DMEA Form 9
Rev. 6/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE Idm-E NO._____ DMEA NO. 4917

Application
- [x] Denied
- [ ] Withdrawn

Contract
- [ ] Terminated - Not Certified
- [ ] Terminated - Certified
- [ ] Cancelled
- [ ] Royalty Agreement

The records contained in this file are marked (x) and arranged in this order:

Folder No. 1:

50 pp

Left Side

- [ ] Royalty Audits
- [ ] Certification of Discovery
- [ ] Closing Letter
- [ ] Cost Audits
- [ ] Termination Notice or Agreement
- [ ] Recision Notice
- [ ] Assignment of Contract
- [ ] Contract Amendments
- [ ] Contract with all exhibits and annexes
- [ ] Owner's Consent to Lien and Subordination Agreement
- [x] Application and attachments

Right Side

- [ ] Project summary (final)
- [ ] Work Completed analysis (final)

All other material filed in chronological order including the following reports if checked:

- [ ] Field Team Semi-Annual Report for Certified Project
- [ ] Final Field Team Report (Tab)
- [ ] Operator's Final Report (Tab)
- [ ] Interim Field Team Reports
- [ ] Operator's monthly reports and all attachments
- [x] On-site Exam Report (Tab)
- [ ] Settlement Sheets
- [ ] Drill Logs

Additional Folders:

Left Side

Folders No._____: Reports
- [ ] Analysis of Semi-Annual Inspection Reports
- [ ] Project Summary (Interim) by DMEA Engineers

Right Side

- [ ] Field Team Semi-Annual Report for Certified Project
- [ ] Field Team Interim Reports
- [ ] Operator's Monthly Reports with transmittal, narrative and maps.

Folders No._____: Maps (Use pocket folder or envelope)

Folders No._____: Settlement Sheets

Folders No._____: Drill Logs

Folders No._____: Royalty material

17963

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
1605 Evans Avenue
Reno, Nevada

OFFICIAL FILE COPY
DMEA
RECEIVED JAN 14 1958
DATE | INITIALS | CODE

January 9, 1958

Memorandum

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

From: Executive Officer, DMEA Field Team, Region II

Subject: Loan Application (Copper)
A. J. Jackson, R. F. Leonard, & W. N. Conway
J. L. C. Group
Shasta County, California

Enclosed are three sets of MF-103, Application for Aid forms, relative to above subject. The fourth set has been retained in our files.

S. Ricker

Attachments

Form MF-193
Revised Oct. 1957

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1035.3
Approval expires June 30, 1958

APPLICATION FOR AID IN AN EXPLORATION PROJECT

PURSUANT TO DMEA ORDER I, UNDER THE DEFENSE PRODUCTION ACT OF 1950, AS AMENDED

NAME OF APPLICANT (Full legal name and mailing address as it should appear on contract if one is executed)

A.J. JACKSON, R.F. LEONARD & W.N. GONNAN
c/o R.F. Leonard
P.O. Box 1451,
Redding, California

RECEIVED JAN 14 1958 D.M.E.A.

APPLICANT NOT TO USE THIS BLOCK

Docket Number: DMEA - 4917

Date Received: Reno 1/2/58 1/14/58

Government Participation %:

Region: II

Division Code: 500

BUSINESS ORGANIZATION (Check one)

- Individual [ ]
- Corporation [ ]
- Partnership [ ]
- Other (Specify) [X] Joint Venture

State in which firm is organized: California

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

Name	Address	Title
Same as above		

Mineral(s) for which you wish to explore: Copper

Estimated Cost of Project: $ 34,000.00

LOCATION OF PROPERTY

Name	County	State
J.L.C. GROUP	Shasta	California
Sections 5 & 8, T31N, R5W		

GENERAL INSTRUCTIONS

Before filling out this application, please read DMEA Order-I, Revised, "Government Aid in Defense Exploration Projects." To assure prompt action, your application must provide all applicable material and information specified on the back of this application form. Avoid unnecessary correspondence and delays by submitting complete and accurate information. *Please submit four copies of this application and all accompanying papers* except as otherwise noted. Place your name and address on each sheet. Each item of information, maps, and reports required as a part of this application is described on the back of this form. Identify each attached statement by the item number to which it applies. If an item does not apply to your application, show the item number on your statement and after it write "not applicable." Maps or sketches should be used to supplement narrative descriptions of the property location and boundaries in item 1, existing mine workings and geology in item 2, and the proposed exploration project in item 4. When this information is not too complex, all of it may be shown on one map or sketch. All documents and other attachments submitted as a part of this application, except those in item 2(g) which you mark to be returned, become the property of the Government and will not be returned to the applicant. Send true copies, *not originals*, of leases, contracts, and other documents which are an essential part of your business records. *File this application with the Defense Minerals Exploration Administration, Department of the Interior, Washington 25, D. C., or with the nearest DMEA Field Office.*

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.

December 30, 1957
Dated

R.F. Leonard
A.J. Jackson
BY *(Signature)*
For the partnership

Title

A wilfully false statement or certification to any Department or Agency of the United States Government is a criminal offense. U. S. Code, Title 18, Sec. 1001.

INFORMATION REQUIRED WITH THIS APPLICATION

1. *Applicant's Property Rights:*

(a) State the legal description (section, township, and range; metes and bounds; patent number of claims) of the land upon which you wish to explore and all land adjacent to the proposed project area which you own or control. Describe any part of the project land or workings which should not be subject to Government lien for royalty payments. If the land consists of unpatented claims, state the book and page number for each recorded location notice, including amended locations, and the place where recorded (courthouse, recorder's office, county, and state).

(b) State all the names by which you know the property.

(c) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise. If you are not the owner, submit with this application one exact copy of the lease, contract, or other document (with address of owner) under which you control the property.

(d) Describe all liens, mortgages, or other encumbrances on the property.

2. *Physical Description:*

(a) Describe in detail and illustrate with maps or sketches all mining or exploration operations which you know have been or are being conducted upon the lands, including existing mine workings. Describe all production facilities.

