DMEA Form 9
Rev. 6/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE — Idm-E NO. 187 — DMEA NO. 1219

Application
- [ ] Denied
- [ ] Withdrawn

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

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

Folder No. 1:

Left Side

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

Right Side

- [x] Project summary (final)
- [x] Work Comoleted analysis (final)

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

- [ ] Field Team Semi-Annual Report for Certified Project
- [x] Final Field Team Report (Tab)
- [x] 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. 2 + 3 : Reports
- [ ] Analysis of Semi-Annual Inspection Reports
- [ ] Project Summary (Interim) by DMEA Engineers

Right Side

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

Folders No. _____ : Maps (Use pocket folder or envelope) Plus old reports, (prior to project)

Folders No. _____ : Settlement Sheets

Folders No. _____ : Drill Logs

Folders No. _____ : Royalty material

17963

OFFICE OF MINERALS EXPLORATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

REPORT OF ROYALTY REVIEW

I have reviewed the files of the Washington office pertaining to Amended Contract Idm-E187, Docket DMA-1219 (zinc-copper) dated April 30, 1953, with

The Glidden Company
900 Union Commerce Building
Cleveland 14, Ohio

for the purpose of determining the amount of royalty payable to the U. S. Government on sales of minerals from property referred to as the Bully Hill and Rising Star Mines located in Shasta County, California, during the period January 1, 1959, through March 5, 1962.

A certification of discovery or development was issued on October 19, 1956, and, in accordance with Article 9 and Amendment No. 1 of the Amended Contract, royalty is payable on all minerals produced from the land described in Article 2 of the contract for a period of 11 years from the date of the Amended Contract or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first. A Report of Review dated November 20, 1956, indicated accepted costs under the exploration contract amounting to $254,514.98 with the Government's contribution on a 50 percent basis being $127,257.49.

The status of the project, the scope of review, and the reasons therefor are stated on page 2.

This review established no sales subject to the Government's royalty subsequent to the period covered by a prior Report of Royalty Review which also found no sales subject to the Government's royalty through December 31, 1958. The royalty account as of December 31, 1958, was:

Total Royalty Payable	$ -0-
Total Royalty Paid	-0-
Balance of Royalty Due	$ -0-

As of March 5, 1962, the royalty account of this project was found to be:

Total Royalty Payable	$ -0-
Total Royalty Paid	-0-
Balance of Royalty Due	$ -0-

March 9, 1962

E. D. Talbert, OME Auditor

STATUS OF PROJECT, SCOPE OF REVIEW
AND REASONS THEREFOR

This Amended Contract provides that the Operator or his successor in interest shall pay to the Government a percentage royalty on all mineral production from the land described in Appendix I of a Prior Contract dated October 18, 1951. The property under the contract consists of all rights in 11 and the surface rights only in 1 patented lode mining claims and all rights, except the surface rights above the 1070-foot contour, in 5 patented lode mining claims and 1 patented placer mining claim, all owned by the Operator and stated as being situated in Sec. 16 and 21, T. 34 N., R. 3 W., M.D.B.M.

Exploration work under this contract was completed on December 31, 1955. Thereafter, on August 20, 1956, all movable facilities, fixtures, equipment, and buildings, except one brick building, were sold and subsequently dismantled and removed from the property. The Operator advised that "The completion and cessation of work by our Company is considered permanent".

No production occurred during the exploration work. Subsequent examinations by field representatives and semi-annual reports from the Operator disclosed no production through the period covered by this review.

On December 28, 1961, the Operator granted a 10-year renewable lease to the Celtor Chemical Corporation, 1694 Union Street, San Francisco 23, California. The lease, which covers only the claims described in the exploration contract, states that the property is located in Sec. 15, 16, 20, 21, 22, 28, and 29, T. 34 N., R. 3 W., B. and M. Mount Diablo. The lease requires that the lessee shall begin commercial mining operations within 240 days and shall construct and operate a 200-ton mill. The lease also recognizes the DMEA royalty obligation, but provides that the lessor will pay the royalty on any mineral production from the property.

It is noted that the lessee, the Celtor Chemical Corporation, an operating associate of Providence Tuolumne Gold Mines, Inc., defaulted in the payment of royalty under Contract Idm-E551, Docket DMEA-2826. Shipments subject to royalty under that contract were made in the name of Continental Ore Corporation.

This review was made in lieu of an on-site audit of the Operator's accounts and records for the following reasons:

(1) The files indicate that no minerals were produced from the property since the date of the contract;

(2) The property has been inactive since 1955; and

(3) The administrative cost to the Government of an on-site royalty audit at this time would be excessive in relation to the amount of possible royalty which might be disclosed.

OFFICE OF MINERALS EXPLORATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

REPORT OF ROYALTY REVIEW

I have reviewed the files and records of the OME Field Team, Region II, pertaining to Contract No. Idm-K187, Docket No. DMA-1219X (Zinc-Copper), dated October 18, 1951, including Amendment No. 1, and Amended Contract dated April 30, 1953, including Amendment No. 1, with

The Glidden Company
1396 Commerce Building
Cleveland 14, Ohio

for the purpose of determining the amount of royalties due the U. S. Government on sales of zinc and copper ores from property known as the Bully Hill Mine, located in Shasta County, California, during the period of October 18, 1951, to December 31, 1958.

A certification of discovery or development was issued on October 19, 1956 and accordingly royalty is payable on all production from the land described in Article 2 of Amended Contract dated April 30, 1953 and Appendix I of Contract dated October 18, 1951, for a maximum period of 11 years from date of Amended Contract as stipulated in Amendment No. 1 of Amended Contract. A Report of Review in lieu of final cost audit dated November 20, 1956, indicated acceptable costs under the exploration contract amounted to $254,514.98 with the Government's contribution on a 50 percent basis, being $127,257.49.

No royalties have been paid to date in connection with this contract.

This review was made in lieu of an on-site audit of the Operator's accounts and records for the following reasons:

(a) According to the Field Team's Semi-Annual Report of Certified Projects for the period July 1, 1958 to December 31, 1958, there was no production during the period covered by this review and after August 1956 all buildings equipment etc were dismantled and removed from property.

(b) The administrative cost to the Government of an on-site royalty audit at this time would be excessive in relation to the amount of possible royalty which might be disclosed.

George Mavor

May 20, 1959

George Mavor, OME Auditor

File Copy
Surname

Klugescheid
Hoosong
Andrews 10/15/56
Dwyer
Appeals Coll. Off.
Chamber
Lamb
Nelson
Selfridge

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

CERTIFICATION BY THE UNITED STATES OF AMERICA OF A DISCOVERY OR DEVELOPMENT UNDER AN EXPLORATION PROJECT CONTRACT

To: Mr. Dwight P. Joyce, President
The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Pursuant to the provisions of Amended Exploration Project Contract No. Idm-E187, dated April 30, 1953, Docket No. DMEA-1219, hereinafter called the "contract", between The Glidden Company, a corporation, and the United States of America, hereinafter called the "Government"; to establish and fix the Government's percentage royalty on production and its lien thereon and on the land described in the contract, the Government considers and therefore certifies that discovery or development from which production may be made has resulted from the exploration work.

The nature of said discovery or development is described broadly or indicated as follows: Diamond drilling from the surface and from the 870 level, and drifting and crosscutting on the north end of the 870 level of the Bully Hill mine has shown the existence of lenses of copper-zinc ores occurring in a shear zone in rhyolite.

Dated OCT 19 1956

WPKlugescheid/er 10/11/56

THE UNITED STATES OF AMERICA

Copy to:
Docket
Mr. C. A. Fredell, Dr.,Tec.Ser D.
Mr. Lamb, USBM
Mr. Kiilsgaard, USGS
Admr R File
Op. Committee
Base Metals
Cont.Adm&Audit Div.
Finance Office
Region II (2)
Mr. F.E.Johnson
Mr. W.R. Griswold
Chron.

By C. Mittendorf
Administrator, Defense Minerals
Exploration Administration

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
	Arnold	500
5/7	Tolbert	800
	Selfridge	120
5/7	Edwards	110
5/7	Fumich	100
		220

MAY 7 - 1964

The Glidden Company
900 Union Commerce Building
Cleveland 14, Ohio

Re: DMEA-1219 (Zinc-Copper)
The Glidden Company
Bully Hill ~~and Rising Star Mines~~
Shasta County, California
Amended Contract Idm-E187

Gentlemen:

By the terms of the subject Amended Exploration Project Contract, as amended, and the certification of discovery or development dated October 19, 1956, all minerals mined or produced from April 30, 1953, to April 30, 1964, were subject to the Government's royalty as set forth in said amended contract.

As the period during which production was subject to royalty has now expired, the Government according to its present records retains no claim or lien against the property subject to the amended contract or any future production therefrom. We, therefore, are closing our books and records on this amended contract. Your attention, however, is called to the provisions of the amended contract which require the Operator to keep and preserve certain records for the periods indicated.

Sincerely yours,

George Fumich, Jr. (gfu)

Acting Director

MMerrithew/mm
5/7/64
cc: Director's Reading File
CA&A Division
Region II
Docket
Code 500

43683

[illegible] MINERALS EXPLORATION AD[illegible]TRATION
[illegible] ADMINISTRATION AND AUD[illegible] DIVISION

REPORT OF REVIEW

I have reviewed the Monthly Reports of:

The Glidden Company
an Ohio Corporation
1396 Commerce Building
Cleveland 14, Ohio

pertaining to Exploration Project Contract No. Idm-[illegible]87, Docket No. [illegible]-1219[illegible], dated October 18, 1951, including Amendment No. 1, and Amended Contract, dated April 30, 1953, including Amendment No. 1, for the months of January 1952 to December 1955, inclusive covering a project for the exploration of zinc and copper, on property, known as Bully Hill Mine, located in Shasta County, California.

My review included an examination of the Monthly Reports (Forms MF-104) and supporting documents attached thereto, comparison of the costs claimed with the contract and pertinent schedules, consultation with the Executive Officer in charge of the project, and a determination of the reasonableness and propriety of the costs.

This review was made in lieu of a final audit of the Operator's accounts and records for the following reasons:

(a) the administrative cost to the Government would be excessive in relation to the estimated amount of possible disallowances thereunder;

(b) the Monthly Reports were supported by documentary proof of the costs claimed ($106,014.98) under contract provisions for contribution by the Government on the basis of actual costs incurred; and

(c) a major portion ($148,500.00) of the cost incurred were under a contract provision for payment by the Government on the basis of agreed unit costs of work actually performed.

The review disclosed the following facts in regard to the amount paid or to be paid the contractor:

Total cost as billed by contractor	$254,514.98
Exceptions	None
Total Accepted Costs	$254,514.98

The contract calls for a 50 percent participation of exploration expenses by the United States Government. Therefore, payment to the contractor by the Government in the amount of One Hundred Twenty Seven Thousand Two Hundred Fifty Seven and 49/100 Dollars:

** $127,257.49 **

is considered valid and proper, provided that the Regional Executive Officer, the Administrator, or other competent official has accepted or will accept the project as having otherwise met the terms of the contract.

George Mayer
George Mayer
Auditor

November 20, 1956

et copy

Robin Sanger
J. Ed Grauwd
Sallie Selfridge
F. Johnson

WAIVER OF GOVERNMENT'S INTEREST IN PROPERTY

To: The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Operator under Amended Exploration
Project Contract Idm-E187, Docket
No. DMEA-1219, dated April 30, 1953.

The United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, under the terms of the above-described contract, hereby waives its interest in all property acquired under that contract.

Dated NOV 1 4 1956.

THE UNITED STATES OF AMERICA

By C. F. Mathewson
Administrator, Defense Minerals
Exploration Administration

Docket copy

RECEIVED
DEC 12

AMENDMENT NO. 1
To
AMENDED EXPLORATION PROJECT CONTRACT Idm-E187 (DOCKET NO. DMA-1219X)
Between
UNITED STATES OF AMERICA and THE GLIDDEN COMPANY

The United States of America and the Glidden Company, parties to Contract Idm-E187 (Docket No. DMA-1219X), agree as follows:

1. The time fixed in Article 3 of the Contract for completion of the work is extended to January 18, 1956.

2. The maximum period for royalty payments and lien for the payment thereof, provided for in the Contract, is increased from 10 to 11 years.

3. This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may be required to contribute, or the cost of any item of work.

Executed in sextuplicate this 10th day of November, 1955.

THE UNITED STATES OF AMERICA

By C. M. Mitkiewicz
Administrator, Defense
Minerals Exploration
Administration

Indirs 11/7/55
"Appd. Gol. Off."

THE GLIDDEN COMPANY

By Dwight P. Joyce

Title President

MF-200
(June 1951)
(Revised Feb. 1952)

DOCKET [redacted] DMA-1219X

COMMODITY Zinc-Copper

UNITED STATES OF AMERICA Docket copy
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 6 1953

AMENDED
EXPLORATION PROJECT CONTRACT[1]

IT IS AGREED this 30th day of April, 1953, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and[2] The Glidden Company, 1396 Commerce Building, Cleveland 14, Ohio, a corporation duly organized and existing under and by virtue of the laws of the State of Ohio, hereinafter called the Operator, as follows: and as set forth in Annex I attached hereto and made a part hereof

ARTICLE 1. *Authority for contract.*—This agreement is entered into under the authority of the Defense Production Act of 1950, as amended, pursuant to DMEA Order 1 entitled "Government Aid in Defense Exploration Projects."

ARTICLE 2. *Operator's property rights.*—With respect to that certain land situated in the State of California, County of Shasta, described as follows:[3] as indicated in Appendix I attached to the Prior Contract, and made a part hereof

the Operator represents and undertakes:[4]

(*a*) That the Operator is the owner, in possession and entitled to possession, and that the property is subject only to the following claims, liens, or encumbrances as to each of which the subordination agreement of the holder is attached: None

The Operator shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of the exploration project without any allowance for the use, rental value, depreciation, depletion, or other cost of acquiring, owning, or holding possession thereof.

ARTICLE 3. *Exploration project.*—The Operator, ~~shall~~ continue work on a project of exploration for[5] Zinc and Copper in or upon the described land; and shall bring the project to completion prior to October 13, 1955. The work to be performed is more fully described in Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, are made a part of this contract. The Government will contribute to the cost of this work as hereafter provided.

ARTICLE 4. *Performance of the work.*—(*a*) *Operator's responsibility.* The work shall be performed efficiently, expertly, in a workmanlike manner, in accordance with good mining standards and State regulations for health and safety and for workmens' compensation and employers' liability insurance, with suitable and adequate equipment, materials, and labor, to bring the project to completion within the time fixed. To the extent specified in Exhibit "A," attached hereto, the work may be performed by independent contractor or contractors; and work not specified in Exhibit "A" for performance by independent contractor may nevertheless be so performed upon amendment of Exhibit "A," as agreed to by the parties, to state the work to be so performed and the estimated unit costs thereof, as provided hereafter.

(*b*) *Independent contracts.*—Any independent contract for the performance of work shall be on a unit-price basis (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved), or on some basis that will indicate the amount due for work performed at any stage of the work to be performed under such independent contract. The Government shall not be nor be considered to be a party to any such independent contract, and the Government's right to terminate the exploration project contract under any of its provisions shall not in any manner be affected by reason of any such independent contract. If the reference in Exhibit "A" to any such independent contract states that the Government's approval thereof is required, the Government may refuse to participate in the cost thereof unless and until it has given its written approval of the independent contract.

(*c*) *Government may inspect.*—The Government shall have the right to enter and observe and inspect the work at all reasonable times, and the Operator shall provide the Government with all available means for doing so. The Government may consult with and advise the Operator on all phases of the work.

ARTICLE 5. *Estimated costs of the project.*—A statement of the estimated cost of the project is set forth in Exhibit "A," attached hereto. Except insofar as any item of requirement or the estimated cost thereof set forth in Exhibit "A" is there or elsewhere designated as an "allowable maximum," such items of requirement and of related cost are estimates only, and may be exceeded to the extent that the Government may from time to time approve for the most economic and beneficial performance of the work within the limitation of the total aggregate estimate of costs. The Government's approval of any such excess over the estimate for an item of requirement or related cost will be signified by its approval and payment of any invoice or voucher for payment which expressly calls attention to such excess. Items expressly designated in Exhibit "A" or elsewhere as "allowable maximum," and the total aggregate estimated cost are limitations, and any excess therein will be for the sole account of the Operator in which the Government will not participate.

ARTICLE 6. *Allowable costs of the project.*—(*a*) The costs of the project in which the Government will participate are limited to the following: and also the costs referred to in Article 13

(1) *Independent contracts.*—Payments to independent contractors under independent contracts listed in Exhibit "A." The estimated cost of any work to be performed under an independent contract is or shall be included in the estimate of costs in Exhibit "A" in terms of the estimated numbers of units of work to be performed, the estimated amount to be paid per unit, and the estimated total amount to be paid to the independent contractor, and such estimates shall be allowable maximums above which the Government will not contribute. Regardless of the provisions of any such independent contract, the Government will participate in the payments to the independent contractor only on account of work actually performed and that conforms with the provisions of the exploration project contract, and only to the extent that the Government deems the unit prices for the work under the independent contract to be reasonable and necessary. No such independent contract shall have the effect of increasing the estimated total cost of the exploration project contract nor the maximum amount which the Government will pay as provided in the exploration project contract.

(2) *Labor, supervision, consultants.*—Labor, supervision and technical services (including engineering and geological consultants), a schedule of which is included in the estimate of costs set forth in Exhibit "A." The requirements and related estimated costs for supervision and technical services are allowable maximums.

(3) *Operating materials and supplies.*—Necessary materials and supplies including items of equipment costing less than $50.00 each, and power, water, and fuel, a schedule of which is included in the estimate of costs in Exhibit "A."

(4) *Operating equipment.*—Any operating equipment to be rented or purchased, or which is owned and will be furnished by the Operator, with the estimated rental, purchase price, or the allowable depreciation, as the case may be, a schedule of which is included in Exhibit "A." Any items listed as owned and to be furnished by the Operator, and related ~~initial~~ allowable depreciation, are allowable maximums.

(5) *Rehabilitation and repairs.*—Any necessary initial rehabilitation or repairs of existing buildings, installations, fixtures, and movable operating equipment, now owned by the Operator and to be devoted to the purposes of the exploration contract, a schedule of which is included in the estimate of costs set forth in Exhibit "A." These items are allowable maximums.

(6) *New buildings, improvements, installations.*—Any necessary buildings, fixed improvements, or installations to be purchased, installed, or constructed for the purposes of the exploration work, with the estimated cost of each, a schedule of which is included in the estimate of costs in Exhibit "A." All of these items are allowable maximums.

(7) *Miscellaneous.*—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.

(8) *Contingencies.*—Such other necessary, reasonable direct costs of performing the exploration work, within the limit of the total aggregate estimate of costs, whether or not included in any schedule of costs in Exhibit "A," as may be approved by the Government in the course of the work, as indicated by its approval and payment of invoices and vouchers.

[1] If sufficient space is not provided in any blank, use an extra sheet of paper and refer to it in the blank.
[2] State name, address, and nature of organization if any.
[3] Give legal description or enough to identify the property, particularly excluding any land or interest therein to which the Government's lien is not to attach or the production from which is not to be subject to the Government's percentage royalty.
[4] Strike out the provision not applicable.
[5] Name of mineral or minerals.

(*b*) The Government's payments in [illegible] cases will be based on actual, necessary [illegible]s (including contract unit prices) incurred not in excess of any "allowable maximum," and not in excess of the fixed percentage of the total aggregate estimated cost. Costs will be considered to be incurred only as they are or become due and payable.

(*c*) 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 this contract, shall be allowed as costs of the project in which the Government will participate.

ARTICLE 7. *Reports, accounts, audits.*—(*a*) *Progress reports.* The Operators shall provide the Government with monthly reports of work performed and costs (including contract unit prices) incurred under the contract, in quintuplicate (five copies), upon forms provided by the Government. These progress reports shall be certified by the Operator, and shall constitute both the Operator's invoice of costs incurred on the project during the period covered by the report and his voucher for repayment by the Government, unless the Government requires the use of a standard voucher form with invoice attached. Progress reports shall include surface and/or underground engineering-geological maps or sketches showing the progress of the exploration, with assay-reports on samples taken concurrently with the advance in mineralized ground.

(*b*) *Final report.*—Upon completion of the exploration work or termination of the contract the Operator shall provide the Government with an adequate geological and engineering report, in quintuplicate (five copies), including an estimate of ore reserves resulting from the exploration work.

(*c*) Compliance with requirements.—If, in the opinion of the Government, any of the Operator's reports are insufficient or incomplete, the Government may procure the making or completion of such reports and attachments as an expense of the exploration work; and the Government may withhold approval and payment of any vouchers depending upon insufficient or incomplete reports.

(*d*) *Accounts and audits.*—The Operator shall keep suitable records and accounts of operations, which the Government may inspect and audit at any time. The Government may at any time require an audit of the Operator's records and accounts by a certified public accountant, the cost thereof to be treated as a cost of the project. The Operator shall keep and preserve said records and accounts for at least 3 years after the completion of the project or the termination of this contract. Upon the completion of the project or termination of the contract the Operator shall render a final account as provided in Article 12.

ARTICLE 8. *Payments by the Government.*—(*a*) The Government will pay 50 percent of the allowable costs incurred, as they accrue, in an aggregate total amount not in excess of $128,171.99, which is 50 percent of $256,343.98, the agreed, estimated total cost of the project in which the Government will participate; *Provided,* that until the Operator's final report and final accounting have been rendered to the Government, and any final auditing required by the Government has been made, and a final settlement of the contract has been made, the Government may withhold from the last voucher or vouchers such sums as it sees fit not in excess of ten (10) percent of the maximum total which the Government might have been called upon to pay under the terms of the contract.

(*b*) The Government may make any payment or payments direct to independent contractors and to suppliers, for the account of the Operator, rather than to the Operator.

ARTICLE 9. *Repayment by Operator.*—(*a*) If, at any time, the Government considers that a discovery or a development from which production may be made has resulted from the exploration work, the Government, at any time not later than 6 months after the Operator has rendered the required final report and final account, may so certify in writing to the Operator. The certification shall describe broadly or indicate the nature of the discovery or development. In the event of such certification, any minerals mined or produced from the land described in Article 2 within 10 years from the date of this contract, including any mined or produced before the certification, shall be subject to a percentage royalty which the Operator or his successor in interest shall pay to the Government, upon the net smelter returns, the net concentrator returns, or other net amounts realized from the sale or other disposition of any such production, in whatever form disposed of, including ore, concentrates, or metal, until the total amount contributed by the Government, without interest, is fully repaid, or said 10 years have elapsed, whichever occurs first, as follows:

(1) One and one-half (1½) percent of any such net amounts not in excess of eight dollars ($8.00) per ton.

(2) One and one-half (1½) percent of any such net amounts, plus one-half (½) percent of such net amounts for each additional full fifty cents ($0.50) by which such net amounts exceed eight dollars ($8.00) per ton, but not in excess of five (5) percent of such net amounts.

(For instance: The percentage royalty on a net amount of five dollars ($5.00) per ton would be one and one-half (1½) percent; on a net amount of ten dollars ($10.00) per ton, three and one-half (3½) percent.)

(*b*) As here used, "net smelter returns," "net concentrator returns," and "other net amounts realized from the sale or other disposition," mean gross revenue from sales; or if not sold, the market value of the material after it is mined in the form in which and the place where it is held. In the case of integrated operations in which the material is not disposed of as such, these terms mean what is or would be gross income from mining operations for percentage depletion purposes in income-tax determination.

(*c*) To secure the payment of its percentage royalty, the Government shall have and is hereby granted a lien upon the land described in Article 2 and upon any production of minerals therefrom, until the royalty claim is extinguished by lapse of time or is fully paid.

(*d*) This article is not to be construed as imposing any obligation on the Operator or the Operator's successor in interest to engage in any mining or production operations.

ARTICLE 10. *Assignment, transfer, or loss of Operator's interest.*—Without the written consent of the Government, the Operator shall not assign or otherwise transfer or hypothecate this contract or any rights thereunder. The Operator shall not make any voluntary nor permit any involuntary transfer or conveyance of the Operator's rights in the land described in Article 2, without making suitable provision for the preservation of the Government's right to a percentage royalty on production and lien for the payment thereof; *Provided,* that mere failure by the Operator to maintain the Operator's rights in the land, without any consideration running to the Operator other than relief from the cost of maintaining such rights (as by surrender of a leasehold, failure to perform assessment work, or failure to exercise an option), coupled with complete abandonment by the Operator of all interest in or operations on the land for a period of 10 years from the date of this contract, shall not constitute such a transfer or conveyance. Should the Operator make or permit any transfer or conveyance in violation of this provision, the Operator shall be and remain liable for payment to the Government of the same amounts, at the same times, as would have been paid under the terms of the percentage royalty on production. If for any reason the net smelter returns, net concentrator returns, or other net amounts realized from the sale or other disposition of such production are not available as a means of measuring the amount of the Operator's liability, the amount thereof shall be estimated as well as may be, and in the event of dispute as to such estimates, the determination thereof by the Administrator of Defense Minerals Exploration Administration or by his successor shall be final and binding upon the Operator.

ARTICLE 11. *Title to and disposition of property.*—All facilities, buildings, fixtures, equipment, or other items costing more than $50.00 each, paid for or purchased with funds contributed jointly by the Operator and the Government, although title may be taken in the name of the Operator, shall belong to the Operator and the Government jointly, in proportion to their respective contributions, and upon the completion of the work or the termination of the contract shall be disposed of promptly by the Operator for the joint account of the Government and the Operator, either by return to the vendor, by sale to others, or purchase by the Operator at a price at least as high as could otherwise be obtained, as may appear to be for the best interest of the Government, unless the Government, in writing, waives its interest in any such item. If necessary to accomplish such disposition, the Operator shall dismantle, sever from the land, and remove any such item, the cost thereof to be for the joint account of the parties in proportion to their respective interests. If the Operator, within 90 days after the receipt of written notice from the Government, fails, neglects, or refuses to dispose of such property, the Government may itself enter upon the land, take possession of, and remove and dispose of any such property as above provided.

ARTICLE 12. *Termination and completion.*—The Government may, at any time, by written notice to the Operator, terminate this contract: (*a*) If the Operator fails to provide his share of the money necessary to prosecute operations pursuant to the terms of the contract; (*b*) if the Operator, in the opinion of the Government, fails to prosecute operations pursuant to the terms of the contract; or (*c*) if in the opinion of the Government, operations up to the time of the notice have not indicated the probability of making any worth while discovery and in the opinion of the Government further operations are not justified. Upon the completion of the project or any termination of the contract the Operator shall dispose of any remaining materials, supplies, facilities, buildings, fixtures, and equipment in which the Government has an interest, for the joint account of the Operator and the Government in the proportion of their respective interests; shall render to the Government a full and final accounting of his operations under the contract and his expenditures of money; and shall pay to the Government its pro rata share of any money remaining.

ARTICLE 13. *Changes and added provisions.* To the extent that costs are set forth in Exhibit "A" Amended as agreed unit costs they are in lieu of the actual costs of the project as provided in Article 6(a) of the contract form.

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By C. Mittendorf
Administrator, Defense Minerals Exploration Administration

THE GLIDDEN COMPANY
(Operator)

By Adrian D. Joyce
Chairman of the Board of Directors

I, R. D. Horner, certify that I am the secretary of the corporation named as Operator herein; that Adrian D. Joyce, who signed this contract on behalf of the Operator, was then Chairman of the Board of Directors of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

R. D. Horner

[CORPORATE SEAL]

U. S. GOVERNMENT PRINTING OFFICE 16—66328-1

EXPLORATION PROJECT CONTRACT
GLIDDEN COMPANY
DOCKET NO. DMA-1219X

ANNEX I

WHEREAS, the parties to this amended agreement are also parties to Contract Idm-E187, Docket No. DMA-1219X, dated October 18, 1951, executed on Form MF-200 (June 1951), as amended, hereinafter called the Prior Contract; and

WHEREAS, 5,299'-4" of diamond drilling specified in the Prior Contract has been completed but the parties desire to alter the work provided for in the Prior Contract and to make the basis for the payment of some of the additional work provided hereunder on a unit cost instead of an actual cost basis, and to restate their agreement on the new contract form, MF-200 (revised February 1952);

NOW THEREFORE, it is mutually agreed as follows:

1. Effective as of the date of its execution, the Prior Contract is amended and superseded by this amended contract executed on Form MF-200 (revised February 1952), which shall govern the Government's claim and lien for percentage royalties and in which the rights and obligations of both parties are fully merged.

2. All work performed under the Prior Contract, having been fully paid for, the Operator hereby releases and agrees to save harmless the Government from all claims and demands arising out of the Prior Contract.

3. The description of the work and the costs thereof, and the costs of the entire project and the Government's participation therein, shall be as stated in Exhibit "A" Amended, attached hereto and made a part hereof.

EXPLORATION PROJECT CONTRACT
GLIDDEN COMPANY
DOCKET NO. DMA-1219X

EXHIBIT "A" AMENDED

Description of the Work

The work in the Bully Hill Mine as indicated on the two maps attached hereto and made a part hereof and entitled "Map #1, Geologic Map, 300 Level, Bully Hill Mine, Shasta County, California," and "Map #2, Geologic Map, 870 Level, Bully Hill Mine, Shasta County, California," is to be in two stages.

STAGE I

The work in this stage consists of the work described in Exhibit "A" attached to the Prior Contract, which was performed prior to the date of this Amended Contract, and consisted of 5,299'-4" of diamond drilling.

STAGE II

In this stage the work is to consist of the following:

1. Rehabilitate 975 feet of drift on the 300 level from the portal of the adit to the vertical shaft as shown on Map No. 1

2. Unwater and rehabilitate the vertical shaft a distance of 650 feet from the 300 level to the 870 level, as shown on Map No. 1.

3. Rehabilitate a total of 1,000 feet of drift on the 870 level from the aforesaid vertical shaft to the north end of the old workings, as shown on Map No. 2.

4. Drift and crosscut a distance of 1,500 feet from the north end and 1,000 feet from the south end of the old working on the 870 level, as shown on Map No. 2.

The location and direction of the drifts and crosscuts shall be mutually agreeable to the Operator and the Government Field Team. The drifts and crosscuts shall be timbered where necessary and be not less than 5' x 7' in the clear.

5. As tentatively shown on Map No. 2, to prospect the ore zone, diamond drill 4,000 feet from the drifts and crosscuts of the 370 level, the length and size of the holes, their location, direction, and inclination being subject to the approval of the Government Field Team.

Estimated Cost of the Project
(*Indicates allowable maximum)

Stage I

The completed 5,299'-4" of diamond drilling indicated in Exhibit "A" of the Prior Contract	$ 47,693.98

Stage II

Agreed Unit Costs

2,500 ft. of drifting and cross-cutting @ $45.00/ft.	$112,500.00	
4,000 ft. of diamond drilling @ $9.00/ft.	36,000.00	
Total Agreed Unit Cost		148,500.00

The Government will contribute to the costs of the above drifting, crosscutting, and diamond drilling on the basis of these agreed unit costs per foot as they accrue for units of work actually performed in lieu of actual costs. These unit costs include all costs of the work except those scheduled below to which the Government will contribute on the basis of actual costs as set forth in Article 6 of the contract.

