospect # 2
Sketch # 4

All excavation on this prospect to be done with an end loader. It is felt that there is no need to make these cuts as large as the cuts on prospect numbers 1, 3 and 4.

1. Proposed cut: 5 feet wide by 6 feet deep by 20 feet long.
Approximately 22.2 cubic yards of material to be excavated.
Estimated hours to complete excavation--6
Estimated cost of excavation- - - - - - - - - - - -$48.00
Recommend sampling of 2 cubic yards
Cost to load- - - - - - - - - - - - - - - - - - - - - 1.00
Cost to haul to Pilot Plant, Newport, Virginia- - 2.00
Cost to wash and process at Pilot Plant, Newport, Virginia- - - - - - - - - - - - - - - - - - - - - 9.00
Cost of analyzing milled product consisting of one sample:

Sample # 1 Composite sample.
Recommend that five determinations be made.

| | |
|---|---|
| Manganese- - - - - - - - - - | 2.63 |
| Silica- - - - - - - - - - - | 2.63 |
| Iron- - - - - - - - - - - - | 2.10 |
| Phosphrous- - - - - - - - - | 1.92 |
| Alumina- - - - - - - - - - - | 2.63 |

2. Proposed cut: 5 feet wide by 6 feet deep by 30 feet long.
Approximately 33.3 cubic yards of material to be excavated.
Estimated hours to complete excavation--8
Estimated cost of excavation- - - - - - - - - - - -$64.00
Recommend sampling of 2 cubic yards
Cost to load- - - - - - - - - - - - - - - - - - - - - 1.00
Cost to haul to Pilot Plant, Newport, Virginia- - 2.00
Cost to wash and process at Pilot Plant, Newport, Virginia- - - - - - - - - - - - - - - - - - - - - 9.00
Cost of analyzing milled product consisting of one sample:

Sample # 1 Composite sample.
Recommend that five determinations be made.

| | |
|---|---|
| Manganese- - - - - - - - - - | 2.63 |
| Silica- - - - - - - - - - - | 2.63 |

Iron- - - - - - - - - - - - - -2.10
Phosphrous- - - - - - - - - -1.92
Alumina- - - - - - - - - - - - 2.63

3. Proposed cut: 5 feet wide by 6 feet deep by 20 feet long.
Approximately 22.2 cubic yards of material to be excavated.
Estimated hours to complete excavation- -6
Estimated cost of excavation- - - - - - - - - - - -$48.00
Recommend sampling of 2 cubic yards
Cost to load- - - - - - - - - - - - - - - - - - - - - 1.00
Cost to haul to Pilot Plant, Newport, Virginia- - 2.00
Cost to wash and process at Pilot Plant, Newport, Virginia- - - - - - - - - - - - - - - - - - - - 9.00
Cost of analyzing milled product consisting of one sample:

Sample # 1 Composite sample.
Recommend that five determinations be made.

Manganese- - - - - - - - - -2.63
Silica- - - - - - - - - - - - 2.63
Iron- - - - - - - - - - - - - 2.10
Phosphrous- - - - - - - - - 1.92
Alumina- - - - - - - - - - - -2.63

4. Proposed cut: 5 feet wide by 6 feet deep by 30 feet long.
Approximately 33.3 cubic yards of material to be excavated.
Estimated hours to complete excavation--8
Estimated cost of excavation- - - - - - - - - - - -$64.00
Recommend sampling of 2 cubic yards
Cost to load- - - - - - - - - - - - - - - - - - - - - 1.00
Cost to haul to Pilot Plant, Newport, Virginia- - 2.00
Cost to wash and process at Pilot Plant, Newport, Virginia- - - - - - - - - - - - - - - - - - - - 9.00
Cost of analyzing milled product consisting of one sample:

Sample # 1 Composite sample.
Recommend that five determinations be made.

Manganese- - - - - - - - - -2.63
Silica- - - - - - - - - - - - 2.63
Iron- - - - - - - - - - - - - 2.10
Phosphrous- - - - - - - - - 1.92
Alumina- - - - - - - - - - - -2.63

Spangler Mining Corporation
Narrows, Virginia

5. (b)

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LAING PROSPECT

Explanation of Laing Prospect-Prospect # 3
Sketch # 2

1. Old mine openings done in 1918 are found in the area.
2. Work now being performed on Carrie Prospect by another party.
3. Proposed cut: 15 feet wide at top, tapering to 7 feet in bottom by 50 feet long by 12 feet deep. Approximately 244.4 cubic yards of material to be excavated.
   Estimated hours to complete excavation--56
   Estimated cost of excavation- - - - - - - - - - - -$534.24
   Recommend sampling of 24 cubic yards
   Cost to load- - - - - - - - - - - - - - - - - - - - - 10.00
   Cost to haul to Pilot Plant, Newport, Virginia- - 15.00
   Cost to wash and process at Pilot Plant, Newport, Virginia- - - - - - - - - - - - - - - - - - - - 108.00
   Cost of analyzing milled product consisting of three samples:

   Sample # 1 Taken from coarse jig.
   Recommend that two determinations be made.
   Manganese- - - - - - - - - - 2.63
   Silica- - - - - - - - - - - - 2.63

   Sample # 2 Taken from fine jig.
   Recommend that two determinations be made.
   Manganese- - - - - - - - - - 2.63
   Silica- - - - - - - - - - - - 2.63

   Sample # 3 Composite sample.
   Recommend that five determinations be made.
   Manganese- - - - - - - - - - 2.63
   Silica- - - - - - - - - - - - 2.63
   Iron- - - - - - - - - - - - - 2.10
   Phosphrous- - - - - - - - - - 1.92
   Alumina- - - - - - - - - - - 2.63

4. Proposed cut: 14 feet wide at top, tapering to 7 feet in bottom by 40 feet long by 10 feet deep. Approximately 155.5 cubic yards of material to be excavated.
   Estimated hours to complete excavation--40
   Estimated cost of excavation- - - - - - - - - - - -$381.60
   Recommend sampling of 16 cubic yards
   Cost to load- - - - - - - - - - - - - - - - - - - - - 8.00
   Cost to haul to Pilot Plant, Newport, Virginia- - 10.00
   Cost to wash and process at Pilot Plant, Newport, Virginia- - - - - - - - - - - - - - - - - - - - 72.00

Spangler Mining Corporation
Narrows, Virginia

Cost of analyzing milled product consisting of three samples:

Sample # 1 Taken from coarse jig.
Recommend that two determinations be made.

| | |
|---|---|
| Manganese- - - - - - - - - | 2.63 |
| Silica- - - - - - - - - - - | 2.63 |

Sample # 2 Taken from fine jig.
Recommend that two determinations be made.

| | |
|---|---|
| Manganese- - - - - - - - - | 2.63 |
| Silica- - - - - - - - - - - | 2.63 |

Sample # 3 Composite sample.
Recommend that five determinations be made.

| | |
|---|---|
| Manganese- - - - - - - - - | -2.63 |
| Silica- - - - - - - - - - - | 2.63 |
| Iron- - - - - - - - - - - - | 2.10 |
| Phosphrous- - - - - - - - | 1.92 |
| Alumina- - - - - - - - - - | -2.63 |