(b) State your interest, if any, in operations stated in 2*(a)*.

(c) State, as far as you know, the past and current production, supporting your statement with copies of settlement sheets, mine records, or published data if available.

(d) Describe known ore reserves on the property giving quantities and grades and sampling methods used, supporting your statement with copies of assay certificates and assay maps if available.

(e) Describe by narrative and maps or sketches the geologic features of the property, including ore minerals, geologic formations if known, and type of deposit (vein, bedded, etc.).

(f) State your reasons for expecting to find ore, and if you have sampled the area you propose to explore, show where the samples were taken, describe sampling methods used, and provide copies of assay certificates.

(g) Send with your application at least *two* copies of all geologic or engineering reports, assay maps, or technologic information which you may have, indicating on each whether you require its return to you.

3. *Accessibility of Project:*

(a) To aid DMEA representatives who may be required to examine the property, state the name and address of the person who will meet the DMEA representative; give directions for reaching the property; and describe accessibility of the property including the mine workings.

(b) Name the shipping and supply points and places where employees reside and state the distances between them and the property.

4. *The Exploration Project:*

(a) Describe fully the proposed exploration project giving individual footages and sizes of openings *for each item of work*. Use narrative, maps, plans, and longitudinal and cross sections as necessary. Show the location of the proposed work as related to geologic features such as veins, ore-bearing beds, contacts of rock formations, etc. Show also the relation of the proposed work to any existing mine workings and to *property boundaries* or to the closest identifiable corner.

(b) If an access road to the project must be built, show the location on the property map and state the length, type, and construction methods proposed.

(c) In the event that an exploration contract with DMEA is executed, how soon will the work start and how many months will be required to complete it? State your anticipated average daily or monthly rate of progress for each type of work.

5. *Experience:*

State your operating experience and background with relation to your ability to carry out this exploration project, and also that of the person or persons who will supervise the operations.

6. *Estimate of Costs:*

Furnish detailed estimates of the costs *for each item of the work proposed in 4(a)* under the headings listed below with a total for each heading and the estimated total cost of the project. Costs for any work to be performed by an independent contractor should be shown separately under category *(a)* below. Costs for any work that is not to be performed by an independent contractor should be given in detail under categories *(b)* through *(g)*.

(a) Independent contracts. State the cost of any proposed independent contract for the performance of all or any part of the work, expressed in units of work, such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved. Cost estimates should be supported by bids from three contractors if possible. *(Note* – If none of the work is to be contracted, write "none" after this item.)

(b) Personal services. For necessary supervision, engineering and geological services, and labor, include an itemized schedule of numbers, classes, rates of wages, salaries or fees, and periods of employment. State whether these technicians and employees are available.

(c) Operating materials and supplies. List items of material and supplies with their cost. Include under this heading power, water, and fuel, and units of equipment and tools costing less than $50 each.

(d) Operating equipment. List items of operating equipment to be used giving specifications and indicating how each item is to be acquired – i.e., rented, purchased, or provided by the applicant. If it is rented or purchased, state the estimated rental or purchase price. If it is to be furnished by the applicant, give its present fair market value.

(e) Initial rehabilitation and repairs. Describe the type and the cost of necessary *initial* rehabilitation or repair of existing buildings, fixtures, installations (exclusive of mine workings), and movable operating equipment now owned by the applicant, which will be used on the exploration project.

(f) New buildings, fixtures, installations. Describe each building, fixed improvement, and installation to be purchased, constructed, or installed for the exploration project stating specifications and cost including labor, materials and supervision.

(g) Miscellaneous. For the operating equipment listed in 6*(d)*, describe the type and estimate the cost of repairs and maintenance expected during project operations. Do not repeat initial repairs listed in 6*(e)*. Show also the costs of analytical work, accounting, workmen's compensation and employees' liability insurance, payroll taxes, and other required costs that do not fall within the previous categories.

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)* State whether you are prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation stated in Sec. 7 of DMEA Order–I, Revised.

(b) Explain to what extent you propose to furnish your share of the costs by providing money, by use of equipment owned by you, or otherwise.

* * * * *

INT.-DUP. SEC., WASH., D.C. 25960

Mineral Exploration
Foundation Investigation

Deep Hole Water Wells (hard rock specialty)

Test Cores (Concrete etc.)
Undisturbed Samples-soil

Lonstin Diamond Drilling Contractors

(Hydraulic Rotary Rigs)

P. O. Box 1451 • Ch[illegible] 1-4044
REDDING, CALIFORNIA

1/14/58

December 30, [illegible]

OFFICIAL FILE COPY
DMEA
RECEIVED JAN 14 1958

DATE	INITIALS	CODE

[illegible]
[illegible] Officer
DMEA Field Team, Region [illegible]
1465 Evans Avenue,
Reno, Nevada

Re: Application for Aid
DMEA Program
J.L.C. Claims
Secs. 5 & 8, T31N, [illegible]
Shasta County, California

Dear Mr. [illegible]:

We enclose DMEA Application for Aid forms, MF-103 in quadruplicate together with pertinent map in connection with the above subject copper claims.

The writer, in co-ownership with Mr. A.J. Jackson and Mr. W.E. Conway, located valid mineral claims on public domain in Sections 5 & 8, T31N, [illegible], Shasta County, California on the 8th day of April, 1957. Subsequently an exploration program was begun in the nature of diamond core drilling which carried on into the latter part of June. Funds which were allocated for this project became exhausted because of the hardness and extreme abrasiveness of the formations hosting the vein type ore bodies and the resultant high diamond drill cost.

We drilled approximately 1600' at three drill sites and obtained about [illegible] core recovery. The results of this drilling produced an encouragingly high grade copper (chalcopyrite & bornite) in six of seven holes at drill site No. 3 and spanned a breadth of approximately 45 feet. This site was approximately 50 feet northerly from an old caved adit, the dump from which, showed heavy secondary CU mineralization. As best we can determine this old tunnel was run in about 30 feet from the outcrop by early day miners following a gold quartz stringer. The last rock brought from the tunnel indicated substantial secondary cuprite, malachite and azurite, and as apparently copper was not the object of their search in those days the work was abandoned. Until we began our work no previous copper exploration had been undertaken, althe there are a number of small outcrops of malachite and azurite showing over a rather extensive area together with gossan and associated material.