Estimated Actual Costs

Rehabilitate 300 level,--975 ft. @ $14.00*/ft. 1/	13,650.00

1/ Of the eight categories of costs set forth in Article 6 of the contract form, all are allowable costs except (4) Operating Equipment (which the Operator shall furnish without cost) and (6) New buildings, improvements, installations. All other schedules are waived. However, the cost of a supervisor (for all the rehabilitation work under this project) shall not exceed $750 a month. In making its monthly reports, the Operator shall distribute the costs among the allowable categories thereof. Should the actual cost of the work exceed the price per foot here set forth, the parties may by agreement increase the allowable cost thereof.

Unwater and rehabilitate vertical shaft,--650 ft. @ $50.00*/ft.2/	$ 32,500.00	
Rehabilitate 870 level,--1,000 ft. @ $14.00*/ft.2/	14,000.00	
Total Estimated Cost of Rehabilitation and Unwatering		$ 60,150.00*

SUMMARY

Total Cost, Stage I	$ 47,693.98*	
Total Estimated Cost, Stage II	208,650.00*	
Total Estimated Cost of Project		$256,343.98*
Government Participation @ 50%		$128,171.99*

2/ Same as footnote 1/

Amendment No. 1

It is agreed this 1st day of November 1951, between the United States of America, acting through the Department of the Interior, Defense Minerals Administration and The Glidden Company, an Ohio Corporation, 1396 Co-ance Building, Cleveland 14, Ohio

each acting in consideration of the agreement of the other to the terms hereinafter set forth, that the Exploration Project Contract IdM-S-187 of October 18, 1951 between the parties hereto be modified and amended as described in Exhibit "F", attached hereto, which, with any maps or drawings attached thereto, is made a part of this agreement. The effective date of this amendment shall be October 18, 1951.

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may be obligated to pay, or the percentage of costs which the Government may be obligated to pay, under the provisions of Article 13 of the contract form.

Executed in septuplicate the day and year first above written.

The Glidden Company
(Operator)

By Douglas B. Joyce
President

The United States of America

By Frank E. Johnson
Acting Administrator
Defense Minerals Administration

Docket No. DMA - 1219X
The Glidden Company

EXHIBIT "I"

Changes and Modifications:

In Exhibit "A" of the contract, page 2, last two paragraphs delete:

"The Government will not participate in costs exceeding $9.00 per foot for the diamond drilling; any additional cost will be borne by the Operator. Payment at this rate allowed only for actual footage drilled.

"All costs of rehabilitation, engineering, geology, etc., are to be borne by the Operator"

and substitute the following:

"The Government will not participate in costs exceeding $9.00 per foot for diamond drilling and for geological work performed in connection with this Exploration Contract; any additional cost will be borne by the Operator. Payment at this rate allowed only for actual footage drilled.

"The geological work to include the location and direction of the diamond drill holes, the examination of the diamond drill core, and the recording and mapping of all pertinent information relative to these drill holes. The allowance for this work is not to exceed $1.00 per foot of the actual footage drilled, and this is to be included in the total cost which is not to exceed $9.00 per foot. Any additional geological cost will be borne by the Operator.

"All costs of rehabilitation and engineering are to be borne by the Operator.

"The drilling contract must be approved by the Government."

C O P Y

E. J. LONGYEAR COMPANY
Mining Engineers
General Office
Foshay Tower
Minneapolis 2, Minnesota

April 27, 1951

Mr. Adrian D. Joyce, Chairman of the Board
The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Dear Mr. Joyce:

We are pleased to submit herewith our proposal for your contemplated diamond core drilling program to be carried out in Shasta County, California. We have been delayed in submitting our proposal to you due to critical material shortages and also personnel shortages which have developed during the past few months, but now believe we have made sufficient progress so that we will be in a position to proceed with the work in accordance with our proposal.

As indicated in our proposal, we would expect to furnish a crew consisting of 4 to 5 drillers, an equal number of drill helpers, a drill foreman, truck driver, camp cook and cook's helper. We expect that it would be necessary to pay wages approximately as follows:

Foreman	$500 to $550 per month
Drill runners	$2.00 per hour
Drill helpers	$1.50 to $1.75 per hour
Truck Driver	$1.75 per hour
Cook	$350 to $400 per month
Cook's Helper	Going rate for common labor

At the time our Mr. F. W. Donovan called on your Mr. Edward L. Ralston at Oakland, California, it was learned that you desire that we furnish a geologist for the purpose of supervising the sampling procedures and to assist in the planning of the locations of the drill holes and generally superintend the drilling operation. We have asked Dr. D. M. Davidson, Manager of our Mining Division to submit to you under separate cover proposal for the provision of this service. Dr. Davidson's proposal should be in the mail during the early part of the week of April 30.

We appreciate very much the opportunity of considering this work and should our proposal be acceptable we will make every effort to get the drilling operations under way at the earliest possible date.

Very truly yours,

/s/ V. N. Burnhart
V. N. Burnhart, Manager
Contract Drilling Division

VNB:LT
cc: Mr. Edward L. Ralston

COPY

E. J. LONGYEAR COMPANY
Mining Engineers
General Office
Foshay Tower
Minneapolis 2, Minnesota

April 27, 1951

The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Attention: Mr. Adrian D. Joyce, Chairman of the Board

Gentlemen:

1. In accordance with our previous correspondence, we are pleased to submit below cost and rental agreement for your contemplated diamond core drilling program to be carried out at your property known as the Bully Hill Mine, Shasta County, California.

2. We understand that the preliminary phase of the drilling program will consist of a series of vertical holes to be drilled to depths varying from 600 to 1,000 feet and averaging probably around 800 feet; that if the results of the initial phase of the work are favorable, the old workings may be reopened and arrangements made for drilling from underground stations. We also understand that water required for drilling purposes would have to be hauled 1½ to 2 miles to secondary storage points where water could be pumped to the drill hole locations; and that it will be necessary to operate a camp for the accommodation of the drill crews. We further understand that there are two possible routes by which the property may be reached but that the most desirable means of transport to and from the property would depend upon the results of a further reconnaissance of the old truck road from Redding by-passing the northeast end of Shasta Lake to the Bully Hill property or whether satisfactory arrangements could be made with the Federal Government for the rental of a barge for the transport of equipment and supplies to the property.

3. For this work, we propose

a. To furnish two Longyear diamond core drilling units together with the necessary bortz bits, supplies, spares and other equipment required for recovering cores of BX, AX AND EX sizes, approximately 1-5/8", 1-1/8" and 7/8" respectively, as required by drilling conditions for holes to a maximum depth of approximately 1,000 feet.

b. Core boxes will be furnished by the Longyear Company, if desired, as a supply item.

c. To provide the necessary crew of carefully selected men to operate the two drilling units on 2 or 3-shift basis, 6 days per week, the contemplated drill crew to consist of the following: 1 foreman, 4 to 5 drill runners, 4 to 5 drill helpers, and 1 truck driver. We will also furnish one competent camp cook and cook's helper as required.

d. To furnish one 1-ton pickup truck to transport supplies to and from Redding or other nearby points to camp or dock from which said supplies may be transported to a point which is accessible to the camp.

e. To provide all camp equipment required, including cook stove, all culinary equipment, beds, mattresses and other fixtures as required to operate camp.

4. We will carry public liability insurance covering personal injury and property damage; Workmen's Compensation, Old Age Benefit, Unemployment and any other insurance on our employees required by state or federal laws; also, all-risk insurance on the drilling equipment protecting against loss by theft, fire, flood, land-slides and other similar hazards, and special endorsement or coverage for marine hazard. Certificates showing the coverage referred to will be furnished, if desired.

5. COSTS

It is agreed that you will reimburse the Longyear Company for or pay directly the expenses of the Longyear Company in the performance of this contract as follows: all wages of workmen and their traveling expenses from the nearest available points to the scene of the work and return, also the board of the workmen less $1.50 per man per day, except cook and cook's helper whose board will be furnished without cost to them; all freight, express and trucking charges; food and all other supplies used; repairs and replacements; fuel; oil; borts bits and borts reaming shells at our listed retail prices less credit received for salvaged stones, Carboloy or other special bits at list price as used, mechanically-set bits and reaming shells; cost of compensation or other employee insurance as required by law; miscellaneous expenses; rods and casing to be charged at the rate of one foot of rods or casing for each ten feet drilled or cased, plus payment in full for any rods or casing lost in drill holes or discarded on account of damage due to causes other than ordinary wear and tear.

You will also pay for all expenses incurred in connection with rental of barge or other water transport as may be required for the delivery of drill equipment or the maintenance of drilling operations.

6. RENTAL:

In addition to all costs outlined above, you will pay the sum of $475.00 per drill per month for single shift operation, or $600.00 per drill per month for double shift operation, or $675.00 per drill per month for 3-shift operation, this charge to cover rental of drill outfit, interest, depreciation and overhead expense. This rental charge is to commence at the time the drill outfit and crew are delivered at Redding, California, and continue until drill outfit is returned to Redding for return shipment to Marquette, Michigan, or equivalent point.

You will also pay the sum of $100.00 per month for the use of truck plus gas, oil and maintenance.

7. COMPENSATION.

In addition to all costs outlined in the preceding paragraph 6, you will pay us as compensation the sum of 50¢ per foot drilled. It is understood that the charge of 50¢ per foot drilled covers total compensation for overburden drilling, diamond core drilling, and reaming or other work pertaining to the execution of this drilling program.

8. It is agreed that in the event drilling operations are temporarily terminated at your request, retaining the drill and equipment at the drilling site on standby basis, the rental charge for the complete outfit less personnel will be $250.00 per drill per month or fractional part thereof.

9. It is agreed that deductions for board as specified in paragraph 5 will be credited against expense on our monthly invoices.

10. It is agreed that the Longyear Company will be reimbursed for all camp equipment when purchased and that following the completion of the drilling program, the camp equipment may be disposed of in accordance with your instructions.

11. It is agreed that you will be responsible for or furnish the following: adequate housing required for kitchen, mess hall, housing for all employees of the Longyear company; repair and maintenance of all roads leading to the property, to and from drilling sites; lights and water required for camp facilities and our operation of camp; transport of water required for drilling purposes from source of supply to storage tanks to be provided by the Longyear Company to be located not over 1,500 feet from any planned drill hole location; construction of docks or dock facilities which may be required for the transport of equipment and supplies to the property.

12. TERMINATION OF CONTRACT AND MINIMUM RENTAL:

It is agreed that should the results of the exploration make it seem advisable, you may terminate the drilling at any time provided that if rentals paid or accrued under paragraph 6 do not amount to a total of $2,000.00, you will pay such additional sum as may be necessary to make that amount.

13. Statements are to be rendered as promptly as possible after the first of the month and are to be accompanied by copies of the payroll and such other supporting data as may be desired by you.

14. We understand that it is your desire to have this work commenced as soon as possible. We are prepared to proceed with this objective in mind realizing it will be necessary first to determine the most accessible route to the property to provide adequate transport of supplies and equipment, also to purchase or otherwise supply camp equipment necessary to feed and properly accommodate the drill crew. It is suggested that such preparations for mobilization be carried out with the assistance of Mr. Edward L. Ralston. To assist on the mobilization phase, we would send one of our field superintendents on the basis of $650.00 per month or fractional part thereof, plus travel expenses. Based upon the information at hand, we would endeavor to commence drilling operations on or about June 1, 1951.

Yours very truly,

E. J. LONGYEAR COMPANY

/s/ V. N. Burnhart
Manager, Contract Drilling Division

VNB:LT
ACCEPTED:
THE GLIDDEN COMPANY

Adrian D. Joyce, Chairman of the Board
Acceptance subject to the commencement of drilling operations on or before December 17, 1951.

Docket Copy

AMENDMENT NO. 1

Docket No. DMA-1219X Mineral Zinc-Copper

Exploration Project Contract Idm-E 187

Date of Contract Oct. 18, 1951

Date of Amendment Nov. 1, 1951

Operator The Glidden Company

JUSTIFICATION

This amendment was drawn up in the Washington Office. Its purpose was to delete two paragraphs from Exhibit "A" of the contract and to substitute a statement that the Government will not participate in costs exceeding $9.00 per foot for diamond drilling and for geological work, instead of $9.00 a foot for diamond drilling alone.

The amendment also specifies that the allowance for examining the drill cores, recording and mapping pertinent information relative to the drill holes may not exceed $1.00 per foot, which is to be included in the total cost which is not to exceed $9.00 a foot.

The amendment also specifies that all costs of rehabilitation and engineering are to be borne by the operator and that the Government must approve the drilling contract.

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

MF-200
(June 1951)

DMA file

Docket No. DMA 1219X
Commodity Zinc-Copper
[illegible]-[illegible]-[illegible]7

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

EXPLORATION PROJECT CONTRACT[1]

It is agreed this 18th day of October, 1951, between the United States of America, acting through the Department of the Interior, Defense Minerals Administration, hereinafter called the "Government," and[2] The Cliffden Company, an Ohio Corporation
1396 Commerce Building
Cleveland 14, Ohio

hereinafter called the "Operator," as follows:

1. *Authority for contract.* This agreement is entered into under the authority of the Defense Production Act of 1950, pursuant to Mineral Order 5, entitled "Regulations Governing Government Aid in Defense Exploration Projects."

2. *Operator's property rights.* The exploration project shall be conducted on that certain property situated in the State of California, County of Shasta described as follows:[3] In Sections 16 and 21, R. 3W., R. 3W.

See Appendix I

with respect to which the Operator represents and undertakes:[4]

(*a*) That he is the sole owner, in possession and entitled to possession, and that the property is subject only to the following claims, liens, or encumbrances as to each of which the subordination agreement of the holder is attached: None

(*b*) That he is a lessee, in possession and entitled to possession, and the subordination agreement of the lessor is attached.

3. *Exploration project.* The Operator, within sixty (60) days from the date of this contract shall commence work on a project of exploration for[5] zinc and copper; shall prosecute the work efficiently, expertly, in a workmanlike manner, in accordance with good mining standards, with suitable and adequate equipment, materials, and labor, all properly designed to bring the project to completion within a period of[6] two (2) years from the date of this contract. The exploration project and the work to be performed are more fully described on Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, is made a part of this contract.

4. *Performance of the work.* The work shall be performed by the Operator, under his sole direction and control: *Provided,* That with the consent of the Government and its written approval of the contract or contracts, all or any part of the work may be performed by the Operator through contract or contracts with independent contractors. The Government shall have the right to enter and observe and inspect the work at all reasonable times, and the Operator shall provide the Government with all available means for doing so. The Government may consult with and advise the Operator on all phases of the work.

5. *Fixtures and improvements.* The Operator shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of the exploration project without any allowance for the use, rental value, depreciation, depletion, or other cost of acquiring, owning, or holding possession thereof. Any additional facilities, buildings, and fixtures, to be purchased, installed, or erected by the Operator, with the estimated cost of each, to which the Government will contribute currently its agreed pro rata share, are listed in Exhibit "A" attached hereto. The difference between the cost of such additional facilities, buildings, or fixtures, and the salvage value thereof at the conclusion of the work, shall be charged as a cost of the project to which the Government has contributed its pro rata share.

6. *Operating equipment.* Any operating equipment to be rented, purchased, or furnished by the Operator, with the allowable rental, purchase price, or depreciation, as the case may be, is listed under appropriate headings in Exhibit "A" attached hereto. As to equipment purchased for the project, the Government will contribute its agreed pro rata share of the cost thereof and the difference between the cost and the salvage value at the conclusion of the work shall be charged as a cost of the project to which the Government has contributed its pro rata share.

[1] If sufficient space is not provided in any blank, use an extra sheet of paper and refer to it in the blank.
[2] State name, address, and nature of organization if any.
[3] Give legal description or enough to identify the property.
[4] Strike out the provision not applicable.
[5] Name of mineral.
[6] Not in excess of 2 years.

7. *Title to and disposition of property.* All facilities, buildings, fixtures, equipment, or other items costing more than $50 each, paid for or purchased with funds contributed jointly by the Operator and the Government, shall belong to the Operator and the Government jointly, in proportion to their respective contributions, and upon the termination of the contract, if they have any salvage value, shall be disposed of for their joint account unless the Government, in writing, waives its interest in any such items. The Government may require the dismantling, severance from land, and removal of any such items in order to realize its interest in the salvage value thereof, and the cost of any such removal and of the disposal of the items shall be for the joint account of the parties in proportion to their respective interests.

8. *Labor and supervision.* An itemized schedule of labor, by numbers and classes (miners, muckers, millmen, etc.), and of supervisors, by numbers and positions, with the maximum wages or salaries that may be paid to each as an allowable cost of the project is set forth in Exhibit "A" attached hereto.

9. *Rehabilitation and repairs.* A statement of the cost of any necessary rehabilitation or repairs to put existing facilities, buildings, installations, and fixtures into useful and operable condition and which are to be allowed as costs of the project is included in Exhibit "A."

10. *Allowable costs of the project.* The costs of the project in which the Government will participate are limited to the necessary, reasonable, direct costs of performing the exploration work, including the costs of materials, supplies, engineering, power, water, analytical work, accounting, and utilities, including items of equipment costing less than $50 each; and the costs referred to in Articles 5, 6, 8, and 9, and the exhibits annexed to and referred to in this contract. Although the Government may pay part of the cost of new or additional facilities, structures, buildings, and equipment, only the depreciation on such items, computed as indicated in Articles 5 and 6, will be charged as a cost of the project. No items of general overhead, corporate management, interest, taxes, or any other indirect costs not expressly allowed by these provisions, or work performed or costs incurred before the date of this contract, shall be allowed as costs of the project in which the Government will participate.

11. *Accounts and audits.* The Operator shall keep suitable records and accounts of operations, which the Government may inspect and audit at any time. The Government may at any time require an audit of the Operator's records and accounts by a certified public accountant, the cost thereof to be treated as a cost of the project. The Operator shall keep and preserve said records and accounts for at least 3 years after the completion of the project or the termination of this contract.

12. *Progress reports.* The Operator shall provide the Government with monthly reports of work performed under the contract upon forms to be provided by the Government. Each monthly progress report shall bear the certification of the Operator and shall constitute the Operator's invoice of costs incurred on the project during the period covered by the report.

13. *Payment to the Operator.* The monthly progress report (invoice), to the extent approved by the Government, shall be processed for payment by the Government. Payment shall be made in the amount of 50 percent of the approved costs incurred; *Provided,* That the aggregate total of all sums paid by the Government under this agreement shall not exceed $147,150.00, which is 50 percent of the agreed estimated total cost of this project, $294,300.00.

14. *Final reports by Operator.* Upon completion of the project or termination of this contract, the Operator shall provide the Government with a comprehensive geologic and engineering report, including an estimate of ore reserves, to the best of his ability. Four copies of all reports shall be furnished to the Government.

15. *Repayment by Operator.* If, upon the completion of the exploration project or termination of the contract, the Government considers that a discovery or development has resulted from the work from which commercial production of ore may be made, the Government, within 6 months thereafter, shall so certify to the Operator, particularly describing and delimiting its estimate of the discovery or the development. Thereafter, if and as ore is produced as a result of such discovery or development, the Operator and his successor in interest shall be and become obligated to pay to the Government a percentage royalty on the net smelter returns or other net proceeds realized from such ore, concentrates, or metal produced within ten (10) years from the date of this contract, until the total amount contributed by the Government, without interest, is fully repaid or said 10 years have elapsed, whichever occurs first, as follows:

Of net smelter returns or other net proceeds not in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent.

Of net smelter returns or other net proceeds in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent, plus one-half (½) percent for each additional full fifty cents ($0.50) in excess of eight dollars ($8.00) per ton of ore, but not in excess of a maximum of five (5) percent.

This obligation to repay from net returns or proceeds shall be and remain a claim and lien upon the mineral deposit which is the subject of the exploration project and upon any production resulting from such discovery or development, in favor of the Government, until fully paid, or until said 10-year period has elapsed; and this claim and lien and the Government's right to repayment shall survive any termination of the contract, whether by completion of the exploration project or otherwise. This article is not to be construed as imposing any obligation on the Operator or his successor in interest to produce ore from any such discovery or development.

16. *No assignment of contract.* Without the written consent of the Government, the Operator shall not assign or otherwise transfer or hypothecate this contract or any rights thereunder.

17. *Termination and completion.* The Government may, at any time, by written notice to the Operator, terminate this contract: (*a*) If the Operator fails to provide his share of the money necessary to prosecute operations pursuant to the terms of the contract; (*b*) if the Operator, in the opinion of the Government, fails to prosecute operations pursuant to the terms of the contract; or (*c*) if in the opinion of the Government, operations up to the time of the notice have not indicated the probability of making any worthwhile discovery and in the opinion of the Government further operations are not justified. Upon the completion of the project or any termination of the contract the Operator shall render to the Government a full and final accounting of his operations under the contract and his expenditures of money; shall dispose of any unused materials, supplies, and equipment for the joint account of the Operator and the Government in the proportion of their respective interests; and shall pay to the Government its pro-rata share of any money remaining.

Executed in sextuplicate the day and year first above written.

The Cliffden Company
(Operator)

By [signature]
Vice President

THE UNITED STATES OF AMERICA

By [signature]
Acting Administrator
Defense Minerals Administration

U. S. GOVERNMENT PRINTING OFFICE 16—64066-2

APPENDIX I

LEGAL DESCRIPTION OF PROPERTY COVERED BY THIS CONTRACT

1. The following properties located and lying in Shasta County, California:

(a) The mining claim known as the Aqueous Mine Lode Mining Claim, as more particularly described and set forth in United States Patent dated November 19, 1904, and recorded in Book 9, Patents, page 30, Shasta County Records.

(b) All surface rights within the mining claim known as the Boulder Lode Mining Claim, as more particularly described and set forth in United States Patent dated November 25, 1924, and recorded in Book 2 Official Records, page 310, Shasta County Records.

(c) The mining claim known as the Potter Quartz Lode Mining Claim, consisting of the Popejoy, Bully Hill, and Jennie June Lode Mining Claims, as more particularly described and set forth in United States Patent dated November 19, 1890, and recorded in Book 5 Patents, page 264, Shasta County Records.

(d) The mining claim known as Diamond Fraction Lode Mining Claim, as more particularly described and set forth in United States Patent dated June 18, 1930, and recorded in Book 58 Official Records, page 218, Shasta County Records.

(e) The mining claims known as the Rising Star and Hillside Lode Mining Claims, as more particularly described and set forth in United States Patent dated March 27, 1907, and recorded in Book 11 Patents, page 124, Shasta County Records.

(f) The mining claim known as the Redding Consolidated Quartz Mining Claim, consisting of the Redding, Shasta, and Keswick Lode Mining Claims, as more particularly described and set forth in United States Patent dated August 8, 1904, and recorded in Book 7 Patents, page 354, Shasta County Records.

(g) The mining claim known as the Northern Light Quartz Lode Mining Claim, as more particularly described and shown in United States Patent dated October 7, 1896, and recorded in Book 5 Patents, page 295, Shasta County Records.

2. All surface rights within the boundaries of the following mining properties lying above the 1070-foot contour above mean sea level, and all subsurface rights, and all mineral rights (including the right to mine and extract minerals and all extralateral rights) under existing mining law, in the following mining properties whether above or below said 1070-foot contour, all said properties located and lying in Shasta County, California:

(a) The mining claim known as the Sanders Quartz Lode Mining Claim, as more particularly described and set forth in United States Patent dated June 18, 1930, and recorded in Book 58 Official Records, page 218, Shasta County Records.

(b) The mining claim known as the Howard Quartz Lode Mining Claim, as more particularly described and set forth in United States Patent dated June 18, 1930, and recorded in Book 58 Official Records, page 218, Shasta County Records.

(c) The mining claim known as the Excelsior Lode Mining Claim, as more particularly described and set forth in United States Patent dated February 15, 1883, and recorded in Book 2, Patents, page 46, Shasta County Records.

(d) The mining claim known as the Baxter Quartz Lode Mining Claim, as more particularly described and set forth in United States Patent dated February 17, 1898, recorded in Book 7 Patents, page 21, Shasta County Records.

(e) The mining claim known as the Brown Lode Mining Claim, as more particularly described and set forth in United States Patent dated August 8, 1904, and recorded in Book 7 Patents, page 361, Shasta County Records.

(f) The placer mining claim known as the Popejoy Placer Mining Claim, as more particularly described and set forth in United States Patent dated April 18, 1890, and recorded in Book 4 Patents, page 352, Shasta County Records.

EXHIBIT A

Exploration Project

To explore for zinc and copper by diamond drilling from surface the Glidden Company's properties, the Rising Star and Bully Hill Mines, in Shasta County, California. The drilling is to be done in six areas as indicated on the attached map and is to be divided into two phases. The locations of the diamond drill holes shown on the map are tentative in most holes and will depend on the most convenient drill setup that can be utilized to reach the areas to be explored. In addition, it may be advisable to concentrate drilling around any hole that encounters ore and drill either above or below the ore to follow the ore shoot along its plunge.

The areas to be explored by diamond drilling are shown on the accompanying map.

Proposed Work

Phase I

Area 1: Five diamond drill holes to explore the northward extension of the Bully Hill ore zone. The two most southerly holes will explore along the line of plunge of known ore and the three northerly holes in this area will prospect for new ore shoots.

Area 3: Seven diamond drill holes to explore for new ore shoots.

Area 5: South half of this area, five holes are to be drilled to explore under known ore in the upper levels which was not explored by lower level workings.

Area 2: Six diamond drill holes to explore for new ore shoots.

Twenty-three holes to be drilled and total footage diamond drilled not to exceed 17,000 feet.

At the completion of Phase I, the drilling results are to be reviewed to see if the more speculative drilling of Phase II, in Areas 4 and 6, and the north end of Area 5 are justified. This shall be determined by the Operator with the approval of the Government.

If it is agreeable to both the Government and the Operator, then the proposed work in the second phase will consist of:

Phase II

Area 4: Four diamond drill holes to explore the northward extension of the west run of ore in the Rising Star Mine. The location of the holes is not shown because the topography has not been mapped in this area.

Area 6: Eight diamond drill holes are to be drilled in this area where there is no known ore at surface. The hole locations are not given because no topography is available at present.

Area 5: North end of this area: four diamond drill holes will explore the extension of the ore zone which is marked by a strong shear zone on the surface. The three most northerly holes of Area 5 are shown on the map only by an "X" at the point at which the drill hole should cross the ore zone, and the elevation is marked at which the hole should cross at that point. No topography is available at present in north end of Area 5.

Sixteen holes to be drilled and total footage diamond drilled not to exceed 15,700 feet.

Estimated Cost of Project

Phase I

17,000 feet of diamond drilling at $9.00 per foot	$153,000.00

Phase II

15,700 feet of diamond drilling at $9.00 per foot	141,300.00
Total estimated cost of Phase I and Phase II	$294,300.00

Fixtures and Improvements

None

Operating Equipment

None

Labor and Supervision

None

Rehabilitation and Repairs

None

The Government will not participate in costs exceeding $9.00 per foot for the diamond drilling; any additional cost will be borne by the Operator. Payment at this rate allowed only for actual footage drilled.

All costs of rehabilitation, engineering, geology, etc. are to be borne by the Operator.

Form MF-103
(April 1951)

U. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

SUPPLEMENT TO
APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

NUMBER DMA-1219X

DO NOT FILL IN THIS BLOCK

Docket No. DMA 1219X

Date received 7-16-51

Participation

The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 16 1951
LANDON F. STROBEL
Executive Secretary

Name and address of applicant

Date July 11, 1951

FILL IN THIS BLOCK

Date of application May 4, 1951

Estimated cost $250,000. to $300,000.

Mineral or metal Zinc, Copper and Cadmium

Percentage of Government participation 50

Location of mine Pittsburgh Mining District,
Shasta County, California

Date of filing MF-100 None Filed

DMA Docket Number, if available ~~None~~ 1219X

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation?
*2. If a partnership, state names and addresses of partners.
*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.
*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.
*5. Are you the owner or the lessee of the property?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is in good standing.

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

*If you have already answered these questions on MF-100, you are not required to answer the questions for this application.

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.
*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.
*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.
*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.
15. State in detail how the ore could be shipped and how and where milled.
*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.
*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.
19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?
21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.
22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.
24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this form and accompanying papers is correct and complete to the best of their knowledge and belief.

THE GLIDDEN COMPANY
(Name of company)

By Clifton M. Kolb
(Signature of authorized official)

July 11, 1951
(Date)

Senior Vice President and Secretary.
(Title)

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.

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

THE EXPLORATION.

21. The proposed work covers the drilling of holes under the proposal of E. J. Longyear Company, attached to application DMA-1219X, in the territory shown on the attached map described as follows:

ZONE NO. 1.

Number of holes proposed: 5. Two southerly holes to explore along line of plunge of known ore shoots in Bully Hill mine. Three northerly holes to prospect for new ore shoots along the northern extension of the Bully Hill ore shoots. Length of holes to vary from 500 to 1050 feet. This is a most important development since geological conditions are excellent to find ore.

ZONE NO. 2.

Number of holes proposed: 6. Two holes are proposed for each location. Holes vary in length from 600 to 850 feet. This is also a most important location since the holes will prospect the southern extension of the Rising Star ore zone, and also a zone of strongly sheared and mineralized rock which thus far has not been developed. In addition to this, there is an intersection of two shear zones in this locality which is an ideal location for mineral deposition.

ZONE NO. 3.

Number of holes proposed: 7. Length of holes to vary from 500 to 1000 feet. The three northerly holes will prospect the southern extension of the Rising Star ore zone and will penetrate the downward extension of the known ore deposit. The four southerly holes will prospect the projection of the Bully Hill ore zone and the contact between the rhyolite and the basic dike.

ZONE NO. 4.

Number of holes proposed: 4. These holes will explore the northward extension of part of the Rising Star ore zone. They have not been located on this map since the topography has not been mapped and it will be necessary to go on the ground and have the topography detailed so the holes can be properly located. However, they will be placed at 200 foot intervals and will cross the ore zone at about 400 feet below the surface.

ZONE NO. 5.

Number of holes proposed: 9. Length varying from 500 to 750 feet. The five southerly holes will explore under known ore in the upper levels of the Rising Star which has not been explored by lower level workings. The four northerly holes will explore the extension of the ore zone where the surface indicates a very strong shear zone. It has only been possible to indicate the three most northerly holes since the topography has not been mapped and these holes have been marked with an "X" and the elevation where the ore would cut the ore zone has also been indicated.

ZONE NO. 6.

Number of holes proposed: 8. Length of holes to vary in length from 700 to 1200 feet. It has not been possible to definitely locate these holes since the topography has not been mapped. However, it is quite possible that two holes will be drilled from each location, the upper holes to explore a silicified zone at a depth of about 400 feet, and the lower holes to explore the same zone at a depth of 600 to 800 feet. All known ore in the Bully Hill and Rising Star mines is overlain with a highly silicified zone. Hence, the reason for exploring this zone.

The work will be accomplished by operating two drill rigs, sixteen hours per day, and it is estimated that it will take about one year. The amount of drilling under the above proposal will be about 32,700 linear feet and it is estimated that it will cost about $7.00 per linear foot, or a total of about $228,900.00.

The drilling can be continued through the winter but it will be necessary to reestablish living quarters at the Bully Hill mine and get the job well under way before the rainy season starts. This makes it imperative that the work be undertaken as soon as possible.

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
Defense Minerals Administration

Budget Bureau No.
42-R1035
Approval expires
6-30-51

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950	Do not fill in this Block Docket No. dma 1219 X Date received 5-21-51 Participation

THE GLIDDEN COMPANY
1396 Union Commerce Bldg.
Cleveland 14, Ohio

Name and address of applicant

Date May 4, 1951

FILL IN THIS BLOCK 228

Date of application - May 4, 1951

Mineral or metal - Zinc, Copper and Cadmium

Location of mine - Pittsburgh Mining District, Shasta County, California

Estimated cost - $250,000. to $300,000.