5. Proposed cut: 12 feet wide at top, tapering to 7 feet in bottom by 25 feet long by 10 feet deep. Approximately 88.0 cubic yards of material to be excavated.
Estimated hours to complete excavation--24
Estimated cost of excavation- - - - - - - - - - -$228.96
Recommend sampling of 12 cubic yards

| | |
|---|---|
| Cost to load- - - - - - - - - - - - - - - - - - - - | 6.00 |
| Cost to haul to Pilot Plant, Newport, Virginia- - | 7.50 |
| Cost to wash and process at Pilot Plant, Newport, Virginia- - - - - - - - - - - - - - - - - - - - | -54.00 |

Cost of analyzing milled product consisting of three samples:

Sample # 1 Taken from coarse jig.
Recommend that two determinations be made.

| | |
|---|---|
| Manganese- - - - - - - - - | 2.63 |
| Silica- - - - - - - - - - - | 2.63 |

Sample # 2 Taken from fine jig.
Recommend that two determinations be made.

| | |
|---|---|
| Manganese- - - - - - - - - | 2.63 |
| Silica- - - - - - - - - - - | 2.63 |

Sample # 3 Composite sample.
Recommend that five determinations be made.

| | |
|---|---|
| Manganese- - - - - - - - - | 2.63 |
| Silica- - - - - - - - - - - | 2.63 |
| Iron- - - - - - - - - - - - | 2.10 |
| Phosphrous- - - - - - - - | 1.92 |
| Alumina- - - - - - - - - - | 2.63 |

6. Proposed cut: 10 feet wide at top, tapering to 7 feet in bottom by 20 feet long by 8 feet deep. Approximately 50.3 cubic yards of material to be excavated.
Estimated hours to complete excavation--18
Estimated cost of excavation- - - - - - - - - - - $171.72
Recommend sampling of 8 cubic yards
Cost to load- - - - - - - - - - - - - - - - - - - - 4.00
Cost to haul to Pilot Plant, Newport, Virginia- - 5.00
Cost to wash and process at Pilot Plant, Newport, Virginia- - - - - - - - - - - - - - - - - - - - 36.00
Cost of analyzing milled product consisting of three samples:

Sample # 1 Taken from coarse jig.
Recommend two determinations be made.
Manganese- - - - - - - - - - 2.63
Silica- - - - - - - - - - - -2.63

Sample # 2 Taken from fine jig.
Recommend that two determinations be made.
Manganese- - - - - - - - - - 2.63
Silica- - - - - - - - - - - 2.63

Sample # 3 Composite sample.
Recommend that five determinations be made.
Manganese- - - - - - - - - - 2.63
Silica- - - - - - - - - - - 2.63
Iron- - - - - - - - - - - - 2.10
Phosphrous- - - - - - - - - 1.92
Alumina- - - - - - - - - - - 2.63

7. Enlargment of present cut. Proposed enlargment to be 14 feet wide, tapering to 7 feet in bottom by 50 feet long by 12 feet deep.
Approximately 187.0 cubic yards of material to be excavated.
Estimated hours to complete excavation--44
Estimated cost of excavation- - - - - - - - - - - $419.76
Recommend sampling of 20 cubic yards
Cost to load- - - - - - - - - - - - - - - - - - - - 10.00
Cost to haul to Pilot Plant, Newport, Virginia- - 12.50
Cost to wash and process at Pilot Plant, Newport, Virginia- - - - - - - - - - - - - - - - - - - - 90.00
Cost of analyzing milled product consisting of three samples:

Sample # 1 Taken from coarse jig.
Recommend that two determinations be made.
Manganese- - - - - - - - - 2.63
Silica- - - - - - - - - - - 2.63

Spangler Mining Corporation
Narrows, Virginia

Sample # 2 Taken from fine jig.
Recommend that two determinations be made.

| | |
|---|---|
| Manganese- - - - - - - - - - | 2.63 |
| Silica- - - - - - - - - - - | 2.63 |

Sample # 3 Composite sample.
Recommend that five determinations be made.

| | |
|---|---|
| Manganese | 2.63 |
| Silica | 2.63 |
| Iron | 2.10 |
| Phosphrous | 1.92 |
| Alumina | 2.63 |

Spangler Mining Corporation
Narrows, Virginia

5. (b)

HOGE-LAING

Explanation of Hoge-Laing Prospect-Prospect # 4
Sketch # 5

1. Old work.
2. Proposed cut: 15 feet wide at top, tapering to 7 feet in bottom by 10 feet deep by 30 feet long. Approximately 235.1 cubic yards of material to be excavated.
   Estimated hours to complete excavation--37
   Estimated cost of excavation- - - - - - - - - - - -$352.98
   Recommend sampling of 24 cubic yards
   Cost to load- - - - - - - - - - - - - - - - - - - - - 12.00
   Cost to haul to Pilot Plant, Newport, Virginia- - 48.00
   Cost to wash and process at Pilot Plant, Newport, Virginia- - - - - - - - - - - - - - - - - - - - 108.00
   Cost of analyzing milled product consisting of three samples:

   Sample # 1 Taken from coarse jig.
   Recommend that two determinations be made.
   Manganese- - - - - - - - - - 2.63
   Silica- - - - - - - - - - - 2.63

   Sample # 2 Taken from fine jig.
   Recommend that two determinations be made.
   Manganese- - - - - - - - - - 2.63
   Silica- - - - - - - - - - - 2.63

   Sample # 3 Composite sample
   Recommend that five determinations be made.
   Manganese- - - - - - - - - - 2.63
   Silica- - - - - - - - - - - 2.63
   Iron- - - - - - - - - - - - 2.10
   Phosphrous- - - - - - - - - 1.92
   Alumina- - - - - - - - - - - 2.63

3. Proposed cut: 8 feet wide at top, tapering to 7 feet in bottom by 7 feet long by 20 feet deep. Approximately 39.0 cubic yards of material to be excavated.
   Estimated hours to complete excavation--8
   Estimated cost of excavation- - - - - - - - - - - - 76.32
   Recommend sampling of 8 cubic yards
   Cost to load- - - - - - - - - - - - - - - - - - - - - 4.00
   Cost to haul to Pilot Plant, Newport, Virginia- - 16.00
   Cost to wash and process at Pilot Plant, Newport, Virginia- - - - - - - - - - - - - - - - - - - - 36.00

Spangler Mining Corporation
Narrows, Virginia

Cost of analyzing milled product consisting of three samples:

Sample # 1 Taken from coarse jig.
Recommend that two determinations be made.

| | |
|---|---|
| Manganese- - - - - - - - - - | 2.63 |
| Silica- - - - - - - - - - - | 2.63 |

Sample # 2 Taken from fine jig.
Recommend that two determinations be made.

| | |
|---|---|
| Manganese- - - - - - - - - - | 2.63 |
| Silica- - - - - - - - - - - | 2.63 |