In view of the high grade copper produced by the drilling operations it is our desire to project a drilling program further into the mountain and particularly on the northeast slopes thereof where there is a very noteworthy outcrop of secondary mineralization. It is now evident that there is a possibility of locating a substantial high grade copper ore body within the confines of this stock which appears to be associated in origin with the Shasta [illegible] batholith which lies to the west of our claims.

OFFICIAL FILE COPY
DMEA
RECEIVED JAN 14 [illegible]
DATE [illegible]

[illegible]

[illegible] is our desire [illegible] approac[illegible]
paved highway as such will prevent presen[illegible] driving of about six miles over rough roads.

The estimated cost of our project is $34,000.00 and is divided into three categories as follows:

(1) New roadways, drill stations and improvements to existing roads:
50 hours bull-dozer work @ $20.00 per hour — $1,000.00

(2) Diamond Core Drilling:
3,000 Feet @ $10.00 per foot — 30,000.00
This includes cost of diamond bits, core barrels drill stem and casing, fuel & lubricants and labor costs.

(3) A 100' drift at drill site No. 3 to further sample and determine the extent of the ore body of high grade copper.
100' of drift @ $30.00 per foot — 3,000.00

Total Anticipated Cost — $34,000.00

We would like to state at this point that we do not have any cash to further this venture, but have available the necessary labor and equipment to match the DMEA contribution. This includes a late model, truck mounted hydraulic rotary diamond drill with adequate accessories and the industrial knowledge to carry this program through to a successful conclusion.

We feel that these claims have very good prospects and if the DMEA is in a position to take on this kind of exploration we would certainly welcome it's financial assistance at this time. At present there is an abundant supply of water for drilling which should last until about May 15th. After that time we must haul our water from Olney Creek which runs dry about the first of July.

Trusting for your favorable and early consideration, I am,

Ray F. Leonard
For the partnership

rl/vj

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
6/25	[illegible]	500
		~~500~~
6/27	[illegible]	130
6/27	[illegible]	130
6/27	[illegible]	130
"	[illegible]	110
"	[illegible]	100
		225

Mr. R. F. Leonard
A. J. Jackson, R. F. Leonard
and W. N. Conway
Post Office Box 1451
Redding, California

JUN 27 1958

Re: Docket No. DMEA-4917 (Copper)
R. F. Leonard, et al.
J. L. C. Claims
Shasta County, California

Dear Mr. Leonard:

Your application for aid for an exploration project and other reports available to us in Washington concerning your application 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 a small amount of copper ore on your property, indicates to us that the probability of disclosing significant ore reserves is not sufficiently promising to justify Government participation. We regret to advise you, under these circumstances, that your application for exploration assistance is denied, but without prejudice to the property.

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

Sincerely yours,

C. O. Mittendorf (for)

Administrator

WRGriswold/er 6/25/58
Copy to: Docket
Admr R File
Op. Committee
Mr. McMahon, USBM
Mr. Kiilsgaard, USGS
Region II (2)
Chron.

8623

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code

June 25, 1958

Memorandum for the Files

From: Director, Division of Base Metals

Subject: Justification for Denial of Application, Docket No. DMEA-4917, R. F. Leonard, et al., J. L. C. Claims, Shasta County, California, Copper.

As far as can be vizualized from the incomplete reports, the copper ore occurs in small, disconnected pods of no significane. The Applicant had done little to prepare the property for inspection and the examiners were handicapped thereby. However, they probably saw enough to justify their statement "we conclude that the deposits are too small and too low grade . . . . to justify Government participation."

We concur with the commodity members in denial.

W. R. Griswold

WRG/er
Copy to: Docket
Admr R File
Chron.

8623

OFFICIAL FILE COPY
DMEA
RECEIVED JUN 20 1958

020	C	220
073	wpb.	500

IN REPLY REFER TO:

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

June 19, 1958
Re: DMEA 4917
R. F. Leonard, et al.
J. L. C. Claims
Shasta County, California
$34,000.00 - Copper

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

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

Subject: Review of Field Team Report

The applicants requested assistance in exploring by drilling and drifting a high grade copper vein near a Sugar Loaf mountain or knob. The property is about 8 miles east of south of the Shasta-Phelps Dodge Joint Venture project, which is near another Sugar Loaf Mountain. The property is outside the area reported upon in Professional Paper 285 of A. R. Kinkel, W. E. Hall, and J. P. Albers.

The examiners found a 2-foot vein in Copley greenstone on claim JLC 6, which below the zone of secondary enrichment might contain 5% copper. A length and depth down dip of 100 feet is inferred for the vein. About 1,000 tons of 5% ore is inferred for the occurrence.

At a drill station on claim JLC 1, the examiners saw some good core, but due to faulty handling of the core by the drillers, cannot ascribe it to any one of several holes. From surface indications, the examiners ascribe a 45-foot length to this showing, and about 1,500 tons of 5% ore is inferred. Indicated ore amounts to 150 tons of 5% material at the JLC 1 and 6 showings.

In the opinion of the examiners, the showings do not warrant Government assisted work and they recommend that the application be denied.

I recommend that the application be denied without prejudice.

N. E. Nelson

N. E. Nelson

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DMEA
RECEIVED JUN 24 1958

DATE	INITIALS	CODE
6-24	H. J.	225
6-24	[illegible]	500

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

June 24, 1958

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: Commodity Specialist, Branch of Base Metals

Subject: Review of Report of Examination, Docket No. DMEA 4917 (copper) R. F. Leonard, et al., J. L. C. Claims, Shasta County, Calif.

The examiners report copper mineralization on two of the six J. L. C. claims; a small vein deposit of chalcopyrite, pyrite and copper carbonate along a fault on the J. L. C. 6 claim; a second deposit on J. L. C. 1 claim consists of chalcopyrite replacements of quartz veins in andesite. They are convinced, however, that the deposits are too small and too low grade to justify Government participation and recommend that the application be denied.