Percentage of Government participation..... 50.

Date of filing MF-100 -- None Filed.

DMA Docket Number, if available - None.

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D.C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is unsufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

1. Is applicant an individual, partnership, or corporation? Corporation.

2. If a partnership, state names and addresses of partners.

3. If a corporation, state names and addresses of officers, directors, and five largest stockholders. See statement attached.

The Glidden Company, 1396 Union Commerce Bldg., Cleveland 14, Ohio.

4. Describe the mining and general business experience of (a) the applicant, and (b) the person or persons who will manage the project.

(a) The Applicant operated the Rising Star mine through its subsidiary, California Zinc Company, a Delaware corporation, from October 9, 1925 until May 2, 1927 and produced zinc concentrates which were exported and zinc ore for domestic use. Operations were discontinued in 1927 because of the low price of zinc and the limited supply of ore in the deposits which had been developed and have not been resumed. The applicant was not in financial position at that time to do any exploration work for the purpose of developing additional ore deposits, even though the reports of mining engineers indicated such deposits. The Applicant has acquired the property through liquidation of its subsidiary The California Zinc Company, and now holds the legal title. The Applicant has experienced employees who can operate said mining properties if the proposed exploration develops sufficient commercial ore.

(b) Applicant desires to accept the attached proposal for diamond drilling said mining property submitted by the E. J. Longyear Company in order to determine the amount of commercial ore available. The E. J. Longyear Company are engaged in the business of diamond drilling and determining ore deposits and have a reputation for efficient and satisfactory work. They were employed by the Applicant to diamond drill its deposit of ilmenite at Lenoir, North Carolina with very satisfactory results. This application is filed for the purpose of securing the participation of the United States Government under the Department of Interior Defense Exploration Projects Program covered by D.M.A. Minerals Order 5 in the carrying out of said diamond drilling as covered by said proposal under the supervision and direction of the said E. J. Longyear Company.

5. Are you the owner or the lessee of the property? Owner.

6. If owner, state what claims, liens, or encumbrances, if any, are against the property:

The Applicant acquired all of the First Mortgage Bonds of California Zinc Company in 1925 in the principal amount of $500,000.00. The said mining properties have been transferred to the Applicant in full payment of said bonds in connection with the liquidation of The California Zinc Company, an Ohio corporation and fully owned subsidiary of the Applicant, which acquired title to said mining properties at public sale in 1927. The satisfaction of said bonds will appear on the records so that they will not constitute a lien on said mining properties. Local taxes in a small amount have not been paid but payment will be made by the Applicant. There are no other liens, claims or encumbranches against said mining properties within the knowledge of the Applicant.

7. If lessee, attach a copy of the lease and state if it is in good standing.
Not a lessee.

NOTE. -- It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
See statement attached.

9. How much money is Applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?
One half of money required for the proposed project.

10. (a) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
(b) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

NOTE -- If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (b) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

See statement attached.

11. State the present and former names of the property, if any.
Rising Star and Bully Hill Mines.

12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.
The mining property is located in Shasta County, California, approximately ten miles from Redding, California, which is located on the Southern Pacific Railroad. This point, or some other point on the Southern Pacific Railroad nearer the mining property, can be used. Redding can be reached by a truck road which is usable during the summer months, or by barges on Shasta Lake, on which the mining property is located.

13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.
The mining property is located on Shasta Lake formed by the building of the Shasta Dam and there is a sufficient supply of water for the purpose of carrying out the proposed project. The Applicant understands that the supply of electricity is available and sufficient for the proposed project from the lines of the Pacific Gas and Electric Company at their established rates which will be furnished by the Applicant. The Applicant cannot tell how much power will be required for the diamond drilling because the work is under the supervision of E.J.Longyear Company.

14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.

The Applicant owns buildings located on the mining properties which will be satisfactory for housing and feeding the crews who will do the diamond drilling. The equipment for the diamond drilling will be supplied in accordance with the proposal of the E.J.Longyear Company.

15. State in detail how the ore could be shipped and how and where milled.

See statement attached.

16. History:
(a) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
(b) State briefly the known history and production of adjoining and neighboring properties.
(c) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

See statement attached.

17. Production:
(a) If mine is in production, furnish the following information:

	Tons per day	Grade or analysis	Cost per ton	Net value per ton
(1) Mining				
(2) Milling				
(3) Shipped or sold				

Not in production.

18. Ore or mineral reserves: (If property is or has been operating.)
(a) Describe the ore or mineral deposits briefly.
(b) Submit available maps and assay data.
(c) Give estimated tonnage and grade of each class of ore reserves.

See statement attached.

19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

None but will furnish any further information desired.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted.

    Zinc, Copper and Cadmium.

21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE: — The Government will not participate in a project that will require more than 2 years to complete.

    The proposed work is covered by the proposal of E.J.Longyear Company attached hereto. We estimate that it will take about one year.

22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

    The reports and other data of mining engineers submitted herewith indicate commercial ore bodies and Applicant is of the opinion that sufficient ore will be found to justify mining operations.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate as follows:
    (a) Labor, by numbers and classes (miners, muckers, millmen, etc., with wages of each.
    (b) Supervisors, by numbers and positions, with salaries of each.
    (c) Cost of necessary repairs to existing facilities, structures and buildings.
    (d) Cost of necessary installation or construction of additional facilities, structures and buildings.
    (e) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50. or more each.
    (f) Cost of rental for equipment which the operator proposes to rent.
    (g) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (h) Cost of materials and supplies, including items of equipment costing less than $50. each.
    (i) Cost of power, water, utilities, and any other items not provided for above.

23. The applicant is of the opinion that the diamond drilling at the rates stated in the E.J.Longyear Company proposal hereto attached and the use of the equipment therein mentioned to determine the commercial ore bodies will cost between $250,000.00 and $300,000.00. The cost of labor, supervision, rentals, water and electricity, and materials and supplies, will depend on how the operation is carried on by the E.J.Longyear Company. The Applicant owns all the buildings necessary for living quarters.

24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

The work will be carried on as promptly as possible under the E.J.Longyear Company proposal and Applicant estimates it will take twelve months at the cost above estimated.

CERTIFICATION

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this form and accompanying papers is correct and complete to the best of their knowledge and belief.

THE GLIDDEN COMPANY

By Clifton M. Kolb
Clifton M. Kolb

May 4, 1951.

Senior Vice President and Secretary

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

The Glidden Company - 1396 Union Commerce Bldg., Cleveland 14, Ohio

COPY

E.J.LONGYEAR COMPANY
Mining Engineers
General Office
Foshay Tower
Minneapolis 2, Minnesota

April 27, 1951

Mr. Adrian D. Joyce, Chairman of the Board
The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Dear Mr. Joyce:

We are pleased to submit herewith our proposal for your contemplated diamond core drilling program to be carried out in Shasta County, California. We have been delayed in submitting our proposal to you due to critical material shortages and also personnel shortages which have developed during the past few months, but now believe we have made sufficient progress so that we will be in a position to proceed with the work in accordance with our proposal.

As indicated in our proposal, we would expect to furnish a crew consisting of 4 to 5 drillers, an equal number of drill helpers, a drill foreman, truck driver, camp cook and cook's helper. We expect that it would be necessary to pay wages approximately as follows:

Foreman	- $500. to $550 per month
Drill runners	- $2.00 per hour
Drill helpers	- $1.50 to $1.75 per hour
Truck Driver	- $1.75 per hour
Cook	- $350 to $400 per month
Cook's helper	- Going rate for common labor

At the time our Mr. P. W. Donovan called on your Mr. Edward L. Ralston at Oakland, California, it was learned that you desire that we furnish a geologist for the purpose of supervising the sampling procedures and to assist in the planning of the locations of the drill holes and generally superintend the drilling operation. We have asked Dr. D. M. Davidson, Manager of our Mining Division to submit to you under separate cover proposal for the provision of this service. Dr. Davidson's proposal should be in the mail during the early part of the week of April 30.

We appreciate very much the opportunity of considering this work and should our proposal be acceptable we will make every effort to get the drilling operations under way at the earliest possible date.

Yours very truly

V. N. Burnhart (Signed)

V.N.Burnhart, Manager
Contract Drilling Division

VNB:LT
cc: Mr.Edward L.Ralston
The Chemical & Pigment Co.
766 - 50th Avenue
Oakland 1, California

The Glidden Company 1396 Union Commerce Bldg., Cleveland 14, Ohio

COPY

E. J. LONGYEAR COMPANY
Mining Engineers
General Office
Foshay Tower
Minneapolis 2, Minnesota

April 27, 1951

The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Attention: Mr. Adrian D. Joyce
Chairman of the Board

Gentlemen:

1. In accordance with our previous correspondence, we are pleased to submit below cost and rental agreement for your contemplated diamond core drilling program to be carried out at your property known as the Bully Hill Mine, Shasta County, California.

2. We understand that the preliminary phase of the drilling program will consist of a series of vertical holes to be drilled to depths varying from 600 to 1,000 feet and averaging probably around 800 feet; that if the results of the initial phase of the work are favorable, the old workings may be reopened and arrangements made for drilling from underground stations. We also understand that water required for drilling purposes would have to be hauled 1-1/2 to 2 miles to secondary storage points where water could be pumped to the drill hole locations; and that it will be necessary to operate a camp for the accommodation of the drill crews. We further understand that there are two possible routes by which the property may be reached but that the most desirable means of transport to and from the property would depend upon the results of a further reconnaissance of the old truck road from Redding bypassing the northeast end of Shasta Lake to the Bully Hill property or whether satisfactory arrangements could be made with the Federal Government for the rental of a barge for the transport of equipment and supplies to the property.

3. For this work, we propose

a. To furnish two Longyear diamond core drilling units together with the necessary bortz bits, supplies, spares and other equipment required for recovering cores of BX, AX and EX sizes, approximately 1-5/8", 1-1/8" and 7/8" respectively, as required by drilling conditions for holes to a maximum depth of approximately 1,000 feet.

b. Core boxes will be furnished by the Longyear Company, if desired, as a supply item.

c. To provide the necessary crew of carefully selected men to operate the two drilling units on 2- or 3-shift basis, 6 days per week, the contemplated drill crew to consist of the following: 1 foreman, 4 to5 drill runners, 4 to 5 drill helpers, and 1 truck driver. We will also furnish one competent camp cook and cook's helper as required.

d. To furnish one 1-ton pickup truck to transport supplies to and from Redding or other nearby points to camp or dock from which said supplies may be transported to a point which is accessible to the camp.

3. To provide all camp equipment required, including cook stove, all culinary equipment, beds, mattresses and other fixtures as required to operate camp.

4. We will carry public liability insurance covering personal injury and property damage; Workmen's Compensation, Old Age Benefit, Unemployment and any other insurance on our employees required by state or federal laws; also all-risk insurance on the drilling equipment protecting against loss by theft, fire, flood, land-slides and other similar hazards, and special endorsement or coverage for marine hazard. Certificates showing the coverage referred to will be furnished, if desired.

5. COSTS:

It is agreed that you will reimburse the Longyear Company for or pay directly the expenses of the Longyear Company in the performance of this contract as follows: all wages of workmen and their traveling expenses from the nearest available points to the scene of the work and return, also the board of the workmen less $1.50 per man per day, except cook and cook's helper whose board will be furnished without cost to them; all freight, express and trucking charges; food and all other supplies used; repairs and replacements; fuel; oil; bortz bits and bortz reaming shells at our listed retail prices less credit received for salvaged stones, Carboloy or other special bits at list price as used, mechanically-set bits and reaming shells; cost of compensation or other employee insurance as required by law; miscellaneous expenses; rods and casing to be charged at the rate of one foot of rods or casing for each ten feet drilled or cased, plus payment in full for any rods or casing lost in drill holes or discarded on account of damage due to causes other than ordinary wear and tear.

You will also pay for all expenses incurred in connection with rental of barge or other water transport as may be required for the delivery of drill equipment or the maintenance of drilling operations.

6. RENTAL:

In addition to all costs outlined above, you will pay the sum of $475.00 per drill per month for single shift operation, or $600.00 per drill per month for double shift operation, or $675.00 per drill per month for 3-shift operation, this charge to cover rental of drill outfit, interest, depreciation and overhead expense. This rental charge is to commence at the time the drill outfit and crew are delivered at Redding, California and continue until drill outfit is returned to Redding for return shipment to Marquette, Michigan, or equivalent point.

You will also pay the sum of $100.00 per month for the use of truck plus gas, oil and maintenance.

7. COMPENSATION:

In addition to all costs outlined in the preceding paragraph 6, you will pay us as compensation the sum of 50¢ per foot drilled. It is understood that the charge of 50¢ per foot drilled covers total compensation for overburden drilling, diamond core drilling, and reaming or other work pertaining to the execution of this drilling program.

8. It is agreed that in the event drilling operations are temporarily terminated at your request, retaining the drill and equipment at the drilling site on standby basis, the rental charge for the complete outfit less personnel will be $250. per drill per month or fractional part thereof.

9. It is agreed that deductions for board as specified in paragraph 5 will be credited against expense on our monthly invoices.

10. It is agreed that the Longyear Company will be reimbursed for all camp equipment when purchased and that following the completion of the drilling program, the camp equipment may be disposed of in accordance with your instructions.

11. It is agreed that you will be responsible for or furnish the following: adequate housing required for kitchen, mess hall, housing for all employees of the Longyear Company; repair and maintenance of all roads leading to the property, to and from drilling sites; lights and water required for camp facilities and our operation of camp; transport of water required for drilling purposes from source of supply to storage tanks to be provided by the Longyear Company to be located not over 1,500 feet from any planned drill hole location; construction of docks or dock facilities which may be required for the transport of equipment and supplies to the property.

12. TERMINATION OF CONTRACT AND MINIMUM RENTAL:

It is agreed that should the results of the exploration make it seem advisable, you may terminate the drilling at any time provided that if rentals paid or accrued under paragraph 6 do not amount to a total of $2,000.00, you will pay such additional sum as may be necessary to make that amount.

13. Statements are to be rendered as promptly as possible after the first of the month and are to be accompanied by copies of the payroll and such other supporting data as may be desired by you.

14. We understand that it is your desire to have this work commenced as soon as possible. We are prepared to proceed with this objective in mind realizing it will be necessary first to determine the most accessible route to the property to provide adequate transport of supplies and equipment, also to purchase or otherwise supply camp equipment necessary to feed and properly accommodate the drill crew. It is suggested that such preparations for mobilization be carried out with the assistance of Mr. Edward L. Ralston. To assist on the mobilization phase, we would send one of our field superintendents on the basis of $650.00 per month or fractional part thereof, plus travel expenses. Based upon the information at hand, we would endeavor to commence drilling operations on or about June 1, 1951.

Yours very truly,

E. J. LONGYEAR COMPANY

V. N. Burnhart (Signed)

V.N.Burnhart, Manager
Contract Drilling Division

VNB:LT
ACCEPTED:
THE GLIDDEN COMPANY

_____

The Glidden Company, 1396 Union Commerce Building, Cleveland, Ohio.

STATEMENT RELATIVE TO QUESTION 3.

Names and addresses of Officers and Directors of the Applicant are as follows:

Name	Address	Title
Adrian D. Joyce	1396 Union Commerce Bldg. Cleveland 14, Ohio	Chairman of the Board and Director.
Dwight P. Joyce	1396 Union Commerce Bldg. Cleveland 14, Ohio	President and Director
Clifton M. Kolb	1396 Union Commerce Bldg. Cleveland 14, Ohio	Senior Vice Pres., Secretary and Director.
Paul E. Sprague	1396 Union Commerce Bldg. Cleveland 14, Ohio	Vice President and Director
William J. O'Brien	Berkshire Rd., Gates Mills, O.	Vice President and Director
Newell Beatty	2900 Fifth Street Berkeley 2, California	Vice President
Alexander D. Duncan	11001 Madison Avenue Cleveland 2, Ohio	Vice President and Director
Lovell Y. Pulliam	1303 So. Shelby St. Louisville, Kentucky	Vice President
John P. Ruth	1396 Union Commerce Bldg. Cleveland 14, Ohio	Vice President and Director
Ralph G. Golseth	1825 No. Laramie Avenue Chicago 39, Illinois	Vice President and Director
John A. Peters	1396 Union Commerce Bldg. Cleveland 14, Ohio	Treasurer and Director
B. W. Maxey	11001 Madison Avenue Cleveland 2, Ohio	Controller and Director
W. W. Conant	11001 Madison Avenue Cleveland 2, Ohio	Assistant Secretary
R. D. Horner	1396 Union Commerce Bldg. Cleveland 14, Ohio	Assistant Secretary
St. Clair M. Smith	11001 Madison Avenue Cleveland 2, Ohio	Assistant Treasurer
Nestor B. Betzold	1396 Union Commerce Bldg. Cleveland 14, Ohio	Director

Names and addresses of five largest Common stockholders of record March 2, 1951:

Name	Address
Merrill, Lynch, Pierce, Fenner & Beane	70 Pine St., New York City
Carothers & Clark	519 Market St., Wilmington, Del.
Adrian D. Joyce	1396 Union Commerce Bldg., Cleveland 14,Ohio.
Hornblower & Weeks	1040 Union Commerce Bldg., Cleveland 14, Ohio
King & Co.	c/o City Bank Farmers Trust Co. 22 William Street, New York City.

The Glidden Company, 896 Union Commerce Building, Cleveland, 14, Ohio.

Copy

~~STATEMENT RELATIVE TO QUESTION #10.~~

Appendix 1 Contract

LEGAL DESCRIPTION OF PROPERTY COVERED BY THIS ~~APPLICATION~~

1. The following properties located and lying in Shasta County, California:

(a) The mining claim known as the Aqueous Mine Lode Mining Claim, as more particularly described and set forth in United States Patent dated November 19, 1904, and recorded in Book 9, Patents, page 30, Shasta County Records.

(b) All surface rights within the mining claim known as the Boulder Lode Mining Claim, as more particularly described and set forth in United States Patent dated November 25, 1924, and recorded in Book 2 Official Records, page 310, Shasta County Records.

(c) The mining claim known as the Potter Quartz Lode Mining Claim, consisting of the Popejoy, Bully Hill, and Jennie June Lode Mining Claims, as more particularly described and set forth in United States Patent dated November 19, 1890, and recorded in Book 5 Patents, page 264, Shasta County Records.

(d) The mining claim known as Diamond Fraction Lode Mining Claim, as more particularly described and set forth in United States Patent dated June 18, 1930, and recorded in Book 58 Official Records, page 218, Shasta County Records.

(e) The mining claims known as the Rising Star and Hillside Lode Mining Claims, as more particularly described and set forth in United States Patent dated March 27, 1907, and recorded in Book 11 Patents, page 124, Shasta County Records.

(f) The mining claim known as the Redding Consolidated Quartz Mining Claim, consisting of the Redding, Shasta, and Keswick Lode Mining Claims, as more particularly described and set forth in United States Patent dated August 8, 1904, and recorded in Book 7 Patents, page 354, Shasta County Records.

(g) The mining claim known as the Northern Light Quartz Lode Mining Claim, as more particularly described and shown in United States Patent dated October 7, 1896, and recorded in Book 5 Patents, page 295, Shasta County Records.

2. All surface rights within the boundaries of the following mining properties lying above the 1070-foot contour above mean sea level, and all subsurface rights, and all mineral rights (including the right to mine and extract minerals and all extralateral rights) under existing mining law, in the following mining properties whether above or below said 1070-foot contour, all said properties located and lying in Shasta County, California:

(a) The mining claim known as the Sanders Quartz Lode Mining Claim, as more particularly described and set forth in United States Patent dated June 18, 1930, and recorded in Book 58 Official Records, page 218, Shasta

County Records.

(b) The mining claim known as the Howard Quartz Lode Mining Claim, as more particularly described and set forth in United States Patent dated June 18, 1930, and recorded in Book 58 Official Records, page 218, Shasta County Records.

(c) The mining claim known as the Excelsior Lode Mining Claim, as more particularly described and set forth in United States Patent dated February 15, 1883, and recorded in Book 2 Patents, page 46, Shasta County Records.

(d) The mining claim known as the Baxter Quartz Lode Mining Claim, as more particularly described and set forth in United States Patent dated February 17, 1898, recorded in Book 7 Patents, page 21, Shasta County Records.

(e) The mining claim known as the Brown Lode Mining Claim, as more particularly described and set forth in United States Patent dated August 8, 1904, and recorded in Book 7 Patents, page 361, Shasta County Records.

(f) The placer mining claim known as the Popejoy Placer Mining Claim, as more particularly described and set forth in United States Patent dated April 18, 1890, and recorded in Book 4 Patents, page 352, Shasta County Records.

Thirty-Third
Annual Report

Fiscal Year Ended October 31st,

1950

THE GLIDDEN COMPANY

QUALITY Glidden PRODUCTS

THE GLIDDEN COMPANY

CLEVELAND, OHIO

BOARD OF DIRECTORS

ADRIAN D. JOYCE
WILLIAM J. O'BRIEN
DWIGHT P. JOYCE
PAUL E. SPRAGUE
CLIFTON M. KOLB
JOHN A. PETERS
JOHN P. RUTH
NESTOR B. BETZOLD
RALPH G. GOLSETH
ALEXANDER D. DUNCAN
B. W. MAXEY

OFFICERS

ADRIAN D. JOYCE, Chairman Board of Directors
DWIGHT P. JOYCE, President
CLIFTON M. KOLB, Senior Vice Pres. and Secy.
PAUL E. SPRAGUE, Vice President
WILLIAM J. O'BRIEN, Vice President
NEWELL BEATTY, Vice President
ALEXANDER D. DUNCAN, Vice President
LOVELL Y. PULLIAM, Vice President
JOHN P. RUTH, Vice President
RALPH G. GOLSETH, Vice President
JOHN A. PETERS, Treasurer
B. W. MAXEY, Controller
W. W. CONANT, Assistant Secretary
R. D. HORNER, Assistant Secretary

Transfer Agents

THE NEW YORK TRUST COMPANY
New York City

THE CLEVELAND TRUST COMPANY
Cleveland, Ohio

Registrars

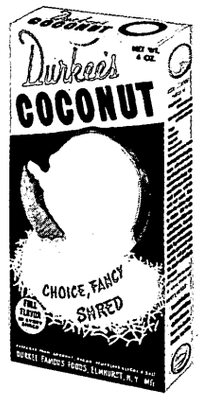
THE CHASE NATIONAL BANK
New York City

CENTRAL NATIONAL BANK OF CLEVELAND
Cleveland, Ohio

SOME LEADING CONSUMER PRODUCTS BY GLIDDEN

Durkee's Own Grade AA Margarine is made under the most exacting standards. Comes in yellow, quarter-pound prints in states permitting sale of the pre-colored product. Elsewhere, the convenient Color-Ease package is available.

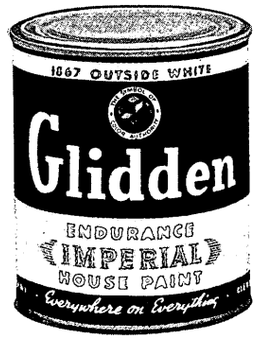
Durkee's Spices have been favorites with the best cooks for more than one hundred years. Carefully ground and blended from the finest ingredients in the world, Durkee's spices have always been leaders in quality, flavor and purity.



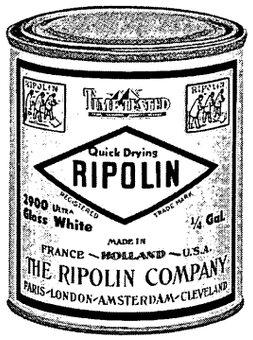
Durkee's Famous Dressing, made from a secret recipe, has been America's favorite for generations. It adds zest to countless dishes, from salads to meats.

Durkee's Coconut, with its natural coconut flavor, comes two ways: fancy-shredded in the familiar blue and yellow carton and extra-moist in air-tight tins.

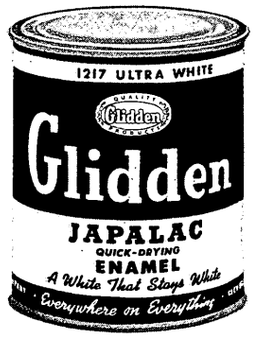
Spred Satin, with its synthetic rubber emulsion base, is the first truly washable interior paint.



Endurance Imperial was the first and is the leading one-coat outside white house paint.



Ripolin is famous throughout the world as the finest interior white enamel ever produced.



Japalac Enamel is the perfect quick drying, high gloss finish for most interior or exterior surfaces.

These are typical of the many top-quality consumer products made by The Glidden Company. Ask for them at your retail store.

DIVERSIFIED PRODUCTS BY GLIDDEN

FOODS

Durkee's Grade AA Margarine
Durkee's Mayonnaise
Durkee's Whipped Salad Dressing
Durkee's Shortening
Durkee's Bakers Margarine
Durkee's Coconut
Durkee's Spices and Extracts
Durkee's Famous Dressing
Durkee's Worcestershire Sauce
Special Ingredients for Bakers and Confectioners

SOYBEAN PRODUCTS

Alpha* Protein
Prosein*
Soya Meal
Lecithin
Fine Chemicals—Steroids
Soya Sterols
Cortical and Sex Hormones
Soya Flour
Soya Flakes
Edible Emulsifiers

LIVE STOCK AND POULTRY FEEDS

Glidden Cattle and Hog Feeds
Glidden Poultry Feeds
Glidden Feed Concentrates

PAINTS, VARNISHES AND LACQUERS

SPRED SATIN
SPRED Flat
SPRED Luster
Endurance* House Paint
Endurance* Imperial House Paint
Japalac*
Ripolin* Enamel
Spray-Day-Lite
Brush-Day-Lite
Speed-Wall*
Gliddenspar Varnish
Florenamel
Pli-namel
Glidair Aviation Finishes
Nubelite
Nubelon
Glid-Tone Stains
Industrial Paints
Industrial Lacquers, Enamels and Varnishes
Finishes for all Manufactured Products

GLID-N Specialties:

Insecticides
Liquid Cleaners
Floor Wax
Furniture Polish
Brush Restorer

VEGETABLE OILS

Soybean Oils
Cottonseed Oils
Coconut Oils
Peanut Oils
Corn Oils
Palm Oils
Linseed Oils

CHEMICALS AND PIGMENTS

Zopaque* Titanium Dioxide
Sunolith* Lithopone
Cadmolith* Cadmium Colors
Litharge
Red Lead
Euston* White Lead
Cuprous Oxide
Bleached Barytes
Zinc Sulphate Crystals
Copperas
Coal Tar Products

METALS AND MINERALS

Cubond* Brazing Compounds
Powdered Iron, Copper, Lead and Tin
Glidden Type Metal
Babbitt Metal
Barite
Ilmenite

NAVAL STORES

Nelio* Rosin
Sunny South* Turpentine
Pigmentar (Pine Tar)
Alpha Pinene
Beta Pinene
Guai-a-phene*
Glidcol Anti-Skinning Agents
Terpene Chemicals
Camphene
Anethole
Nopol
Rosin Oils
Gloss Oils
Sunny South* Pine Oil
Terpex
Merez Metal Resinates
Nelio* Resin
Pine Wood Charcoal
Pinap Solvents
Rubber Compounding Agents

**Trademark Registered*

Much of The Glidden Company's business comes from the processing and production of raw materials for sale to other industries.

THE GLIDDEN COMPANY

CLEVELAND, OHIO

January 9, 1951

To the Stockholders of
The Glidden Company:

Your company continued to progress during the last fiscal year which ended October 31, 1950.

An excellent illustration of this progress is the unit volume of production and sales, which rose more than 20% above that for any previous year in your company's history. Total sales volume in dollars, of course, did not reflect a similar increase because selling prices per unit were lower.

Fiscal highlights of 1950 were the following:

Net sales amounted to $188,607,965.92, compared to $160,143,275.90 for the year 1949.

Net profits, after taxes and all charges, totaled $8,561,660.08, compared to $6,191,923.16 for the previous year. Profit per common share amounted to $4.11 on 1,971,623 shares, compared to a profit of $3.23 per share on 1,780,536 shares last year.

Net worth of your company increased during the year from $56,837,492.20 to $66,194,159.66. This is almost double the $35,115,554.33 net worth of the company in 1945.

At the end of the year the company was free from bank loans and funded debt.

The company has a reserve under the LIFO plan of $4,001,193.57 to take care of market fluctuations.

Comparison of sales and inventory at the close of the fiscal year shows more than $28,000,000 increase in sales and less than $2,000,000 increase in inventory.

The company's retirement funds for employees now total $2,998,153.16, deposited with Trustees. Our pension plans are non-contributory, the company paying the entire cost.

For the fiscal year just closed, each of the company's divisions showed satisfactory profits. The Paint and Varnish Division, in fact, attained the largest sales and profits in the history of this division, largely due to the splendid success of our wonderful new washable wall paint, Spred SATIN. This division is finding it difficult to keep up with the demand for this excellent product.

The Durkee Famous Foods, Chemical and Pigment, Soya Products, Vegetable Oil, and Naval Stores Divisions also showed gains over the results for 1949. Our Soya research laboratories succeeded during the year in improving a synthesis and completing the initial production of Cortisone. Satisfactory costs, however, have not yet been attained. Sales of the Soya Division's Alpha Protein are the highest in history.

Bulk production of related hormones and steroid compounds from soybeans set new high records and raised the gross profits earned to date in this field by our Fine Chemicals Department above a million and a half dollars.

In pursuing our work on cortical compounds, our Soya research laboratories have succeeded in developing other important hormones and fine chemicals which will broaden the scope of the Fine Chemicals Department.

In addition to the foregoing highly satisfactory results, our wholly owned Glidden Company of Canada showed a 25% increase in sales and a 35% increase in profits.

During 1950 the Company invested $2,632,692 in plant additions and spent $2,377,833 for maintenance expenditures. Our policy of producing our own important raw materials, the diversification of manufactured products, and the decentralization of manufacturing plants has proven wise and profitable.

Your company is in a very sound position to meet the changes in our economy which will result from partial mobilization. During the years since the close of World War II we have spent approximately $20,000,000 in rebuilding and modernizing our productive units and research laboratories, and all of our facilities are now in excellent condition.

Our $3,500,000 soybean processing plant in Indianapolis was completed early in 1950, bringing to 37 the number of manufacturing units operated by your company through the United States and Canada.

Our new Titanium pigment plant at St. Helena, Maryland is expected to be in operation in March enabling us to more than double our production of this essential white pigment.

Our experience in World War II clearly indicates that all of our main divisions can easily be converted to a wartime status. The demand for food products is ever increasing, our other regular products have many military applications, and we can readily manufacture many special products needed in the mobilization effort.

