400

OPER. COMM.
cc: DOCKET
FT, REG. III
CODE 4002
ADM. READ. FILE
GILBERT DeHUFF, USBM
LOUIS FAVLIDES, USGS

FEB 15 1954

2952

Dr. Robert D. Dunn
Box 128, Station A
Palo Alto, California

Re: Docket No. DMEA 2952 - Manganese
F. J. Halousek & Robert D. Dunn
Granite Springs Mining Company
Caldwell Manganese Mine
Mariposa County, California

Dear Dr. Dunn:

This will acknowledge receipt of your letter of February 5, 1954, asking for information about your application for Government aid for exploration at the subject property.

By letter of April 30, 1953, we advised your partner, Mr. F. J. Halousek, Box 64, Groveland, California, that careful study of all our information, although noting a small amount of marginal ore on your property, indicated to us that the probability of disclosing minable ore reserves by your proposed program was not sufficiently promising to justify Government participation; and, therefore, that your application for exploration assistance was denied.

Mr. Halousek's letter to us of April 10, 1953, had requested that we send a field man to look your property over. Accordingly, on May 22, 1953, an engineer from our Field Team, Region III, was sent to determine whether any other form of assistance was available. Our examination, however, provided no information that would justify reactivating your application, and we regret to advise you that we have no grounds for altering our same denial of exploration assistance.

We note that since our engineer visited your property you have completed a substantial amount of new work. If in your opinion that work contributes significant new information about your property, you could submit a new application for our consideration. We shall be glad to consider such an application if it is complete in detail and includes a map showing how your new work is related to the previous work and showing all essential assay data made available since our previous examination.

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

Sincerely yours,

C. O. Mittendorf

Administrator

WSMartin/lg
2/12/54

C
O
P
Y

DR. ROBERT D. DUNN
Box 128, Station A
Palo Alto, California

February 5, 1954

Mr. C. O. Mittendorf
United States Dept. of the Interior
Defense Minerals Exploration Administration
Washington 25, D. C.

Dear Mr. Mittendorf:

I am writing to ask for information regarding my Manganese Mine, known as the Granite Springs Mining Co., in Coulterville, California.

The last information we received was the ore assay report of your Field Man, Mr. Frank Wiebelt of the Reno, Nevada office. We then sent his report, attached to Form MF-103 to your office applying for aid in our exploration project. We have never received a reply of any kind from your office regarding our request for aid, which leads me to believe the correspondence must have been lost.

The San Francisco Office also has Mr. Wiebelt's report listed as Docket DMEA 2952, but no other information.

I would appreciate hearing from you regarding any suggestions as to my next attempt in applying for aid from the Government. Since Mr. Wiebelt's report was made we have gone ahead with more excavating, and have a sizeable vein of ore. I will be very happy to send you any additional information that is necessary for we must know one way or the other whether we will receive Government aid in order to be able to move ahead with this project.

Very truly yours,

Signed: ROBERT D. DUNN
S.W.D.

Robert D. Dunn

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

Revised

Mr. H. C. Miller, Executive Officer
DMEA Field Team, Region III
1012 Flood Building
870 Market Street
San Francisco 2, California

Re: Docket No. DMEA 2952 - Manganese
F. J. Halousek & Robert D. Dunn
Granite Springs Mining Company
Caldwell Manganese Mine
Mariposa County, California

Dear Mr. Miller:

With our letter of April 30, 1953, we sent you a copy of our letter of the same date to Mr. F. J. Halousek, Box 64, Groveland, California, concerning our denial of exploration assistance for the subject property. We asked you, however, when next you had a man in that area to have him contact Mr. Halousek and determine whether any other form of assistance was available. The important word in our letter was "other."

The engineer who visited the property, however, made the conventional field examination and recommended a small project, with which Mr. A. C. Johnson concurred, although Mr. Bailey and you agreed that it was a "long shot." On August 31, 1953, in reply to our inquiry of August 13, as to what extent, if any, DMEA was committed to an exploration project during the field examination, you advised us that no commitments were made.

We are enclosing copy of a letter of February 5, 1954, received from Dr. Robert D. Dunn, Box 128, Station A, Palo Alto, California, asking to be advised "one way or the other" whether he will receive Government aid for the subject project. As you will note from copies of letters already sent you, all our previous correspondence has been received from and addressed to Mr. Halousek rather than Dr. Dunn; and we have had no reason to believe that any correspondence has gone astray.

Dr. Dunn, however, informs us that, since Mr. Wiebelt's report, he has gone ahead with more excavating and has a sizeable vein of ore. We suggest, therefore, that you send an engineer to examine the recent work and determine whether the results of such work add significantly to the information already available.

There is a distinct possibility that the applicant needs production assistance rather than such an exploration project as we have already denied. Perhaps the property would be eligible for assistance from the Small Business Administration, whose Acting Regional Director in San Francisco is Mr. Homer F. Potter, Room 1248, Flood Building.

Instead of our replying direct to Dr. Dunn's letter, we suggest that you advise him promptly that you are scheduling an examination of the new work. As soon as you have reviewed the report covering the proposed field examination, please let us have your recommendations, giving consideration to all your latest data.

Sincerely yours,

Chairman, Operating Committee

Enclosure

We note that you have completed a substantial amount of new work since our engineer visited your property. If in your opinion that work contributes significant new information about ~~your~~ property, you could submit a new application for our consideration. We shall be glad to consider such an application if it is complete in detail and includes a map showing how your new work is related to the previous work and showing all essential assay data made available since our previous examination.

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

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

Dr. Robert D. Dunn
Box 128, Station A
Palo Alto, California

Re: Docket No. DMEA 2952 - Manganese
F. J. Halousek & Robert D. Dunn
Granite Springs Mining Company
Caldwell Manganese Mine
Mariposa County, California

Dear Dr. Dunn:

This will acknowledge receipt of your letter of February 5, 1954, asking for information about your application for Government aid for exploration at the subject property.

By letter of April 30, 1953, we advised your partner, Mr. F. J. Halousek, Box 64, Groveland, California, that careful study of all our information, although noting a small amount of marginal ore on your property, indicated to us that the probability of disclosing minable ore reserves by your proposed program was not sufficiently promising to justify Government participation; and, therefore, that your application for exploration assistance was denied.

Mr. Halousek's letter to us of April 10, 1953, had requested that we send a field man to look your property over. Accordingly, on May 22, 1953, an engineer from our Field Team, Region III, was sent to determine whether any other form of assistance was available. Our examination, however, provided no information that would justify reactivating your application, and we regret to advise you that we have no grounds for altering our same denial of exploration assistance.

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

Sincerely yours,

Administrator

Hold this till we see what happens to Met. Mn, also whether this could then be considered possible source of Battery grade Mn.

WSM 9/8/53

400

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

1012 Flood Building
870 Market Street
San Francisco 2, Calif.

August 31, 1953

Memorandum

To: W. B. Martin, Acting Chairman, Operating Committee, DMEA, Interior Building, Washington 25, D. C.