Sample # 3 Composite sample.
Recommend that five determinations be made.

| | |
|---|---|
| Manganese- - - - - - - - - - | 2.63 |
| Silica- - - - - - - - - - - | 2.63 |
| Iron- - - - - - - - - - - - | 2.10 |
| Phosphrous- - - - - - - - - | 1.92 |
| Alumina- - - - - - - - - - - | 2.63 |

4. Proposed cut: 8 feet wide at top, tapering to 7 feet in bottom by 7 feet deep by 30 feet long.
Approximately 59.0 cubic yards of material to be excavated.
Estimated hours to complete excavation--10
Estimated cost of excavation- - - - - - - - - - - -$95.40
Recommend sampling of 8 cubic yards
Cost to load- - - - - - - - - - - - - - - - - - - - - 4.00
Cost to haul to Pilot Plant, Newport, Virginia- - 16.00
Cost to wash and process at Pilot Plant, Newport, Virginia- - - - - - - - - - - - - - - - - - - - - 36.00
Cost of analyzing milled product consisting of three samples:

Sample # 1 Taken from coarse jig.
Recommend that two determinations be made.

| | |
|---|---|
| Manganese- - - - - - - - - - | 2.63 |
| Silica- - - - - - - - - - - | 2.63 |

Sample # 2 Taken from fine jig.
Recommend that two determinations be made.

| | |
|---|---|
| Manganese- - - - - - - - - - | 2.63 |
| Silica- - - - - - - - - - - | 2.63 |

Sample # 3 Composite sample
Recommend that five determinations be made.

| | |
|---|---|
| Manganese- - - - - - - - - | 2.63 |
| Silica- - - - - - - - - - - | 2.63 |
| Iron- - - - - - - - - - - - | 2.10 |
| Phosphrous- - - - - - - - - | 1.92 |
| Alumina- - - - - - - - - - | 2.63 |

Spangler Mining Corporation
Narrows, Virginia

5. Proposed cut: To be triangular in shape; 15 feet across bottom to a height of 20 feet.
Approximately 145.0 cubic yards of material to be excavated.
Estimated hours to complete excavation--28
Estimated cost of excavation- - - - - - - - - - - $267.12
Recommend sampling of 12 cubic yards
Cost to load- - - - - - - - - - - - - - - - - - - - 8.00
Cost to haul to Pilot Plant, Newport, Virginia- - 24.00
Cost to wash and process at Pilot Plant, Newport, Virginia- - - - - - - - - - - - - - - - - - - - 54.00
Cost of analyzing milled product consisting of three samples:

Sample # 1 Taken from coarse jig.
Recommend that two determinations be made.

| | |
|---|---|
| Manganese- - - - - - - - - - | 2.63 |
| Silica- - - - - - - - - - - | 2.63 |

Sample # 2 Taken from fine jig.
Recommend that two determinations be made.

| | |
|---|---|
| Manganese- - - - - - - - - - | 2.63 |
| Silica- - - - - - - - - - - | 2.63 |

Sample # 3 Composite sample
Recommend that five determinations be made.

| | |
|---|---|
| Manganese- - - - - - - - - - | 2.63 |
| Silica- - - - - - - - - - - | 2.63 |
| Iron- - - - - - - - - - - - | 2.10 |
| Phosphrous- - - - - - - - - | 1.92 |
| Alumina- - - - - - - - - - - | 2.63 |

Spangler Mining Corporation
Narrows, Virginia

5. (d)

A brief report of the operating experience and background of the applicant with relation to the ability to carry out such exploration project and that of the person who will supervise the operations are as follows:

The applicant, Spangler Mining Corporation, has been activly engaged in the prospecting of manganese for over a year. They have conducted test cuts and analytical work in Monroe County, West Virginia and Craig County, Virginia. The Corporation has been very fortunate to secure leases from a privately owned land and mineral right holding Corporation which have hither-to been unavailable. The majority of these leases cover an area that surrounds two mines that have just started producing manganese within the past year and from present indications it appears that this area will yield a tremendous tonnage of ore.

Calvin D. Spangler will supervise all operations of the Corporation as he has in the past. A brief resume of his background and past experience is as follows:

Graduate of Narrows High School, post graduate of Pearisburg High School, attended Virginia Polytechnic Institute, studying Chemical Engineering and Business Administration. Returned from college to be part owner and assistant manager of large Purebread Herford farm, was also employed part time by the Virginia State Board of Education to instruct Veterans in Institutional-On-The-Farm Training, which is part of the program offered by the G. I. Bill of Rights. Returned to Virginia Polytechnic Institute for three summers to take courses on teaching, machinery repair, shopwork and on the farm training. Resigned from employment by Virginia State Board of Education to accept position as plant manager of Cantrell and Cochrane Blue Ridge Corporation, Narrows, Virginia, manufacturers of carbonated soft drinks in tin cans, covering six states with the product from this plant. Is in charge of 18 employees at full production also in charge of shipment, production, automotive equipment; consisting of trucks, tractor-trailers and sales personnel vehicles. Operation of this plant is now set up so that Mr. Spangler will be able to devote necessary time to the actual mining operations. Has owned heavy equipment and figured many estimates on grading work and supervised actual operations. Also serves as President of Spangler Mining Corporation and has supervised all prospecting and operations done to date. Has spent many hours in actual prospecting for manganese in the field with Geologists. Knows all of the manganese producers in this area and has discussed and seen performed the actual prospecting, mining, processing and shipment of manganese at their various operations. Is familiar with the prospecting, mining, processing and shipment of manganese ore.

Spangler Mining Corporation
Narrows, Virginia

RECEIVED
FEB - 7 1956

Recapitulation of quotation for rental rates on various pieces of equipment along with an hourly cost break-down. This will explain our reason for accepting quotations submitted by Old Dominion Wood Products Manufacturing Corporation as being the most economical.

Cost per month-based on 8 hour working day-22 days per month. For equipment only.

| | OLD DOMINION WOOD PRODUCTS MFG. CORP. | RISH EQUIP. CO. | CARTER EQUIP. | SUTTON CO. |
|---|---|---|---|---|
| TD-9 End Loader | $675.00 | $950.00 | | Unable to supply equipment due to heavy work load. |
| D-4 End Loader | | | $700.00 | |
| TD-6 Angle Dozer w/winch | 650.00 | 829.50 | | |
| D-2 | | | 600.00 | |
| 3½ to 4 yd. Pan | 200.00 | 264.00 | 250.00 | |
| TD-9 Tractor to Pull Pan | 675.00 | 950.00 | | |
| D-4 Tractor to Pull Pan | | | 700.00 | |

Estimated cost per hour-based on 8 hour working day-22 days per month. Total of 176 working hours.

| | | | | |
|---|---|---|---|---|
| TD-9 Tractor | $ 3.84 | $ 5.40 | | Unable to supply equipment due to heavy work load. |
| D-4 Tractor | | | $ 3.98 | |
| Operator | 2.00 | 2.00 | 2.00 | |
| Fuel, Oil, Grease, Parts, Maintenance | 2.16 | 2.16 | 2.16 | |
| Total cost per hour | $ 8.00 | $ 9.56 | $ 8.14 | |