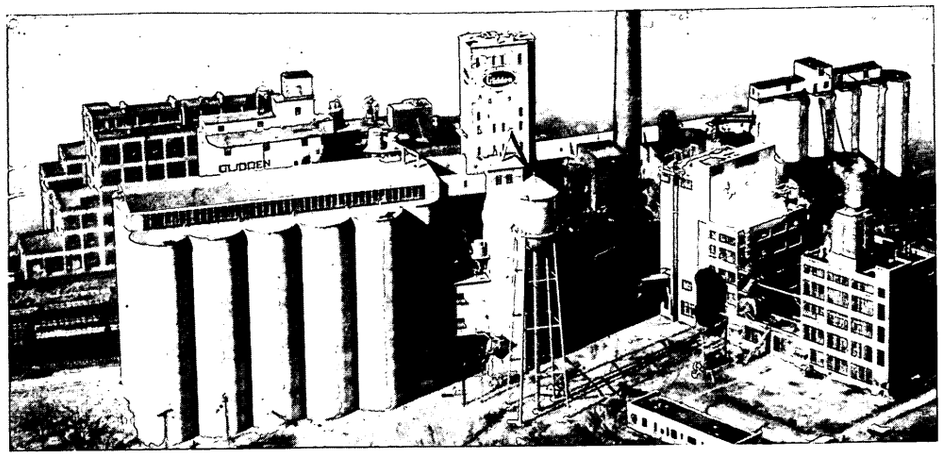
In addition to these physical assets, the Company's working force, at all levels, is of top caliber. New personnel policies initiated since the war have enabled us to improve our already high standards of employment and to reach a new peak in quality of personnel. Some of our people have already been called into the Service of our country. When they return, they will find their jobs awaiting them.

These highly encouraging factors indicate your company will continue its progress during the coming year even though it will be a period of mobilization.

The loyal cooperation of all the executives and the employees is gratefully acknowledged.

DWIGHT P. JOYCE
President.

ADRIAN D. JOYCE
Chairman of the Board.



The Glidden Company's efficient new soya processing plant in Indianapolis, completed in 1950, is representative of the company's thirty-seven modern operating units.

GLIDDEN DIVISIONS

PAINT

The Glidden Company
Cleveland, Ohio

The A. Wilhelm Company
Reading, Pennsylvania

The American Paint Works
New Orleans, Louisiana

The Campbell Paint & Varnish Co.
St. Louis, Missouri

The Glidden Company
Minneapolis, Minnesota

Nubian Paint & Varnish Company
Chicago, Illinois

The Glidden Company, Ltd.
Toronto, Ontario, Canada

The Glidden Company
San Francisco, California

Adams & Elting Company
Chicago, Illinois

FOOD

Durkee Famous Foods
Elston Avenue, Chicago, Illinois

Durkee Famous Foods
Iron Street, Chicago, Illinois

Durkee Famous Foods
Norwalk, Ohio

Durkee Famous Foods
Portland, Oregon

Durkee Famous Foods
Louisville, Kentucky

Durkee-McCadam Company
Cambridge, Mass.

Durkee Famous Foods
Berkeley, California

Durkee Famous Foods
Elmhurst, Long Island, New York

Durkee Famous Foods
Macon, Georgia

CHEMICALS, PIGMENTS AND METALS

The Chemical & Pigment Company
St. Helena (Baltimore), Maryland

The Chemical & Pigment Company
Oakland, California

The Chemical & Pigment Company
Collinsville, Illinois

Metals Refining Company
Hammond, Indiana

Euston Lead Company
Scranton, Pennsylvania

SOYA PRODUCTS

The Glidden Company
Chicago, Illinois

The Glidden Company
Indianapolis, Indiana

NAVAL STORES

The Glidden Company
Jacksonville, Florida

The Glidden Company
Valdosta, Georgia

E. W. Colledge, General Sales Agent, Inc.
Jacksonville, Fla.

FEED MILL

The Glidden Company
Indianapolis, Indiana

VEGETABLE OILS

The Glidden Company
Buena Park, California

The Glidden Company
Berkeley, California

The Glidden Company
Portland, Oregon

MINES

The Chemical & Pigment Company
Barytes Mines
Battle Mountain, Nevada

Yadkin Mica and Ilmenite Company
Lenoir, North Carolina

Retail Stores and Warehouses in the Principal Cities

AFFILIATED CORPORATIONS

Growth Products Company
Pascagoula, Mississippi

Jacksonville Processing Corporation
Jacksonville, Florida

ERNST & ERNST

CLEVELAND

UNION COMMERCE BUILDING

Board of Directors,
The Glidden Company,
Cleveland, Ohio.

We have examined the consolidated balance sheet of The Glidden Company and subsidiaries as of October 31, 1950, and the related statements of consolidated profit and loss and surplus for the fiscal year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying balance sheet and statements of profit and loss and surplus present fairly the consolidated financial position of The Glidden Company and subsidiaries at October 31, 1950, and the consolidated results of their operations for the fiscal year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

ERNST & ERNST
Certified Public Accountants

Cleveland, Ohio
December 18, 1950

CONSOLIDATED PROFIT AND LOSS AND SURPLUS

The Glidden Company and Subsidiaries

Fiscal year ended October 31, 1950

STATEMENT OF PROFIT AND LOSS

Net sales		$188,607,965.92
Cost of goods sold, selling, administrative and general expenses, including provision of $1,753,845.41 for depreciation and depletion		174,259,592.85
		$14,348,373.07
Other income		384,864.23
		$14,733,237.30
Other deductions:		
Loss on advances to and investments in affiliated companies	$ 214,966.13	
Interest on notes and loans	80,611.09	295,577.22
PROFIT BEFORE TAXES ON INCOME		$14,437,660.08
Taxes on income—estimated:		
Federal income taxes	$ 5,600,000.00	
Dominion and state taxes	276,000.00	5,876,000.00
CONSOLIDATED NET PROFIT		$ 8,561,660.08

Note A—Consolidated net profit includes $374,331.91 for the Canadian subsidiary representing that subsidiary's net profit for the year after giving effect to adjustment of its net current assets and miscellaneous other assets to rate of exchange at October 31, 1950.

Note B—Federal taxes on income have been estimated in accordance with provisions of the Revenue Act of 1950. The Company does not anticipate that retroactive tax legislation will require any significant change in such estimate.

SURPLUS

CAPITAL SURPLUS			
Balance at November 1, 1949			$13,270,513.41
Add proceeds of sale of 178,535 shares of common stock in excess of stated value of shares issued			4,461,590.99
Balance at October 31, 1950			$17,732,104.40
EARNED SURPLUS			
Balance at November 1, 1949		$29,785,805.32	
Add net profit for the fiscal year		8,561,660.08	
		$38,347,465.40	
Deduct dividends paid:			
Convertible preferred—$2 25 per share	$ 448,983.29		
Common—$2.10 per share	3,910,279.10	4,359,262.39	
Balance at October 31, 1950			33,988,203.01
TOTAL SURPLUS AT OCTOBER 31, 1950			$51,720,307.41

CONSOLIDATED BALANCE SHEET

The Glidden Company and Subsidiaries

October 31, 1950

ASSETS

Current Assets		
Cash		$ 5,412,295.09
Dominion of Canada Victory Loan Bonds		143,898.34
Trade accounts receivable (includes notes $242,736.94)	$15,243,061.24	
Less allowances for doubtful accounts	495,510.77	14,747,550.47
Inventories—raw materials, in process, and finished goods:		
Principal raw materials are stated at cost (last-in, first-out method) which did not exceed replacement market; other items are stated at the lower of cost (accumulated average) or replacement market		31,095,011.92
Other current notes and accounts receivable, advances and investments		2,638,375.09
Total Current Assets		$54,037,130.91
Other Assets		
Advance payment on account of possible federal income tax assessment	$ 1,000,000.00	
Cash surrender value of life insurance	765,605.00	
Miscellaneous notes and accounts receivable, advances and investments	687,996.02	
Estimated refund of federal and dominion taxes on income of prior years	248,511.17	2,702,112.19
Property, Plant, and Equipment		
Gross amounts represent cost less write-down in 1932		
Land	$ 2,881,330.13	
Buildings, machinery, and equipment	42,672,851.51	
	$45,554,181.64	
Less accumulated depreciation, depletion, and amortization	18,632,139.78	26,922,041.86
Deferred Charges		
Prepaid insurance and expenses		649,968.61
		$84,311,253.57

LIABILITIES, CAPITAL STOCK, AND SURPLUS

Current Liabilities			
Accounts payable			$ 8,520,441.14
Accrued taxes, royalties, and insurance			769,068.18
Federal, state, and dominion taxes on income—estimated			6,327,584.59
Total Current Liabilities			$15,617,093.91
Reserve			
For contingencies			2,500,000.00
Capital Stock and Surplus			
Capital stock:			
Convertible preferred 4½% cumulative, par value $50.00 a share redeemable at $52.50 a share, each share convertible into approximately 1.498 shares of common stock:			
Authorized 200,000 shares			
Issued and outstanding 199,540 shares		$ 9,977,000.00	
Common without par value:			
Authorized 3,000,000 shares			
Outstanding including treasury shares, 1,994,585 shares			
Reserved for conversion 298,911 shares			
Stated capital		4,986,462.50	
Capital surplus		17,732,104.40	
		$32,695,566.90	
Earned surplus (includes $2,677,344.52 of surplus of Canadian subsidiary)	$33,988,203.01		
Less common stock in treasury 22,962 shares, at cost (including 19,197 shares reserved for sale to certain officers and key employees)	489,610.25	33,498,592.76	66,194,159.66
			$84,311,253.57

Note—Assets of Canadian subsidiary included herein comprise net current assets and miscellaneous other assets, $1,896,553.77, after adjusting for exchange at October 31, 1950, and property, plant, and equipment, $563,989.03, at cost to the subsidiary.

STATEMENT RELATIVE TO QUESTION #15

STATE IN DETAIL HOW THE ORE COULD BE SHIPPED AND HOW AND WHERE MILLED.

Ore could be milled on the property. The Bully Hill Plant, consisting of a copper reverberatory furnace, zinc reverberatory furnace, McDougal roasting plant, Dwight & Lloyd sintering machine, bag houses and packing plant, is still intact. The mill building is in a bad state of repair and could not be used but there is considerable equipment on the ground adequate for milling operations. In addition to this, there is ample water, either from Shasta Lake or from the water rights held by The Glidden Company, which could be used for milling operations. There is also ample ground owned by the company for impounding tailings.

Zinc concentrates could be shipped by means of barge across Shasta Lake, a distance of about 10 miles, for loading on the Southern Pacific railway for shipment to Black Eagle Falls, Montana, or Amarillo, Texas.

Copper concentrates could be shipped by the same means to Tacoma, Washington, Tooele, Utah, Ely, Nevada, or Garfield, Utah.

The Glidden Company, 1396 Union Commerce Building, Cleveland, Ohio

STATEMENT RELATIVE TO QUESTION #16.

HISTORY

(a) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.

The claims in the Bully Hill group were individually developed prior to 1900 when they were then taken under option and consolidated into a group by J. R. Delamar. All right, title and interest in this group passed to Bully Hill Copper Mining & Smelting Co., a corporation, in 1901. This corporation operated the mines until 1917, principally mining copper ore and smelting it in the Bully Hill plant. During this mining operation in the Rising Star and Bully Hill mines, large bodies of zinc ore were blocked out but were not considered important until about 1917 when the properties were taken under option by Walter Arnstein, who repaired the Sacramento Valley & Eastern Railway and did considerable work on flotation. Most of the Arnstein work was experimental work on flotation and other methods of recovering zinc. Shasta Zinc & Copper Co. was formed in 1922 by Mr. D. C. Jackling who took over the Arnstein operation and a zinc oxide plant was built at Bully Hill. Operations were continued by Shasta Zinc & Copper Co. until 1924 when the property was purchased by Mr. Adrian D. Joyce for The Glidden Company. The oxide plant was closed down early in 1925 and a 300 ton flotation mill was built at Bully Hill. This operation was continued by the Glidden Company until August 1927 when the price of zinc dropped very materially and this combined with the loss of a zinc contract forced a suspension in operations. Since then no ore shipments have been made. The Sacramento Valley & Eastern Railway, a standard gauge railroad, was built from Pitt, on the Southern Pacific, to Bully Hill, a distance of 14.4 miles in 1906 and completed in 1907. This road was a subsidiary of the Bully Hill Copper Mining & Smelting Co.

The Bully Hill mine, which was the principal copper producer of the district, has not been opened since about 1918. It has been developed by vertical shaft, approximately 600 feet deep, and numerous levels, crosscuts and upraises. The Rising Star mine has also been developed by a vertical shaft from the surface to the 1100 level, the collar having an elevation of 1500 ft. and the bottom level 641. Lateral development in this mine was extensive.

Production records are attached.

(b) State briefly the known history and production of adjoining and neighboring properties.

Neighboring properties are the Afterthought Mine at Ingot and the Mammoth Mine at Kennett; both of these properties are very well know, the Mammoth having a tremendous production record but now being closed down, and the Afterthought which is now owned by Coronado Copper and Zinc, and is now being operated.

(c) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

Reports submitted with this application include: Rogers, Mayer & Ball & Beals 1919; Rogers, Mayer & Ball - 1920; March F. Chase - 1920; March F. Chase - 1925; Swedish American Prospecting Corp. 1925, and Ira B. Joralemon - 1927.

Production of Bully Hill and Rising Star, Shasta County, Calif., according to records of Mineral Resources and Economics Division, U. S. Bureau of Mines, to accompany letter to Edward L. Ralston, Mgr., California Zinc Co., Redding, Calif., from Charles W. Merrill, dated June 11, 1936.

Year	Name of Mine	Ore treated or sold (short tons)	Gold		Silver		Copper	
			Fine Ozs.	Value	Fine Ozs.	Value	Pounds	Value
1902	Bully Hill Copper & Smt. Co.	33,012 *	4,493.91	$92,890	224,618	$117,161	4,281,170	$472,214
1903	do	27,727 **	2,240.93	46,320	162,325	87,656	2,316,367	300,459
1904	do	52,748	4,064.01	84,003	257,564	149,387	4,410,365	576,363
1905	do	47,354	1,914.29	39,572	101,924	61,562	4,628,270	722,010
1906	do	10,000	667.64	13,798	32,522	22,115	735,405	141,934
1907	. . . . .	...	...	...	...	...	...	...
1908	Bully Hill Copper & Smlt. Co.	70,231	5,660.37	117,000	227,562	120,608	4,150,228	547,830
1909	do	101,400	8,135.70	168,165	347,777	180,844	6,577,050	855,018
1910	do	58,643	4,750.41	98,191	202,076	109,121	3,717,407	472,112
1911	. . . . .	...	...	...	...	...	...	...
1912	. . . . .	...	...	...	...	...	...	...
1913	Bully Hill Copper & Smlt. Co.	129	...	...	...	...	...	...
1914	do	25	...	...	12	12	6,782	902
1915	do	400	54,14	1,199	2,067	1,048	45,051	7,884
1916	do	265	...	...	...	...	30,000	7,380
1917	do	4,692	108.02	2,233	13,651	11,248	623,516	170,220
1918	do	25,269	820.00	16,951	12,976	12,976	3,091,548	703,612
1919	. . . . .	...	...	...	...	...	...	...
1920	Bully Hill Copper & Smlt. Co.	88	1.00	21	246	268	9,238	1,700
1921	do	2,953	50.99	1,054	2,926	2,926	99,133	12,788
1922	do	13,968	529.48	10,944	15,390	15,390	613,482	82,820
1923	. . . . .	...	...	...	...	...	...	...
1924	Rising Star	9,000	200.00	4,134	22,500	15,075	360,000	47,160
1925	. . . . .	...	...	...	...	...	...	...
1926	Baxter, Bully Hill, et al	56,928	950.99	19,659	150,053	93,633	1,875,230	262,532

* Ore mined, 32,570 tons; stock on hand December 31, 1901, 5,853 tons and on December 31, 1902, 5,411 tons

** Ore mined, 30,727 tons; stock on hand December 31, 1902, 5,426 tons and on hand December 31, 1902, 8,426 tons. Discrepancy of 15 tons between stocks unexplainable, due to incompleteness of early record.

The Glidden Company, 1396 Union Commerce Building, Cleveland, Ohio

Lead		Zinc			
Pounds	Value	Pounds	Value	Total Value	Name of Shipper
...	...	...	...	$682,265	John B. Keating, Manager
...	...	...	...	434,435	do
...	...	...	...	809,753	do
...	...	...	...	823,144	do
...	...	...	...	177,847	Bully Hill Copper & Smelting Co.
...	...	...	...	...	. . . . .
...	...	...	...	785,438	John B. Keating, Manager
...	...	...	...	1,204,027	Bully Hill Copper & Smelting Co.
...	...	...	...	679,424	John B. Keating, Manager
...	...	...	...	...	. . . . .
...	...	...	...	...	. . . . .
...	...	93,914	$ 5,259	5,259	Bully Hill Copper & Smelting Co.
...	...	...	...	914	E. J. McLaggan
...	...	150,000	18,600	28,731	J. B. Keating, Manager
...	...	...	...	7,380	D. M. Riordan, President
...	...	...	...	183,701	Walter Arnstein
...	...	...	...	793,539	do
...	...	...	...	...	. . . . .
...	...	...	...	1,989	do
...	...	1,057,731	52,887	69,655	Shasta Zinc & Copper Co.
...	...	2,954,250	168,392	277,546	do
...	...	...	...	...	. . . . .
...	...	3,060,000	198,900	265,269	California Zinc Co.
...	...	...	...	...	. . . . .
...	...	17,797,210	1,334,791	1,710,615	California Zinc Co.

C O P Y

ORE PRODUCTION - RISING STAR MINE - 1924, 1925, 1926, 1927

MONTH	YEAR	TONS MINED	% ZINC	% COPPER	% LEAD	OZS. GOLD	OZS. SILVER	TOTAL TONS MINED
Sept.	1924	---						
Oct.	1924	2,584.30			No assays available			
Nov.	1924	3,054.40			"			
Dec.	1924	3,426.30			"			9,065.00
	Total 1924							
Jan.	1925	4,128.45	19.13	2.31		tr.	1.6	
Feb. & March	1925	3,839.73			No assays available			
April	1925	1,427.00			"			
May	1925	1,477.80			"			
June	1925	2,430.16			"			
July	1925	3,878.68			"			
Aug.	1925	4,098.00			"			
Sept.	1925	3,350.00			"			
Oct.	1925	1,600.00			"			
Nov.	1925	1,186.00			"			
Dec.	1925	1,703.00			"			
	Total 1925							29,118.82
Jan.	1926	1,849.00						
Feb.	1926	2,936.00	22.43	2.26	-	-	-	
March	1926	3,360.00	21.10	2.09	-	.016	1.50	
April	1926	2,494.00	22.33	1.77	-	.024	1.34	
May	1926	2,326.00	23.21	2.02	-	.02	1.11	
June	1926	2,796.00	21.78	1.82	-	.02	1.10	
July	1926	2,635.00	22.30	1.82	-	.02	1.47	
Aug.	1926	1,950.00	19.22	1.99	.30	.02	1.38	
Sept.	1926	2,170.00	16.20	1.79	.042	.02	2.18	
Oct.	1926	2,142.00	15.41	1.57	.39	.02	2.70	
Nov.	1926	2,480.00	17.69	1.94	.39	.02	3.12	
Dec.	1926	2,333.00	16.54	2.23	-	.02	-	
	Total 1926							29,471.00
	Total - 1924, 1925 and 1926 - carried forward							67,654.82

The Glidden Company, 96 Union Commerce Bldg., Cleveland, Ohio

C O P Y

Ore Production - Rising Star Mine - 1924, 1925, 1926, 1927 - continued.

MONTH	YEAR		TONS MINED	% ZINC	% COPPER	% LEAD	OZS. GOLD	OZS. SILVER	TOTAL TONS MINED
		Carried Forward							67,654.82
Jan.	1927		1,075.00	15.80	2.08	-	.02	-	
Feb.	1927		1,771.00	18.18	2.68	-	-	-	
March	1927		1,831.00	19.16	2.03	-	-	-	
April	1927		2,417.00	20.70	2.10	-	-	-	
May	1927		1,982.00	19.20	1.86	-	-	2.00	
June	1927		1,843.00	19.60	1.84	-	-	2.30	
July	1927		1,612.00	17.60	2.45	-	-	2.26	
Aug.	1927		122.00	17.80	2.27	-	.02	2.58	
		Total 1927							12,653.00
COPPER ORE									
Feb.	1927		423.00	3.98	3.50				
March	1927		342.00	7.18	2.93				
		Total Copper Ore							765.00
		TOTAL ORE PRODUCTION - Rising Star Mine, during 1924, 1925, 1926 and 1927							81,072.82

COPY

ORE PRODUCTION - COPPER CITY MINE

MONTH	YEAR	TONS MINED	% ZINC	% COPPER	% LEAD	OZS. GOLD	OZS. SILVER	TOTAL TONS MINED
Dec.	1926	70.00	12.10	2.32	-	-	-	
Jan.	1927	49.00	6.70	1.40	-	.02	-	
	Total Copper City							119.00

RECAPITULATION

TOTAL ORE PRODUCTION - RISING STAR MINE - 1924, 1925, 1926, and 1927 *		81,072.82	
TOTAL ORE PRODUCTION - COPPER CITY MINE	1926 and 1927	119.00	
GRAND TOTAL.....			81,191.82

* Includes 765 tons copper ore.

The Glidden Company, 1396 Union Commerce Building, Cleveland, Ohio

The Glidden Company, 1396 Union Commerce Building, Cleveland, Ohio

STATEMENT RELATIVE TO QUESTION #18

Ore or mineral reserves: (If property is or has been operating.)

(a) Describe the ore or mineral deposits briefly.

The mineral deposits in this area are shear zone deposits in alaskite porphyry, either on the contact between the porphyry and the sediments, or within the porphyry. There is rather a complex system of faulting which has not been completely solved. The base minerals largely consist of copper pyrites and sphalerite, and along with the zinc there is an appreciable amount of cadmium sulphide. Precious metals are gold and silver.

(b) Submit available maps and assay data.

Maps include assay plan maps and other geological data. The U. S. Geological Survey, Department of the Interior, Redding, California, under Mr. John Albers, have complete photostatic copies of all records of the Bully Hill, Rising Star and Copper City mines.

(c) Give estimated tonnage and grade of each class of ore reserves.

The tonnage of zinc ore in the Rising Star Mine has been estimated from 25,000 to 50,000 tons of positive ore, assaying:

Gold	80¢
Silver	3 ozs.
Copper	2%
Zinc	16%

The tonnage in the Bully Hill Mine has been estimated by Rogers, Mayer & Ball & Beals, and is contained in their reports.

The Glidden Company, 1396 Union Commerce Building, Cleveland, Ohio

STATEMENT RELATIVE TO PROPOSED PLAN OF EXPLORATION

This plan covers the core drilling of the extensions of known ore shoots, the thorough prospecting of an undeveloped shear zone and the further investigation of blocks of ore which have been left in the Rising Star and Bully Hill Mines. These various ore zones are so closely related that it is not practical to break them up into smaller units and considerable work of an exploratory nature must be done before definite plans can be formulated with respect to the number and depth of drill holes required.

Laying between, and roughly paralleling the Rising Star and Bully Hill shear zones is what is locally called the middle shear zone, which is totally undeveloped. This is the logical place to start drilling and the determinations made here, and the geological data obtained should make it possible to more accurately plan the work. The next step would be the investigation by means of core drilling of the northerly and southerly extensions of the Rising Star and Bully Hill shear zones, and this would be followed by the drilling of segments of known ore shoots which have been left in the mines. While both the Rising Star and Bully Hill mines have very nice production records of very good ore, yet the fact remains that only a small amount of development work has been done and operations have been confined to relatively small areas. In addition to this, no effort has been put forth to develop depth and these facts must be given due consideration in any exploration program.

The U. S. G. S., under the direction of Mr. Albers, who is now located at Redding, California, has done a great deal of work on the Shasta Copper Belt in the past four years and present plans call for the detailed geological mapping of the Bully Hill area this summer. Furthermore, all of our reports, records and maps have been made available to Mr. Albers. It naturally follows that his intimate knowledge of this district should be of great value in planning any exploration campaign.

The work as planned will be under the direction of an expert geologist working in very close connection with the Longyear drill crews.

The investigation of this mineralized area is of utmost importance since an excellent opportunity is offered to increase ore reserves of strategic minerals so badly needed at this time.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 2 1 1951
LANDON F. STROBEL
Executive Secretary

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION 500
WASHINGTON 25, D. C.

PROJECT SUMMARY REPORT (~~Incomplete~~)
(~~No Final Audit~~)

November 23, ~~October 17~~, 1956

By: J. W. Alt

1. Docket No. DMA-1219X (Copper-Zinc)
Contract No. Idm-E187
Property: Bully Hill Mine
Shasta County, California

Operator: The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Operator's Property Rights: Owner

2. Contract dated October 18, 1951. To complete - 2 years.

Work Authorized

To explore for lead and copper by diamond drilling from surface. The drilling is to be done in six areas and is to be divided into two phases. Phase I is to consist of not to exceed 17,000 feet of diamond drilling (23 holes). Phase II is to consist of not to exceed 15,700 feet of diamond drilling (16 holes).

Estimated Cost of Project

Phase I	17,000 feet of diamond drilling @ $9.00/ft.	$153,000.00
Phase II	15,700 feet of diamond drilling @ $9.00/ft.	141,300.00
	Total estimated cost of the Project	$294.300.00
	Government's Participation @ 50%	$147,150.00

Amendments

No. 1 Effective date October 18, 1951.

In Exhibit "A" - Delete: "The Government will not participate in costs exceeding $9.00 per foot for diamond drilling; any additional costs will be borne by the Operator. Payment at this rate allowed only for actual footage drilled. All costs of rehabilitation, engineering, geology, etc., are to be borne by the Operator."

Substitute: "The Government will not participate in costs exceeding $9.00 per foot for diamond drilling per foot and for geological work; any additional cost will be borne by the Operator.

"The Geological work to include the location and direction of diamond drill holes, the examination of diamond drill holes, etc. The allowance for this work is not to exceed $1.00 per foot of the actual footage drilled, and this is to be included in the total cost which is not to exceed $9.00 per foot."

"The drilling contract must be approved by the Government.

Amended Contract - Dated April 30, 1953. To be completed prior to October 18, 1955.

Work Authorized

1. Rehabilitate 975 feet of drift on the 300 level from the portal of the adit to the vertical shaft.

2. Unwater and rehabilitate the vertical shaft a distance of 650 feet from the 300 level to the 870 level.

3. Rehabilitate a total of 1,000 feet of drift on the 870 level from the vertical shaft to the north end of the old workings.

4. Drift and crosscut a distance of 1,500 feet from the north end and 1,000 feet from the south end of the old working on the 870 level.

Estimated Costs of the Project (*Indicates allowable maximum)

Stage I

The completed 5,299'4" of diamond drilling of the Prior Contract	$ 47,693.98

Stage II

Agreed Unit Costs

2,500 feet of drifting and crosscutting @ $45.00/ft.	$112,500.00
4,000 feet of diamond drilling @ $9.00/ft.	36,000.00
Total Agreed Unit Cost	$148,500.00

Estimated Actual Costs

Rehabilitate 300 level, 975 ft. @ $14.00/ft.*	$ 13,650.00
Unwater and rehabilitate vertical shaft 650 ft. @ $50.00/ft.*	32,500.00
Rehabilitate 870 level - 1,000 ft. @ $14.00/ft.*	14,000.00
Total Estimated Cost of Rehabilitation and unwatering.	$ 60,150.00*

SUMMARY

Total Cost, Stage I	$ 47,693.98*
Total Estimated Cost, Stage II	208,650.00*
Total Estimated Cost of Project	$256,343.98*
Government's participation, 50%	$128,171.99*

Amendments to Amended Contract

No. 1. Dated November 10, 1955.

Completion time extended to January 18, 1956.

Extend royalty payment period from 10 to 11 years.

Work Completed

Stage I

Diamond drilling from surface, six holes completed 5,299.3 feet @ $9.00/ft.	$ 47,693.70

Stage II

Rehabilitate 300 level adit, 1,022.5 feet @$14.00/ft.	$ 14,315.00
Unwater and rehabilitate shaft, 627 feet @ $50.00/ft.	31,350.00
Rehabilitate 870 level drifts and crosscuts, 904 feet @ $14.00/ft.	12,350.00
Drifting and crosscutting on 870 level, 2,500 feet @ $45.00/ft.	112,500.00
Diamond drilling on 870 level, 4,000 feet @$9.00/ft.	36,000.00
Total Cost of Stage II	$206,821.00
Total Cost of the Project	$254,514.70
Government's participation, 50%	$127,257.35

The Operator at his own cost completed an additional 293.6 feet of drifting and crosscutting and 524 feet of diamond drilling on the 870 level.

Work on the project was started on December 17, 1951 and the work was completed on December 31, 1955.

3. Audit Certificate: ~~No final audit to date.~~ Report of Review Nov. 20, 1956

Operator's final report - dated August 31, 1956.
Final Field Team report - dated March 12, 1956.

4. A Certification of Discovery or Development ~~has been prepared but as of October 17, 1956, has not been issued.~~ dated Oct 19, 1956

The discovery consists of copper-zinc ores occurring in a shear zone in rhyolite. One reserve is:
105,000 tons
1.99% Cu.
9.50% Zn.
5.29 oz Ag.
0.15 oz Au.

5. Comment

Work in connection with the contract was satisfactory and the Operator's competency is considered good. The Operator's estimated cost to complete the work, including work done in excess of allowable contract costs, was $471,022.00. The actual costs of the exploration work were high, although the excess amounts were borne by the Glidden Company.

The Company's plan for future operation and production from the Bully Hill mine has not been disclosed. The property has been offered for sale and it is believed that no further extensive exploration or mining is planned by the Glidden Company.

Considerable additional exploration and rehabilitation would be required to develop sufficient ore reserves to maintain production.

The northern extension of the Bully Hill shear zone was the only area explored by surface diamond drilling, although five additional areas were originally seleted. Due to difficult drilling conditions and excessive costs this work was discontinued and the area was further explored underground by drifting, crosscutting, and drilling. The work resulted in the discovery of two new ore lenses in the Bully Hill mine.

Two commercial grade ore lenses were discovered on the 870 level north of the shaft. These two lenses are estimated to contain 105,000 tons of 2.00% copper, 9.5% zinc, 5.3 ounces of silver per ton and 0.15 ounces of gold per ton.

J. W. Alt

J. W. Alt

JWAlt/er 10/18/56
Copy to: Docket
Base Metals
Chron.

☒ Audited 11/20/56. W● ANALYSIS SHEET - DMEA PROJECT● ① ☒ Actual Cost

☒ Certified 10/19/56. Analysis as of 3/30/55 Incl. Voucher for 9655.55 * ☒ Agreed Unit Costs

Name THE GLIDDEN COMPANY Docket No. 1,219

State CALIFORNIA Commodity ZINC-COPPER Idm-E No. 187

OPERATION	AUTHORIZED Units	AUTHORIZED Cost	COMPLETED Units	COMPLETED Cost	NET COST
Drifting & Crosscutting *	2,500' @$45.00	$112,500.00	2,500'	$112,500.00	
Raising					
Shafts					
Winzes					
Drilling (Specify) accepted.	5,299.33'	47,693.98	5,299.33'	47,693.98	
*	4000' @9.00	36,000.00	4,000'	36,000.00	
Surface Excavation					
Underground Excavation					
Roads and Trails					
Operating Equipment Purchased					
Surface Rehabilitation & Repairs					
Underground Rehabilitation ①		60,150.00		58,321.00	
New Building, Improvements, etc.					
Other (Specify)					
Totals		$256,343.98		$254,514.98	

Date of Contract - October 18, 1951
" " Amended - April 30, 1953
Expiration date for Royalty Payments - April 30, 1964

① maximum allowable Unit Cost;

Amend No. 1. Amended contract Completion Date - Jan 18, 1956.
Royalty Payments - 11 yrs.