I concur with the examiners recommendation with the suggestion that the denial be made without prejudice to the property.

A. D. McMahon

A. D. McMahon

Copy to: Division of Minerals
Branch of Base Metals (2)
Thor Kiilsgaard, U.S.G.S.
F. D. Lamb
Files

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
1605 Evans Avenue
Reno, Nevada

June 13, 1958

DMEA
RECEIVED JUN 16 1958

DATE	INITIALS	CODE
6/16	C	220
6/20	JHB	130
6/20	C	220
6/23	WPB	500

Memorandum

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

From: Executive Officer, DMEA Field Team, Region II

Subject: Docket No. DMEA-4917 (Copper)
R. F. Leonard, et al.
J. L. C. Claims
Shasta County, California
(Your letter, January 24, 1958)

Enclosed are three copies of a report by J. D. Warne, Bureau of Mines, and J. E. Carlson, Geological Survey, on subject property.

Roscoe Smith and I concur in the recommendation that the application for exploration aid be denied.

S. Ricker

Attachments

Reviewed by
DMEA OPERATING COMMITTEE
6-20-58
(date)

DMEA
RECEIVED JUN 16 1958

DATE	INITIALS	SECT.
6/20	2/B	130
		220

UNITED STATES
DEPARTMENT OF THE INTERIOR
FRED A. SEATON, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

ON-SITE Report.

REPORT OF EXAMINATION BY FIELD TEAM
REGION II

APPLICATION REPORT

DMEA-4917 (Copper)
A. J. Jackson, R. F. Leonard, and W. N. Conway
J.L.C. 1-6 claims
Shasta County, California

by

J. D. Warne
U. S. Bureau of Mines

J. E. Carlson
U. S. Geological Survey

June 11, 1958

Reviewed by
DMEA OPERATING COMMITTEE
6-20-58
(date)

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ILLUSTRATIONS

Figure 1 . . . . . Index map

2 . . . . . Geologic and Claim map

INTRODUCTION

A. J. Jackson, R. F. Leonard, and W. N. Conway, a partnership, applied to the Defense Minerals Exploration Administration, Docket No. DMEA-4917, for Government assistance to explore for copper on the J. L. C. group of claims, Shasta County, California.

A field examination was requested by the Operating Committee and was made on April 16 and 17, 1958 by J. D. Warne, U. S. Bureau of Mines, and J. E. Carlson, U. S. Geological Survey, accompanied by Messrs. Jackson, Leonard, and Conway.

The applicant's map was checked and surface exposures were sampled.

CONCLUSIONS AND RECOMMENDATIONS

Copper mineralization is found in volcanic rock on the J. L. C. No. 1 and J. L. C. No. 6 claims but nowhere in sufficient grade or quantity to indicate the possibility of discovering a significant ore body. Not more than 2,500 tons of two percent copper ore can be estimated.

We conclude that the deposits are too small and too low grade to be significant or to justify Government participation, and recommend that the application be denied.

LOCATION, ACCESSIBILITY, AND LOCAL FACILITIES

The J.L.C. group of claims is in secs. 5 and 8, T. 31 N., R. 5 W., M.D.B.&M., Sugarloaf Mountain area, Shasta County, California, about 4 miles southwest of Redding, California (fig. 1).

The claims are reached by automobile from Redding by traveling 4.6 miles southwest on an improved road, then 1.3 miles north along a graveled road to a junction with an unimproved road, turn left at this junction for 0.7 mile to the property.

Labor and mining supplies can be obtained from Redding. Water and electric power are available about a mile from the claims.

HISTORY, DEVELOPMENT, AND PRODUCTION

Gold prospecting began in this area about 1900, and a few test holes, caved adits and shafts remain. There has been no production of copper from the J.L.C. claims.

Previous development consists of short adits on the J.L.C. 1 and 3 claims and a short inclined shaft on the J.L.C. 6 claim. These workings are inaccessible, but the dumps indicate that limited work was performed. A few small test pits about 6 feet deep are scattered about the property, and there are no surface structures or mining equipment.

Recent development consists of about 1,600 feet of vertical diamond drill holes on the J.L.C. 1, 2, and 4 claims. These

holes were drilled 30 to 60 feet deep by the applicant during the summer of 1957, but some of the locations were not recorded.

PROPERTY AND OWNERSHIP

The J.L.C. group of six unpatented mining claims is owned jointly as a partnership by A. J. Jackson, R. F. Leonard, and W. N. Conway, P. O. Box 1451, Redding, California. The claims, Nos. 1-6, are stated to be recorded in the Shasta County Courthouse at Redding; however no recording data was furnished with the application.

GEOLOGY

Geologic Setting:

The rocks in the claim area are Copley greenstone of Middle Devonian(?) age although rocks in the northern part of the area are possibly younger (overlying) Balaklala rhyolite. Owing to the similarity of these rocks near the contact, and to known interlensing in nearby areas, they could not be distinguished in the field. Exposures are poor because of heavy brush and soil cover, and are found in old prospect pits and creek bottoms. The Copley is the basement rock in the district.

The Copley greenstone consists of light- to dark-green porphyritic and non-porphyritic meta-andesite flows interlayered

with tuff and agglomerate. The andesite is massive and shows no bedding planes; although locally it is foliated. This unit is probably several thousand feet thick in the West Shasta district[1/],

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1/ Kinkel, A. R., Jr., Hall, W. E., and Albers, J.P., 1956, Geology and base-metal deposits of West Shasta copper-zinc district, Shasta County, Calif: U.S. Geol. Survey Prof.Paper 285.

---

but in the claim area the thickness is unknown. Quartz layers as much as 5 feet thick, but of unknown strike length, are parallel to the foliation, but small veins, an inch or two thick, cut the foliation at various angles.

Foliation strikes west and northwest, dips 30°-60° NE., and probably is not parallel to bedding planes or flow structure. From the regional geology the contacts are inferred to dip not more than 15 degrees in this area[2/]. The relationship of the volcanic rocks to

---

2/ Hall, Wayne--oral communication.