Estimated cost per hour-based on 8 hour working day-22 days per month. Total of 176 working hours.

| | | | | |
|---|---|---|---|---|
| TD-6 Tractor | $ 3.70 | $ 4.72 | | Unable to supply equipment due to heavy work load. |
| D-2 | | | $ 3.41 | |
| Operator | 2.00 | 2.00 | 2.00 | |
| Fuel, Oil, Grease, Parts, Maintenance | 1.40 | 1.40 | 1.40 | |
| Total cost per hour | $ 7.10 | $ 8.12 | $ 6.81 | |

Spangler Mining Corporation
Narrows, Virginia

| | OLD DOMINION WOOD PRODUCTS MFG. CORP. | RISH EQUIP. CO. | CARTER EQUIP. | SUTTON CO. |
|---|---|---|---|---|

Estimated rental cost per hour for tractor and pan based on 8 hour working day-22 days per month. Total of 176 working hours.

| | | | |
|---|---|---|---|
| Tractor | $ 3.84 | $ 5.40 | $ 3.98 |
| Operator | 2.00 | 2.00 | 2.00 |
| Fuel, Oil, Grease, Parts, Maintenance | 2.56 | 2.56 | 2.56 |
| Rental of 3-4 yard pan | 1.14 | 1.50 | 1.42 |
| Total cost | $ 9.54 | $ 11.46 | $ 9.96 |

Total Cost of Tractor and 11 to 12 yard Pan.

| | SOUTHERN MANGANESE CORP. | RISH EQUIP. CO. | CARTER EQUIP. | SUTTON CO. |
|---|---|---|---|---|
| Per Month | $3,872.00 | $3,543.00 | $3,210.00 | Unable to supply equipment due to heavy work load |
| Rental Per Hour | 22.00 | 20.25 | 18.24 | |
| Transportation | 380.00 | F.O.B. Roanoke, Va. | 150.00 | |

After careful consideration it has been decided that it is not practical to use the larger equipment, i.e., 11 to 12 yard pans and tractors. If these larger units were used, it would mean a much greater expense to get the same exploration information as can be obtained by the use of the smaller equipment.

Spangler Mining Corporation
Narrows, Virginia

C O P Y

SUTTON COMPANY
Incorporated

General Contractors

Radford, Virginia

C O P Y

January 7, 1956

Spangler Mining Corporation,
Box 38,
Narrows, Virginia.

Gentlemen:

Referring to your telephone call asking about rental rate on equipment fully operated. You stated that you were interested in a Model TD-9 End Loader, TD-6 Angledozer and 11 yard Scraper with Tractor.

We appreciate you calling us, however, we do not have any equipment of this type for rent at the present time, as everything we have is busy. Sorry we cannot help you.

Very truly yours,

SUTTON COMPANY, INC.

By/s/ A. S. Glenn
A. S. Glenn, Treasurer

ASG:ab

I hereby certify that this is a true and exact copy of the original.

Given under my hand ~~Sworn to and subscribed before me~~ this the 31st day of Jan., 1956.

Catherine J. Chambers
Notary Public

Spangler Mining Corporation
Narrows, Virginia

SOUTHERN MANGANESE CORPORATION

BASTIAN, VIRGINIA

C O P Y

January 4, 1956

C O P Y

Mr. C. D. Spangler
Narrows, Virginia

Dear Sir:

Will quote you the following prices on a pan, capacity of 11 yards, furnishing pan and operator for 22.00 per hour plus cost of moving to and from job.

The cost of hauling to job will be $190.00, and from job back to Southern Manganese Corporation $190.00 which will make a total of $280.00.

We will wash 50 loads consisting of not more than 4 yards per load at $30.00 per load up to 100 loads. This ore will be washed at J. G. Guslers mill.

Sincerely yours,

Clay H. Sanford,
Supt.
/s/ Clay H. Sanford

CHS/jwp

I hereby certify that this is a true and exact copy of the original.
Given under my hand ~~Sworn to and subscribed before me~~ this the 31st day of Jan. 1956.

Catherine J. Chambers
Notary Public

**CARTER** MACHINERY COMPANY, INCORPORATED

DIESEL ENGINES, MOTOR GRADERS — Caterpillar — TRACTORS, EARTHMOVING EQUIPMENT

ROANOKE, VIRGINIA

P. O. BOX 929
ROANOKE, VIRGINIA
DIAL 2-3495

BLUEFIELD, WEST VIRGINIA

January 5, 1956

Spangler Mining Company
Narrows, Virginia

Attn: Mr. Calvin Spangler

Dear Calvin:

We are pleased to quote you below rental rates, per month, on various types of equipment:

D4 and Loader -- $700.00 per month
D2 and Angle Blade, Hydraulic -- $600.00 per month
4-yd. Capacity Pan -- $250.00 per month
D4 and Dozer -- $700.00 per month
D8 Tractor with 12 to 15 yd. capacity pan -- $1,500.00 per month
105' Compressor complete with jack hammer and hose -- $262.00 per month

We list below transportation costs from Roanoke, Virginia to destination, eight miles east of Newport on Route 42:

D4 and Loader -- $75.00
D2 and Dozer -- $60.00
4-yd. Pan -- $60.00
D4 and Blade -- $75.00
D8 and 12 yd. pan -- $150.00
105' Compressor -- $50.00

At the present time we have equipment of this type available for inspection and further negotiation.

Thanking you for your interest, we are

Very truly yours,

CARTER MACHINERY CO., Inc.

J. W. Wells
Sales Manager

JWW/j

QUOTATION

**Rish EQUIPMENT CO.**

CONSTRUCTION AND INDUSTRIAL TRACTORS AND EQUIPMENT

P. O. BOX 1369 PHONE 8141

405 CENTER AVE., N. W.

ROANOKE 7, VA.

| | |
|---|---|
| DATE | January 6, 1956 |
| JOB | Narrows |
| INQUIRY | Mr. Calvin D. Spangler |
| ATTENTION | |
| F. O. B. | Roanoke, Virginia |
| TERMS | Net |
| DELIVERY | Stock |
| THIS QUOTATION SUBJECT TO | |
| ACCEPTANCE IN_____DAYS | |