Interest in Property waived 11/14/56.

Certification Recommended.

F.T. Report in March 16, 1956. certification recommended.
" received Sept. 10, 1956. 6 mos after operator's Final Report for Cert.

Op's Audit

Ore Reserves:

Lense "A" - measured 8,000 tons, indicated 28,000 ", inferred 60,000 " } 2.0% Cu, 10.1% Zn, 5.5 oz Ag, 0.16 oz Au

Lense "B" measured 1,000 tons, indicated 3,000 ", inferred 6,000 " } 1.9% Cu, 3.1% Zn, 3.1 oz Ag, 0.08 oz Au

Checked audit

Prepared by [illegible]

254,514.98 (Inactive)

71626

The Glidden Co. — California — 1219.

Phase I.

17,000' D.D. @ $9.00 — 153,000.00

Stage II.

15,700' D.D. @ $9.00 — 141,300.00

$294,300.00

Amended.

Stage I.

5,299.33' D.D. (actual) ✓ $47,693.98

agreed Hard Costs.

2,500' Drifts and XCS @ $45.00 ✓ 112,500.00

4,000' D.D. @ $9.00 ✓ 36,000.00

Actual.

(300 Level) 975' Rehab of Level @ $14.00 max. ✓ 13,650.00

Unwater & Rehab Shaft 650' @ 50.00 max ✓ 32,500.00

Rehab 870 Level 1000' @ 14.00 max ✓ 14,000.00

208,650.00

Total 256,343.98

~~Mar.~~ ~~June~~ ~~July~~ ~~August~~ ~~Oct.~~ ~~Nov.~~ ~~Dec~~.
~~Feb.~~
~~June~~ 1955 ~~Expenses~~

627' Unwatering Shaft @ 50.00 (max) #31,350.00

Rehab 870 Level 904' @ 14.00 (max) #12,656.00
~~2,197'~~ ~~2,500.00'~~
~~1958'~~ ~~2,486.8'~~
112,500.00
~~111,906.00~~ ~~#84,750.00~~
~~98,865.00~~ ~~#75,690.00~~

Drift XCS – ~~1682'~~ @ 45.00 (agreed)

300 Addit. 1022.5' @ 14.00 (max) #14,315.00

5299.33' D.D. @ 9.00 #accepted 47,693.98
~~532'~~ ~~1309'~~ " " @ 9.00 ~~26,406.00~~ ~~33,093~~ ~~11,781.00~~ ~~4,788.00~~
36,000
~~2,934'~~
~~2,134'~~
~~3,677'~~
~~4,000'~~

~~$181,704.98~~
~~204,879.98~~
~~218,514.98~~
~~223,302.98~~
~~230,295.98~~
~~244,920.98~~
~~251,607.98~~
254,514.98

(183,602.00)

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
50 Battery Street
San Francisco 11, California

OFFICIAL FILE COPY
O M E
RECEIVED MAR 15 1963

3/14	[illegible]	800
		120
	Grand	500
		200

March 11, 1963

Memorandum

To: Chief, Division of Field Operations, OME, Washington, D. C.

From: Acting Field Officer, OME, Region II

Subject: Docket No. DMEA-1219 (Copper,Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract No. Idm-E-187

Enclosed is a copy of a letter from the subject operator for your information and file.

Paul V. Fillo

Paul V. Fillo

Enclosure

cc:
Chief, Division of Field Operations, OME, Washington, D.C.

THE GLIDDEN COMPANY

900 UNION COMMERCE BUILDING

R. K. DUTTON
ASSISTANT SECRETARY

CLEVELAND 14, OHIO

March 4, 1963

Mr. W. F. Dietrich, Executive Officer
OME FIELD TEAM - REGION II
555 Battery Street
San Francisco 11, California

SUBJECT: Docket No. DMEA-1219 (Copper Zinc)
The Glidden Company
Bully Hill Mine - Shasta County, California
Amended Contract No. Idm-E-187

Dear Mr. Dietrich:

Under date of February 28, 1962, we advised your office that our Company's Bully Hill mining claims had been leased to the Celtor Chemical Corporation, which anticipated commencing mining operations within 240 days from the date of the Lease. Under date of March 5, 1962, we furnished you with a copy of the Lease.

This letter will advise that contrary to expectations, the Celtor Chemical Corporation has not, to our knowledge and belief, conducted any mining upon the property. We have in any event not received any royalty payments as provided for in the Lease nor have we received any report of any mining activity, although numerous requests have been made.

Under date of January 18, 1963, we wrote Celtor Chemical Corporation notifying them of our election to declare the Mining Lease, dated December 28, 1961, null and void, effective 120 days after receipt of notice, which by certified mail receipt appears to have been received January 21, 1963.

This letter is your notification of the termination of the Celtor Chemical Corporation Lease and the fact that there has been no work performed calling for any payments or reports to the DMEA.

Yours very truly,

THE GLIDDEN COMPANY

R. K. Dutton

Richard K. Dutton
Assistant Secretary & General Attorney

RKD/dm

cc - Mr. G. M. Halsey

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
		220

APR 6 1962

Memorandum

To: Acting Field Officer, Region II

From: E. D. Talbert, Acting Chief (Signed) E. D. Talbert
Contract Administration and Audit Division

Subject: DMA-1219 (Zinc-Copper)
The Glidden Company
Bully Hill and Rising Star Mines
Shasta County, California
Amended Contract Idm-8187

The original and one copy of a Report of Royalty Review covering the subject contract are enclosed. If you concur in the facts stated therein, please make the following distribution:

(a) Original to the Fiscal Section, Division of Administrative Services, Office of the Secretary, Department of the Interior, Washington 25, D. C.; and

(b) One copy for your files.

This Report of Royalty Review is made for record purposes only; therefore, no copy for the Operator is provided.

As evidence of your concurrence, a copy of your memorandum transmitting the original report to the Fiscal Section should be furnished this Division. If for any reason you do not concur, both copies of the report should be returned to this Division with your comments.

Enclosures

EDTalbert/ama 4-6-62

cc:
Docket
Director's Reading File
CA & A Division
Mr. Rothrock

43683

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

555 Battery Street
San Francisco 11, California

March 16, 1962

OFFICIAL FILE COPY
O. M. E.
RECEIVED MAR 19 1962
DATE

3/19		800
3/20	Transmitted	500
		220

Memorandum

To: Chief, Division of Field Operations, OME
Washington, D. C.

From: Acting Field Officer, OME, Region II

Subject: Docket No. DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract No. Idm-E-187

We are enclosing a copy of a letter from the subject company, received in this office March 5, 1962, for your information.

Paul V. Fillo

Paul V. Fillo

Attachment 1

THE GLIDDEN COMPANY
900 UNION COMMERCE BUILDING
CLEVELAND 14, OHIO

R. K. DUTTON
ASSISTANT SECRETARY

MAR 1962

February 28, 1962

Mr. W. F. Dietrich, Executive Officer
OME FIELD TEAM - REGION II
555 Battery Street
San Francisco 11, California

SUBJECT: Docket No. DMEA-1219 (Copper Zinc)
The Glidden Company
Bully Hill Mine - Shasta County, California
Amended Contract No. Idm-E-187

Dear Mr. Dietrich:

This letter is to advise that under date of December 28, 1961, The Glidden Company entered into an Agreement pursuant to which the Bully Hill Mining claims were leased to the Celtor Chemical Corporation which plans to actively mine the property. It is anticipated that mining operations will commence within two hundred and forty (240) days from the date of the Lease.

Provision is made in the Lease for reporting to us, as Lessor, of net smelter or net concentrator returns realized by it from the sale or other disposition of minerals mined from the property. It is our intention, upon receiving such reports, to make payments as may be required under our Agreement with the Defense Minerals Exploration Administration, dated October 18, 1951, as amended April 30, 1953.

This letter is your notification of the reactivation of the Mine and our intention to make payments under the Defense Minerals Exploration Administration, if and as appropriate.

Yours very truly,

THE GLIDDEN COMPANY

R. K. Dutton

Richard K. Dutton
Assistant Secretary

RKD/dm

cc: Celtor Chemical Corporation

THE GLIDDEN COMPANY

900 UNION COMMERCE BUILDING

CLEVELAND 14, OHIO

R. K. DUTTON
ASSISTANT SECRETARY

OFFICIAL FILE COPY
O. M. E.
RECEIVED MAR 7 1962
DATE
3/8 | 800
" | Received | 500
March 5, 1962
220

Mr. George Fumich, Jr., Director
United States Department of the Interior
Office of Minerals Exploration
Washington 25, D.C.

SUBJECT: DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill Mine - Shasta County, California
Amended Contract Idm-E187

Dear Mr. Fumich:

In compliance with your request of March 1, 1962, I am enclosing, herewith, a conforming copy of the Mining Lease entered into between Celtor Chemical Corporation and The Glidden Company.

Yours very truly,

THE GLIDDEN COMPANY

R. K. Dutton

Richard K. Dutton
Assistant Secretary

RKD/dm
Enclosure.

cc - Celtor Chemical Corporation

QUALITY Glidden PRODUCTS

THE GLIDDEN COMPANY

900 UNION COMMERCE BUILDING

G. WILLIAMS REID
ASSISTANT SECRETARY

CLEVELAND 14, OHIO

May 7, 1964

OFFICIAL FILE COPY
O. M. E.
RECEIVED MAY 11 1964

DATE	INITIALS	CODE
5/11	[illegible]	800
		~~100~~
		500
		200

Reg.

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

Attention: Administrator

Re: Docket No. DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract No. IDM-E-187

Dear Sir:

In accordance with and pursuant to the above referred to contract this will report that no activity has taken place on our Bully Hill Mine property in Shasta County, California, from the date of the last report. We have previously, from time to time, reported that no mining has been done on this property during recent years. Our records now show that April 30, 1964, was the date at which our company's responsibility to reimburse you out of net smelter returns expired.

I am confident that you will be in accord with this statement and, therefore, it appears appropriate to close our files in connection with our contract dated April 30, 1953, with you. Henceforth no further reports will be made. For your information, even at the present time we have no plans or arrangements to mine this property.

We believe this notification will be sufficient to terminate this arrangement. If, however, there should be any further questions, will you please let me know.

Very truly yours,

Assistant Secretary

GWR:mi

cc: Mr. S. Ricker

Royalty released
letter mailed 5/14/64

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
555 Battery Street
San Francisco, California, 94111

Memorandum

March 30, 1964

To : Chief, Division of Field Operations, OME, Washington, D. C.

From : Acting Field Officer, OME, Region II

Subject: DMEA - 1219 (Copper, Zinc)
The Glidden Company - Bully Hill Mine
Shasta County, California
Amended Contract No. Idm-E 187

Enclosed is a copy of letter from the subject operator for your information and file.

Paul V. Fillo

Paul V. Fillo

cc:
Enclosure
Chief, Division of Field Operations, OME, Washington, D. C

OFFICE FILE COPY
O. M. E
RECEIVED APR 6 1964
DATE
4/6
806
500
Grand
500

THE GLIDDEN COMPANY
900 UNION COMMERCE BUILDING

G. WILLIAMS REID
ASSISTANT SECRETARY

CLEVELAND 14, OHIO

March 23, 1964

OME FIELD TEAM - REGION II
555 Battery Street
San Francisco, California

Attention: Mr. W. F. Dietrich, Executive Officer

Dear Sir:

Re: Docket No. DMEA 1219 (Copper Zinc)
The Glidden Company - Bully Hill Mine
Shasta County, California
Amended Contract No. Idm-E-187

This letter is to advise you in accordance with our usual practice the current status of our Company's Bully Hill Mining Property as of February 28, 1964.

This will advise that the above property has not been leased to any firm since the termination, effective May 27, 1963, of our lease with Celtor Corporation. We have several prospective tenants for this property, and will advise you if and when the property is again leased for the purpose of mining.

This letter is your notification of the fact that there has been no work performed calling for any payments or reports to the DMEA.

Very truly yours,

THE GLIDDEN COMPANY

G. Williams Reid

G. Williams Reid
Assistant Secretary

GWR/C

cc: Mr. G. M. Halsey

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
555 Battery Street
San Francisco 11, California, 94111

September 11, 1963

Memorandum

To : Chief, Division of Field Operations, OME, Washington, D. C.

From : Acting Field Officer, OME, Region II

Subject : Docket No. DMEA-1219 (Copper,Zinc)
The Glidden Company - Bully Hill Mine
Shasta County, California
Amended Contract No. Idm E 187

no production to 9/3/63

Enclosed is a copy of a letter from the subject operator for your information and file.

Paul V. Fillo
Paul V. Fillo

Enclosure

cc:

Chief, Division of Field Operations, OME, Washington, D. C.

OFFICIAL FILE COPY
O. M. E.
RECEIVED SEP 16 1963

DATE	INITIALS	CODE
9/17		800
		500
		220

THE GLIDDEN COMPANY
900 UNION COMMERCE BUILDING
CLEVELAND 14, OHIO

G. WILLIAMS REID
ASSISTANT SECRETARY

SEP 1963
BUREAU OF MINES
REGION 11

September 3, 1963

OME FIELD TEAM - REGION 11
555 Battery Street
San Francisco 11, California

Attention: Mr. W. F. Dietrich, Executive Officer

Dear Sir:

Re: Docket No. DMEA-1219 (Copper Zinc)
The Glidden Company - Bully Hill Mine
Shasta County, California
Amended Contract No. Idm-E-187

This letter is to advise you in accordance with our usual practice the current status of our Company's Bully Hill Mining Property Claims as of August 31 each year.

You were advised on March 4 of this year that the claims had been leased to Celtor Chemical Corporation but that, to our knowledge and belief, that company had not conducted any mining upon the property. We have not, to this date, received any indication that any mining had been done on this property and our Lease Agreement with Celtor was terminated and became null and void May 27, 1963.

This letter is your notification of the fact that there has been no work performed calling for any payments or reports to the DMEA.

Very truly yours,

G Wms Reid

Assistant Secretary

GWR/C

cc: Mr. G. M. Halsey

Glidden QUALITY PRODUCTS

MINING LEASE

This Indenture of Lease, made and entered into this 28th day of December, 19 61, by and between CELTOR CHEMICAL CORPORATION, a California corporation, 1694 Union Street, San Francisco 23, California, hereinafter referred to as the "Lessee" and THE GLIDDEN COMPANY, an Ohio corporation, 900 Union Commerce Building, Cleveland 14, Ohio, hereinafter referred to as the "Lessor".

W I T N E S S E T H:

1. That the Lessor, for and in consideration of One Dollar ($1.00), receipt whereof is hereby acknowledged, and of the royalties, covenants, stipulations, and conditions hereinafter contained and hereby agreed to be paid, performed and observed by the Lessee, doth hereby demise, grant, and lease unto the said Lessee, the following-described tract of land lying and being within the County of SHASTA and State of California, to-wit:and the following group of mining claims in Sections 15, 16, 20, 21, 22, 28, and 29, Township 34 North, Range 3 West, B. and M. Mount Diablo, a map of said area being attached for identification purposes and containing Three Hundred and Eighty-Three (383) acres,more or less:

(a) The mining claim known as the Aqueous Mine Lode Mining Claim, as more particularly described and set forth in United States Patent dated November 19, 1904, and recorded in Book 9, Patents, Page 30, Shasta County Records;

(b) All surface rights within the mining claim known as the Boulder Lode Mining Claim, as more particularly described and set forth in United States Patent dated November 25, 1924, and recorded in Book 2 Official Records, Page 310, Shasta County Records;

(c) The mining claim known as the Potter Quarts Lode Mining Claim, consisting of the Popejoy, Bully Hill, and Jennie June Lode Mining Claims, as more particularly described and set forth in United States Patent dated November 19, 1890, and recorded in Book 5 Patents, Page 264, Shasta County Records;

(d) The mining claim known as Diamond Fraction Lode Mining Claim, as more particularly described and set forth in United States Patent dated June 18, 1930, and recorded in Book 58 Official Records, Page 218, Shasta County Records;

(e) The mining claim known as the Rising Star and Hillside Lode Mining Claims, as more particularly described and set forth in United States Patent dated March 27, 1907, and recorded in Book 11, Patents, Page 124, Shasta County Records;

(f) The mining claim known as the Redding Consolidated Quartz Mining Claim, consisting of the Redding, Shasta, and Keswick Lode Mining Claims, as more particularly described and set forth in United States Patent dated August 8, 1904, and recorded in Book 7 Patents, Page 354, Shasta County Records;

(g) The mining claim known as the Northern Light Quartz Lode Mining Claim, as more particularly described and shown in United States Patent dated October 7, 1896, and recorded in Book 5 Patents, Page 295, Shasta County Records.

All surface rights within the boundaries of the following mining properties lying above the 1,070 foot contour above mean sea level, and all sub-surface rights, and all mineral rights (including the right to mine and extract minerals and all extralateral rights) under existing mining law, in the following mining properties whether above or below said 1,070 foot contour, all said properties located and lying in Shasta County, California:

(a) The mining claim known as the Sanders Quartz Lode Mining Claim, as more particularly described and set forth in United States Patent dated June 18, 1930, and recorded in Book 58 Official Records, Page 218, Shasta County Records;

(b) The mining claim known as the Howard Quartz Lode Mining Claim, as more particularly described and set forth in United States Patent dated June 18, 1930, and recorded in Book 58 Official Records, Page 218, Shasta County Records;

(c) The mining claim known as the Excelsior Lode Mining Claim,

as more particularly described and set forth in United States Patent dated February 15, 1883, and recorded in Book 2, Patents, Page 46, Shasta County Records;

(d) The mining claim known as the Baxter Quartz Lode Mining Claim, as more particularly described and set forth in United States Patent dated February 17, 1898, recorded in Book 7, Patents, Page 21, Shasta County Records;

(e) The mining claim known as the Brown Lode Mining Claim, as more particularly described and set forth in United States Patent dated August 8, 1904, and recorded in Book 7 Patents, Page 361, Shasta County Records;

(f) The placer mining claim known as the Popejoy Placer Mining Claim, as more particularly described and set forth in United States Patent dated April 18, 1890, and recorded in Book 4 Patents, Page 352, Shasta County Records;

(g) Lessee shall have no right to conduct mining operations in or upon, or to remove any minerals from, any of the foregoing property wherein it is designated that Lessor owns only the surface rights.

Said lease shall be for a term of ten (10) years from the date of execution hereof, and subject to renewal for such additional term or terms as may be agreed upon by the parties, as long as the property is being developed and mined by the Lessee, for the sole purpose of prospecting for and mining minerals, as follows: COPPER, GOLD, SILVER, LEAD, ZINC, OR OTHER MINERALS (but not including oil or gas) the Lessee to occupy so much only of the surface of said land as may be reasonably necessary to carry on the work of prospecting for, mining, milling, storing and removing such minerals.

1. In consideration of the foregoing, the Lessee hereby agrees:

(a) ROYALTY: To pay seven and one-half percent (7½%) of the gale value of the copper, gold, and silver E&MJ prices (and other minerals mined by Lessee) adhering to custom smelter deductions, treatment charges, penalties, etc., less their cost of transportation from the mine to places where sold, and not less than one hundred dollars ($100.00) per month from the date of the execution of this lease until its expiration or cancellation.

When all or any part of said one hundred dollars ($100.00) monthly payments shall have been made as advance royalty, they may later be credited on earned royalty at any time during the life of this lease. All royalties accruing for any month shall be due and payable on or before the 25th day of the month succeeding.

(b) ANNUAL RENTAL: To pay one hundred dollars ($100.00) per annum during the first, second, and third year of the lease, and one dollar ($1.00) per acre, in advance, for each and every calendar year thereafter during the continuance of the lease, and said annual rental when paid shall not be refunded to the Lessee because of any subsequent surrender or cancellation thereof.

(c) DILIGENCE, PREVENTION OR WASTE: To exercise diligence in the conduct of prospecting and mining operations; to carry on development and operations in a workmanlike manner and to the fullest possible extent; to commit no waste on the said land and to suffer none to be committed upon the portion in his occupancy or use; to comply with all the requirements of the laws of the State in which the land is located; to take appropriate steps for the preservation of the property and the health and safety of workmen; promptly to surrender and return the premises upon the termination of this lease to whomsoever shall be lawfully entitled thereto, in as good condition as received, excepting for the ordinary wear and tear and unavoidable accidents to their proper use; not to remove therefrom any buildings or permanent improvements erected thereon during the said term by the said Lessee, but said buildings and improvements shall remain a part of said land and become the property of Lessor, excepting the office fixtures and records, personal property, tools, pumping and drilling outfits, boilers, engines, and mining machinery placed upon the property leased hereunder by Lessee which shall remain the property of the Lessee and may be removed at any time prior to sixty (60) days after the termination of the lease by forfeiture or otherwise, provided the payments agreed upon by this lease have been made and the lease terms and regulations applicable thereto have been fully complied with, but not otherwise; not to permit any nuisance to be maintained on the prem-

ises under Lessee's control, nor allow any intoxicating liquors to be sold or given away for any purpose on such premises; and not to use such premises for any other purposes than those authorized in the lease.

(d) DEVELOPMENT: The land described herein shall not be held by the Lessee for speculative purposes, but in good faith for mining the minerals specified; Lessee agrees to construct upon the premises and to operate with reasonable diligence a mill having a minimum capacity of two hundred tons (200) per 24-hour period; and the failure by the Lessee to diligently develop and continue the operation of the mine or mines, except when operations may be interrupted by strikes, the elements or casualties not attributable to the Lessee, shall be held as a want of compliance with the purposes of this lease and shall render it subject to cancellation; provided, that if in the opinion of THE GLIDDEN COMPANY the market for copper or other minerals being mined on said property is such that it makes mining uneconomic or otherwise inadvisable, it will permit Lessee upon its request to cease mining activities on a temporary basis without the same being considered in violation of the requirement to diligently conduct mining operations; provided, further, that such action will not release the Lessee from the payment of the advance rental specified hereinabove or any royalties which might otherwise fall due. This provision shall not be effective until the receipt by Lessee of formal written notice from the Lessor. The Lessee shall begin commercial mining operations within two hundred and forty (240) days from the date of this lease. The Lessee shall file with THE GLIDDEN COMPANY the amount and character of expenditures during the lease year within sixty (60) days of the preceding year. The statement must be certified under oath by the Lessee.

(e) MONTHLY STATEMENTS: To keep an accurate account of all mining operations, showing the sales, prices, dates, purchasers, and the whole amount of minerals mined, the amount removed, and the gross receipts derived therefrom, and to furnish the Accounting Department of THE GLIDDEN COMPANY sworn monthly reports thereon not later than the 25th of the succeeding month; and all sums due as royalty and advance rental shall be a lien on

all implements, tools, movable machinery, and all other personal chattels used in operation upon said property, and upon all of the uncold minerals obtained from the land herein leased, as security for payment of said sums. An audit of the Lessee's accounts and books shall be made annually for THE GLIDDEN COMPANY by certified public accountants approved by the Lessor and at the expense of the Lessee. The Lessee shall furnish free of cost a copy of audit to the GLIDDEN COMPANY within thirty (30) days after the completion of audit.

(f) ASSIGNMENT OF LEASE: Not to assign this lease or any interest therein by an operating agreement or otherwise nor to sublet any portion of the leased premises, except with the approval of THE GLIDDEN COMPANY. If this lease is divided by the assignment of an entire interest in any part of it, each part shall be considered a separate lease under all the terms and conditions of the original lease.

(g) BOND: To furnish such bond as may at any time be required by Lessor conditioned upon compliance with the terms of this lease, the failure to furnish such upon demand to be considered a default entitling Lessor to immediately terminate this lease.

(h) INSPECTION: The leased premises and producing operations, improvements, machinery, and fixtures thereon and connected therewith, and all books and accounts of the Lessee shall be open at all times for inspection by agents of the Lessor or any duly authorized representative of THE GLIDDEN COMPANY.

(i) DISPOSITION OF SURFACE: The Lessor expressly reserves the right to lease, sell or otherwise dispose of the surface of the lands embraced within this lease under existing law or laws hereafter enacted, such disposition to be subject to at all times the right of the Lessee herein to the use of such of said surface as is necessary in the extraction and removal of the minerals from the land herein described in accordance with this lease.

(j) SURRENDER AND TERMINATION: The Lessee shall have the right at any time during the term of said lease to surrender and terminate

this lease or any part thereof upon the payment of all rentals, royalties, and other obligations due and payable to the Lessor, and the further sum of One Dollar ($1.00), upon a showing satisfactory to THE GLIDDEN COMPANY that full provision has been made for the conservation and protection of the property, the lease to continue in full force and effect as to the lands not so surrendered. If this lease has been recorded, Lessee shall file a recorded release with his application to THE GLIDDEN COMPANY for termination of this lease.

(k) CANCELLATION AND FORFEITURE: When, in the opinion of THE GLIDDEN COMPANY, there has been a violation of any of the terms and conditions of this lease before restrictions are removed, THE GLIDDEN COMPANY shall have the right at any time after one hundred twenty (120) days' notice to the Lessee, specifying the terms and conditions violated, and after a hearing, if the Lessee shall so request within one hundred twenty (120) days of receipt of notice, to declare this lease null and void, and the Lessor shall then be entitled and authorized to take immediate possession of the land.

(l) COMPLIANCE WITH LAWS: Lessee shall conduct all of its mining operations on the property in a miner-like manner and shall comply with all United States and California State Laws and regulations pertaining to mining operations. Lessee shall indemnify and hold Lessor harmless from any and all claims for injuries to persons or damages to property and for labor, materials and any and all liens in connection with its mining operations or the entry of persons upon said property while under lease to Lessee.

(m) TAXES: All machinery and equipment brought on the property, and facilities erected thereon by Lessee shall be deemed to be personal property whether affixed to the land or not. Taxes on any and all such personal property and on or resulting from such improvements, as well as all severance taxes imposed upon minerals extracted or shipped from the property during the period of this lease, or any extension thereof, shall be paid by Lessee. Lessee shall also reimburse Lessor for real estate taxes

applicable to said property during the term of this lease, upon Lessor's providing notice that the same have been paid by it.

(n) ARBITRATION: Any controversy or claim arising out of, or relating to, this agreement or breach thereof, shall be settled by arbitration in Cleveland, Ohio, in accordance with the rules of the American Arbitration Association. This agreement and any award shall be enforceable and judgment upon any award rendered by the arbitrator(s) may be entered in any court having jurisdiction.

(o) WATER RIGHTS: Lessor hereby grants to Lessee for purposes of this lease any and all rights which it may have to water from, and barging services across the Shasta reservoir.

(p) DMEA CONTRACT: The parties acknowledge that an Exploration Project Contract between Lessor and the Defense Minerals Exploration Administration of the Department of Interior of the United States Government dated October 18, 1951, as amended April 30, 1953, pursuant to which the DMEA advanced certain funds for exploration costs is in existence and that Lessor must reimburse the DMEA on a percentage basis specified in said Contract for the net amounts realized from the sale for disposition of minerals mined from said property until the expiration of said DMEA Contract. Lessee, as a part of the accounting to be rendered to Lessor, shall furnish Lessor with information as to the net smelter or net concentrator returns realized by it from the sale or other disposition of minerals mined from said property and such other information as Lessor may request from time to time in order to be able to comply with said DMEA Contract.

(q) TIMBER RIGHTS: Lessee may during the term hereof use such timber from the property as necessary in connection with its normal mining operations but otherwise shall not cut and/or remove any timber from said property.

(r) BIND AND ENUREMENT AND INTEREST: It is further covenanted and agreed that subject to the provision of Paragraph 2 (f) hereof each obligation hereunder shall extend to and be binding upon, and every benefit hereof shall inure to, the heirs, executors, administrators,

successors of, or assignees of the respective parties hereto.

(e) NOTICES: Any notice or other communication permitted or required hereunder, including payment of royalties, may be given to the other party in writing by depositing the same in the United States mail, postage prepaid, directed to such other party at the address given herein or to such other address as may be designated from time to time by a notice similarly given.

IN WITNESS WHEREOF, this lease has been executed on the date set forth above.

ATTEST: CELTOR CHEMICAL CORPORATION

~~/s/ O. Joseph Bertain, Jr.,~~ Secretary /s/ C. C. Celestre, President

ATTEST: THE GLIDDEN COMPANY

/s/ ~~R. K. Dutton, Assistant Secretary~~ /s/ B. W. Maxey, Vice President

State of Ohio)
) ss
County of Cuyahoga)

On this 16th day of January, 1962, before me, a Notary Public in and for said County and State, personally appeared B.W.Maxey Vice President and ~~R. K. Dutton, Assistant~~ Secretary of said THE GLIDDEN COMPANY, who acknowledged that the seal affixed to said instrument is the corporate seal of said corporation, that they did sign and seal said instrument as Vice President and ~~Assistant~~ Secretary of said THE GLIDDEN COMPANY in behalf of said corporation and by authority of said corporation and that said instrument is the voluntary act and deed of said B. W. Maxey and R. K. Dutton as such officers.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my official seal this 16th day of January, 19 62.

/s/ Theodore W. Jones
Notary Public

My Commission Expires Jan. 31, 1964

STATE OF CALIFORNIA)
) SS
COUNTY OF SHASTA)

BEFORE ME, a Notary Public in and for said County and State, personally appeared the above named _____, who acknowledged that he did sign the foregoing instrument and that the same is his free act and deed.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my official seal this 28th day of December, 19 61.

/s/ Mary Elizabeth Kerk
Notary Public

My Commission Expires Feb. 18, 1963

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
3/2	Griswold	500
3/1	Talbut	800
/		130
3/1	Johnson	110
3-1	Fenwick	100
		220

MAR 1962

Memorandum

To: Acting Field Officer, Region II

From: Chief, Division of Field Operations

Subject: DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract Idm-E187

With reference to your February 6 letter to Robert K. Evans, we are enclosing a copy of a letter, dated February 23, from The Glidden Company. Will you, therefore, have copies made of the logs desired and furnish them to Mr. Evans. You understand, of course, that no Government material can be made available, only that provided by the Operator.

We suggest that you bill Mr. Evans in advance for charges for the copying work.

George C. Selfridge

Enclosures

WRGriswold/gla
3-1-62
cc to: Director's Reading File
Review Committee
Docket
Code 500

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
2/28	Griswold	500
3/1	Talbot	800
		130
3/1	Johnson	110
3-1	Fumich	100
		220

MAR 1 - 1962

Celtor Chemical Company
1694 Union Street
San Francisco 23, California

Re: DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract Idm-E187

Gentlemen:

We have been advised by Mr. Robert K. Evans that your company has taken the Bully Hill Mine under lease. We presume that you understand this property is covered by a certification of discovery or development and that the Government retains a lien on the production therefrom and on the land described in the referenced contract.

As requested by Mr. Evans, we are advising our Field Office to forward him copies of the drill logs and maps covering the diamond drilling done under the DMEA project.

Sincerely yours,

George Fumich, Jr.

Director

Enclosure

WRGriswold/gla (2-27-62)
Rewritten: 3-1-62
cc to: Director's Reading File
Region II (2)
Docket
Code 500

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
2/27	Griswold	500
2/27	Talbert	800
		120
		110
		100
		220

Celtor Chemical Company
1694 Union Street
San Francisco 23, California

Re: DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract Idm-E187

Gentlemen:

We have been advised by Mr. Robert K. Evans that your company has taken the Bully Hill mine under lease. We presume that you understand that this property is covered by a certification of discovery or development and that the Government retains a lien on the production therefrom and on the land described in the referenced contract.