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA-2952 - Manganese
F. J. Maloney & Robert D. Dunn
Granite Springs Mining Company
Mariposa County, California

Reference is made to your subject letter, dated August 13, 1953, requesting me to advise you to what extent, if any, DMEA was committed to an exploration project during the examination by F. J. Wiebelt of the Bureau of Mines.

Mr. A. C. Johnson, Chief, Mining Division, Bureau of Mines, Reno, Nevada, reports that no commitments were made.

H. C. MILLER
H. C. Miller
Executive Officer
DMEA Field Team, Region III

Copy to: D. H. Bailey, DMEA
A. C. Johnson, Reno

Mdl

AUG 13 1953

400

August 13, 1953

Mr. H. C. Miller, Executive Officer
DMEA Field Team, Region III
1012 Flood Building
870 Market Street
San Francisco 2, California

Re: Docket No. DMEA 2952 - Manganese
F. J. Malousek & Robert D. Dunn
Granite Springs Mining Company
Mariposa County, California

Dear Mr. Miller:

Reference is made to the subject docket and the Field Team's report dated July 13, 1953, covering Malousek and Dunn's application for aid in an exploration project. That application was denied by this Administration April 30, 1953, based on data available in the Washington office, and in our letter to you of the same date, requesting the Field Team to contact Mr. Malousek and determine whether any other form of assistance was available for him, we stated that such a denial had been made.

It would be appreciated, therefore, if you would advise us to what extent, if any, DMEA was committed to an exploration project during the examination by F. J. Wiebelt, Bureau of Mines.

Sincerely yours,

W. S. Martin
ACTING Chairman, Operating Committee

APPROVED:

J. H. Hedges
Member, Bureau of Mines

A. R. Kinkel, Jr.
Member, Geological Survey

FARutledge/foc 8-12-53

cc: Docket
Code 400
FT. Reg. 3
Operating Comm.
Adm. Reading File
Mr. DeHuff, USBM
Mrs. Carr, USGS

Does anyone
want to bring this
back to life?

WSCY
8/5/53

400

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

1012 Flood Bldg.
870 Market St.
San Francisco 2, Calif.

July 24, 1953

Memorandum

To: George C. Selfridge, Chairman, Operating Committee, DMEA, Interior Building, Washington 25, D. C.

WSM

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA-2952 - Manganese
F. J. Halousek & Robert D. Dunn
Granite Springs Mining Company
Mariposa County, California

Reference is made to your letter dated April 30, 1953, requesting that a field man contact Mr. F. J. Halousek, of the Granite Springs Mining Company, to determine if some form of assistance might be made available to him.

Accordingly, Mr. Frank J. Wiebelt, Mining Engineer, Bureau of Mines, Reno, Nevada, visited the company's property, and there are attached four copies of his report entitled "DMEA-2952, Caldwell (Daly) Manganese Mine, Granite Springs Mining Co., Mariposa County, California," dated July 13, 1953.

Mr. Wiebelt believes that a certain amount of exploration work is warranted on this property. The proposed work would consist of 150 feet of drifting along the ore-bearing strata from the face in the lower level and 150 feet of crosscutting from this drift. Additional sinking in the inclined shaft is not recommended at the present time.

The proposed work would explore the possibilities of finding additional lenses of manganese ore of present economic value in the ore-bearing strata in the vicinity of the most extensive mine workings on the property. The total cost of the project for 300 feet of drifting and crosscutting would be $7,746.00.

Reviewed by
DMEA OPERATING COMMITTEE
8-3-53
(date)

Mr. A. C. Johnson concurs with Mr. Wiebelt's recommendations. Although Mr. Bailey and I agree that there are many good manganese showings in the area of the Caldwell mine and that the proposed work might open up some ore, we feel, however, that the proposed project is a "long shot." We believe, therefore, if a contract is drawn that driving the proposed crosscut, which with the ore bed dipping as reported will have to be an inclined crosscut if it is to stay in ore, be made dependent upon the results obtained in the drift and be subject to prior approval by the Government.

S. RICKER

S. Ricker for H. C. Miller
Executive Officer, DMEA Field Team
Region III

Attachment

Copy to: E. H. Bailey, USGS (With copy of report)
A. C. Johnson, Reno

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

# DMEA-8982, Caldwell (Daly) Manganese Mine
# Granite Springs Mining Co.
# Mariposa County, Calif.

Frank J. Wiebelt, Mining Engineer
U. S. Bureau of Mines

July 18, 1953

Reviewed by
DMEA OPERATING COMMITTEE
8-3-53
(date)

# EXAMINATION REPORT

Docket No.: DMEA-2952 (Manganese)

Name and address of applicant: Granite Springs Mining Co.
F. J. Halousek,
P. O. Box 64
Groveland, Calif.

Robert D. Dunn,
P. O. Box 128, Station A,
Palo Alto, Calif.

Name and location of property: Caldwell (Daly) Manganese Mine,
Mariposa County, Calif.

## SUMMARY

The examination of the Caldwell mine was made in connection with a request for exploration assistance by the Granite Springs Mining Company.

The Caldwell mine is one of the largest manganese mines in the Sierra Nevada range of mountains south of Plumas County. During the two World Wars about 250 tons averaging approximately 45 percent manganese was produced.

Lenses of massive red chert and lenses of manganese oxide ore occur along the same stratigraphic horizon. This horizon has been exposed in cuts and shafts for a distance of about 1,500 feet.

The principal development is in the northern section of the mine and consists of a 80-foot 45 degree inclined shaft driven down the dip of the ore bearing strata. The chimney-like body of ore in this shaft is approximately 2 feet in width, 20 feet strike length and extends about 55 feet down its dip.

## CONCLUSIONS

The ore in the 60-foot incline consists of thick-banded psilomelane with a great deal of fine-grained psilomelane in a siliceous gangue of quartz and a little calcite. Samples taken from the ore in this shaft indicate about 35 percent manganese content.

Gravity concentration tests by jigging and tabling on the material from the shaft indicate that the sale of the whole ore containing 35 percent Mn might be as profitable as any attempts at gravity concentration.

The examining engineer believes that the ore can be sold without first being calcined. Very little manganese carbonate ore was noticed in the shaft workings.

The proposed project consists of 150 feet of drifting along the ore bearing strata from the face of the lower level in the shaft and 150 feet of crosscut from this drift. As work progresses and more geological information is obtained, the program should be varied to meet new developments. Additional sinking in the inclined shaft is not included in the project.

## RECOMMENDATIONS

It is recommended that this application be approved for the following reasons:

The Caldwell mine is one of the largest manganese mines in the Sierra Nevada range of mountains south of Plumas County and during the two World Wars produced 280 tons of ore averaging 45 percent Mn.

The proposed development will explore the possibilities of finding additional lenses of manganese ore of present economic value in the ore bearing strata in the vicinity of the most extensive mine workings on the property.

If the proposed work in that section of the property should be favorable, it is quite possible that by systematically developing the area, the property could be an important producer of medium grade ores which would be suitable for use in the western steel plants.

The property is worthy of additional development and it is believed that with the project work based on a footage basis, the proposed work is worthwhile.