TO

Spangler Mining Corp.
Box 38
Narrows, Virginia

WE ARE PLEASED TO QUOTE ON ITEMS OF EQUIPMENT AND MATERIALS AS REQUESTED ON YOUR ABOVE INQUIRY

| ITEM | QUANTITY | DESCRIPTION | UNIT | TOTAL |
|---|---|---|---|---|
| 1 | 1 | Used International Model TD-6 crawler tractor, with electric starting, 16" track shoes, front pull hook, crankcase guard, drawbar, and equipped with Bucyrus-Erie hydraulic bullgrader and Model "B" Carco winch. Price - - - - - - - - - - - - - - - - - - - - - - - - | RENTAL PER MONTH $829.50 | |
| 2 | 1 | Used International Model TD-6 crawler tractor, with electric starting, 16" track shoes, front pull hook, crankcase guard, drawbar, and equipped with Bucyrus-Erie hydraulic bullgrader. Price - - - - - - - - - - - - - - - - - - - - - - - - | $694.50 | |
| 3 | 1 | Used International Model TD-9 crawler tractor, with TD-9 crawler tractor, with electric starting, 15" flat track shoes, drawbar, and equipped with Brott side shovel with H.D. bucket, Hydro-Spring, counter-weight. Price - - - - - - - - - - - - - - - - - - - - - - - - | $950.00 | |
| 4 | 1 | Used Henry Model C-4 hydraulic scraper, two wheel, 3-4 cubic yard capacity. Price - - - - - - - - - - - - - - - - - - - - - - - - | $264.00 | |
| 5 | 1 | Used Euclid Model 71TWT-10SM scraper, with GMC 6-71 Diesel engine, 12:24 - 14 ply front wheels, 24:25 - 18 ply scraper and tractor drive wheels, 12 cubic yard capacity. Price - - - - - - - - - - - - - - - - - - - - - - - - | $2,223.00 | |

(MTD.)

QUOTATION

**Rish EQUIPMENT CO.**

CONSTRUCTION AND INDUSTRIAL TRACTORS AND EQUIPMENT

P. O. BOX 1369 PHONE 8141

405 CENTER AVE., N. W.

ROANOKE 7, VA.

| | |
|---|---|
| DATE | January 6, 1956 |
| JOB | Narrows |
| INQUIRY | Mr. Calvin D. Spangler |
| ATTENTION | |
| F. O. B. | Roanoke, Virginia |
| TERMS | Net |
| DELIVERY | Stock |
| THIS QUOTATION SUBJECT TO | |
| ACCEPTANCE IN_____DAYS | |

TO

Spangler Mining Corp.
Box 38
Narrows, Virginia

-2-

WE ARE PLEASED TO QUOTE ON ITEMS OF EQUIPMENT AND MATERIALS AS REQUESTED ON YOUR ABOVE INQUIRY

| ITEM | QUANTITY | DESCRIPTION | UNIT | TOTAL |
|---|---|---|---|---|
| | | | RENTAL PER MONTH | |
| 6 | 1 | Used Ingersoll-Rand Model CR-125 portable air compressor, powered by gasoline engine, mounted on two pneumatic tired wheels. Price - - - - - - - - - - - - - - - - - - - - - - | $198.00 | |
| 7 | 1 | Used Ingersoll-Rand Model MR-125 portable air compressor, powered by Diesel engine, mounted on two pneumatic tired wheels. Price - - - - - - - - - - - - - - - - - - - - - - | $260.00 | |



RISH EQUIPMENT COMPANY

By J. L. Garrett

J. L. Garrett, Ass't. to Sales Manager

PHONE PARK 6-3187

# OLD DOMINION WOOD PRODUCTS MFG. CORP.

CUSTOM MILL WORK -:- BOX MFG. -:- HARDWARE BUILDING SUPPLIES -:- WHOLESALE AND RETAIL -:- LUMBER

BOX 4, GLEN-LYN, VA.

January 5, 1956

[illegible]

[illegible]

[illegible]

Thank you again for your inquiry and if we can be of further help, please advise.

Yours very truly,

OLD DOMINION WOOD
PRODUCTS MFG. CORP.

G. C. Crozier

G. C. Crozier

C/s

Spangler Mining Corporation
Narrows, Virginia

Lesley McCreath

Fred A. Pennington
Merton H. Davey

C O P Y

ANDREW S. McCREATH & SON

Analytical and Consulting Chemists
236-242 Liberty Street

Harrisburg, Pa.

C O P Y

January 16, 1956

Mr. Calvin Spangler
Spangler Mining Corporation
Post Office Box 38
Narrows, Virginia

Dear Mr. Spangler:

As per your letter of January 12, 1956, we hereby quote our rates for analysis of Domestic Manganese Ore samples.

Each determination is $5.00, or for Manganese, Iron, Silica, Alumina, and Phosphorus, $25.00. For a Government analysis which includes Copper, Lead and Zinc in addition to the above, we charge a flat rate of $25.00. In effect, if you should desire an analysis of Manganese, Iron, Silica, Alumina, and Phosphorus, the price would be the same as for the full Government analysis.

We wish to point out that our rates at our Marion Laboratory are slightly lower. Should you wish to use the Marion Laboratory, contact Robert Meckley, 521 Pendelton Street.

Yours very truly,

Andrew S. McCreath & Son

BY /s/ Bruce D. Krecker

BDK/jm

I hereby certify that this is a true and exact copy of the original.
Given under my hand ~~Sworn to and subscribed before me~~ this the 31st day of Jan. 1956.

Catherine J. Chambers
Notary Public

Spangler Mining Corporation
Narrows, Virginia

LERCH BROTHERS INCORPORATED
THE IRON ORE CHEMISTS
Corner N. 4th W. and Grant Street
Mail Address-P.O. Box 810
Hibbing, Minnesota
January 9, 1956

COPY COPY

Spangler Mining Corporation
Post Office Box 38
Narrows, Virginia

Attention: Mr. Calvin D. Spangler

Gentlemen:

Thank you for your letter of January 5, requesting quotation for analyzing Manganese ore.

We are enclosing a copy of our Schedule of Rates and Terms for Iron and Manganese ores. We would charge you $1.50 per determination for Iron, Manganese, Silica or Phosphorus, and $2.25 per determination for each Alumina determination. However, if your ore would not react to our standard methods used for the Mesabi Range ores, we would charge as follows for the more elaborate methods of determinations:

| | |
|---|---|
| Iron. . . . . | $2.10 |
| Manganese . . . . . | 2.63 |
| Phosphorus. . . . . | 1.92 |
| Silica. . . . . | 2.63 |
| Alumina . . . . . | 2.63 |

If you should have us run over 100 determinations during the fiscal year, we would adjust your rate in accordance with Page 2 of our Schedule.

We have done considerable work for the Government, and at times have been requested to do "umpire work". In such cases our charge would be three times the above mentioned rates. Many times the sampling of the ore is just as important as the analysis, but we are sorry to say that we would not be in a position to handle anything in this line in the State of Virginia.

We realize our Schedule of Rates and Terms is rather complicated and hope you will contact us again if you need any further information.

Sincerely,

/s/ Leo J. Storms
Leo J. Storms
Treasurer

Enc.
Air Mail

This is to certify that this is a true and exact copy of the original.
Given under my hand this the 31st day of January, 1956.
Catherine J. Chenkes
Notary Public

MF-203
Revised March 24, 1955

RECEIVED
FEB - 7 1956

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

CONSENT TO LIEN

To the United States of America:

Referring to that certain land in the County~~X~~ies of Giles & Craig, State of Virginia, described as follows:1/

In a deed dated 21 May, 1937 and recorded in Giles County Deed Book Number 53 page 319, Craig County Deed Book number 3, page 167 Official records of said counties.