As requested by Mr. Evans, we are ~~forwarding~~ advising him ~~a copy~~ copies of the drill logs and maps covering the diamond drilling done under the DMEA project.

Sincerely yours,

Director

WRGriswold/gla
2-27-62
cc to: Director's Reading File
Region II (2)
Docket
Code 500

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
2/28	Griswold	500
3/1	Talbert	800
		130
3/1	Johnson	110
3-1	Fumich	100
		220

Mr. Richard K. Dutton
Assistant Secretary
The Glidden Company
900 Union Commerce Building
Cleveland 14, Ohio

Re: DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract Idm-E187

Dear Mr. Dutton:

Concerning the referenced DMEA exploration project, we have been advised by the Celtor Chemical Company that they now have the Bully Hill mine under lease. We would appreciate your providing us with a copy of such lease. This, of course, is in connection with the certification of discovery or development made October 19, 1956.

Regarding your letter of February 23, we are advising our Field Office to forward the drill logs in question to the Celtor Chemical Company.

Sincerely yours,

George Fumich, Jr.

Director

WRGriswold/gla (2-27-62)
Rewritten: 3-1-62
cc to: Director's Reading File
Region II (2)
Docket
Code 500

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
2/27	Griswold	500
	Talbert	800
		120
		110
		100
		220

Mr. Richard K. Dutton
Assistant Secretary
The Glidden Company
900 Union Commerce Building
Cleveland 14, Ohio

Re: DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract Idm-E187

Dear Mr. Dutton:

Concerning the referenced DMEA exploration project, we have been advised by the Celtor Chemical Company that they now have the Bully Hill mine under lease. We would appreciate your providing us with a copy of such lease. This, of course, is in connection with the certification of discovery or development made October 19, 1956.

Regarding your letter of February 23, we are forwarding advising our Field Office to the drill logs in question to the Celtor Chemical Corporation.

Sincerely yours,

Director

WRGriswold/gla
2-27-62
cc to: Director's Reading File
Region II (2)
Docket
Code 500

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
2/28	Drawer	500
3/1	Talbot	800
		130
3/1	Johnson	110
3-1	Fumich	100
		220

Mr. Robert K. Evans
Geological Engineer
Celtor Chemical Company
Hoopa, California

Re: DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract Idm-E187

Dear Mr. Evans:

As requested in your February 2 letter, addressed to the U. S. Geological Survey, Menlo Park, California, and subsequently referred to our Region II office, we are advising our Field Office to provide you with the copies you need. There probably will be a small charge for copying.

Sincerely yours,

George Fumich, Jr.

Director

Copy to:
Mr. C. C. Celestre
Celtor Chemical Corporation
1694 Union Street
San Francisco 23, California

WRGriswold/gla (2-27-62)
Rewritten: 3-1-62
cc to: Director's Reading File
Region II (2) w/2 cys The Glidden Company letr. Feb. 23, 1962
Docket
Code 500

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
2/27	Griswold	500
w/pl	Talbot	800
		120
		110
		100
		220

Mr. Robert K. Evans
Geological Engineer
Celtor Chemical Company
Hoopa, California

Re: BMKA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract Idm-K187

Dear Mr. Evans:

As requested in your February 2 letter, addressed to the U. S. Geological Survey, Menlo Park, California, and subsequently referred to our Region II office, we are ~~sending you such drill and geologic sections as we have available covering diamond drilling done under the referenced project~~.

Sincerely yours,

advising your Field Office to provide you with the copies you need. There probably will be a small charge for copying.

Director

Copy to:
Mr. C. C. Celestre
Celtor Chemical Corporation
1694 Union Street
San Francisco 23, California

WRGriswold/gla
2-27-62
cc to: Director's Reading File
Region II (2) w/2 cys The Glidden Company letr. Feb. 23, 1962
Docket
Code 500

43683

1219

THE GLIDDEN COMPANY

900 UNION COMMERCE BUILDING

R. K. DUTTON
ASSISTANT SECRETARY

CLEVELAND 14, OHIO

February 23, 1962

OFFICE FILE COPY
O. M. E.
RECEIVED FEB 26 1962

DATE		
2-24	SL	100
		500

Office of Mineral Explorations
Washington 25, D.C.

ATTENTION: George Fumich, Director

SUBJECT: Bully Hill Mine, Shasta County, California

Gentlemen:

This letter is your authorization to release to the Celtor Chemical Corporation, 1694 Union Street, San Francisco 23, California, the drill logs on the Bully Hill property.

Yours very truly,

THE GLIDDEN COMPANY

Richard K. Dutton
Assistant Secretary

RKD/dm

cc - Mr. C. C. Celestre
Celtor Chemical Corporation

QUALITY Glidden PRODUCTS

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

555 Battery Street
San Francisco 11, California

February 6, 1962

Mr. Robert K. Evans
Geological Engineer
Celtor Chemical Company
Hoopa, California

Re: Docket No. DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract No. Idm-E 187

Dear Mr. Evans:

Your letter of February 2, 1962, addressed to the U. S. Geological Survey, Menlo Park, California relative to the Drill logs and Geological maps of the subject contract, has been referred to this office for further attention. The documents referred to are a part of the D.M.E.A. files in this office. However, these documents are confidential Government information and may not be released or copied except by authorization from our Washington, D. C. office.

Very truly yours,

Paul V. Fillo
Acting Field Officer, OME
Region II

Copy to: Chief, Division of Field Operations, OME
Washington, D. C.

OFFICIAL FILE COPY
O. M. E.
RECEIVED FEB 12 1962
DATE
2/12
2/13
2/13 Murphy
(Reserved) 800
500
220

ROBERT K. EVANS
GEOLOGICAL ENGINEER

Hoopa California
February 2 1962

Minerals Section
U.S. Geological Service
Menlo Park, California.

Dear Sir:

The Company which I represent, Celtor Chemical Company, now has under lease The Glidden Company "Bully Hill Mine", in the East Shasta mining district of northern California. Could you please inform me as to where the drill logs and geologic maps would be stored, which would cover the work done with D.M.E.A. money on the property.

Any help or information you can give me will be very much appreciated.

Sincerely yours,

Robert K. Evans

Robert K. Evans
Geological Engineer

Note:
Celtor Chemical Company is the operating company for Providence Inclusions, DMEA-2826, a "bad actor".

Gilbert 2/26/62

Branch of Base and Ferrous Metals

Geologic Division
345 Middlefield Road
Menlo Park, California

February 5, 1962

Mr. Robert K. Evans
Celtor Chemical Co.
Hoopa, California

Dear Mr. Evans:

The Geological Survey does not at this time have a staff at the Menlo Park Field Center that is actively contributing to the D.M.E.A.-O.M.E. program. Consequently, I am forwarding your letter of February 2nd to the Office of Mineral Resources of the U. S. Bureau of Mines in San Francisco, which is chiefly responsible for the technical activities of these agencies in this area. Mr. Glen B. Gentry of the U.S.B.M. has custody of reports and maps covering most of the exploration projects in California and may be able to give you the data you wish on the Bully Hill mine.

Sincerely yours,

Hal T. Morris
U. S. Geological Survey

cc: G. B. Gentry
Director's reading
M. P. reading
Morris
B & FM
Asst. CG reading

BUREAU OF MINES
DIVISION OF
MINERAL RESOURCES
REGION II
ASSISTANT SECRETARY

THE GLIDDEN COMPANY
900 UNION COMMERCE BUILDING
CLEVELAND 14, OHIO

Initials

February 22, 1960

Mr. W. F. Dietrich
Executive Officer
OME Field Team, Region II
555 Battery Street
San Francisco 11, California

Re: Docket No. DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract No. Idm-E 187

Dear Mr. Dietrich:

Under date of October 29, 1956, formal notice of completion and cessation of work under the above captioned DMEA contract, effective August 31, 1956, was given to your office.

This letter is intended as a continuing notice of such cessation of work on the six-month interval schedule established, covering the period from September 1, 1959, through February 29, 1960.

Yours very truly,

THE GLIDDEN COMPANY

R. K. Dutton

Assistant Secretary

RKD:ar

OFFICIAL FILE COPY
O. M. E.
RECEIVED FEB 25 1960

DATE	INITIALS	CODE
2-25	gad	220
2/26	[illegible]	800
"	[illegible]	500
		225

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
		~~220~~
5/26	a	220
		500

MAY 25 1959

Memorandum

To: Mr. George Mavor, OME Auditor

From: E. D. Talbert, Acting Chief (Signed) E. D. Talbert
Contract Administration and Audit Division

Subject: Docket No. DMEA-1219 (Zinc-Copper)
The Glidden Company
Contract No. Idm-E187

The Washington copies of your Report of Royalty Review covering the subject contract have been amended as requested by your May 21 memorandum.

Distribution of the regional copies is authorized after this correction is made.

EDTalbert/ama
May 25, 1959

Copy to: Docket
Director's Reading File
CA & A Division

43683

IN REPLY REFER TO:

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

OFFICIAL FILE COPY
DMEA
RECEIVED JAN 29 1957

DATE	INITIALS	CODE
1-29	cw	220
		225

January 28, 1957

Re: DMEA 1219 Idm-E187
The Glidden Co.
Bully Hill Mine
Shasta County, California
Expended $254,514.70
Copper-Zinc

Memorandum

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

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

Subject: Review of supplement to Field Team Final Report

In the Final Report the examiners and Field Team recommended certification of the property, based on the 'discovery' of 105,000 tons of ore of all classes in 2 ore bodies, as:

Ore body	Class	Tons	Grade % Cu	% Zn	Oz Ag	Oz Au
A	Measured	8,000				
	Indicated	28,000				
	Inferred	60,000	2.0	10.1	5.5	0.16
B	Measured	1,000				
	Indicated	2,000				
	Inferred	6,000	1.9	3.1	3.1	0.08
		105,000				

The total expenditure was $254,514.70. No ore has been produced.

In the subject supplement the examiners and the Field Team restate their opinion that despite the results of work in one area, work in 5 other areas is warranted.

If an application is made requesting assistance in exploring the 5 areas the proposal should be reviewed in the light of the results of the work in area No. 1.

N. E. Nelson

N. E. Nelson

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

DMEA
OFFICIAL FILE COPY
DMEA
RECEIVED JAN 18 1957

DATE	INITIALS	CODE
1/18	C	220
		138
		220
1-24		225

1605 Evans Avenue
Reno, Nevada

January 16, 1957

Memorandum

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

From: Executive Officer, DMEA Field Team, Region II

Subject: Docket No. DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract No. Idm-E 187

In response to your letter of October 22, 1956, I am enclosing four copies of a supplement to our final report on subject contract prepared by J. D. Warne, Bureau of Mines and R. G. Reeves, Geological Survey.

Roscoe Smith and I concur in the conclusion that the property has merit and warrants further exploration effort.

S. Ricker

S. Ricker

Encls.

Reviewed by
DMEA CLASSIFICATION
1-23-57

RECEIVED JAN 18 1957
DATE INITIALS
130 2AR
220

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

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION II

SUPPLEMENT

to

FINAL REPORT

DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill mine
Shasta County, California
Contract No. Idm-E187

by

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

R. G. Reeves
U. S. Geological Survey

January 16, 1957

Reviewed by
DMEA OPERATING COMMITTEE
1-23-57

RECEIVED JAN 18 1957
DATE

SUPPLEMENTARY CONCLUSIONS AND RECOMMENDATIONS

Future exploration of the Bully Hill and Rising Star mines

The application report (June 1951) by A. R. Kinkel, Jr. and J. P. Albers recommended exploration by surface diamond drilling of six areas. Only one area, Area No. 1, had been explored by surface diamond drilling when the surface drilling was terminated because of technical difficulties leading to excessive cost. The contract was then amended to allow underground exploration to further explore ore zones cut by the surface drill holes. Exploration of the No. 1 area resulted in discovery of small ore bodies north of the main Bully Hill ore body and parallel to it.

In amending the contract, a choice was made between two exploration philosophies: the one, that was adopted, to fully explore a favorable area to find small ore bodies; and the other, which still remains, to explore on a broad scale all of the favorable areas to find major ore zones or bodies.

In the application report, it was stated that "entirely new ore shoots must be found to encourage reopening the mine." The reasons given in the original report in support of exploration in areas 2, 3, 4, 5, and 6, and the methods of exploration, are still valid. Only part of the technical difficulties, perhaps only a small part, were due to the physical characteristics of the rock; part of

the difficulties can be attributed to lack of proper supervision by the drilling contractor and by the Glidden Company.

It is recommended, therefore, that if a responsible applicant proposes a satisfactory project to explore areas 2-6, that participation in the cost thereof should be given serious consideration by the Government.

Talbert

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

NOV 26 1956

Mr. George Mavor
DMEA Auditor
420 Custom House
555 Battery Street
San Francisco 11, California

Re: Report of Review
The Glidden Company
Docket No. DMA-1219X
Contract No. Idm-E187

Dear Mr. Mavor:

Receipt is acknowledged of your Report of Review covering the above-cited project.

The Report is acceptable and normal distribution is authorized after changing the date of the Report from February 20, 1956, to November 20, 1956. This change has been made on the Washington copies.

Sincerely yours,

(Signed) E. D. Talbert

E. D. Talbert, Acting Chief
Contract Administration
and Audit Division

WBorovies/wb
November 26, 1956

Copy to: Docket
Admr. Reading File
Mr. Chambers

R.C.K.

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

RECEIVED NOV 23 1956 Dallas

1605 Evans Avenue
Reno, Nevada

November 21, 1956

The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Attention: Mr. R.K.Dutton, Legal Dept.
Re: Docket No. DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract No. Idm-E 187
(Your letter, October 29, 1956)

Gentlemen:

Enclosed is your copy of "Waiver of Government's Interest in Property."

Upon receipt of their copy by our Finance Office, our final participation payment on the contract will be made. This will conclude the project except for the possibility of royalty payments to the Government in case there is production during the period as stipulated in the contract.

Very truly yours,

S. Ricker
Executive Officer
DMEA Field Team, Region II

Encl.
SRicker:ft
cc: Opr. Com., DMEA., Interior Bldg., Wash., D.C.
Finance Office, Region II
Geo. Mavor
R.M.Smith
File

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

1605 Evans Avenue
Reno, Nevada

RECEIVED NOV 1956 DMEA

November 20, 1956

The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Attention: Mr. R. K. Dutton, Legal Dept.
Re: Docket No. DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract No. Idm-E 187
(Your letter, October 29, 1956)

Gentlemen:

Enclosed is your copy of "Waiver of Government's Interest in Property."

Upon receipt of this copy by our Finance Office, our final participation payment on the contract will be made. This will conclude the project except for the possibility of royalty payments to the Government in case there is production during the period as stipulated in the contract.

Very truly yours,

S. Ricker
Executive Officer
DMEA Field Team, Region II

Encl.
SRicker:ft
cc: Opr. Com., DMEA, Interior Bldg., Wash., D.C.
Finance Office, Region II
Geo. Mavor
R. M. Smith
File

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

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

1605 Evans Avenue
Reno, Nevada

November 19, 1956

Memorandum

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

From: Executive Officer, DMEA Field Team, Region II

Subject: Docket No. DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract No. Idm-E187

Attached are two copies of a letter from the Operator relative to subject contract.

S. Ricker

Attachs.

THE GLIDDEN COMPANY

900 UNION COMMERCE BUILDING

CLEVELAND 14, OHIO

October 29, 1956

RECEIVED
OCT 31 1956
DMEA

Mr. S. Rogers, Executive Officer
DMEA Field Team
Region II
1605 Evans Avenue
Reno, Nevada

Re: Contract No. [illegible] (Copper-Zinc)
The Glidden Company
Bullfrog Mine
Bullfrog, California
Amendment No. Idm-E187

Dear Mr. Rogers:

In accordance with the terms of the DMEA Assisted Exploration Project Contract No. [illegible] dated April [illegible], 1955, with The Glidden Company and the Certification of [illegible] Project under said contract, we wish to advise that work ceased on the project as designated effective August 31, 1956, the date of the final report furnished to you by our Company.

In connection with the cessation of work, all moveable facilities, buildings, fixtures, equipment and other items, with the exception of one brick building, were disposed of by sale to Gerlinger Foundry & Machine Works, Inc. effective August 31, 1956 and subsequently dismantled and removed from the property.

The completion and cessation of work by our Company is considered permanent. We will establish a schedule providing for continued notification of your office of such cessation at six-month intervals from August 31, 1956.

If there is anything further to be done in connection with this completion of the work or notifications required by your office, will you kindly so advise.

Yours very truly,

R. K. Dutton
Legal Department

RKD/rt

File Copy
Surname

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

500

NOV 14 1956

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

Re: Docket No. DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract No. Idm-E187

Dear Mr. Ricker:

We are enclosing the Operator's, Field Team's, and Finance Office copies of Waiver of Government's Interest In Property for the cited Amended Contract, signed by the Administrator. Also, enclosed are two extra copies for the use of the Field Team. This waiver has been prepared in conformance with your memorandum dated October 31, 1956.

Please distribute the above-mentioned copies of this waiver.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (WB)

Enclosures

JWAlt/er 11/14/56

Copies to: Docket
Admr R File
Op. Committee
Base Metals
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Chron.

APPROVED:

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

Thor H. Kiilsgaard (WB)
Member, Geological Survey

File Copy
Surname
J. Gill.

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

November 8, 1956

Memorandum

To: Associate Solicitor, Division of Mineral Resources

From: Chief, Base Metals Division

Subject: Preparation of Waiver of Government's Interest In Property" for Docket No. DMEA-1219, Amended Contract No. Idm-5187, The Glidden Company, Bully Hill Mine (Copper-Zinc), Shasta County, California

Will you please prepare, for the Administrator's signature, a "Waiver of Government's Interest In Property" for the cited amended contract.

Please refer to our letter to Mr. Hicker, dated September 14, 1956, and to his memorandum to the Operating Committee dated October 31.

W. R. Griswold

W. R. Griswold

JWAlt/er

Copy to: Docket
Base Metals
Chron.

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

RECEIVED
NOV 2 1956
D.M.E.A.

1605 Evans Avenue
Reno, Nevada

October 31, 1956

Memorandum

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

From: Executive Officer, DMEA Field Team, Region II

Subject: Docket No. DMEA-1219 (Lead-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract No. Idm-E 187

Reference is made to your letter of September 14, 1956, relative to Government's equity in equipment which was purchased by the Operator during subject contract.

As brought out in your letter, the reimbursement to the Government of its equity in the cost of pipe and rail would only result in the Government's repayment of the amount to the Operator as it's share of the allowable maximum cost figure of the contract.

This question has also been discussed with our Auditor, Mr. George Mavor, who is of the opinion, after discussion with Mr. Jay L. Chambers, Chief, Contract Administration and Audit Division, Washington, D. C., that a "Waiver of Government's Settlement in Property" should be issued by the Administrator for the Government.

Roscoe Smith and I agree that a waiver is in order.

S. Ricker

THE GLIDDEN COMPANY
900 UNION COMMERCE BUILDING

DWIGHT P. JOYCE
CHAIRMAN OF THE BOARD
PRESIDENT

CLEVELAND 14, OHIO

RECEIVED
OCT 29 1956

October 26, 1956.

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

Re: Docket No. DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract No. Idm-E187.

Dear Mr. Mittendorf:

Thank you for your letter of October 22nd enclosing the Certification of a Discovery or Development under our Amended Exploration Project Contract, No. Idm-E187, dated April 30, 1953.

As you know, a final report was made August 31st to Mr. Ricker, Executive Officer of DMEA Field Team, Region II, upon completion of the work under the contract and the permanent cessation of mining and production operations by our Company. All moveable facilities, buildings, fixtures, equipment and other items, with the exception of one building, were disposed of by sale and dismanteled and removed from the property.

It is not anticipated that any minerals will be mined or produced. We will, of course, make the required reports to Mr. Ricker as to any mining or production of minerals and of any changes in ownership and production rights that might affect the Government's right to its percentage royalty, in accordance with your letter.

As we have no present intention of resuming production and have rendered our final report, as noted above, we will schedule continuing notification to Mr. Ricker at six-month intervals, as requested.

Yours very truly,

Dwight P. Joyce

Chairman and President

DPJ:
RKD/rh

cc: Mr. S. Ricker, Exec. Officer
DMEA Field Team
Region II
1605 Evans Avenue
Reno, Nevada

QUALITY Glidden PRODUCTS

File Copy
Surname
Klugescheid.
Lamb
Kelson
Selfridge.

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

OCT 2 8 1958

Mr. Dwight P. Joyce, President
The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Re: Docket No. DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract No. Idm-E187

Dear Mr. Joyce:

Transmitted herewith is a certification of discovery or development related to the Amended Exploration Project Contract No. Idm-E187, dated April 30, 1953, on the lands described in the contract.

By the terms of the Amended Exploration Project Contract and of the Certification, all production from the land described in the contract from April 30, 1953, the date of the amended contract, is subject to the Government's percentage royalty as set forth in the said contract until the sum which the Government has advanced as its participating interest is repaid, or until April 30, 1964, whichever occurs first.

Payments should be made to Mr. Spangler Ricker, Executive Officer, DMEA Field Team, Region II, 1605 Evans Avenue, Reno, Nevada. Checks should be drawn in favor of the Defense Minerals Exploration Administration. The purchaser should be advised to deduct royalties from the amount due on each shipment and forward the checks to the Executive Officer.

Royalty payments to the Government should be accompanied by suitable evidence, such as copies of settlement sheets, showing quantity and grade of the products sold, the name of the purchaser, and the price and charges, certified to be correct by the purchaser.

R.C.L.

You are requested to notify Mr. Ricker of any changes in ownership and production rights that might affect the Government's right to its percentage royalty. Also, if production ceases at any time for an extended period please notify Mr. Ricker at six-month intervals that such is the case.

Sincerely yours,

D. O. Mittendorf

Administrator

Enclosures

WPKlugescheid/er 10/11/56
Copy to:
Docket
Mr. C. A. Fredell, Dr. TSD, DMS.
Mr. Lamb, USBM
Mr. Kiilsgaard, USGS
Admr R File
Operating Committee
Cont. Adm & Audit Div.
Finance Office
Base Metals
Region II (2)
Mr. F. E. Johnson
Mr. W. R. Griswold
Chron.

File Copy
Surname

J. W. Selfridge
Mattson

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

500

OCT 22 1956

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

Re: Docket No. DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract No. Idm-187

Dear Mr. Ricker:

We have the Operator's Final Report on the cited project, submitted with your letter of September 6.

For a project of such magnitude, and in view of the degree of responsibility of this Operator, its final report left much to be desired. No pretense is made as to a geological report, other than the statement that the USGS has the information available, nor were significant maps included.

The mere fact that the Government's Field Team is in possession of information and will also render its report does not absolve the Operator of its proper obligation along these lines. It could easily happen that an Operator and the Field Team would be at variance regarding certain points, and perhaps each might have some degree of merit in its contentions. Actually, when an Operator says, in effect "I agree with whatever the Field Team might say in a Geological Report", his own report hereby becomes of little value to us.

Since the Final Report was accepted by your letter of September 19, we are probably in no position now to request supplemental data. However, we note that the Final Field Team Report contains no recommendations regarding possible future Government participation in exploration on this property, or the form such exploration might take, so please supplement the report to us.

Sincerely yours,

George C. Selfridge

APPROVED:

Chairman, Operating Committee (2/6)

Frank D. Lamb (2/6)
Member, Bureau of Mines

N. E. Nelson (2/6)
Member, Geological Survey

JWAlt/er 10/18/56
Copy to: Docket
Adm. R File
Op. Committee
Base Metals
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Chron.

N.C.K.

File Copy
Surname

Klugescheid.
Inserted
Audit 10/5/56
Dwyer
Chambers
Lamb
Nelson
Selfridge

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

Mr. Clarence A. Fredall, Acting Director
Technical Services Division
Defense Materials Service
General Services Administration
7th and D Streets, S. W.
Washington 25, D. C.

Re: Docket No. DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract No. Idm-K187

Dear Mr. Fredall:

Enclosed is a copy of a certification of discovery or development related to Amended Exploration Project Contract No. Idm-K187.

The contract was dated April 30, 1953, with the Government participating to the extent of 50 per cent in an exploration project estimated to cost $256,343.98. Actual expenditures, subject to audit, were $254,514.98, with the Government's share being half of such amount, or $127,257.49.

The total amount of work provided for under the contract consisted of underground rehabilitation, 2,500 feet of drifting and crosscutting, 5,299.33 feet of surface diamond drilling, and 4,000 feet of diamond drilling underground. All work specified in the contract was actually completed.

The discovery consists of copper-zinc ores occurring in a shear zone in rhyolite. Estimated measured ore reserves were 9,000 tons, indicated ore reserves were 30,000 tons, and inferred ore reserves were 66,000 tons. The total ore reserves were 105,000 tons averaging 1.99 per cent copper, 9.50 per cent zinc, 5.29 ounces of silver per ton, and 0.15 ounces of gold per ton.

Sincerely yours,

C. O. Mittendorf

Administrator

Enclosure

WPKlugescheid/er 10/11/56
Copy to: Docket
Mr. Lamb, USBM
Mr. Kiilsgaard, USGS
Admr R File
Op. Committee
Base Metals
Region II (2)
Cont. Adm & Audit Div
Mr. Johnson
Mr. Griswold
Chron.

IN REPLY REFER TO:

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

October 18, 1956

RECEIVED
OCT 19 1956

Re: DMEA 1219, Idm-E187
The Glidden Company
Bully Hill Mine
Shasta County, California
Copper-Zinc

Memorandum

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

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

Subject: Review of Field Team Final Report.

The applicant requested assistance in 1951 in exploring by surface diamond drilling areas probably underlain by rocks likely to contain extensions of known ore bodies. The cost of the work proposed was estimated to be $294,300.00.

About one-third of the drilling was completed. Enough ore had been indicated to warrant underground work on the 870 level of the mine. Underground drilling brought the cost of the work to $254,514.70.

Two ore bodies were discovered in the north end of the mine by DMEA assisted work.

As calculated by the examiners the two ore bodies contain:

			Grade			
Ore body	Class	Tons	% Cu	% Zn	Oz. Ag	Oz. Au
Lens A	Measured	8,000				
	Indicated	28,000				
	Inferred	60,000				
	Total	96,000	2.0	10.1	5.5	0.16
Lens B	Measured	1,000				
	Indicated	2,000				
	Inferred	6,000				
	Total	9,000	1.9	3.1	3.1	0.08

As of December 13, 1955, the operator was continuing work in the mine. No ore has been produced.

The examiners and the Field Team recommend that a certificate of discovery be issued.

I concur with that recommendation.

N. E. Nelson

N. E. Nelson

Docket

C
O
P
Y

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

October 16, 1956

Memorandum

To: DMEA and Bureau of Mines reviewers of attached manuscript on East Shasta District by John Albers, U. S. Geological Survey.

From: Thor H. Kiilsgaard, U. S. Geological Survey

Subject: Review of Manuscript

DMEA has a contract with the Glidden Company on the Billy Hill mine, Docket 1219, in the mining district described in the attached manuscript. Work on the project has been completed, final reports submitted, and the project is in the process of being certified. To assure that recognition has been given in the manuscript for information obtained under auspices of DMEA or through the Bureau of Mines, I have carefully reviewed it and the attached maps. I have found that recognition has been given to all data obtained from DMEA, but that no mention is made of Bureau of Mines information; apparently, none was obtained from that agency.

Reference to DMEA is made on pages 23, 282, and 416f. Reference is also made on figures 33; 35a, 35b, 35c, and 35d; and 36b and 36c. No other references were noted nor were any places seen that should have had a reference.

Thor H. Kiilsgaard

272c noted by Selfridge

Jackson

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

Mr. George Meyer
DMEA Auditor
420 Custom House
555 Battery Street
San Francisco 11, California

Re: Docket No. DMEA-1219X
The Glidden Company
Bully Hill Mine
Shasta County, California
Contract No. Idm-2187

Dear Mr. Meyer:

Receipt is acknowledged of your letter of September 20, 1956, in regard to the letter dated September 14, 1956, addressed to the Executive Officer, DMEA Field Team, Region II, by the Operating Committee, in connection with the salvage of pipe and track under the referenced contract.

You question the Operating Committee's statement that the waiver of the Government's interest must be signed by the Administrator, inasmuch as Question and Answer 13 in Operating Committee Memorandum No. 8, dated June 25, 1952, indicates that the Executive Officer is authorized to dispose of equipment costing less than $10,000. This Question and Answer was based on the authority delegated to DMEA Field Teams by the Secretary's Order No. 2684, dated April 25, 1952, to approve the sale of (1) any facility, building, fixture, or piece of equipment, the original cost of which did not exceed $10,000, and (2) any group (such as pipe, track, drill steel) of remaining materials or supplies, the original cost of which did not exceed $5,000. This same order, however, restricted the delegated authority of waiving the Government's interest to any facility, building, fixture, piece of equipment, or group of materials or supplies, the original cost of which did not exceed $1,000.

A subsequent Secretary's Order No. 2808, dated January 4, 1956, revoked Order No. 2684 and delegated to the Executive Officers the same authorities regarding property disposition with the exception that the limitations were reduced (1) on a facility, building, fixture, or piece of equipment to $5,000, and (2) on a group of materials or supplies to $2,500. No change was made in the $1,000 limitation on waivers of interest.

It is hoped the foregoing will serve to clarify the questioned matter.

Inasmuch as your letter indicates a copy was sent to Mr. Ricker, a copy of this letter also is being forwarded to him.

Sincerely yours,

(Signed) J. L. Chambers

Jay L. Chambers, Chief
Contract Administration
and Audit Division

EDTalbert/wb
September 25, 1956

Copy to: Docket
Admr. Reading File
Mr. Ricker, Reg. II
Mr. Chambers

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

1605 Evans Avenue
Reno, Nevada

RECEIVED
SEP 21 1956

September 19, 1956

The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Attention: R. K. Dutton, Legal Dept.
Re: Docket No. DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Contract No. Idm-E 187
(Your letter September 14, 1956)

Gentlemen:

The report under letter, dated August 31, 1956, from your Manager of Mines, Mr. Edward L. Ralston, is the final formality required on your part to conclude the work on referenced contract.

Final settlement of your MF-104 and MF-104-A for December, 1955 will be made subject to audit which is currently underway. Thereafter, you will be notified from our Washington office relative to the issuance of a certificate of discovery.

We have been very happy working with your staff at Redding and appreciate their cooperation throughout the project.

Very truly yours,

S. Ricker
Executive Officer
DMEA Field Team, Region II

SRicker:ft
cc: Opr. Com., DMEA, Interior Bldg., Wash., D.C.
Finance Off., Reg. II
Geo. Mavor
RMSmith
File

Talbert

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

Mr. George Mavor
DMEA Auditor
420 Custom House
555 Battery Street
San Francisco 11, California

SEP 19 1956

Re: The Glidden Company
Idm-E187, DMEA-1219

Dear Mr. Mavor:

Receipt is acknowledged of your letter of September 14, 1956, in reply to this Division's inquiry of September 10, 1956, relative to the status of your Report of Review covering the referenced project. Your letter outlines your findings in regard to the salvage of project property and requests my opinion as to your conclusions.

I concur with your conclusions that the Government has an equity in neither the pipe and track acquired under the "agreed unit costs" provisions of the contract nor any of the project equipment. It appears that the only items in which the Government has an equity (under the contract, as amended by the footnote on page 2 of the Exhibit "A") are the pipe and track purchased under the "actual costs" provisions of the contract.