TIME SPENT ON PROPERTY

The examiner, accompanied by F. J. Halousek, one of the applicants, spent one day (May 22) on the property.

NAME AND LOCATION OF PROPERTY

The property of the Granite Springs Mining Company consists of the mine formerly known as the Caldwell (Daly) manganese mine. It is in the S.E. 4 of the S.E 4 sec. 11, T. 3 S., R. 15 E., M.D.B.&M. and the N.E. 4 of the N.E. 4, sec. 14, T. 3 S., R. 15 E., M.D.B.&M. in Mariposa County, Calif. It is about 8 miles southwesterly of Coulterville, Calif.

From Coulterville, California, the property is accessible by following State Highway 132 westerly 6.9 miles to the Granite Springs school, thence turn southerly, thru a locked gate, for 1.5 miles to

the old Caldwell ranch, from which point follow a road branching to the right for an additional 0.2 miles to the northern workings and another road branching to the left for 0.4 miles to the southern workings.

CONDITION AND SEASONAL ACCESSIBILITY OF ROAD TO PROPERTY

The property is readily accessible throughout the entire year. The only unsurfaced portion of the road to the property is the 1.5 to 2 miles from the Granite Springs school to the property.

COMPETENCY OF APPLICANT AND OPERATING PERSONNEL
(Financial responsibility of applicant)

Robert D. Dunn and F. J. Halousek are the applicants for the exploration loan. Mr. Dunn is purchasing the ranch on which the mine is situated and Mr. Halousek operates a bar at Groveland, Calif. The examining engineer believes that Mr. Halousek has had sufficient mining experience to supervise the project work and is a capable business man. He states he is financially able to provide sufficient funds for their part of the project.

APPLICANTS PROPERTY RIGHTS

Mr. Robert D. Dunn, one of the applicants, is purchasing the ranch on which the manganese is situated. The ranch is primarily a cattle ranch. The property includes mineral and surface rights.

DESCRIPTION OF THE PROPERTY

Surface equipment consists of a headframe and a small double drum hoist powered by an 85-horsepower Chrysler motor. Milling equipment consists of one 35-ton bin and one 20-ton bin, one Straub

mill, one 15-horsepower Fairbanks-Morse engine, one 8 by 15-inch Wheeling Mfg. Co. crusher, one 40-horsepower LeRoi engine and one Straub concentrating table. Other equipment consists of a mine car, a 1600-pound capacity skip and a dump truck in bad condition.

There are no buildings at the mine.

The principal development is in the northern workings and consists of a 45 degree inclined shaft, about 60 feet long (the bottom is full of muck) and bearing southeasterly. The shaft contains two drifts; one 14 feet long and another 26 feet long extending southwesterly from the shaft. Since the faces of both drifts, the bottom of the shaft and the northeasterly side of the shaft, are in waste or very low grade material, it appears that the ore body developed by the shaft may be chimney-like in shape, that is, narrow thickness, short strike length and longest dimension along its dip.

There are a number of caved cuts and several shallow caved shafts driven in the ore beds. The south face of one cut, about 150 feet, N. 15° W. from the inclined shaft, has 20 inches of 34.5% manganese ore.

Five samples were taken by the examining engineer. Three were obtained from the workings in the inclined shaft and two from surface cuts. On account of caved conditions, no other surface workings warranted sampling.

| Sample No. | %, Mn | %, Fe | %, $SiO_2$ | Description |
|---|---|---|---|---|
| 1 | 34.5 | 4.8 | 14.4 | 20 inches width, from shallow cut about 150 feet N. 15° W. of incline shaft. |
| 2 | 38.0 | 4.3 | 14.5 | 2 feet wide, across roof lower 14-foot drift near bottom of incline shaft. |
| 3 | 22.7 | 1.7 | 8.4 | 2 feet wide, across roof in center of 26-foot drift in incline shaft. |
| 4 | 36.7 | 1.3 | 14.2 | 1.5 feet wide, across vein southwest side of shaft about 15 feet below collar of incline shaft. |
| 5 | 4.8 | 2.5 | 77.0 | 4.0 feet wide - south face of cut at spring just below reservoir. |

The only ore reserves in the mine are in the lens developed by the incline shaft and possibly amounts to 200 tons.

GEOLOGY

The following geology on this property was abstracted from the California State Division of Mines Bulletin 152, pp. 106-108 (by Ivan F. Wilson):

"The manganese ore at this property is a bed or series of lenses enclosed in chert. The chert includes thick-bedded to massive red chert, thin-bedded buff to gray chert, and massive to thick-bedded white chert. The chert is enclosed in gray to greenish meta-tuff and meta-volcanics. These beds belong to the Amador Group, and the chert has been named the Hunter Valley chert by Taliaferro.

"The northern group of workings has followed an ore bed over a total length of 750 feet in a northerly direction. The bed may not be continuous over this length, as it probably is lenticular. The manganese bed and enclosing chert strike on the average N. 5° E. over this distance, but the beds curve from place to place and the strike varies locally from N. 30° W. to N. 45° E. The dip in general is to the east, ranging from 60° to 80°, but in two or three places the dip is 80° to 85° W.

"The southern group of workings is a quarter of a mile south of the northern group, and exposes a manganese ore bed in what is apparently the same belt of chert. These workings cover a length of 170 feet. The chert here is thin-bedded with shale partings and is red, white, and pale green in color. The chert occurs in beds an inch or so thick, separated by shale partings an eighth to a fourth of an inch thick. It contains what appears to be radiolarian remains. There are also bold outcrops of massive red chert. The beds in the southern workings strike north to N. 45° W., and dip 55° to 75° E."

AVAILABILITY OF MANPOWER, SUPPLIES, EQUIPMENT, WATER AND POWER

Manpower is available locally from Coulterville and immediate vicinity.

Material, supplies and equipment can be obtained at Jamestown and Sonora.

A limited amount of water, sufficient for all mining purposes, is available from three springs near the mine.

The rail shipping point is at Waterford, California on the Santa Fe Railroad about 30 miles distant by macadam road from the property.

No power lines are available and gasoline or diesel oil powered equipment is required at the mine.

DESCRIPTION OF PROJECT

The proposed work consists of driving 150 feet of drift along the ore bearing strata from the lower southerly level in the incline shaft and 150 feet of crosscuts from this drift. As work progresses and more geological information is obtained, the program could be changed to meet new developments. Additional sinking in the inclined shaft is not included in this project.

EXPLORATION COSTS

The costs of the exploration are based on current wage rates.