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;2/ and represents and undertakes that there are no claims, liens, or encumbrances upon the undersigned's right, title, or interest in the land prior to that hereby granted to the Government other than the following:3/

None

3. Undertakes and agrees neither to commit any act nor assert any claim in conflict with the provisions of this Consent to Lien; and to give advance notice of the Government's rights under this Consent to Lien to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, or interest in the land; and

None

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

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

3/ Write "none" if that is the case. Do not leave lines blank.

4. Consents to all amendments and assignments of the contract without notice thereof, and agrees that this Consent to Lien shall extend and apply thereto.

5. Added provision: This consent to lien applies to sections 4A 6P, 7C and Eighth of aforementioned deed, also the Doe Mountain Tract, and only those portions of these lands as are set forth in Spangler Mining Corporations DMEA application. Calvin D. Spangler does hereby have our consent to lien on any of the mineral and mining rights which he now or may have under lease from our corporation.

Dated this 19th day of January, 1956.

Margaret Nelson Laing [Seal]

[Seal]

[Seal]

James Laing

~~Secretary~~ President certify that I am the Margaret N. ~~Laing~~ (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.

James Laing

[Corporate Seal]

MF-203
Revised March 24, 1955

RECEIVED
FEB - 7 1956

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

CONSENT TO LIEN

To the United States of America:

Referring to that certain land in the Counties of Giles & Craig, State of Virginia, described as follows:1/

In a deed dated 21 May, 1937 and recorded in Giles County Deed Book Number 53 page 319, Craig County Deed Book number 3, page 167 official records of said counties.

, 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;2/ and represents and undertakes that there are no claims, liens, or encumbrances upon the undersigned's right, title, or interest in the land prior to that hereby granted to the Government other than the following:3/

None

3. Undertakes and agrees neither to commit any act nor assert any claim in conflict with the provisions of this Consent to Lien; and to give advance notice of the Government's rights under this Consent to Lien to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, or interest in the land; and

None

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

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

3/ Write "none" if that is the case. Do not leave lines blank.

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James Laing

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Operator
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Contract No. Idm-E
Contract Date

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I, James Laing certify that I am the Secretary (Secretary, etc.) of the corporation named herein; that Margaret N. Laing who signed this agreement was then President (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.

James Laing

[Corporate Seal]

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FEB - 7 1956

MF-203
Revised March 24, 1955

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

CONSENT TO LIEN

To the United States of America:

Referring to that certain land in the Counties of Giles & Craig, State of Virginia, described as follows:1/

In a deed dated 21 May, 1937 and recorded in Giles County Deed Book Number 53 page 319, Craig County Deed Book Number 3, page 167 official records of said counties.

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;2/ and represents and undertakes that there are no claims, liens, or encumbrances upon the undersigned's right, title, or interest in the land prior to that hereby granted to the Government other than the following:3/

None

3. Undertakes and agrees neither to commit any act nor assert any claim in conflict with the provisions of this Consent to Lien; and to give advance notice of the Government's rights under this Consent to Lien to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, or interest in the land; and

None

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

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

3/ Write "none" if that is the case. Do not leave lines blank.

4. Consents to all amendments and assignments of the contract without notice thereof, and agrees that this Consent to Lien shall extend and apply thereto.

5. Added provision: This consent to lien applies to sections 4A, 6P, 7C and Eighth of aforementioned deed, also the Doe Mountain Tract, and only those portions of these lands as are set forth in Spangler Mining Corporations DMEA application. Calvin D. Spangler does hereby have our consent to lien on any of the mineral and mining rights which he now or may have under lease from our corporation.

Dated this 19th day of January, 1956.

Margaret Nelson Laing [Seal]

[Seal]

[Seal]

I, James Laing certify that I am the Secretary (Secretary, etc.) of the corporation named herein; that Margaret N. Laing who signed this agreement was then President (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.

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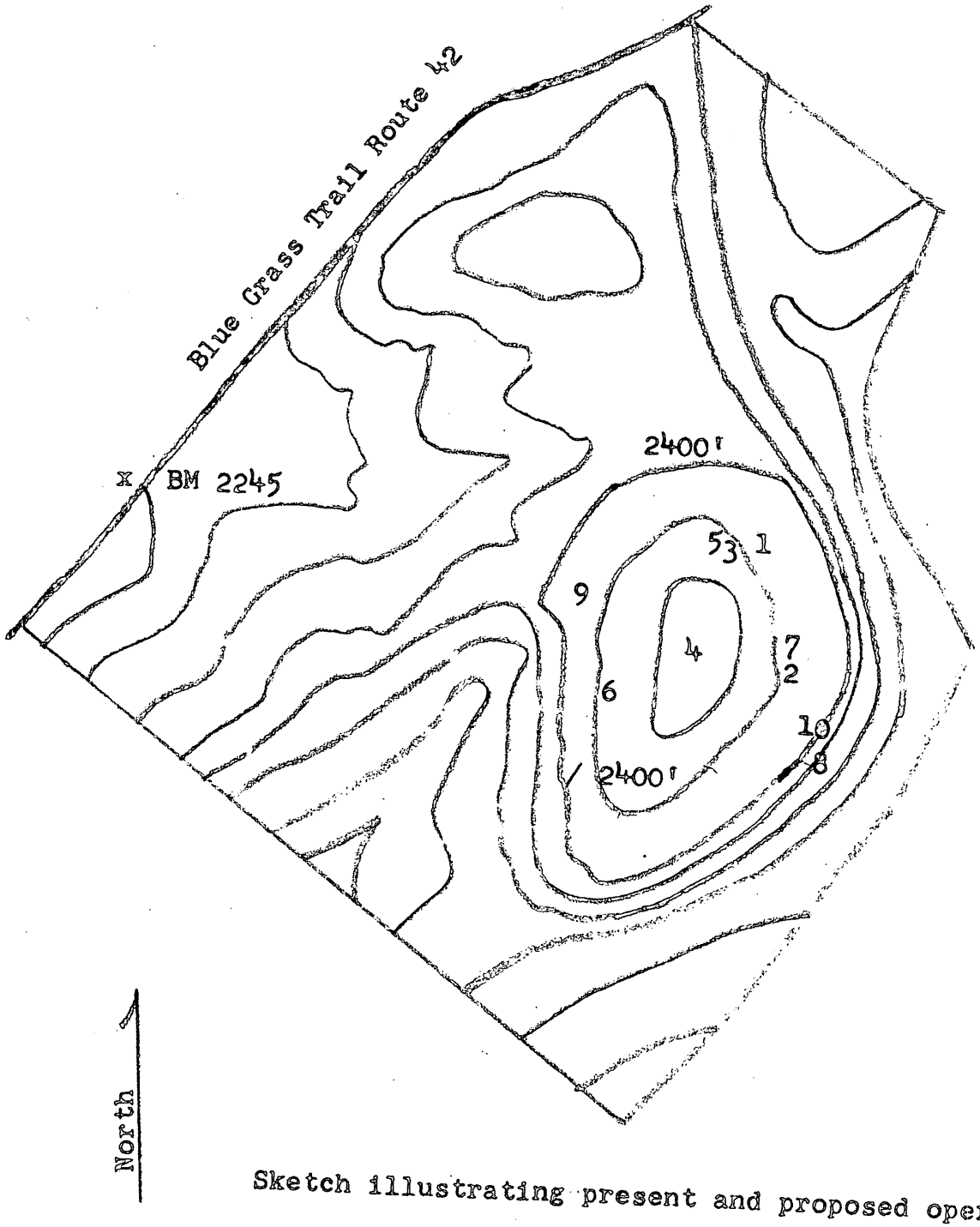
James Laing