It is to be noted, however, that no purpose would be served by the Government claiming an equity in this relatively small amount of salvage, inasmuch as such amount is more than offset by costs in excess of the contract maximum. If deduction is made for the salvage value, the Operator properly may request reimbursement for additional costs equivalent to such salvage value. This point is brought out in the antepenultimate paragraph of the Operating Committee's letter of September 14, 1956, to the Executive Officer, DMEA Field Team, Region II (a copy of which was sent to you but, as seems habitual in this project, crossed in the mail with your letter.)

Under the circumstances there is no alternative but to withhold preparation of a Report of Review on this contract pending the release of a waiver of Government interest in the project property or other appropriate disposition of the matter as may result from the Operating Committee's letter to the Executive Officer.

Sincerely yours,

SIGNED

Jay L. Chambers, Chief
Contract Administration
and Audit Division

EDTalbert/wb
September 18, 1956

Copy to: Docket
Admr. Reading File
Mr. Chambers

R.C.L.

File Copy
Surname

UNITED STATES
DEPARTMENT OF THE INTERIOR 500
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

SEP 1 4 1958

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

Re: Docket No. DMEA-1219 (Lead-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract No. Idm-X187

Dear Mr. Ricker:

This is with reference to your memorandum of September 6 and to the Operator's final report concerning the Government's equity in jointly-owned property under the cited amended contract.

Under the terms of the contract "Agreed Unit Costs", the Government does not have any equity in equipment or supplies which were purchased by the Operator for the use of conducting this work.

Under "Estimated Actual Costs", it is stated in Exhibit "A" of the contract that the Operator shall furnish the operating equipment without cost.

Therefore, the only items that the Government would have an equity in are the pipe and rails which were purchased to rehabilitate the 300 level, the vertical shaft, and the 870 level. The pipe and rail according to the Operator's final report cost $7,689.03. If we arbitrarily assign a salvage value of 50 per cent to this material, we have a value of $3,844.52. Assuming that such salvage valuation is reasonable, the Government could properly demand that it be reimbursed half of such sum, or $1,922.26.

According to the MF-104 reports the Operator's costs for the work completed under items 1, 2 and 3 of Stage II of the contract far exceeded the maximum allowed for this work.

However, if the Operator did reimburse the Government for its equity of the pipe and rail, in view of its actual cost overrun beyond the allowable maximum, it could then properly demand that the Government bring its contribution up to its share of the allowable maximum figure.

Under this condition, the Operator and the Government would merely be exchanging identical checks to no purpose. Therefore, in this particular case, the property settlement can be waived.

As a "Waiver of Government's Interest In Property" should be prepared for the Administrator's signature, we will await your recommendation before preparing this instrument.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (JB)

APPROVED:

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

Thor H. Kiilsgaard (JB)
Member, Geological Survey

JWAlt/er 9/12/56
Copy to: Docket
Admr R File
Op. Committee
Base Metals
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Mr. George Mavor, San Francisco, Calif, DMEA Auditor
Chron.
Mr. Jay Chambers

Talbert

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

Mr. George Mayer
DMEA Auditor
420 Custom House
555 Battery Street
San Francisco 11, California

SEP 1 0 1956

AIR MAIL

Re: Idm-E187, DMEA-1219
The Glidden Company

Dear Mr. Mayer:

On your monthly workload reports for March to July, 1956, inclusive, your Report of Review covering the referenced project is indicated as being held "pending operator's final report".

It has been presumed that this quoted comment referred to the Operator's final MF-104, but a review of the files discloses a memorandum dated March 14, 1956, from the Executive Officer transmitting the Field Team's Final Report and indicating that the final MF-104 has been received. Apparently, therefore, you have been withholding your Report of Review pending receipt of the Operator's final engineering and geological report.

The preparation and release of a Report of Review or a final Audit Report and Certificate ordinarily should not be withheld for such reason. It is not the auditor's responsibility to enforce the submission by the Operator of a final engineering or geological report. Such responsibility rests with the Executive Officer. The closing provision of the Report of Review and Audit Certificate formats specifically relieves the auditor in this regard. (In this connection please refer to this Division's letter of December 8, 1953, regarding Idm-E455, DMEA-1953, Frank Bullock.)

Unless you have other justification for withholding the Report of Review for the referenced project, it is requested that the preparation and submission thereof be expedited.

Incidentally, your workload report for August has not been received. Possibly it has gone astray in the mail. Please forward another copy.

EDTalbert/ama
September 10, 1956

Copy to: Docket
Admr. Reading File
Mr. Griswold
Mr. Chambers

Sincerely yours,

SIGNED

E. D. Talbert, Acting Chief
Contract Administration
and Audit Division

R.G.S.

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

RECEIVED
SEP 10 1956

1605 Evans Avenue
Reno, Nevada

September 6, 1956

Memorandum

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

From: Executive Officer, DMEA Field Team, Region II

Subject: Docket No. DMEA-1219 (Copper - zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Contract No. Idm-E187

Enclosed are three copies of the Operator's final report on subject contract. The extra copy has been sent to our DMEA auditor, Mr. George Mavor, as you will note there is some question relative to the Government's equity in certain equipment before our account can be closed.

S. Ricker

Encl.

Final Rpt

BUREAU OF MINES
WASHINGTON, D. C.

SEP 10 12 48 PM '56

RECEIVED
SEP 1 0 1956

P. O. Box 430
Redding, California
August 31, 1956

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

Re: FINAL REPORT
DMEA Docket 1383K Amended
Commodity: Zinc-Copper
Idm-R-187

Dear Mr. Ricker:

Under the terms of the Amended Contract, April 30, 1953, it is necessary for The Glidden Company to file a final report covering all expenditures made under the contract. This report must also include an adequate geological and engineering report covering the estimated ore reserves resulting from the exploration work.

Since the original contract covered the diamond drilling by the E. J. Longyear Company of Minneapolis, a time and materials job, there was no recovery from this job for any equipment purchased or used in the diamond drilling due to the fact that E. J. Longyear Company supplied all of the equipment and material and removed it from the premises on termination of their contract. Likewise, the diamond drilling under the amended contract, which was performed by Boyles Bros. Drilling Co. of Salt Lake City was also a contract job. The contractor furnished all drilling equipment and supplies in connection with this work, and on completion of their contract, also removed from the premises all of the equipment and supplies used under the contract. This was caption No. 5 under the amended contract.

The exploration work carried on by The Glidden Company, in which the DMEA participated, was set forth under the following captions:

1. Rehabilitate 975 feet of drift on the 300 level from the portal of the adit to the vertical shaft as shown.

2. Sinker and rehabilitate the vertical shaft, a distance of 650 feet from the 300 level to the 870 level.

3. Rehabilitate a total of 1000 feet of drift on the 870 level from the aforesaid vertical shaft to the north end of the old workings.

4. Drift and crosscut a distance of 1500 feet from the north end and 1000 feet from the south end of the old workings on the 870 level.

During the time in which this work was under way, monthly reports were supplied to the DMEA Field Team, Region II, Reno, Nevada, on which was shown the total cost monthly of the work performed and the amount expended by The Glidden Company and also the DMEA. These are permanent records which you have in your files.

In order to arrive at some equitable distribution of the expenses, or rather the amount which could be recaptured by the government on supplies and equipment purchased under these various captions, we have taken our monthly costs and

and compiled them as follows:

Labor, including payroll taxes; rentals, timber, explosives, pipe and equipment purchased, and miscellaneous supplies; amount for The Glidden Company as billed, amount for DMEA, as billed, and the total cost. Hence, if you will please check your monthly forms MF 104-104A, you will find that they will check with the total amounts set forth on the schedules which we are submitting.

Rentals include equipment rentals, such as a Kohler electric light plant and portable compressors. Timber covers all mine timber used in reopening and drifting and crosscutting. Explosives cover all blasting supplies used in rehabilitation and the new work on the 870 level. Miscellaneous supplies include miscellaneous repair parts, gasoline, diesel fuel, greases, waste, power, etc. Hence, there is no recapture on any of these captions. However, on rails, pipe and equipment purchased, which were charged directly to the job and which were salvaged on completion of the job, it has been necessary for us to estimate the present value of this equipment, which has been set forth on Schedule B, where the original cost and the present value are shown. We have attempted to be absolutely fair in this matter and have set forth the value which we thought the equipment would bring in the used market providing we were successful in selling it.

Under the four captions as set forth, you will please note that Glidden's total expenditures amount to $367,611.21, DMEA's expenditures $103,410.50, or a total of $471,021.71. This agrees with the last report filed January 12, 1956. Percentagewise, this amounts to 80.10% for The Glidden Company and 19.90% for DMEA, and this percentage has been used in arriving at the amount due DMEA for the equipment now on hand and which probably can be sold in the local market. Consequently, the total cost of rails, pipe and equipment charged under the four captions is presently valued at $12,219.62. Of this amount DMEA's share is $2,431.75 and The Glidden Company's $9,788.07.

Our records here at Bally Hill are quite complete and should there be any question at all regarding our charges, we will be happy to have the government auditors audit these accounts.

GEOLOGICAL REPORT

During the life of this contract, the United States Geological Survey spent considerable time on underground mapping, and have a complete report out on our exploration work. Furthermore, they have the results of the analyses of all our underground samples and our diamond drill cores, and have logged the diamond drill cores. We feel that geological report is adequate and that additional geological reports are unnecessary. On the work which we were doing on the 770 level, which was not part of the DMEA contract, we have also furnished analyses of underground samples and also diamond drill cores, up to the date of our last report, and we are now enclosing analyses of diamond drill holes:

872-810-J-1
872-805-K-1
872-L-1
772-K-1

We are also enclosing 40 scale map of the 770 level covering the work completed after the filing of our last report with you, January 12, 1956. While this work was not p of the DMEA contract, we feel you are entitled to this information.

(DMEA Docket No. 1219X
Amended)

ESTIMATED ORE RESERVES

It is indeed a difficult matter to accurately estimate ore reserves where the exploration work is inadequate to make accurate measurements. On the 870 Level we only have one diamond drill hole, 872-817-874-C-1, on the downward extension of this ore shoot, and this hole has proven ore to a depth of 130 ft. However, above the 870 Level, we are only allowing 50 ft., notwithstanding the fact that a very fine ore shoot was uncovered on the 770 level above. On this basis we have the following positive ore:

	Length	Width	Tonnage	Oz.Au	Oz.Ag	% Cu	% Zn	% Pb
870 Ore Shoot	304'	8.45'	46,154	.11	4.16	1.57	8.18	-

The tonnage of probable ore here is very much larger. This was the only ore developed under the DMEA contract.

770 Ore Shoot	349'	5.92'	20,660	-	-	2.10	6.25	14.77

Here the probable ore is very great since there is strong evidence at hand that this ore shoot extends to the 570 level above, and probably to the surface. In addition to this, the reopening of 716 Crosscut West exposed a very wide occurrence of zinc and copper ore in a territory which has not been mined. This, combined with the fact that there has been some very fine zinc ore left by the old operating companies, really makes the Bully Hill Mine a most attractive mining venture.

Respectfully submitted,

Edward L. Ralston
Manager of Mines

KLR:HM
Attach.

THE GLIDDEN COMPANY

Schedule "A"

RECEIVED SEP 10 1956

DMEA CONTRACT 1219X (Amended). RECAPITULATION FROM MONTHLY REPORTS, FORMS MF 104-104A

MAILED TO EXECUTIVE OFFICER, DMEA FIELD TEAM, REGION II, RENO, NEVADA

	Labor, Ins. FB Taxes	Rentals	Timber	Explosives	Rails	Pipe	Equipment Purchased	Misc.Mine Supplies	AMOUNT FOR GLIDDEN AS BILLED	AMOUNT FOR DMEA AS BILLED	TOTAL COST
Reopening 300 Adit	22,646.19	177.75	9,149.45	44.55	457.82	768.39	—	1,654.99	27,741.64	7,157.50	34,899.14
Unwatering Shaft	55,700.96	3,959.47	2,993.69	-	-	2808.50	7,262.26	17,117.59	74,167.47	15,675.00	89,842.47
Rehabilitation 870 Level	42,300.65	250.00	4,329.06	112.49	1491.15	2163.17	8,426.49	9,062.34	61,807.35	6,328.00	68,135.35
Exploration 870 Level	173,836.26	75.00	8,928.57	11,938.23	3205.80	2136.64	5,262.31	31,025.28	180,158.09	56,250.00	236,408.09
	$294,484.06	4,462.22	25,400.77	12,095.27	5154.77	7876.70	20,951.06	58,860.20	$343,874.55	85,410.50	429,285.05
									80.10%	19.90%	
Diamond Drilling									23,736.66	18,000.00	41,736.66
GRAND TOTAL									$367,611.21	$103,410.50	$471,021.71

Schedule "B"

OPERATOR:
The Glidden Co.
Cleveland, Ohio

ESTIMATED VALUE OF MINING EQUIPMENT AND SUNDRY SUPPLIES PURCHASED UNDER DMEA CONTRACT 1219X (Amended)
As of January 1, 1956

		RAILS Cost	RAILS Present Value	PIPE Cost	PIPE Present Value	EQUIPMENT Cost	EQUIPMENT Present Value	TOTAL ESTIMATED VALUE
		$5,154.77		$7,876.70				
Aug.1953	1 -14-7-13 Cameron Sinking Pump)							
	1 - 48" Sheave Wheel)					$2,202.14	$1,101.07	
Oct.1953	1 - 16x14 Vulcan Geared Hoist					3,412.12	1,364.85	
	1 Mine Cage					412.00	164.80	
Feb.1954	1 -14-5-13 Cameron Sinking Pump					669.50	334.75	
	1 -12-7-13 Cameron Sinking Pump					556.50	222.60	
M[illegible].1954	20 Mine Cars - 18" gauge					2,869.29	717.32	
Apr.1954	50 Edison Battery Cap Lamps with charging rack & motor generator set for charging					731.89	365.94	
June 1954	1 - Gardner Denver Drifter					1,417.28	708.64	
	1 - 7½ H.P. Direct Con.Sturtevant Fan					476.38	285.83	
	2000 ft. DuPont Ventube					2,171.24	868.50	
Sept.1954	1 - 48" Kimco Air Locomotive					2,468.66	995.00	
Oct. 1954	1 - Ther #92 Drifter					618.00	309.00	
	1 - 36" Kimco Air Locomotive					2,210.52	1,105.26	
Dec. 1954	600 ft. DuPont Ventube					651.37	260.55	
Jan. 1955	1 Cap Crimper					84.17	58.92	
	Rails Left Underground - 872 Drift North and 871 Drift South	(1,685.74)						
	TOTALS	$3,469.03	$1,387.61	$7,876.70	$1,969.18	$20,951.06	$8,863.03	$12,219.82
GLIDDEN CONSOLIDATED ZINC Mines	80.10%		$1,111.48		$1,577.31		$7,099.28	$ 9,788.07
D. M. E. A.	19.90%		276.13		391.87		1,763.75	2,431.75

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

RECEIVED
MAR 23 1956

March 23, 1956

Memorandum

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

From: J. W. Pennington, Branch of Base Metals

Subject: Review of Final Field Team Report, Docket No. DMEA 1219 (copper-zinc), The Glidden Company, Bully Hill Mine, Shasta County, California, Contract No. Idm - E187

The Final Field Team Report on this project by J. D. Warne, Bureau of Mines, and R. G. Reeves, Geological Survey, has been reviewed and found adequate.

According to the report, this project was designed to explore for mineralized areas adjacent to the Bully Hill and Rising Sun mines by surface and underground drilling, and underground workings.

The exploration resulted in the discovery of two ore lenses in the Bully Hill mine. The discoveries total 9,000 tons of measured ore, 30,000 tons of indicated ore, and 66,000 tons of inferred ore and are estimated to assay 2 percent copper, 3 to 10 percent zinc, 3 ounces of silver per ton, and 0.1 ounces of gold per ton.

On the basis of these discoveries, the examiners recommend that a Certificate of Discovery be issued.

I agree with this recommendation.

J. W. Pennington

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

1219

[illegible] OF [illegible]

[illegible]

Date 3-22

Referred to:

1. ~~Mr. [illegible]~~
2. ~~Mr. Johnson~~
3. ~~Mr. Chambers~~
4. ~~Docket Control Mails and Files~~
5. ~~[illegible]~~ Division
6. Docket Control Mails and Files

Note comments in report regarding:

1. Final — Case
2. Reserve data
3. Subpoenas 1
   Discovery rights
4.

and take appropriate action.

- - - - - -

Action taken by Division:

[illegible] Examiner's Report received to date

J.C.

Initials

DMEA

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

RECEIVED
MAR 16 1956

1605 Evans Avenue
Reno, Nevada

March 14, 1956

Memorandum

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

From: Executive Officer, DMEA Field Team, Region II

Subject: Docket No. DMEA-1219 (Copper-Zinc)
The Glidden Company
Bully Hill mine
Shasta County, California
Contract No. Idm-E187

Attached are the original and ~~five~~ 3 copies of the subject final report by J. D. Warne and R. G. Reeves.

The appendix is not complete as The Glidden Company is not finished with all core assaying. So as not to delay this report, it is transmitted without complete assay data, which will be forwarded for inclusion in the appendix as soon as it is received from the operator.

Payment of the final MF-104 is being withheld until the Operator's final report is received.

Roscoe M. Smith
for S. Ricker

Attach.

Reviewed by
DMEA OPERATING COMMITTEE
3-21-56
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

RECEIVED
MAR 16 1956

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION II

FINAL REPORT

DMEA 1219, Contract Idm-E187 (copper-zinc)
The Glidden Company
Bully Hill mine, Shasta County, California

by

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

R. G. Reeves
Geologist
U. S. Geological Survey

March 12, 1956

Reviewed by
DMEA OPERATING COMMITTEE
3-21-56
(Date)

CONTENTS

	Page
INTRODUCTION	1
CONCLUSIONS AND RECOMMENDATIONS	1
LOCATION, ACCESSIBILITY, AND LOCAL RESOURCES	2
PROPERTY AND OWNERSHIP	3
DEVELOPMENT	3
PRODUCTION	4
THE DMEA PROJECT	5
GEOLOGY	10
ORE DEPOSITS	12
SAMPLING	14
ORE RESERVES	15
PRODUCTION PLAN	15

ILLUSTRATIONS

Index map ..... Figure 1

Explanation for all Bully Hill mine maps .....

Geologic map of the mine ..... Figure 2

Composite level map of the mine ..... Figure 3

Geologic plan of the 870 level ..... Figure 4

Assay map of part of the 870 level ..... Figure 5

Section of diamond drill hole "C" ..... Figure 6

Geologic section of the mine ..... Figure 7

Logs of diamond drill holes ..... Figure 8

Section of diamond drill hole A1-2 ..... Figure 9

INTRODUCTION

The Bully Hill mine, Shasta County, California, was explored by the owners, The Glidden Company, 1396 Union Commerce Building, Cleveland 14, Ohio, in cooperation with the Defense Minerals Exploration Administration, docket DMEA-1219, under contract Idm-E187. Work was begun on December 17, 1951 and the project was completed on December 31, 1955. An examination to evaluate the results of the exploration was made January 29-31, 1956 by John D. Warne, U. S. Bureau of Mines, and Robert G. Reeves, U. S. Geological Survey, accompanied by Mr. Edward L. Ralston, general manager of the mine.

The purpose of the project, as originally conceived, was to explore for additional mineralized zones adjacent to the Bully Hill and Rising Star mines by surface and underground drilling, and underground workings.

CONCLUSIONS AND RECOMMENDATIONS

The northern extension of the Bully Hill shear zone was the only area explored by surface diamond drilling, although five additional areas were originally selected. Due to difficult drilling conditions and excessive costs this work was discontinued and the area was further explored underground by drifting, cross-cutting, and drilling. The work resulted in the discovery of two new ore lenses in the Bully Hill mine.

Small copper and zinc mineralized zones, but no commercial ore bodies, were disclosed by underground work and diamond drilling along the southern extension of the Bully Hill shear zone.

As two commercial grade ore lenses were discovered, it is recommended that a certificate of discovery be issued. Lens "A", the northernmost (fig. 5), contains 8,000 tons of measured ore, 28,000 tons of indicated ore, and 60,000 tons of inferred ore. Lens "B" contains 1,000 tons of measured ore, 2,000 tons of indicated ore, and 6,000 tons of inferred ore. The ore in both lenses contains about 2 percent copper, 3 to 10 percent zinc, 3 ounces of silver/ton, and 0.1 ounce gold/ton.

LOCATION, ACCESSIBILITY, AND LOCAL RESOURCES

The Bully Hill mine is in secs. 15, 16, 21, and 22, T. 34 N., R. 3 W., M.D.B.&M., Shasta County, California. The Bully Hill and Rising Star mines are located on Bully Hill (elev. 2,030 feet) which is half a mile from the north shore of the Shasta Reservoir, about 18 airline miles northeast of Redding, California (fig. 1).

The mine is reached from Redding via U. S. Highway 99 northward to the south approach of the Pit Bridge that crosses Shasta Lake, then eastward across the lake by boat for 7½ miles. It is possible to reach the property by road by a circuitous route 74 miles in length.

The main line of the Southern Pacific Railroad crosses Shasta Lake on the Pit Bridge; and the nearest loading point is Central Valley, 6 miles south of the bridge.

Housing facilities are available at the mine for several families and about ten single men; but most of the mine crew reside in Redding or one of several small towns south of Shasta Lake. Transmitted electric power is available at the mine. Water for domestic use is supplied from Town and First Creeks. Water from these sources is scarce during the summer months; however, more could be obtained from other nearby streams or from Shasta Lake. Timber and camp supplies are trucked to Shasta Lake from nearby larger towns and transported across the lake by boat or barge.

PROPERTY AND OWNERSHIP

Property holdings include the Bully Hill and Rising Star mines; which comprise 17 lode and one placer patented claims. The property is owned by The Glidden Company, 1396 Union Commerce Building, Cleveland 14, Ohio.

DEVELOPMENT

Surface structures include several residences, an engineering and office building, bunk house, assay laboratory, compressor house, and several old Bully Hill smelter buildings which are still in usable condition.

Complete mine plant equipment is located at the portal of the 300 level adit. Modern underground operating equipment is used which includes large electric hoist, compressed air locomotives, and mucking machines.

Underground development consists of caved surface adits 350, 550, and 600 feet in length, and several thousand feet of drift (fig. 3). The 300-level adit, which has been reopened is 1,030 feet in length. A vertical 800-foot shaft, at the 920-foot point on this level, serves eight lower levels which develop a mineralized zone for a strike length of about 1,200 feet. The most extensive work was done on the 870 level where the mineralized zone was explored under the DMEA contract. Drifts now extend about 600 feet south of the shaft and for about 1,200 feet north of the shaft, with numerous crosscuts driven to explore for parallel mineralized shear zones.

PRODUCTION

Intermittent production from 1900 to 1927 from the Bully Hill and Rising Star mines amounted to about 48,800,000 pounds of copper, 2,377,500 ounces of silver, and 39,670 ounces of gold. Production of zinc from 1913 to 1927 is estimated at 24,600,000 pounds. No production has been made since the beginning of DMEA exploration.

THE DMEA PROJECT

The DMEA project was justified by the past production of the Bully Hill and Rising Star mines. The objectives were (1) to explore for ore bodies along the northward continuation of the main Bully Hill shear zone, and (2) to explore for ore bodies on both sides of the shear zone. Exploration was to be by surface diamond drilling in six areas and was divided into two stages. Stage I was to consist of 23 holes, not to exceed a total of 17,000 feet; and Stage II was to consist of 16 additional holes, not to exceed 15,700 feet. The cost of all diamond drilling was not to exceed $9.00 per foot, or $294,300 for the entire project.

Stage I was only partly completed, and consisted of 5,193 feet of diamond drilling from the surface. Five holes were completed in one area; drilling of a sixth hole was stopped at 69 feet and the surface drilling program was terminated because of technical difficulties and excessive cost. The drill hole collars are shown on fig. 2; critical data are listed in the appendix. Stage I was begun December 17, 1951 and terminated December 13, 1952.

Surface diamond drilling was abandoned and the contract was amended to explore a more limited area on the 870-foot level of the Bully Hill mine reducing the total cost of the project from $294,300.00 to $256,343.98.

Stage II exploration, as amended, consisted of rehabilitating the 300-level adit from the portal to the shaft, a distance of 975 feet, and unwatering and rehabilitating the shaft from the 300 level to the 870 level; rehabilitating 1,000 feet of drift and driving 1,500 feet of new crosscut and drift on the 870 level; and diamond drilling 4,000 feet from 870 level drifts and crosscuts. Work under the amended contract was begun March 23, 1953 and completed December 31, 1955.

New drifting and crosscutting on the 870 level since the start of the DMEA project totals approximately 2,900 feet; 1,500 feet under the DMEA program and 1,400 feet by the company alone. Approximately 1,940 feet is on the north end, and 970 feet is on the south end of the level (fig. 4).

Drifting and crosscutting on the north end along the shear zone resulted in the discovery of two ore bodies. Drifting and crosscutting on the south end disclosed the southern continuation of the mineralized zone, but did not result in the discovery of ore bodies.

From the 870 level three diamond drill holes totaling 800 feet were drilled to the east, and seven holes totaling 3,642 feet were drilled to the west. DMEA participated in 4,000 feet and the balance, or 442 feet, was done by The Glidden Company without DMEA assistance. At the time of the examination (January 30, 1956), Holes A to I had been completed and drilling

was being continued in Hole J. Holes A and B were drilled to explore the area east of the main shear zone (fig. 4), but no ore was found. Hole C was drilled to the east to cut the shear zone approximately 140 feet below the 870 level and north of any of the deeper workings (fig. 4). The hole was collared in pyritized rhyolite that contained from a trace to 0.5 percent copper and 1 percent zinc. The downward continuation of the shear zone ore body exposed in the 870 level was cut at 190 feet (fig. 6). Several other zones enriched in copper were also cut in the hole.

Holes D to J were drilled to explore the area west of the shear zone and main workings (fig. 4). Holes D, E, F, H, and J cut slightly to highly pyritized rhyolite that contains zones of massive pyrite. Hole I cut pyritized metadiabase dike and rhyolite. With two exceptions, copper values were below 1 percent and zinc values were below 2 percent; 4 feet of material containing 1.58 percent copper was cut at 69 feet and 10 feet of material averaging 1.7 percent copper was cut at 190 feet, both in Hole D. Hole G, the southernmost, is in unpyritized rhyolite that contains several very narrow zones of pyritized rhyolite and disseminated chalcopyrite.

The extent of work done under the DMEA contract and costs submitted by the operator are tabulated:

EXPENDITURES

Stage I		
Diamond drilling from surface, six holes completed, 5,299.3 ft. @ $9.00/ft.	$47,693.70	
Total cost Stage I		$47,693.70
Stage II		
Rehabilitate 300 level adit - 1,022.5 feet @ $14.00/ft.	$14,315.00	
Unwater and rehabilitate the vertical Bully Hill shaft — 627 feet @ $50.00/ft.	$31,350.00	
Rehabilitate 870-level drifts and crosscuts — 904 feet @ $14.00/ft.	$12,350.00	
Exploration drifting and crosscutting on 870 level — 2,500 feet @ $45.00/ft.	$112,500.00	
Diamond drilling exploration on 870 level — 4,000 feet @ $9.00/ft.	$36,000.00	
Total cost Stage II		$206,821.00
Total cost of project		$254,514.70
Government participation @ 50%		$127,257.35

Summary of Expenditures

Total approved cost	$256,343.98
Total "agreed unit costs" claimed	$254,514.70
Government participation at 50%	$127,257.35*
Value of production during operations, and Government's royalty	None

*This cost includes $332.50 (subject to audit) in excess of contract amount, claimed by operator covering 47.5 feet of rehabilitation on the 300 level, in excess of "estimated actual cost".

It is noted that the operator actually performed considerable work in connection with some of the above items in Stage II in excess of contract amounts shown below:

	Contract amount allowed	Work actually performed
Rehabilitate 300 level (Item 1)	975 ft.	1,022.5 ft.
Drifting and crosscutting on 870 level (Item 4). Operator actually performed 1,776.6 feet north of old workings and 1,017 feet south of old workings.	2,500 ft.	2,793.6 ft.
Diamond drilling on 870 level (Item 5).	4,000 ft.	4,524.0 ft.

All operating equipment used in connection with this project was furnished by the operator as a portion of the "agreed unit costs".

The operator's estimated cost to complete the work, including work done in excess of allowable contract costs, was $471,022.00. Work in connection with the contract was satisfactory and the operator's competency is considered good. The actual costs of the exploration work were high, although the excess amounts were borne by The Glidden Company.

GEOLOGY

The Bully Hill mine is near the center of the East Shasta copper-zinc district. The district was mapped by Albers and Robertson[1/] and the mine is described by Robertson and Albers[2/]. The geology and ore deposits sections are largely summaries of these papers.

Bully Hill is composed mainly of Bully Hill rhyolite and the overlying sedimentary and pyroclastic rocks of the Pit formation (fig. 2). These rocks are intruded by silic shallow intrusive rocks, and by altered diabase dikes and sills. The volcanic and sedimentary rocks have been folded into an anticline that plunges southeast. The ore bodies occur in Bully Hill rhyolite along steep dipping north-trending shear zones.

1/Albers, J. P., and Robertson, J. F., Geology and ore deposits of the East Shasta copper-zinc district, Shasta County, Calif: U. S. Geol. Survey report in preparation.

2/Robertson, J. F., and Albers, J. P., Geology and ore deposits of the Bully Hill-Rising Star mines, Shasta County, Calif: U. S. Geol. Survey report in preparation.

The Bully Hill rhyolite, of Triassic age, is divided into two units, a lower porphyritic unit and an upper aphanitic tuff and breccia. The lower porphyritic unit underlies most of Bully Hill and is exposed as rough knobby outcrops and bold craggy ridges. It is at least 600 feet thick. It is divided into two rock types: (1) flows and flow breccias, and (2) crystal-lithic tuffs and tuff breccias. Both types contain various amounts of quartz and plagioclase phenocrysts 1 to 4 mm in size. They are extensively layered in lenticular flows and beds, and only locally are distinct and continuous enough to map separately. The aphanitic tuff and breccia is about 200 feet thick. It is dacitic in composition and is composed mainly of fine-grained quartz, plagioclase, illite, and chlorite.

The Pit formation, also of Triassic age, consists of andesitic tuff overlain by interbedded mudstone and rhyolitic tuff. Pit formation rocks conformably overlie the Bully Hill rhyolite.

The Bully Hill rhyolite and Pit formation are intruded by sills and irregular masses of feldspathic quartz keratophyre that is classified with the Bully Hill rhyolite. It is distinguished by abundant euhedral phenocrysts of plagioclase and quartz from 1 to 5 mm in diameter.

All these rocks were intruded by dikes, sills, and irregular masses of metadiabase during late Jurassic-early Cretaceous orogenic period. The metadiabase is medium gray to dark gray-green and aphanitic to fine grained; locally it contains calcite or quartz-filled amygdules, and rarely plagioclase phenocrysts.

Practically all of the Bully Hill rhyolite has undergone some degree of hydrothermal alteration.

The dominant structure in the area is the southwest-plunging, partly overturned anticline. The Triassic rocks are cut by shear zones generally parallel to bedding, and by cross faults with displacements from less than 10 to several hundred feet.