Drift on vein; crosscuts: Total 300 feet; 6-day week, advance 4 feet per day = 75 days = 3 months. Wages: 2 miners @ $1.75/hr.; 1 hoistman @ $2.25/hr. and averaging 4 feet per shift . . . . . $12.46/ft.

| | |
|---|---|
| Insurance, social security tax, etc. . . . . | 1.56 " |
| Powder, fuse, detonators . . . . . | 2.00 " |
| Timber (includes timber for waste pocket) . . . . . | 1.40 " |
| Compressor and hoist engine supplies . . . . . | 1.55 " |
| Steel and bits . . . . . | 1.00 " |
| Repairs . . . . . | 0.50 " |
| Supervisor: 4 months @ $450/mo. . . . . | 4.50 " |
| Rental, as below* . . . . . | 0.75 " |
| Total | $25.82/ft. |

*The operator will furnish all equipment.

| | Cost |
|---|---|
| Compressor | $2,500.00 |
| Mine car | 75.00 |
| Jackhammer, air and water hose | 300.00 |

| | Cost |
|---|---|
| Hoist and engine | $1,000.00 |
| Water pump | 250.00 |
| Air and water lines (150 feet of each) | 100.00 |
| Mine rails, spikes, fish plates, ties | 250.00 |
| | $4,475.00 |

Monthly rental = $\frac{\$4,475.00}{60}$ = $75.00. Rental for 3 months =

3 x $75.00 = $225.00 = $0.75/ft.

Total cost of the project:

300 feet of drifting and crosscutting @ $25.82/ft. - $7,746.00

The foregoing costs have been estimated on an overall hourly and footage basis in order to simplify bookkeeping and payments for work accomplished.

METALLURGICAL TESTS

The following is data on metallurgical tests on mill grade ore from the Caldwell mine, made by the Hydrometallurgical and Ore-Dressing branch of the U. S. Bureau of Mines, Reno, Nevada under the supervision of J. B. Zadra, Chief:

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Metallurgical Div. Rare and Precious Metals Experiment Station Reno, Nevada

Hydrometallurgical & Ore-Dressing Branch
Box 5, University Station

Region III June 8, 1953

Memorandum

To: A. C. Johnson, Chief, Mining Branch

From: A. L. Engel, Acting Chief, Hydrometallurgical and Ore-Dressing Branch

Subject: DMEA 295E - Caldwell (Daly) Manganese Ore, Concentration Tests

Preliminary gravity concentration tests on this sample resulted in 48.8 percent recovery in concentrates containing 47.2 percent Mn, 1.7 percent Fe, and 21.72 percent $SiO_2$.

Since the whole ore contained 35 percent Mn, it might be as profitable to ship as is, rather than attempt gravity treatment.

/s/ A.L.E.
A. L. Engel

cc: T. R. Graham

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
Hydrometallurgical & Ore-Dressing Branch
Box D, University Station Reno, Nevada

Metallurgical Division
Region III June 8, 1953

DMEA 2952 - Caldwell (Daly) Manganese Mines,
Granite Springs Mining Company,
Mariposa County, California (Wiebelt)

Re-O-2.95

Preliminary concentration tests were made on a sample of lump ore, containing some thick-banded psilomelane with a great deal of fine-grained psilomelane in a siliceous gangue of quartz and a little calcite. Some manganese silicate, rhodonite, was noted. Analysis showed 35 percent Mn.

Examination of the sample indicated that considerable high-grade mineral could be liberated by crushing to about 1/8-inch. However, the laboratory jig will not handle material coarser than ¼-inch size. The sample was stage-crushed to minus ¼-inch and the plus 16-mesh portion was concentrated by gravity in the jig. This amounted to 30 percent of the sample. Jig concentrates containing 45 percent Mn were produced, with 34 percent recovery.

The minus 16-mesh portion was screened into plus and minus 40-mesh portions and each treated separately by gravity on the laboratory Wilfley table. Small amounts of concentrates were produced, containing 39 percent Mn, representing 10.9 percent recovery.

Combined jig and table concentrates contained 42.2 percent Mn, representing 48.9 percent recovery in 40.6 percent of the original weight.

None of the "tailings" products was low enough in manganese content to discard. The combined "tailings" contained 30 percent Mn.

Examination of the test products showed no indications that regrinding any of the "tailings" would permit recovery of more concentrates by gravity treatment. It is possible that fine-grinding and flotation might be satisfactory for this purpose, but simple gravity treatment was only partially successful.

It is probable that sale of the whole ore containing 35 percent Mn, might be as profitable as any attempts at gravity concentration.

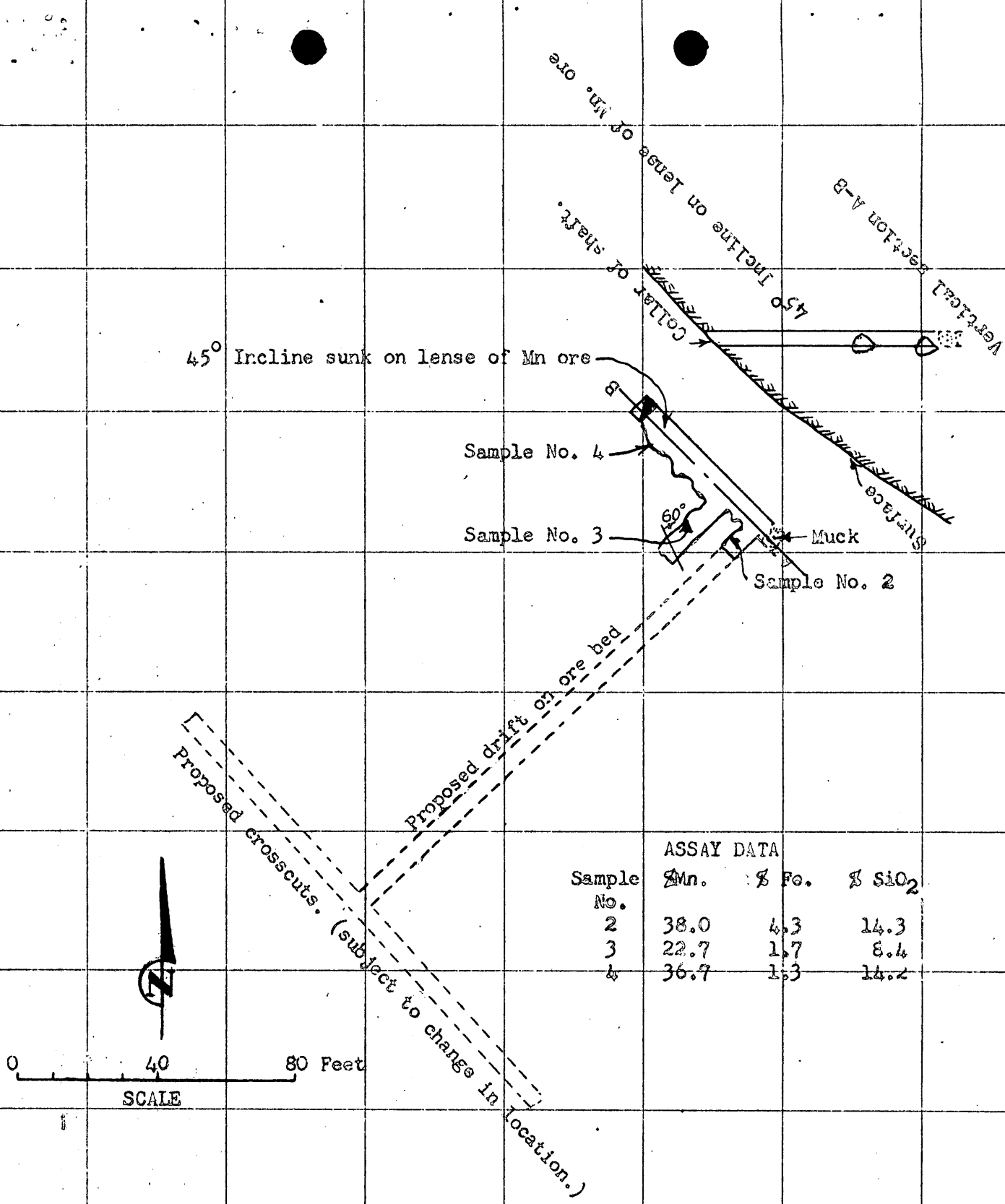
Details of the tests described are shown in the following tabulation:

Gravity Concentration of Manganese Ore, DMA 2952

| Product | Weight, percent | Mn, percent | Distribution of Mn, Percent |
|---|---|---|---|
| Jig concentrates | 30.6 | 45.1 | 38.0 |
| Table concentrates | 9.8 | 39.2 | 10.9 |
| Combined concentrates | 40.6 | 42.2 | 48.9 |
| Jig tailings | 48.9 | 30.7 | 43.0 |
| Table tailings | 10.5 | 26.9 | 8.1 |
| Combined tailings | 59.4 | 30.1 | 51.1 |
| Composite | 100.0 | 34.95 | 100.0 |

The combined concentrates contained:

42.2 percent Mn
1.7 percent Fe
21.72 percent $SiO_2$




ASSAY DATA

| Sample No. | % Mn. | % Fe. | % $SiO_2$ |
|---|---|---|---|
| 2 | 38.0 | 4.3 | 14.3 |
| 3 | 22.7 | 1.7 | 8.4 |
| 4 | 36.7 | 1.3 | 14.2 |

Sketch of plan of proposed project work, Granite Springs Mining Company, Mariposa County, California.

"ALBANENE" No. 195M K&E CO., N.Y.
REG. U.S. PAT. OFF.

400

file

APR 30 1953

400

Mr. F. J. Halousek
Box 64
Groveland, California

Re: Docket No. DMEA 2952 - Manganese
F. J. Halousek & Robert D. Dunn
Granite Springs Mining Company
Mariposa County, California

Dear Mr. Halousek:

Your application for aid for an exploration project, the data transmitted with your letter of April 10, 1953, and other reports available to us in Washington concerning the subject 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 all our information, although noting a small amount of marginal ore on your property, indicates to us that the probability of disclosing minable ore reserves by your proposed program is not sufficiently promising to justify Government participation. We regret to advise you, under these circumstances, that your application for exploration assistance is denied.

In compliance with your request for an examination by an engineer, we have requested the Field Team when next they have a man in that area to contact you and determine whether any other form of assistance is available.

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

As requested in your letter of April 10, 1953, the "Assay Certificates" are returned herewith.

Sincerely yours,

SIGNED

Administrator

Enclosures

FARutledge/ls
4/24/53

cc: Docket
Code 400
N. B. Melcher, USBM

cc: Field Team, Reg. 3
Adm. Read. File
M. D. CRITTENDEN, USGS

400

400

AIR MAIL

APR 30 1953

Mr. H. C. Miller, Executive Officer
DMEA Field Team, Region III
1012 Flood Building
870 Market Street
San Francisco 2, California

Re: Docket No. DMEA 2952 - Manganese
F. J. Halousek & Robert D. Dunn
Granite Springs Mining Company
Mariposa County, California

Dear Mr. Miller:

Reference is made to the subject application for exploration assistance that has been denied on the basis of information available in Washington.

Mr. Halousek in his letter transmitting the assay data and sketch map asked that a field man come and look over his property. It would be appreciated, when next you have a man in that area, if he would contact Mr. Halousek and determine whether any other form of assistance is available.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee

APPROVED:

J. H. Hedges
Member, Bureau of Mines

A. R. Kinkel, Jr.
Member, Geological Survey

FARutledge:foc 4-24-53

cc: Docket
Code 400
Operating Comm.
Adm. Reading File
FT. Reg. III
N. B. Melcher, USBM
M. D. Crittenden, USGS

P.S. Enclosed for your information are two copies of a memorandum dated April 22, 1953, by Max D. Crittenden, U. S. Geological Survey, concerning the subject application.

April 24, 1953

**Memorandum**

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division, DMEA

Subject: Denial of exploration project in the amount of $19,000.00
Docket No. DMEA 2952 - Manganese
F. J. Malousek and Robert D. Dunn
Granite Springs Mining Company
Mariposa County, California

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

(1) The applicants proposed to spend a total of $19,000.00 to complete the mine installations and do an unspecified amount of exploration at the old Caldwell mine. The location of the property given in the original application did not check with that shown on the rough sketch map submitted later by the applicant. No definite target was given for the exploration program.

(2) The workings and geology on this property are described in California State Division of Mines Bulletin 150, pp. 106-108, 1950, and in greater detail in an unpublished memorandum report by Ivan F. Wilson, a copy of which is attached. Mr. Wilson concluded that this is one of the largest manganese mines in the Sierra Nevada south of Plumas County, from the standpoint of extent of workings, production, and reserves. If the carbonate ore could be utilized, the possibilities of the mine would be greatly increased. Wilson's report of 1942 gave the following reserves: Oxide ore - 250 tons, carbonate ore - 3,000 tons.

(3) The subject property contains four known isolated lenses of bedded carbonate ore aligned in an approximately north-south direction. The carbonate ore is oxidized near the surface, yielding a psilomelane type ore from which high grade shipments have been hand-sorted. This oxidation appears, from Mr. Wilson's examination, to extend to a depth of about 15 feet. The lenses vary from a few inches to 3 feet in width, and the carbonate ore contains approximately 20 - 25 percent Mn.

(4) Exploration of this type deposit for the oxide-type ore is not warranted because of the shallow depth of the oxidation zone.

(5) The carbonate ore is too low grade and the lenses are too small to be economic sources of manganese at present. Exploration assistance by the Government is not warranted.

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

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

W. S. Martin

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

FARutledge/ls
4/24/53

CC: Docket
Code 400
Adm. Read. File
Operating Committee

~~Every files~~

402

April 22, 1953

Memorandum

To: Mr. W. S. Martin

From: Max H. Crittenden

Subject: MRA-2952, Manganese - F. J. Maloneck
Mariposa County, California

Bureau of Mines Administration
APR 28 1953

The proposal

The applicant proposes to spend a total of from 9,000 to 19,000 to do an unspecified amount of exploration on manganese property originally said to be in sec. 2, T. 2 S., R. 16 E., Mariposa County, California. This location did not coincide with any mineral deposit in this area and inasmuch as you have requested more specific information, the docket has been held pending its receipt. A crude map recently submitted by the applicant makes it clear that the property is the same as that known during World War II as the Caldwell mine and located in the northeast quarter of sec. 14, T. 3 S., R. 15 E.