---

overlying sedimentary rocks outside the claim area is not known,

and the rocks in the claim area may owe their present attitude to folding, or to tilting by intrusive bodies below.

Two faults striking northwest and dipping 50°-60° E., occur on J.L.C. 4 and 6. These faults have small displacements and are parallel to the foliation. The fault through the pit on J.L.C. 4 (fig. 2) contains no gouge, is barren of copper minerals, and contains iron oxides derived from pyrite. The fault exposed in a short inclined shaft on J.L.C. 6 contains white gouge, chloritic andesite(?) schist on the hanging- and footwalls, and copper minerals. Brecciation or other ground preparation is inferred on the J.L.C. 1 claim from unlabeled drill core that contains quartz, chalcopyrite, and pyrite replacing andesite.

Ore Deposits:

The only ore deposits on the property are a small vein deposit of chalcopyrite, pyrite, and copper carbonate along a fault on the J.L.C. 6 claim, and a replacement deposit of chalcopyrite and pyrite at an unknown depth on the J.L.C. 1 claim. Porphyritic Copley greenstone is the host rock in both occurrences.

The first deposit occurs along a fault which strikes N. 20° W. and dips 50° NE. This fault is parallel to the foliation, has a displacement less than 10 feet, and is exposed for 10 feet down the

dip in the walls of the short inclined shaft on the J.L.C. 6 claim. This shaft is an early gold prospect, as are all the excavations on the applicant's claims. The fault zone is 2 feet thick along its exposed length, and contains thin stringers of white gouge, lenses of chloritized andesite schist, hard andesite layers, and quartz veinlets and clots. Malachite, minor azurite, limonite, and small residual blebs of pyrite and chalcopyrite occur as fracture filling and as disseminated minerals in fractured andesite within the fault zone. The hanging wall consists of a few inches of schist on the bottom and unmetamorphosed andesite above; the footwall contains the same rocks in reverse sequence. We infer that the deposit is oxidized to the true water table where it probably contains a small zone of supergene enrichment. Below this zone the deposit consists of replacement sulfides. Judging from the chalcopyrite content of primary ore in drill cores from the J.L.C. 1 claim, the grade is probably not more than 5 percent copper.

The second deposit, at drill site 3 on the J.L.C. 1 claim, consists of andesite which contains quartz veins, pyrite, and moderate amounts of chalcopyrite replacing the quartz and andesite

for a thickness of several feet. The deposit does not crop out and the minerals were seen in core from six holes drilled by the applicant over a strike length of 45 feet; however he did not know at what depth mineralized rock was cut, or from which hole it came. Malachite, azurite, and limonite occur as thin films on joint surfaces at the portal of a caved adit about 30 feet long, 50 feet south of, and 30 feet below, drill site 3. These minerals have botryoidal structure which suggests they were derived from overlying sulfides, now eroded. These sulfides were probably emplaced along small faults or shears. A strong vertical shear zone containing limonite strikes N. 25° W. through the bulldozed drill site, but could not be traced through brush and soil cover. Kinkel, Hall, and Albers report that the Copley greenstone contains a few small pyrite-chalcopyrite replacement bodies, but generally contains scarcely any copper minerals. However, they qualify by stating that the possibility of copper deposits along feeder channels in the Copley should not be ignored. Economic deposits in the West Shasta district occur as replacement bodies in the middle porphyritic unit of the Balaklala rhyolite, and as far as known are confined to that unit.

Sampling:

Three samples were taken and assayed as follows:

Sample No.	Length	Percent Cu	Location
1	1 ft. vert.	2.58	Dump at portal of adit near drill station 3.
2	2 ft.	1.90	Across fault zone and vein at collar of incline, J.L.C. 6 claim.
3	3 in.	9.57	AX core at drill station 3.

These samples are from the best shows on the property and, except for No. 3, they are considered to be representative. The grade of sample No. 3 is probably not representative of the full length of core containing chalcopyrite. This full length of mineralized core was not seen as most had been given by the applicant to others. He did not know how much mineralized core was recovered from any of the six holes at drill station 3. The applicant was evidently interested in testing a diamond drill rig of his own design and the contents of the core were incidental to this purpose.

ORE RESERVES

Ore reserves are summarized as follows:

Class	Tons	Grade, percent Cu	Remarks
Measured	a few	2	J.L.C. 6
Indicated	150	5	J.L.C. 1 and 6
Inferred	2,500	5	J.L.C. 1 and 6

Measured ore is in two blocks, one along each wall of the inclined shaft on the J.L.C. 6 claim. The ore extends five feet into each wall, along the dip eight feet, and is two feet thick.

Indicated ore is from a block on J.L.C. 1 which is estimated to be 45 feet along the strike, 10 feet down the dip, and 5 feet thick; and from the fault zone on J.L.C. 6 which is estimated to be 15 feet along the strike, 10 feet down the dip, and 2 feet thick. Two-thirds of these blocks probably contain ore of 5 percent grade.

Inferred ore is in a block on J.L.C. 1 which is estimated to be 45 feet along the strike, 100 feet down the dip, and 5 feet thick; and in a block on J.L.C. 6 which is estimated to be 100 feet along the strike, 100 feet down the dip, and 2 feet thick. Two-thirds of this material is expected to be of specified grade, although the grade will be variable on J.L.C. 6 because of oxide and sulfide zones in the same deposit. The deposit on J.L.C. 1 has no known oxide zone. Ore in place is estimated to occupy 12 cubic feet per ton.

EXPLORATION

The applicant proposed to explore for copper in a two-stage program consisting of 3,000 feet of vertical diamond drilling at four stations, and 100 feet of adit, or inclined shaft, at drill station 3. He also proposed to construct about 3,400 feet of access road to the drill stations.