[Corporate Seal]

Reproduced from Waiteville,
Va.-W.Va. Quandrangle Map
N3715-W8015/15
Approx. Scale 1:7882

HOFFMAN PROSPECT, #1

Sketch #3




Sketch illustrating present and proposed operations

Sketch # 3

Reproduced from Waiteville
Va.-W.Va. Quandrangle Map
N3715-W8015/15
Approx. Scale 1:10416

HOFFMAN-GIVENS PROSPECT, #2

Sketch #4

Sketch #4

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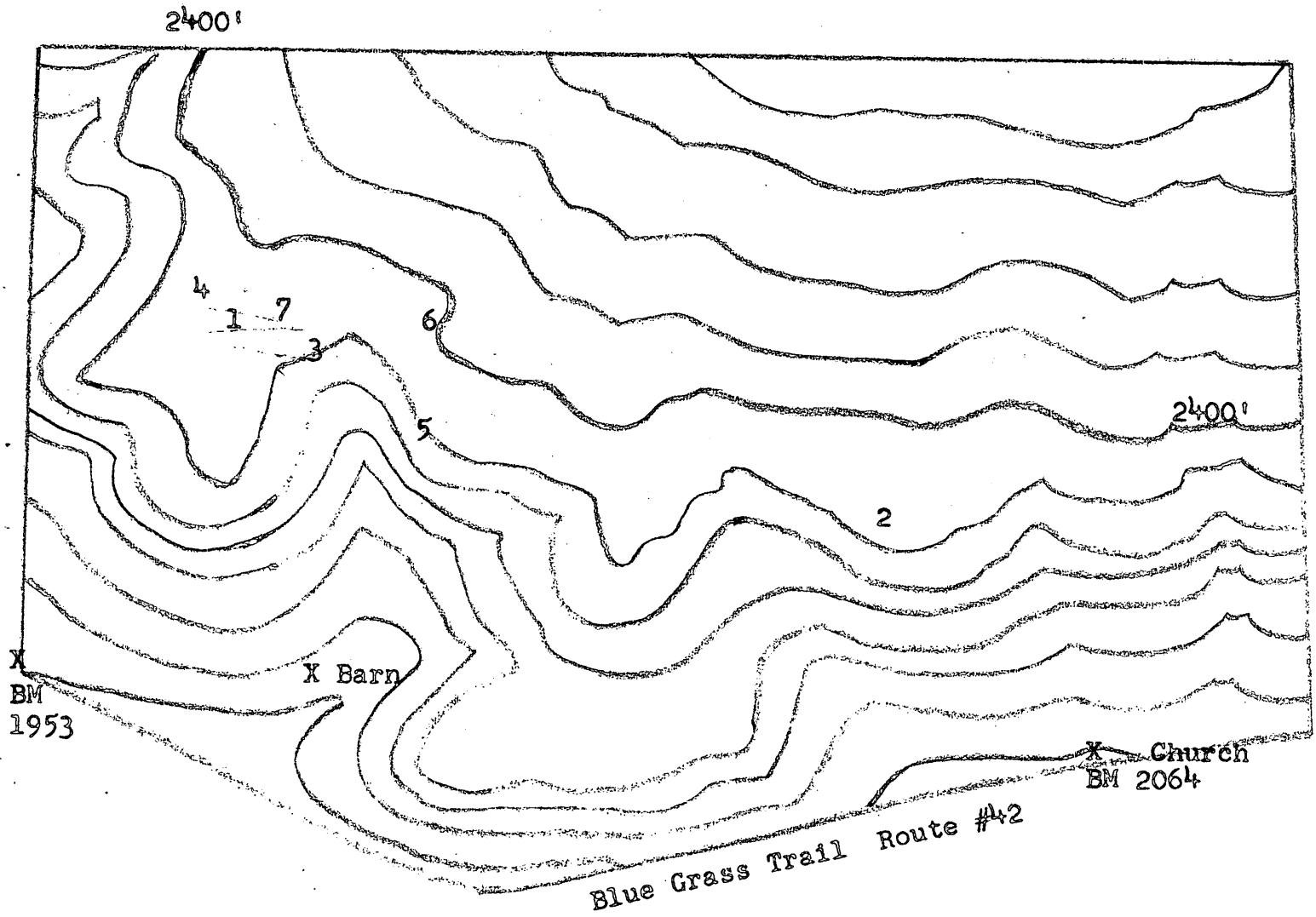
Reproduced from Waiteville,
Va.-W.Va. Quandrangle Map
N3715-W8015/15
Approx. Scale 1:7882