Geology

The workings and geology on this property are described in reasonable completeness in California State Division of Mines Bulletin 150, p. 106-108, 1950, and in greater detail in an unpublished memorandum report, a copy of which is attached. It is clear from this detailed description that the Caldwell property consists of 4 or more isolated lenses of bedded carbonate ore aligned along an approximately north-south direction. The primary material would appear, from Mr. Wilson's examination and from the applicant's assay, to average 20-25 per cent Mn. This material has oxidized near the surface, yielding a psilomelane type ore from which high-grade shipments have been hand-sorted. This oxidation appears, from Mr. Wilson's examination, to extend to a depth of about 15 feet.

Reserves

Ivan Wilson's report of 1942 gives the reserves as follows:

| | Oxide | Carbonate | Total |
|---|---|---|---|
| Measured | - | - | - |
| Indicated | 130 | 600 | 530 |
| Inferred | 120 | 2600 | 2720 |
| | 250 | 3000 | 3250 |

Copy retained 400

## Conclusions

Evidently the applicant proposes to undertake some sort of milling operation, presumably based upon the small amounts of oxide ore present. However, inasmuch as the oxidation of this deposit extends to a depth of only 15 feet exploration in advance of mining appears to be unnecessary. Unless the applicant has made provision for calcining the carbonate ores or intends to ship them to Butte, Montana, it is doubtful whether such material is usable under present conditions.

## Recommendations

It is recommended that this application be denied for the following reasons:

(1) The limited quantity and shallow depth of oxide ore makes exploration unnecessary.

(2) There is no current market for the low-grade carbonate ore exposed at depth and the applicant has given no information regarding the proposed treatment of that material to make it salable.

(3) The inadequacy of the application and of the response to the recent request for supplementary information does not give evidence that the applicant is competent to carry out exploration, even if it were feasible.

Max D. Crittenden

MDCrittenden:emp

Copies to: Geol. Div. files
Branch files
Directors r. files
Branch r. files
M. D. Crittenden

400

MAR 31 1953

400

Mr. F. J. Halousek
Box 64
Groveland, California

Re: Docket No. DMMA 2952 - Manganese
F. J. Halousek & Robert D. Dunn
Granite Springs Mining Company
Mariposa County, California

Dear Mr. Halousek:

Your application for exploration assistance under the referenced docket has been reviewed by the Iron and Ferro-Alloys Division of the Defense Minerals Exploration Administration. Although your application mentions assays included therewith, no assays were received by this Administration.

The information submitted with your application is insufficient to justify a field examination. Before we can request a field examination, we must have maps showing local geology, present workings, proposed work, and the target of the proposed exploration. It also will be necessary for you to furnish us with the assays noted above. The location and length of these samples should be shown on the maps in order that we may determine whether your property can qualify for further investigation.

Your application will be held in abeyance until the information requested above is received.

Sincerely yours,

C. O. Mittendorf

Administrator

CC: DOCKET
FIELD TEAM, REGION 3
CODE 400
ADMN. HEAD. FILE
N. B. MELCHER, USBM
M. D. CRITTENDEN, USGS

FARutledge/ls
3/31/53

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

So. 157 Howard Street
Spokane 4, Washington

400

March 30, 1953

Executive Officer
Defense Minerals Exploration Administration
Region III
1012 Flood Building
370 Market Street
San Francisco 2, California

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 6 1953

Dear Sir:

Enclosed is Docket No. DMEA-2952 in favor of the Granite Springs Mining Company, Mariposa County, California which was mailed to Region II in error.

Halowaetz + Dunn

Very truly yours,

Eva M. Raymond
For: A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region II

Enclosure
As above (from D.C.)

cc: Robert E. Adams, Chief
Operation's Control & Stats. Div.
DMEA, Washington, D. C.

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 26 1953

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

*Not to be filled in by applicant*

Docket No. DMEA-2953
Metal or Mineral
Date Received 3-26-53
Estimated Cost
Participation (Government %)

## INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: F. J. Haloucek, Box 64, Groveland, California
Robert D. Dunn, Box 128, Station A, Palo Alto, California

See Schedule attached:

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

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

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract

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

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

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

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

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

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

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

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

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

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

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

.....

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

☐ 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 March 15, 1953

.....
(Applicant)

By J. J. Halonsek

Robert D. Dunn

.....

**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

UNITED STATES DEPARTMENT OF THE INTERIOR

Defense Minerals Exploration Administration

SCHEDULE:

1.

(b) A partnership.

(c) - - -

(d) See above.

2. - - -

3. (a) Mariposa County, Granite Springs School District, Section 2, Township 2, South Range 16 E M.D.M.

(b) Granite Springs Mining Company.

(c) Owner - Robert D. Dunn

(d) - - -

(e) Ranch of 1050 acres being purchased on installment purchase plan; remaining payments of $16,500 due over next three years.

(f) All patented claims.

4. (a) Old shaft cleaned out forty feet deep; drift thirty feet at forty feet level; setting up of fifteen ton Stamp-Ball mill; Gallus frame; tracks and trestle as needed. This production facility is owned by this partnership. Good graded road to mine from paved highway two miles. Locks on gate to ranch; see Mr. F. J. Holonseck at Groveland, or call by phone Warren's Auto Service in Groveland. Manager of ranch - A.B. McLellan either at Big Creek Ranch, Groveland or at Granite Springs Ranch, Coulterville.

(b) No current production; no ore reserves.

(c) Manganese vein at forty foot level shows six feet wide and vein has crops at different places for one thousand feet. Vein also has chrome but main mineral content is manganese. The reason for wishing to explore is because assays (some included with this Report) show good concentration. Records show that considerable ore has been shipped out of this shaft in Both World War I and World War II. (Please return assays).

(d) Mine two miles from paved highway (Calif. 132), on good graded road; shipping point - Waterford, California, 28 miles distant.

SCHEDULE: (Continued)

(e) 1. Man power available in adequate numbers.
2. Materials available by truck 28 miles.
3. Supplies.
4. Equipment.
5. Water supplied by two small reservoirs adequate to run mill.
6. No electricity.

5. (a) Manganese.

(b) See 4-C. Proposed work will start in extending drift and sinking shaft further. Stamb-Ball mill is in process of being set up for concentration of that ore which will not assay to government standards under DMMA Order No. 1.

(c) Work already started.

(d) Partner - Maloneock has mining experience and is in charge of explorations and operations.

6. (a) None.

(b) Miners: 4 @ $ 1.75 per hr.
Mill Operators: 2 @ $ 2.25 per hr.
Hoistmen: 2 @ $ 2.00 per hr.

(c) Power: gas and diesel oil to be used for operating mill and hoist; estimate not known at present time.

(d) Operating equipment owned and operated by operators. Present operating facilities valued at about $ 5,000.

Compressor; Stamb-Ball mill concentration table; rock crusher; diesel power unit for mill; gas power unit for crusher; mining tools; miscellaneous.

Installations and exploration costs thus far - $ 4,000.