He previously drilled holes at drill stations 1 and 2, all of which were barren of copper. Proposed drilling at site 6 (fig. 2) is based on the results of drilling at station 2, but does not therefore appear to be justified. Proposed drilling at site 4 is based on films of copper carbonate minerals in rock on a small dump which is said to have come from a pit about three feet in diameter, now filled with mud and water. The examiners saw no copper minerals or gossan material in adjacent outcrops. Proposed drill site 5 is the only place on the claims where testing could be done on a known structure containing indications of copper. This structure contains reserves of about 1,200 tons of 2 percent grade; however the grade is possibly higher at depth, because only the leached, oxidized zone could be sampled.

One hundred feet of adit and 1,800 feet of drilling were proposed at drill station 3 where previous drilling by the applicant encountered chalcopyrite. The results of this drilling are hazy and do not constitute a basis for further work. The only core seen on the property came from six of the seven holes at drill station 3, where it had been thrown loose in two small boxes, or on the ground.

The reserve estimate calculated at this place may be optimistic because the thickness is not known.

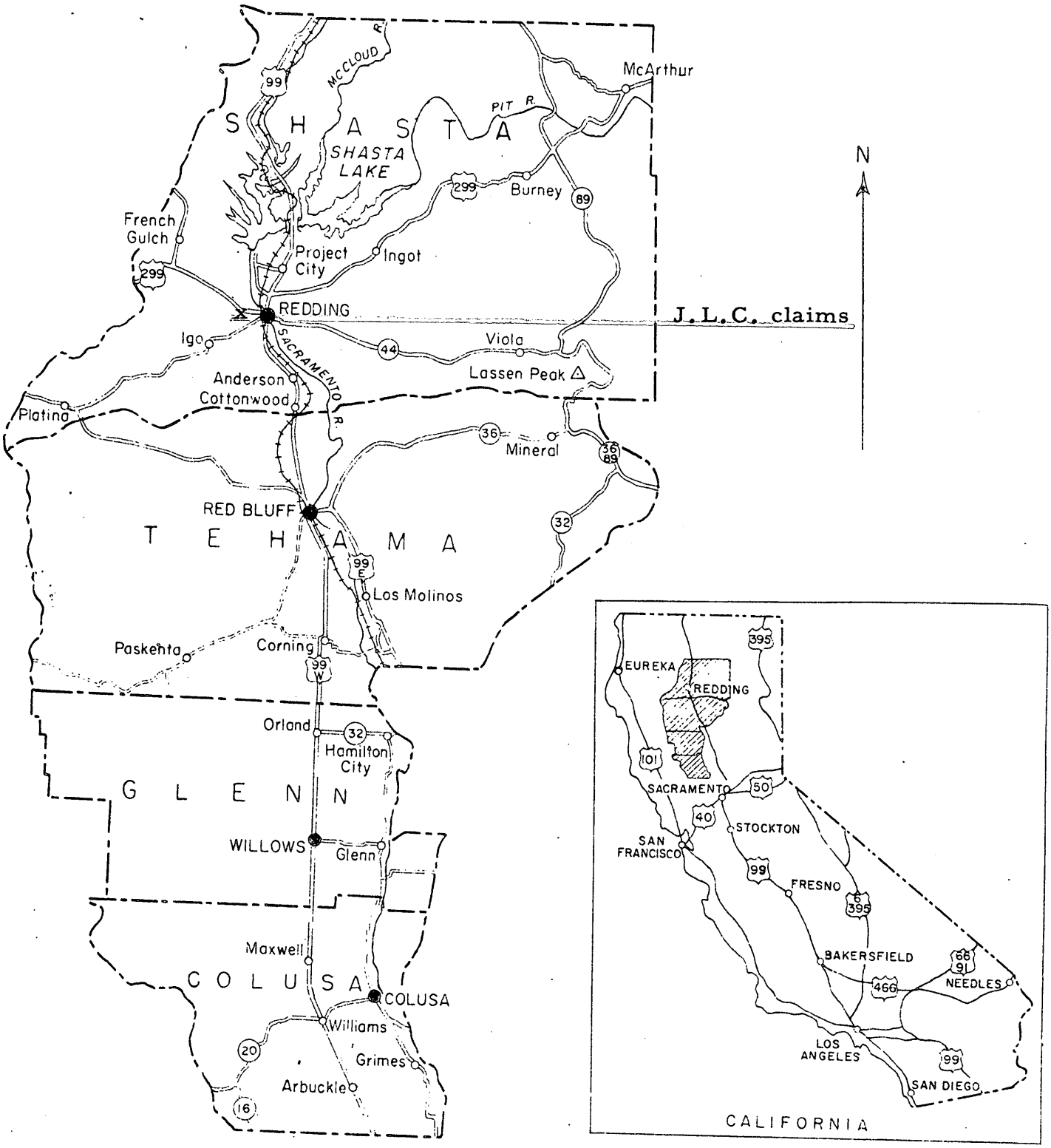

Figure 1. INDEX MAP OF SHASTA, TEHAMA, GLENN, AND COLUSA COUNTIES, CALIFORNIA

0 20 40 60 Miles

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DMEA
RECEIVED JUN 16 1958

DATE	INITIALS	CODE

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
1/22		500
1/24		130
"		110
"		100
		HB
1/27		220
		590

500

JAN 24 1958

Mr. Spangler Ricker
Executive Officer
DMEA Field Team, Region II
1605 Evans Avenue
Reno, Nevada

Re: Docket No. DMEA-4917 (Copper)
R. F. Leonard, et al.
J. L. C. Claims
Shasta County, California

Dear Mr. Ricker:

The cited application is being referred to your office for consideration, a field examination of the property if warranted, and recommendations. Copies of memoranda dated January 16 and 21, 1958, by N. E. Nelson, Geological Survey, and A. D. McMahon, Bureau of Mines, respectively, relating to the project are enclosed for your information. We are also enclosing one copy of the application for the Field Team use.

We note that the Applicants state that they would finance their share of the project cost by use of their equipment and by their labor. This appears reasonable but we would require three independent bids covering the diamond drilling work before any consideration could be given this proposed project. The suggested price of $20.00 per hour for bulldozing is out of line and the price of $10.00 per foot for the diamond drilling of short holes appears unwarranted.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (GLB)

Enclosures
APPROVED:

Frank D. Lamb (GLB)
Member, Bureau of Mines

Thor H. Kiilsgaard (GLB)
Member, Geological Survey

WRGriswold/er 1/22/58
Copy to: Docket
Admr R File
Op. Committee
Mr. McMahon, USBM
Mr. Kiilsgaard, USGS
Chron.