LAING PROSPECT, #3

Sketch #2



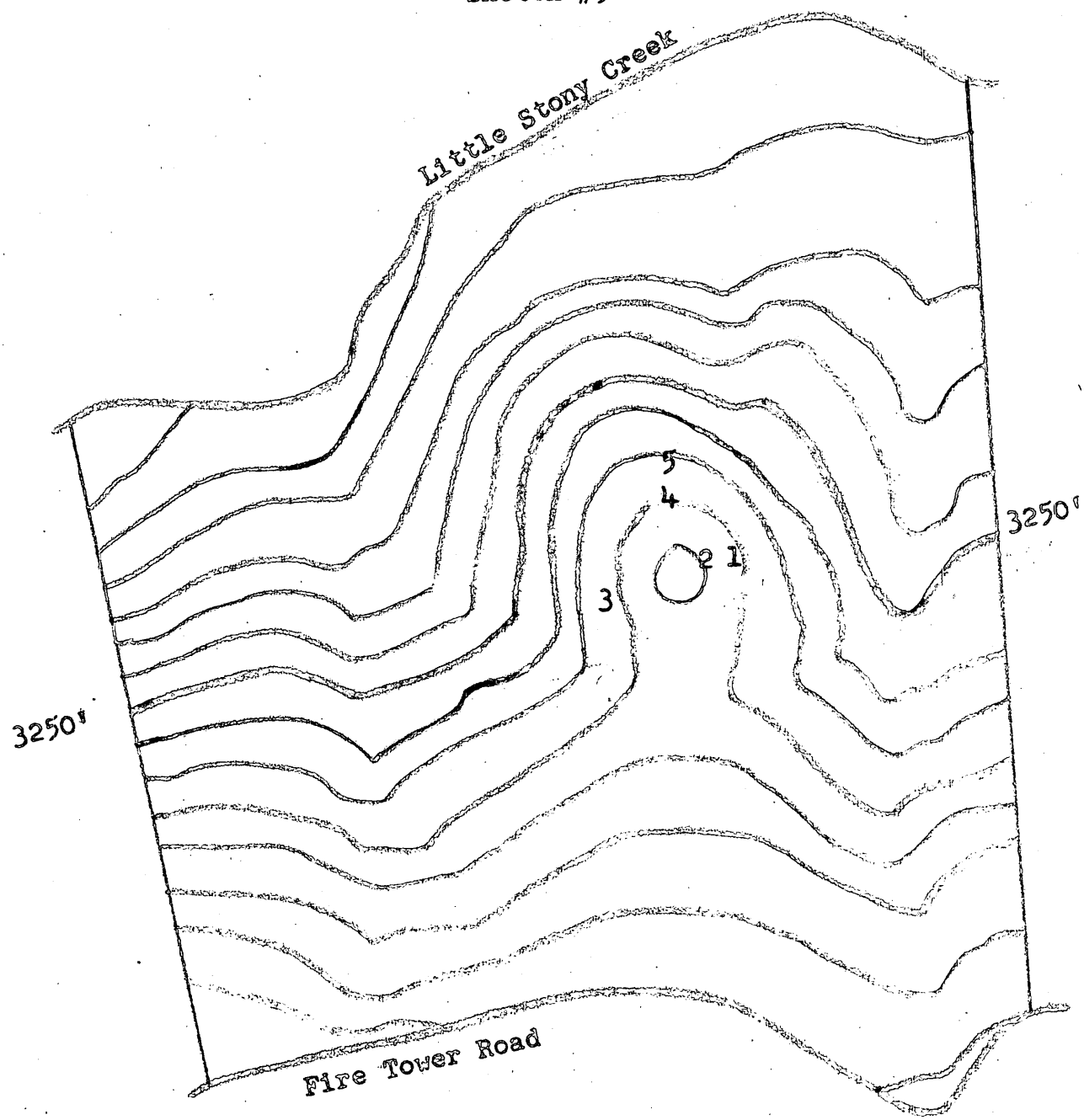
Sketch illustrating present and proposed operations

Sketch #2

Reproduced from Pearisburg,
Va.-W.Va. Quandrangle Map
N3715-W8030/15
Approx. Scale 1:7882

Hoge-Laing Prospect, #4

Sketch #5




Sketch illustrating present and proposed operations

Sketch #5

North

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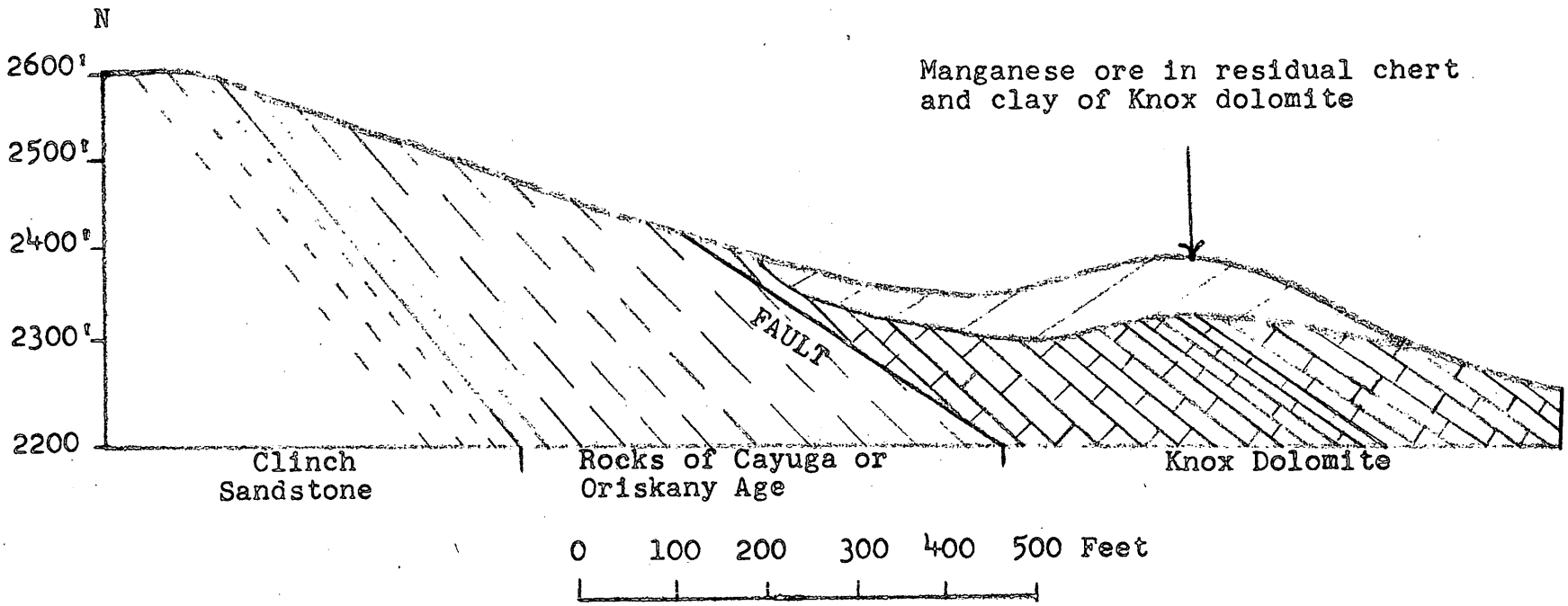
LAING PROSPECT, #3

Sketch #1




Sketch section through the Laing prospect, illustration of occurrence of the deposit of manganese ore.

Sketch #1

# S. Government Messenger Envelope

Form No. 65 (Rev. 1/46)

1. Use blocks consecutively, one at a time.
2. Void previous block.
3. Write clearly.

| NAME OR TITLE OF PERSON, DEPARTMENT, ADDRESS, AND ROOM | | NAME OR TITLE OF PERSON, DEPARTMENT, ADDRESS, AND ROOM | |
|---|---|---|---|
| [illegible] | RUN / STOP | Mrs. V. Dinkins Regis Courier | RUN / STOP |
| rous Metals | RUN / STOP | Mrs Cassidy BLM | RUN / STOP |
| | RUN / STOP | Mr [illegible] Room 441 | RUN / STOP |
| N. B. Long Rm 6254 | RUN / STOP | Mrs. Cassidy | RUN / STOP |
| [illegible] | RUN / STOP | Mrs Lapeal [illegible] | RUN / STOP |
| 30 [illegible] | RUN / STOP | Mr [illegible] | RUN / STOP |
| [illegible] | RUN / STOP | J. L. Chambers DMEA | RUN / STOP |
| [illegible] | RUN / STOP | | RUN / STOP |
| Lewis Miller BLM Rm. 5648 | RUN / STOP | | RUN / STOP |
| [illegible] 5/6/69 | RUN / STOP | | RUN / STOP |

*plus envelopes to room for reissue.*

Use other side

Use RUN and STOP only when messenger service between Government buildings in Washington is required.
Your mail room has RUN and STOP information.

NAME OR

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Use other side first