Total cost - $ 9,000.00

(e) None

(f)

| | | |
|---|---|---|
| 1. | Building and gravelling two miles of road | $ 4,000 |
| 2. | Bunk house | 1,500 |
| 3. | Cook house | 1,500 |
| 4. | Wages | 3,000 |
| | Total | $ 10,000 |

7. (a) Yes.

(b) 1. Money already expended.
2. Use of equipment being installed.
3. Supervision of actual workings.
4. Bookkeeping.

COPY

3957

400 file

CALIFORNIA MANGANESE MARIPOSA COUNTY

CALDWELL MINE

Location and ownership

The Caldwell Mine, known as the Daly Mine during the last war, is located 8½ miles southwest of Coulterville in the NE¼ of Sec. 14, T. 3 N., R. 15 E. It is reached by proceeding along the road west of Coulterville 6.9 miles to the Granite Springs school, turning south for 1.5 miles, then west through a gate into the Caldwell Ranch. From here a road branches to the right (northwest) for an additional 0.2 mile to the northern workings, and another branches to the left (southwest) for an additional 0.4 mile to the southern workings. The workings are situated in fairly gentle topography in an area partly covered with brush (manzanita). The northern workings extend over two low ridges, across a ravine; and the southern workings lie near the crest of another ridge to the south. The nearest shipping point is about 8 miles by road south to Barrett Station on the Yosemite Valley Railroad.

The property is owned by Claude C. Caldwell, Marguerite Caldwell, and John J. Caldwell. They receive mail care of Roy Kindrick, Coulterville, who is caretaker. It was formerly leased to Gertrude Hickman and Walter McVicar, but is now leased to Walter Hixson of Raymond, Madera County. The property is idle at present.

Development

Development includes an inclined shaft 57 feet long, pitching 45° southeast. From the bottom of this a drift extends 26 feet southwest. There are two other shafts 15 feet deep and 10 feet deep. In addition there are over 30 open cuts of varying sizes along the ore body at different places. These are indicated on the accompanying sketch map, and their dimensions will be

tabulated in a later section of this report. The two smaller shafts and a few of the cuts have been recently constructed, but most of the workings date to the last war.

Geology

The manganese ore at this property is a bed or series of lenses enclosed in chert. The chert includes thick bedded to massive red chert, thin bedded buff to gray chert, and massive to thick bedded white chert. The chert is enclosed in gray to greenish metal tuffs and meta volcanics, which appear in a few of the cuts. These beds belong to the Amador Group, and the chert has been named the Hunter Valley chert by Taliaferro.

The northern group of workings has followed an ore bed over a total length of 740 feet in a north-south direction--as far north as the inclined shaft, #15 on the map. The bed may not be continuous over this length, but is probably a lenticular body which comes and goes. The manganese bed and enclosing cherts have a general strike averaging N. 5° E. over this distance, but the beds curve around from place to place and the strikes vary locally from N. 30° W. to N. 45° E. The general dips are to the east, ranging from 50° to 80°, but in two or three places the dips are 80 to 85° west.

Starting 85 feet north of the inclined shaft, a series of cuts follows the chert an additional distance of 320 feet to the northwest. A little manganese ore, mostly low grade, was encountered in these cuts. The strike of the beds encountered in these cuts ranges from N. 25° to 50° W., and the dip is 75° east.

The southern group of workings is located one fourth mile south of the northern group, and exposes a manganese ore bed in what is apparently the same belt of chert. These workings cover a length of 170 feet. The chert here includes thin bedded red, and some white and pale green chert, with shale

partings. The chert occurs in beds an inch or so thick, separated by shale partings 1/8 to 1/4 inch thick. It contains what appears to be radiolarian remains. There are also bold outcrops of massive red chert. The beds in the southern workings strike N-S to N. 45° W., and dip 55° to 75° East.

Manganese ore

Ore is now exposed mainly in the 15 foot shaft at the south end of the northern workings (#32 on map), and in the inclined shaft (#15 on map). It is also exposed in a few of the cuts, but most of these, which date back to the last war, have been caved so as to obscure the ore bed.

The 15 foot shaft exposes 2 feet of high grade oxide ore (mostly psilomelane). This seems to split into two parts each about 1 foot thick at the southwest end, separated by a meta volcanic rock resembling a meta breccia.

The inclined shaft reveals 2½ to 5 feet of ore on the southwest side, which appears to wedge out towards the northeast. This is partly oxide ore (mostly psilomelane) but in large part is unoxidized ore, which is a brown to gray or rose colored cherty manganese calcium carbonate. Analyses made in 1918 indicated that this material ran 20 to 23% manganese, 30 to 40% silica, and was high in lime, indicating the probable presence of manganocalcite (see 1918 report by Taliaferro). An exposure about half way down the shaft reveals 2½ feet of hard, brittle carbonate and psilomelane ore, surrounded on either side by about 1 foot of soft, black oxide ore. Some psilomelane ore is exposed in the drift at the bottom of the shaft, but most of the material here is the primary carbonate ore, which here is 3 to 4 feet thick. The dump at the inclined shaft contains 10 or 15 tons of

carbonate ore, which has been discarded. Near the top of the shaft the ore bed is cut by a longitudinal fault, forming a gouge zone, which nearly parallels the ore bed but cuts across it at a slight angle.

Some black oxide ore ½ to 2 feet thick is exposed in the cuts numbered 16 to 26 on the map. Some gray carbonate ore is piled on the dump of cut #16. About 6 inches of ore is exposed in cuts #7 and 11 north of the inclined shaft. Some of the other cuts here reveal a little low grade ore.

In the southern group of workings, up to 2 feet of soft, shaly, black oxide ore is exposed at the southern end of the main cut. (#36). An old dump here contains an estimated 13 tons of rather soft, porous ore, pyrolusite and botryoidal psilomelane, with red iron oxide stains, and white patches of silica.

Details of Workings

| # on map | Dimensions (feet) | Remarks |
|---|---|---|
| 1. | Small cut 1½ x 1½ x 1½ | Nothing exposed |
| 2. | Cut 3 x 3, 3 deep | Regolith |
| 3. | Cut 4 x 4, 3 deep | Regolith |
| 4. | Two small trenches; one 5 x 1, 2 deep; other 3 x 1, 1 deep | Regolith |
| 5. | Cut 3 x 2, 1½ deep | A little low grade ore on dump (1 ton) |
| 6. | Cut 4 x 3, 1½ deep | A little low grade ore on dump (1 ton) Manganiferous red chert exposed. |
| 7. | Cut 5 x 4, 4 deep | ½ - 1' of oxide ore of shipping grade. Perhaps 1 tons available. Enclosed in bedded red chert. |
| 8. | Cut 5 x 2, 1½ deep | Manganiferous red chert exposed |
| 9. | Cut 2 x 2½, 1 deep | |
| 10. | Cut 7 x 3, 2 deep | Manganiferous red chert. Perhaps a little ore. |
| 11. | Cut 14 x 5, 4 deep | Manganiferous red chert; perhaps ½' of ore |
| 12. | Two connected small cuts; one 4 x 4, 2 deep, other 5 x 2, | Regolith; some manganiferous red chert and low grade ore. |
| 13. | L-shaped cut, 26 and 30 long, 6 wide, 5 deep | Manganiferous red chert, buff chert, a little low grade ore, but definite ore bed not exposed Mostly regolith. |