8623

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
1/22	Finamore	100
1/24	Selbridge	130
1/24	Lamb	130
1/24	Lagoard	130
"	Johnson	110
"	Mittendorf	100
		~~HB~~
		220
		500

JAN 24 1958

Mr. R. F. Leonard
A. J. Jackson, R. F. Leonard
and W.N. Conway
Post Office Box 1451
Redding, California

Re: Docket No. DMEA-4917 (Copper)
R. F. Leonard, et al.
J. L. C. Claims
Shasta County, California

Dear Mr. Leonard:

The application of your partnership for Government assistance to explore the cited property has been reviewed by the Division of Base Metals of the Defense Minerals Exploration Administration and is being referred to:

Mr. Spangler Ricker
Executive Officer
DMEA Field Team, Region II
1605 Evans Avenue
Reno, Nevada

If additional information concerning your application is needed, the Field Team will get in touch with you at an early date.

Sincerely yours,

C. O. Mittendorf (for)

Administrator

WRGriswold/er 1/22/58
Copy to: Docket
Admr R File
Op. Committee
Mr. McMahon, USBM
Mr. Kiilsgaard, USGS
Region II (2)
Chron.

8623

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DATE	INITIALS	FOR
1/21	C	220
1/21	Griswold	500

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

January 21, 1958

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: Commodity Specialist, Branch of Base Metals

Subject: Review of application, Docket No. DMEA 4917 (copper), A. J. Jackson, R. F. Leonard & W. N. Conway, J. L. C. Group, Shasta County, California. $34,000.00

The applicants seek Government assistance in an exploration program consisting of road improvement, 3000 feet of diamond drilling, and 100 feet of drifting to test encouraging targets indicated by previous drilling and observations of copper mineralization.

The estimated unit costs for bull-dozer work and diamond drilling appear excessive. However, difficulty of access to the drill sites and ground characteristics may justify the estimates given.

Referral of the application to the Field Team is recommended.

A. D. McMahon

A. D. McMahon

Copy to: Division of Minerals
Branch of Base Metals (2)
Thor Kiilsgaard, U.S.G.S.
F. D. Lamb
F i l e s

IN REPLY REFER TO:

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DMEA
RECEIVED JAN 17 1958

DATE	INITIALS	CODE
1-17	C	220
1-17	Griswold	500

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

January 16, 1958
Re: DMEA 4917
A. J. Jackson, et al
J.L.C. Group
Shasta County, California
$34,000.00 - Copper

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

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

Subject: Review of application

The applicants request assistance in exploring by drilling and drifting a high grade copper vein, probably in Balaklala rhyolite.

The applicants did 1,600 feet of drilling at 3 sites. Six of seven holes drilled at site No. 3 showed ore perhaps across 45 feet, and the purpose of the proposed work is to prove up ore reserves in commercial quantity at the No. 3 site and at sites 4, 5, and 6 where gossan outcrops and old work suggest there is other ore.

Referral of the application to the Field Team is recommended.

N. E. Nelson

N. E. Nelson

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

January 15, 1958

Messrs. A. J. Jackson,
R. F. Leonard & W. N. Conway
c/o R. F. Leonard
P. O. Box 1451
Redding, California

Gentlemen:

Subject: DMEA-4917

Your application for exploration assistance, dated December 30, 1957 submitted to our office at Reno, Nevada has been assigned Docket Number DMEA-4917 and referred to the Base Metals Division in the Washington office. Kindly identify all future correspondence relating to your application by this Docket Number.

Sincerely yours,

Allen S. Dakan, Director
Operations Control and
Statistics Division

Copy to:

Region II

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DMEA 4917
(COPPER)