| # on map | Dimensions (feet) | Remarks |
|---|---|---|
| 14. | Cut 13 x 10, 6 deep, with additional trench 10 x 1-2, 2½ deep at SW end | Manganiferous red chert, somewhat penetrated by Mn. oxides, but no shipping ore. |
| 15. | Inclined shaft 57 long, pitching 45° SE, with drift 26 long from SW end at bottom | 2½ to 5' of ore. Some oxide ore, but mostly unoxidized carbonate (manganocalcite). Enclosed in bedded red and gray chert. |
| 16. | Cut or stope 18 x 15, 10 deep, with cut at S end 41 x 3, 2-5 deep. | Mostly caved. 1-2' of ore exposed in one place. Partially oxidized carbonate ore on dump. |
| 17. | Small cut in regolith | |
| 18. | Small cut in regolith | |
| 19. | Small cut in regolith | |
| 20. | Cut 20 x 6, 6 deep | ½' of ore exposed in one place. Overlain by manganiferous buff to red chert |
| 21. | Cut 6 x 3, 1-2 deep | Nothing exposed |
| 22. | Cut 20 x 3, 2 deep | Nothing exposed |
| 23. | Cut 58 x 5 to 6, up to 8 deep | Stringer of ore 3-4" at N. end. Massive to thick bedded red and white chert. Porphyry dike. Bottom mostly caved |
| 24. | Cut 13 x 10, 5 deep | 1/2' of low grade ore at S. end. Buff and red bedded chert. |
| 25. | Cut 40 x 3, 10 deep | Caved; presence or absence of ore not determined |
| 26. | Cut 36 x 3 to 6, up to 15 deep | Caved; stated to be 2' of ore in bottom. Thick bedded white and red chert |
| 27. | Cut 6 x 4, 4 deep. | At different horizon W of ore bed. 2 small stringers up to 1" thick of Mn oxides in bedded dark gray and red chert with Mn. stains. |
| 28. | Shaft 12 x 4, 10 deep (Recently constructed) | Well bedded dark gray chert in contact wit meta volcancis and meta tuff. No. Mn. |
| 29. | Trench 23 x 2, 1 - 2 deep | Bedded gray chert. No Mn. |
| 30. | Cut 56 x 4 - 5, 3 - 6 deep | Manganiferous buff chert to E., massive red chert to W., no Mn. ore now exposed. |
| 31. | Cut 19 x 3, 3 deep | No ore in sight |
| 32. | Shaft 8 x 4, 15 deep (Recently constructed) | 2' of high grade ore at NE end; splits into two parts to SW. Enclosed in thick bedded red chert, and thin bedded buff to gray chert. |
| 33. | Small cut in outcrop | Massive red chert. Mn. ore appears to run into this to SW. |
| 34. | (Not on map; 300-400' SW of #32.) Cut 60 x 3, 2-3 deep Irregular shaped; roughly N-S. | Mostly regolith. Bedded buff to massive white chert. 1 or 2 tons of ore on dump; mostly loose material. No ore bed exposed. |

| # on map | Dimensions (feet) | Remarks |
|---|---|---|
| Southern group of workings: | | |
| 35. | Trenth 32 x 1, 1-2 deep | Regolith |
| 36. | Cut 100 x 3 - 6, 6 - 10 deep. | 2' of soft shaly, black oxide ore near S. end. Thin bedded white, pale green, red chert with shale partings; also thick bedded white chert. |
| 37. | Cut 44 x 3 - 6, 3 - 4 deep. | Thin bedded red chert with shale partings. No ore bed exposed, but bottom caved; may have been a bed here. Bold outcrops of massive red chert to SW. |

Production and reserves

Mr. Hixson states that the total past production of this mine is about 250 tons, part during the last war and part shipped 5 years ago, averaging 45% manganese. The 1918 report lists the production at that time as about 100 tons, running 45% Mn. 6% Fe., 13% $SiO_2$.

On the dumps at present are about 15 tons of oxide ore, probably running over 35% manganese, and 15 tons of carbonate ore, running 20% manganese.

Estimates of probable and inferred ore are as follows:

Probable:

Inclined shaft #15; ore from drift to surface SW of shaft. 26 feet long, 57 feet deep, 3 feet thick - 450 tons. Of this, perhaps 50 tons are oxide ore of shipping grade, and 400 are carbonate ore, running 20% manganese.

Shaft #32. Ore continues SW of shaft, 35 feet long, 15 feet deep, 2 feet thick = 105 tons, minus an estimated 25 tons removed, leaves 80 tons of probable oxide ore.

Total 130 tons oxide ore; 400 carbonate ore.

Inferred: (oxide ore, in addition to but not including probable ore).

| | |
|---|---|
| Cuts # 7 - 14, | 5 tons |
| Cut 16. 59' long, additional 5' deep, 1' thick | 30 |
| Cut 20. 20' long, additional 5' deep, 1/2' thick | 5 |
| Cut 26. 30' long, additional 10' deep, 2' thick | 60 |
| Cut 36. Perhaps 50' long, additional 5' deep, 1' thick | 25 |
| Total | 125 tons |

(Total inferred and probable oxide ore 255 tons, or say 250).

Inferred: (Overall tonnage, including carbonate ore running 20% Mn., taking depth as .4 the length)

| | |
|---|---|
| Inclined shaft #15 and cut #16. 80' long, 32' deep, 2' thick | 500 tons |
| Cuts 23, 24, 25, 26. 158' long, 63' deep, 1' thick | 1000 |
| Cuts 30 to 33 (including shaft 32). 130' long, 52' deep, 2' thick | 1350 |
| Cut 36. 100' long, 40' deep, 1' thick | 400 |
| Total | 3250 tons |

Summary of totals:

| | Oxide (35% Mn.) | Carbonate (35% Mn.) |
|---|---|---|
| Ore in sight (on dumps) | 15 | 15 |
| Probable ore | 130 | 400 |
| Inferred ore (overall) | 250 | 3000 |

Economic possibilities

This is one of the largest manganese mines seen in the Sierra Nevada south of Plumas County, from the standpoint of extent of workings, production, and reserves. If the carbonate ore could be utilized, the possibilities of the mine would be greatly increased. The lessee is desirous of having someone work on the property, but is unable to do so himself at the present time.

IVAN F. WILSON

September 21, 1942.

Supplementary note

On Nov. 13, 1942, Mr. Hixson shipped 9 tons of ore to the Metals Reserve stockpile at Tracy. The shipment was classed as "high grade" and ran as follows:

| | |
|---|---|
| Mn. | 49.25% |
| $Al_2O_3$ | 4.05 |
| Fe | 2.05 |
| P | .038 |
| $SiO_2$ | 11.32 |
| Zn. | nil |