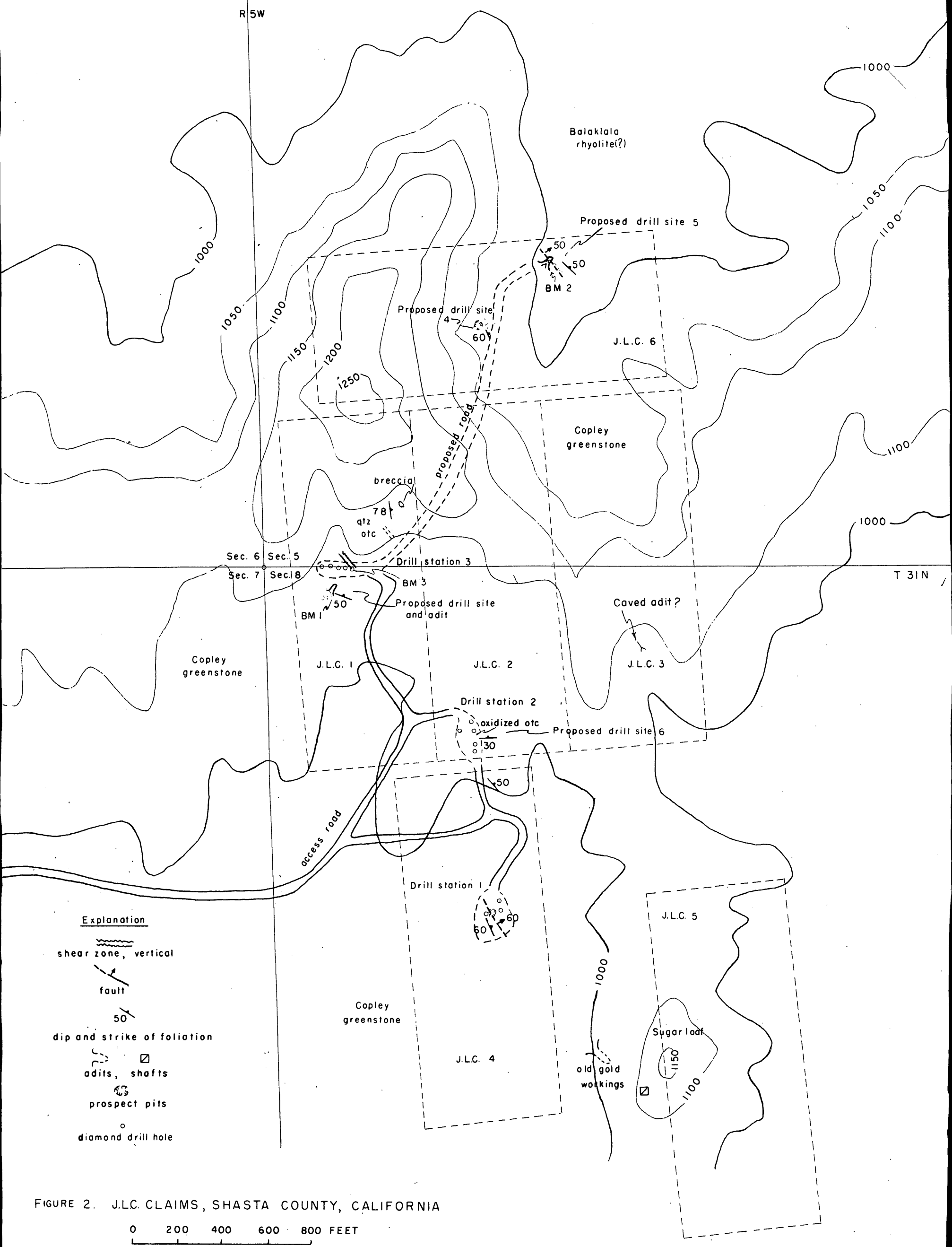

FIGURE 2. J.L.C. CLAIMS, SHASTA COUNTY, CALIFORNIA

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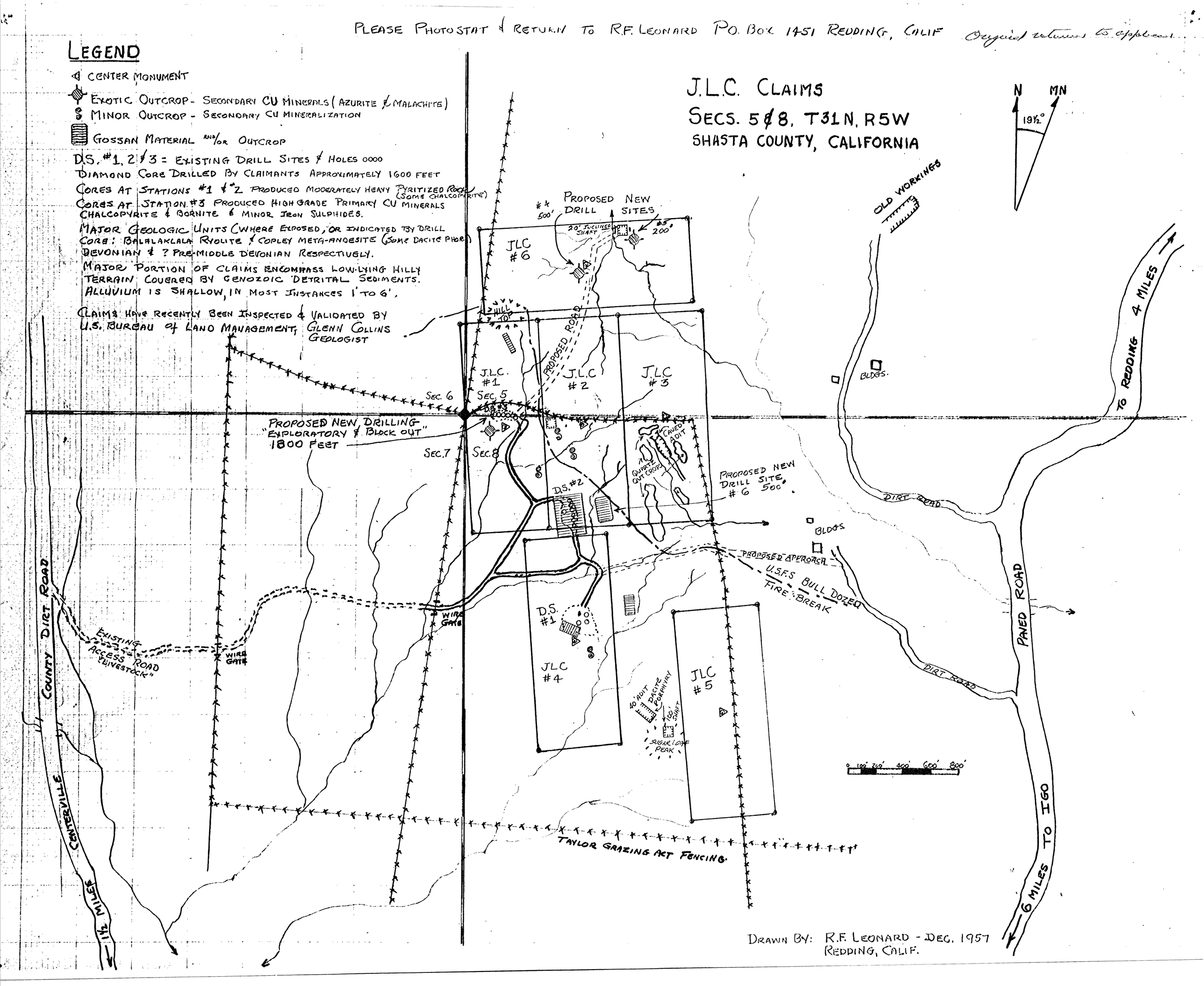
RECEIVED JUN 16 1958

DATE	INITIALS	CODE

OFFICIAL FILE COPY
DMEA
RECEIVED JUN 16 1958

DATE	INITIALS	CODE

PLEASE PHOTOSTAT & RETURN TO R.F. LEONARD PO. BOX 1451 REDDING, CALIF Original returns to applicant