ORE DEPOSITS

The ore bodies are replacement deposits of massive sulfide along or near the Bully Hill shear zone in the Bully Hill rhyolite. Parallel ore zones occur east of the main shear zone. Copper-zinc ore occurs in pods and lenses from a few feet to several hundred feet long along the shear zone and have been mined to 1,200 feet below the surface.

Ore minerals favor the porphyritic rhyolite although they occur to a lesser extent in aphanitic rhyolite and metadiabase dikes. Most of the Bully Hill rhyolite west of the shear zone has been pyritized. Traces of copper accompany the pyrite. The iron content of the pyritized rock is from 4 to 20 percent, indicating a pyrite content of 8 to 40 percent. The sedimentary rocks of the Pit formation are barren and, except for calcite and quartz veinlets and minor amounts of pyrite, are little altered hydrothermally. The ore is primarily of massive fine- to medium-grained pyrite and smaller amounts of fine-grained chalcopyrite and sphalerite. In places there are concentrations of nearly pure chalcopyrite, in others the ore is nearly pure sphalerite. Locally the wall rocks contain veinlets of chalcopyrite and pyrite. Secondary chalcocite occurs from the surface to the deepest levels of the mine.

The ore bodies are from less than a foot to 15 feet wide, from 10 to about 200 feet long, and from 10 to 200 feet high. The ratio of width to length of pods and lenses is generally 1 to 7, although ratios of 1 to 40 have been observed. The ore bodies rake about 70° north.

Two lenses of ore in the northern part of the shear zone were found on the 870 level by DMEA exploration (fig. 5). The larger and north ore body (Lens A) is exposed on the 870 level

and cut in diamond drill holes 140 feet and 80 feet below the 870 level. The smaller body (Lens B) is exposed just south of the larger one on the 870 level. The average grade of ore in the larger lens is 2.0 percent copper, 10.1 percent zinc, 5.5 oz. silver/ton, and 0.16 oz. gold/ton; and in the smaller lens is 1.9 percent copper, 3.1 percent zinc, 3.1 oz. silver/ton, and 0.08 oz. gold/ton.

SAMPLING

Extensive sampling was done by the operator in connection with the exploration program. Interval samples were taken every round across the faces of new drifts and crosscuts driven on the 870 level where mineralization was encountered; and cores of mineralized sections of diamond drill holes were split and assayed. Analyses for copper, zinc, and iron were made of most of these samples. The gold and silver content of certain samples taken within the mineralized zones were also obtained. A few check samples were taken during inspections by members of the DMEA Field Team. A list of samples and analysis is included as an appendix to this report.

ORE RESERVES

The only ore reserves at the Bully Hill mine are in two lenses. Lens A contains about 8,000 tons of measured ore, 28,000 tons of indicated ore, and 60,000 tons of inferred ore. The average grade of ore in Lens A is 2.0 percent copper, 10.1 percent zinc, 5.5 oz. silver/ton, and 0.16 oz. gold/ton. Lens B contains about 1,000 tons of measured ore, 2,000 tons of indicated ore, and 6,000 tons of inferred ore, and averages 1.9 percent copper, 3.1 percent zinc, 3.1 oz. silver/ton, and 0.08 oz. gold/ton.

Because other ore lenses are known to have been fairly consistent in size and grade, measured ore is considered to extend 10 feet from workings and drill holes, and inferred ore is considered to extend from 35 feet to 100 feet beyond workings and drill holes. A factor of 10 cubic feet per ton is used.

PRODUCTION PLAN

The company's plan for future operation and production from the Bully Hill mine has not been disclosed. The property has been offered for sale and it is believed that no further extensive exploration or mining is planned by The Glidden Company.

Considerable additional exploration and rehabilitation would be required to develop sufficient ore reserves to maintain production. An adequate mill to concentrate the ores would be requisite and there are transportation and marketing problems to be solved.

UNITED CONSOLIDATED MIN. MINES
HILLY HILL SIDE

Diamond Drill Hole 672-017-874-3-1
Location: Drount - 874 Drift
Direction: West - Plus 5°

SLIDING MATERIAL

Date	Distance	% Cu	% Zn	% Fe
8/24/55	36.0 - 52.0	None	None	4.24
	36.0 - 52.0	None	None	4.03
	36.0 - 52.0	Tr	None	3.77
	36.0 - 52.0	None	Tr	4.03
	36.0 - 52.0	Tr	None	3.69
	36.0 - 52.0	Tr	0.96	4.03
	76.0 - 90.0	Tr	None	10.96
	76.0 - 90.0	None	None	10.76
	76.0 - 90.0	None	None	10.60

[illegible]
[illegible] Mine

Diamond Drill Hole 872-522-F-1
Location: Breast 522 Crosscut
Direction: N 88° W Plus 5°

[illegible]

Date	Distance	% Cu	% Zn	% Pb
9/7/55	60.0 - 67.0	None	None	3.15
	67.0 - 74.0	None	None	3.10
	74.0 - 78.0	None	None	2.74
	78.0 - 82.0	None	None	5.12
	82.0 - 86.00	None	None	4.91
	86.0 - 90.0	None	None	4.29
	90.0 - 95.0	None	None	4.19
	95.0 - 96.0	None	None	2.89
	101.0 - 126.0	None	None	5.20
	133.5 - 140.5	None	None	6.80
	140.0 - 153.0	None	None	4.33
	153.0 - 165.0	None	None	6.23
	165.0 - 180.0	None	None	3.66
	180.0 - 201.0	None	None	4.07
	201.0 - 209.5	None	None	5.56
	209.5 - 215.0	None	None	3.39
	215.0 - 220.0	None	None	4.07
	220.0 - 224.0	None	None	3.80
	229.0 - 232.0	None	None	3.08
	232.0 - 240.0	None	Tr	3.47
	240.0 - 247.0	None	Tr	3.52
	247.0 - 271.0	Tr	None	4.40
	271.0 - 273.0	Tr	None	3.47
	273.0 - 278.0	None	None	4.29
	278.0 - 286.0	None	None	4.40
	286.0 - 291.0	None	None	4.07
	292.0 - 302.0	None	None	3.74
	302.0 - 312.0	None	None	4.62
	312.0 - 319.0	None	None	4.95
	319.0 - 329.0	None	None	5.08
	329.0 - 339.0	None	None	4.62
	339.0 - 347.0	Tr	None	9.41
	347.0 - 354.0	None	None	7.70
	354.0 - 359.0	None	None	4.24
	359.0 - 369.0	None	None	3.69
	369.0 - 377.0	None	None	4.18
	377.0 - 381.0	None	None	3.52
	381.0 - 385.0	None	None	4.29
	385.0 - 391.0	None	None	5.70
	391.0 - 405.0	None	None	3.50
	405.0 - 410.0	None	None	5.39
	410.0 - 415.0	None	None	5.90
	425.0 - 437.0	None	None	6.40
	437.0 - 446.0	None	None	8.13
	446.0 - 450.0	None	None	7.75
	450.0 - 460.0	None	None	6.05
	460.0 - 469.0	None	None	7.20
	469.0 - 479.0	None	None	4.65
	479.0 - 489.0	None	None	6.15

[illegible]

[illegible] Drill Hole: 372-319-1
Location: [illegible] 319 crosscut
Direction: N 84° W [illegible] line 5°

[illegible]

Date	Distance	% Cu	% Zn	% Fe
10/5/55	2.0 - 5.0	None	None	25.30
	5.0 - 17.0	None	None	19.10
	17.0 - 45.0	None	None	19.20
	52.0 - 79.0	None	None	20.60
	72.0 - 82.0	None	None	20.50
	98.0 - 108.0	None	None	19.60
	108.0 - 113.0	.05	None	31.50
	113.0 - 134.0	None	None	4.00
	124.0 - 133.0	None	None	13.40
	138.0 - 150.0	Tr	None	15.50
	158.0 - 1[illegible]	None	None	12.55
	165.0 - 171.0	None	None	9.70
	179.0 - 185.0	Tr	None	17.40
	185.0 - 192.0	None	None	14.70
	192.0 - 199.0	None	None	15.70
	199.0 - 206.0	None	None	16.90
	206.0 - 212.0	None	None	20.95
	212.0 - 222.0	None	None	16.55
	222.0 - 235.0	None	None	13.70
	237.0 - 244.0	None	None	9.60
	243.0 - 251.0	.05	None	13.05
	251.0 - 257.0	.05	None	17.75
	258.0 - 269.0	.10	None	13.95
	269.0 - 279.0	.05	None	16.50
	279.0 - 289.0	Tr	None	20.40
	289.0 - 299.0	None	None	17.65
	299.0 - 309.0	Tr	None	18.80
	309.0 - 328.0	None	None	10.45
	328.0 - 338.0	.20	None	16.20
	338.0 - 348.0	.15	None	18.15
	348.0 - 358.0	.05	None	21.25
	358.0 - 368.0	.05	None	12.35
	368.0 - 378.0	.10	None	8.95
	378.0 - 388.0	Tr	None	15.25
	388.0 - 398.0	.05	None	13.15
	398.0 - 408.0	.05	None	16.00
	408.0 - 418.0	.05	None	14.50
	418.0 - 428.0	None	None	16.20
	428.0 - 439.0	.05	None	31.85
	439.0 - 448.0	.05	None	17.20
	448.0 - 458.0	.05	None	17.55
	458.0 - 468.0	.05	None	17.90
	468.0 - 478.0	None	None	15.00
	478.0 - 488.0	.20	None	15.00
	488.0 - 498.0	.12	None	19.40
	498.0 - 508.0	.12	None	19.40
	508.0 - 518.0	.15	None	18.60
	518.0 - 528.0	.05	None	17.25
	528.0 - 538.0	.15	None	14.70
	538.0 - 547.0	.10	None	16.70
	547.0 - 557.0			

[illegible] Limited
Diamond Drill Hole: 672-81, No-1
[illegible]

Date	Footage	% Cu	% Zn	% Fe
10/15/55	557.0 - 566.0	Tr	None	12.40
	566.0 - 578.0	Tr	None	14.65
	578.0 - 587.0	None	None	11.60
	587.0 - 599.0	None	None	10.55
	599.0 - 612.0	.10	None	10.65
	612.0 - 621.0	.05		8.15
	621.0 - 627.0	.10		7.85
	627.0 - 636.0	.10		13.95

GLENN COLDERATED 2T MINES
BELLY HILL MINE

Diamond Drill Hole: 671-2-0-1
Location: Drift 671-2 Crosscut
Direction: North 65° W Plus 5°

SLUDGE SAMPLES

Date	Distance	% Cu	% Fe
11/9/55	74.0 - 84.0	.07	4.35
	84.0 - 93.0	.04	4.80
	93.0 - 97.0	.04	9.15
	97.0 - 101.0	.04	5.70
	97.0 - 107.0	.02	4.85
	101.0 - 107.0	.04	3.90
	107.0 - 117.0	.04	4.95
	117.0 - 126.0	.24	7.15
	116.0 - 126.0	.02	3.35
	126.0 - 133.0	.09	3.45
	133.0 - 138.0	.04	11.05
	138.0 - 141.0	.02	5.15
	141.0 - 151.0	.02	3.05
	151.0 - 161.0	.04	4.55
	161.0 - 171.0	.04	4.20
	171.0 - 181.0	.02	4.40
	171.0 - 181.0	.09	12.95
	181.0 - 187.0	.09	5.00
	207.0 - 211.0	.04	4.65
	211.0 - 216.0	.04	4.90
	226.0 - 236.0	.04	4.55
	236.0 - 246.0	.02	3.05
	246.0 - 255.0	.02	2.85
	253.0 - 265.0	.04	5.85
	265.0 - 272.0	.04	3.95
	272.0 - 280.0	.02	5.70
	280.0 - 292.0	.04	8.55
	290.0 - 299.0	-	7.80
	299.0 - 305.0	Tr	2.25
	305.0 - 312.0	Tr	6.85
	312.0 - 317.0	.02	4.85
	317.0 - 321.0	.04	4.85
	321.0 - 331.0	Tr	8.05
	331.0 - 343.0	-	4.40
	343.0 - 353.0	-	7.25
	353.0 - 363.0	Tr	4.05
	363.0 - 367.0	Tr	4.00
	370.0 - 372.0	Tr	5.30
	372.0 - 384.0	.09	7.25
	384.0 - 394.0	Tr	3.07
	394.0 - 404.0	-	4.05
	404.0 - 425.0	Tr	4.85

[illegible] Consolidated [illegible] Mine
[illegible] Mine Lake

Hanson #111 Hole: 672-017-574-2-1
Location: Drift 574 Drift
Direction: West -- [illegible] 5°

Coal Analysis

Date	Interval	L.Cu	S.Cu	B.Cu
9/9/55	0.0 - 3.0	.28	1.70	9.46
	3.0 - 5.0	None	None	9.37
	5.0 - 6.5	.05	0.78	11.23
	6.5 - 7.5	None	0.98	12.57
	7.5 - 11.0	None	None	12.05
	11.0 - 20.0	.05	None	11.64
	20.0 - 21.0	.05	None	20.91
	21.0 - 24.0	.05	None	12.15
	24.0 - 28.0	1.55	None	17.61
	28.0 - 31.0	None	0.48	11.77
	31.0 - 32.0	None	None	4.12
	32.0 - 34.0	None	None	3.97
	34.0 - 36.0	None	None	4.32
	36.0 - 38.0	None	None	5.70
	38.0 - 42.0	None	None	9.68
	42.0 - 47.0	None	None	4.33
	47.0 - 52.0	Tr	None	14.62
	52.0 - 58.0	None	None	14.67
	58.0 - 61.0	None	None	17.77
	61.0 - 63.5	None	None	3.40
	61.0 - 63.5	None	0.48	11.77
	65.5 - 67.0	None	0.48	9.13
	67.0 - 69.0	None	1.30	14.71
	69.0 - 71.0	None	None	28.40
	71.0 - 73.0	Tr	None	20.13
	73.0 - 76.5	None	None	18.59
	76.5 - 79.0	None	None	15.90
	79.0 - 86.0	None	None	13.79
	86.0 - 90.0	None	0.95	11.00
	90.0 - 94.0	None	1.14	15.13
	94.0 - 100.0	Tr	None	12.32
	105.0 - 110.0	None	0.65	13.75
	110.0 - 112.5	Tr	None	16.12
	112.5 - 118.0	Tr	None	11.21
	118.0 - 123.5	None	None	9.25
	123.5 - 128.5	.10	None	14.75
	128.5 - 133.5	.35	None	15.90
	133.5 - 134.5	.05	None	11.20
	136.5 - 143.5	.25	None	11.25
	143.5 - 144.5	.50	None	10.72
10/11/55	144.5 - 149.5	.10	None	10.50
	149.5 - 154.5	.10	None	10.75
	154.5 - 159.5	.10	None	13.10
	159.5 - 164.5	.45	None	10.80
	164.5 - 169.5	.05	None	11.20
	169.5 - 174.5	None	None	11.70
	174.5 - 179.5	.05	None	9.30
	180.5 - 185.5	.07	None	13.30
	185.5 - 190.5	.55	None	14.70
	190.5 - 195.5	1.05	None	10.60
	195.5 - 200.5	3.40	None	18.25

[illegible]
Diamond Drill Hole: 272-[illegible]-47[illegible]-1
[illegible]

Date	Interval	% Cu	% Zn	% Fe
10/14/55	200.5 - 205.5	.40	None	19.20
	205.5 - 210.5	Tr	None	17.70
	210.5 - 216.0	Tr	None	14.00
	216.0 - 221.0	.50	None	14.55
	221.0 - 226.0	.05	None	14.15
	226.0 - 231.0	None	None	11.60
	231.0 - 236.5	.95	None	10.30
	236.5 - 241.5	None	None	9.25
	241.5 - 245.5	None	None	10.65
	245.5 - 251.5	None	None	15.95
	251.5 - 256.6	None	None	9.55
	256.0 - 262.5	None	None	12.75
	262.5 - 267.0	None	None	14.35
	267.0 - 272.0	None	None	16.40
	272.0 - 277.0	.20	None	15.55
	277.0 - 279.0	.05	None	19.65
	279.0 - 284.5	Tr	None	20.05
	284.5 - 289.5	None	None	14.00
	289.5 - 294.5	None	None	16.95
	294.5 - 299.5	Tr	None	8.90
	299.5 - 306.0	.05	None	15.20
10/22/55	306.0 - 311.0	None	None	18.10
	311.0 - 316.0	.05	None	8.25
	316.0 - 319.0	None	None	15.05
	319.0 - 324.0	None	None	19.40
	324.0 - 327.0	None	None	14.20
	327.0 - 330.0	.05	None	16.55
	330.0 - 334.0	None	None	12.60
	334.0 - 337.0	1.55	None	15.70
	337.0 - 344.0	None	None	11.40
	344.0 - 349.0	None	None	14.55
	349.0 - 354.0	None	None	12.25
	354.0 - 359.0	None	None	12.35
	359.0 - 364.0	None	None	8.90
	364.0 - 365.0	.05	None	21.20
	365.0 - 370.0	.30	None	10.10
	370.0 - 375.0	.20	None	8.35
	375.0 - 381.0	.20	None	9.20
	381.0 - 386.0	.05	None	13.40
	386.0 - 395.0	.30	None	12.85
	395.0 - 405.0	.10	None	11.90
	405.0 - 415.0	.05	None	13.70
	415.0 - 425.0	.15	None	13.80
	425.0 - 435.0	.30	None	16.85
	435.0 - 445.0	.05	None	11.70
	445.0 - 455.0	.10	None	13.55
	455.0 - 465.0	.05	None	16.00
	465.0 - 475.0	.40	None	16.70
	475.0 - 484.0	.15	None	12.70
	488.0 - 492.0	.20	None	14.10
	492.0 - 502.0	.25	None	14.35
	502.0 - 508.0	.07	None	15.00

[illegible] COMBINED [illegible] INC [illegible]
[illegible] MILL MINE

Diamond Drill Hole: 872-812-E-1
Location: Crest 812 Crosscut
Direction: North of East 45°

Core Sampling

Date	Distance	% Cu	% Pb
10/27/55	0.0 - 5.0	Tr	4.15
	5.0 - 10.0	Tr	10.95
	10.0 - 13.0	-	12.60
	13.0 - 15.0	Tr	17.00
	15.0 - 17.0	Tr	14.50
	17.0 - 20.0	-	7.20
	20.0 - 25.0	-	19.85
	25.0 - 27.0	-	14.50
	27.0 - 32.0	Tr	14.05
	32.0 - 37.0	-	15.70
	37.0 - 45.0	-	12.50
28	45.0 - 50.0	-	10.25
	50.0 - 52.0	-	15.20
	52.0 - 62.0	-	12.55
	62.0 - 72.0	-	15.50
	72.0 - 75.0	-	14.00
	75.0 - 79.0	-	15.15
	79.0 - 80.0	-	12.10
	80.0 - 83.0	-	12.10
	83.0 - 86.0	-	13.60
	86.0 - 96.0	-	10.00
29	75.0 - 100.0	.25	11.60
	100.0 - 108.0	.50	13.15
	108.0 - 110.0	.15	11.60
	110.0 - 113.0	.25	12.50
	113.0 - 118.0	.05	7.25
	118.0 - 124.0	Tr	6.95
	124.0 - 133.0	Tr	14.05
	133.0 - 138.0	.10	13.85
	138.0 - 143.0	.50	8.65
	143.0 - 150.0	.10	12.15
	150.0 - 156.0	.30	15.75
	156.0 - 165.0	.25	9.00
	165.0 - 175.0	Tr	12.00
	175.0 - 185.0	.05	10.15
	185.0 - 192.0	Tr	19.35
	192.0 - 199.0	-	16.65
	199.0 - 206.0	.05	12.10
	206.0 - 212.0	Tr	13.15
	212.0 - 223.0	.05	14.55
	223.0 - 224.0	-	8.25
	224.0 - 228.0	Tr	11.55
	228.0 - 230.0	-	9.40
	230.0 - 237.0	.05	8.40
	237.0 - 243.0	.03	8.45
	243.0 - 251.0	.51	12.40
	251.0 - 257.0	.05	13.00
	257.0 - 258.0	.05	19.80
	258.0 - 261.0	1.08	17.20
	261.0 - 269.0	.05	19.00
	269.0 - 273.0	.05	14.25

[illegible] Consolidated [illegible]
Diamond Drill Hole: [illegible]-1

Date	Distance	% Cu	% Fe
11/4/55	279.0 - 289.0	.04	10.70
	289.0 - 299.0	.03	17.50
	299.0 - 309.0	.02	9.95
	309.0 - 319.0	.04	10.50
	319.0 - 329.0	-	9.75
	329.0 - 339.0	.07	7.75
	339.0 - 348.0	.33	10.45
	348.0 - 358.0	.04	11.60
	358.0 - 368.0	.04	11.20
	368.0 - 378.0	.02	9.30
	378.0 - 388.0	.04	9.70
	388.0 - 398.0	-	10.30
	398.0 - 408.0	.14	10.60
	408.0 - 418.0	-	7.90
	418.0 - 428.0	.09	11.35
	428.0 - 438.0	-	8.45
	438.0 - 448.0	.09	7.70
	448.0 - 458.0	.04	9.50
	458.0 - 468.0	.02	8.45
	468.0 - 478.0	.04	8.35
	478.0 - 488.0	.04	19.40
	488.0 - 498.0	-	9.40
	498.0 - 508.0	.04	9.30
	508.0 - 518.0	.09	11.85
	518.0 - 528.0	.02	10.00
	528.0 - 538.0	Tr	7.35
	538.0 - 547.0	.14	11.90
	547.0 - 554.0	.09	11.45
	554.0 - 557.0	Tr	10.50
		Tr	9.15

GLIDDEN CONSOLIDATED ZINC MIN.
BULLY HILL MINE

Diamond Drill Hole: 672-617-674-C-1
Location: Breast 674 Drift
Direction: East Minus 45°

CORE SAMPLES

DATE 1955	DISTANCE	% CU	% ZN	% PB
9/28	0.0 - 2.0'	.10	None	6.24
	2.0 - 5.0	.80	1.20	15.50
	5.0 - 10.5	.35	None	12.95
	10.5 - 15.5	.35	None	6.05
	15.5 - 22.5	None	1.50	5.70
	22.5 - 28.5	.05	.75	8.00
	28.5 - 31.5	.70	None	11.75
	31.5 - 36.5	.15	None	6.05
	36.5 - 40.5	1.08	None	8.60
	40.5 - 43.5	.25	None	6.45
	43.5 - 48.5	.63	1.00	11.90
9/30	48.5 - 54.0	.07	Tr	7.75
	54.0 - 57.0	.35	Tr	13.10
	57.0 - 63.0	1.00	None	10.20
	63.0 - 68.0	.20	None	11.00
	68.0 - 74.0	.35	None	8.75
	74.0 - 79.0	.15	None	8.35
	79.0 - 84.0	.10	None	4.55
	84.0 - 89.0	.05	None	3.75
	89.0 - 92.0	.10	None	10.50
	92.0 - 96.0	.10	None	4.00
	96.0 - 97.0	.15	None	4.95
	97.0 - 104.0	.05	None	7.00
	104.0 - 109.0	.30	None	6.80
	109.0 - 114.0	.25	None	6.70
	114.0 - 119.0	None	None	6.70
	119.0 - 123.0	Tr	None	8.30
	123.0 - 126.0	.07	None	4.20
	126.0 - 128.0	Tr	None	3.85
	128.0 - 130.0	.45	None	5.95
	130.0 - 133.0	.10	None	4.00
	133.0 - 135.5	Tr	None	3.80
	135.5 - 139.0	None	None	8.05
	139.0 - 144.0	.05	None	7.50
	144.0 - 148.0	None	None	7.40
	148.0 - 150.5	None	None	8.60
	150.0 - 152.5	None	None	3.70
	152.5 - 157.5	None	None	12.20
	157.5 - 160.0	None	None	5.30
	160.0 - 163.0	None	None	8.55
	163.0 - 166.0	None	None	3.65
	166.0 - 168.0	Tr	None	3.30
10/8	168.0 - 170.0	.20	None	8.20
	170.0 - 171.5	None	None	7.20
	171.5 - 173.5	.75	None	9.40
	173.5 - 176.0	.10	None	7.45
	176.0 - 179.5	.05	None	6.55
	179.5 - 183.0	None	None	5.00

GREEN. CONSOLIDATED MINES
LILLY HILL MINE
Diamond Drill Hole: 672-017-874-0-1
Core Samples

Date	DISTANCE	% CU	% ZN	% PB
10/8	183.0 - 186.5	None	None	6.35
	186.5 - 189.5	.05	None	8.60
	189.5 - 192.0	1.50	None	20.10
	192.0 - 193.5	2.05	9.65	8.10
	193.5 - 196.0	3.05	11.25	21.50
	196.0 - 200.0	5.25	11.20	25.50
	200.0 - 204.0	2.15	15.40	9.45
	204.0 - 209.0	.10	1.30	7.10
	209.0 - 213.0	.05	None	7.10
	213.0 - 215.0	1.15	None	9.85
	215.0 - 216.0	.05	None	8.95
	216.0 - 217.5	.95	4.00	7.90
	217.5 - 218.0	2.50	3.45	11.70
	218.0 - 221.0	.65	.50	7.20
	221.0 - 224.5	.10	None	13.50
	224.5 - 227.0	Tr	None	5.55
	227.0 - 231.0	Tr	None	11.10
	231.0 - 232.0	.40	Tr	10.70
	232.0 - 237.0	Tr	None	10.45
	237.0 - 241.0	1.30	8.50	15.70
	241.0 - 246.0	.85	7.75	12.45
	246.0 - 247.0	.25	.60	4.95
	247.0 - 250.0	.75	None	16.00

HANCOCK CONSOLIDATED MINE MINES
QUINCY HILL MINE

Diamond Drill Hole: 872-817-874-C-1
Location: Breast 874 Drift
Direction: East Minus 45°

MINING SAMPLES

Date 1955	Distance	% Cu	% Zn	% Fe
8/9	85.0 - 89.0	None	None	2.43
	89.0 - 92.0	None	None	3.92
	92.0 - 97.0	.05	None	4.20
	97.0 - 119.0	Tr	None	4.96
	119.0 - 123.0	Tr	None	5.12
	123.0 - 126.0	Tr	None	3.65
	126.0 - 128.0	.40	None	4.08
	128.0 - 130.0	Tr	None	4.25
	130.0 - 133.0	Tr	None	4.74
	133.0 - 139.0	.05	None	3.34
	139.0 - 144.0	.05	None	3.91
	144.0 - 149.0	Tr	None	4.41
	149.0 - 157.5	None	None	4.93
	157.5 - 163.0	None	None	3.65
	163.0 - 170.0	None	None	3.65
	171.0 - 176.0	None	None	4.47
	176.0 - 179.0	.05	None	5.12
	179.5 - 183.0	None	None	5.45
	183.0 - 186.5	.05	None	2.56
	186.5 - 189.5	None	None	5.34
	189.5 - 192.0	1.00	None	5.23
	192.0 - 193.5	.05	None	4.80
	193.5 - 196.0	.50	3.65	6.21
	196.0 - 200.0	1.30	3.25	5.23
	200.0 - 204.0	.08	2.00	5.83
	204.0 - 209.0	.25	1.50	6.76
	204.0 - 209.0 b	.20	1.50	6.98
	209.0 - 215.0	.30	Tr	7.14
	209.0 - 215.0 b	.30	Tr	6.65
	218.0 - 224.5	.10	None	6.76
	218.0 - 224.5 b	.05	None	7.25
	224.5 - 231.0	.10	None	7.08
	224.5 - 231.0 b	.15	None	7.02
	231.0 - 237.0	.20	None	6.32
	237.0 - 241.0	.25	None	9.05
	241.0 - 246.0	.10	None	7.56
	246.0 - 250.0	.15	None	6.36

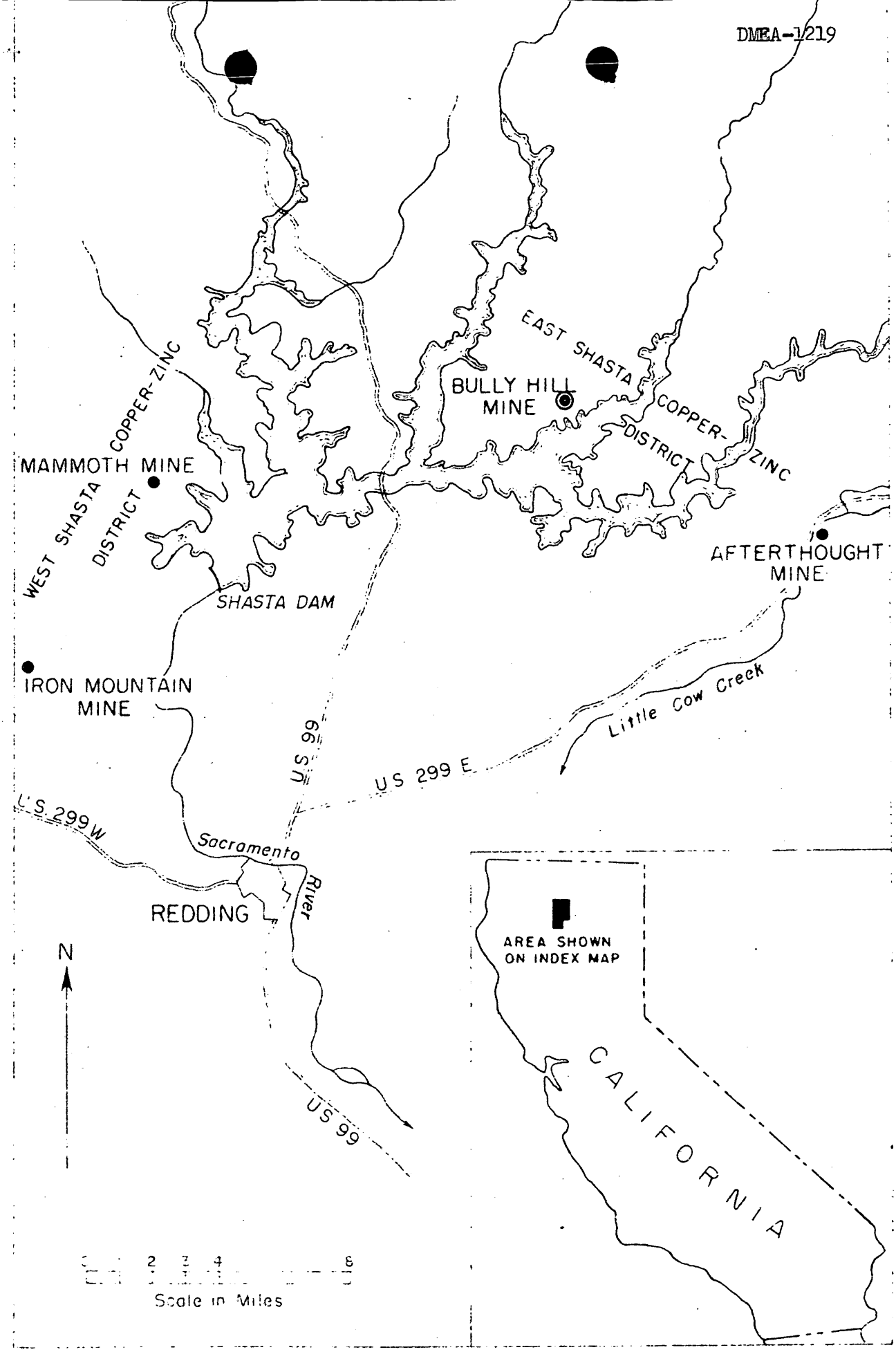
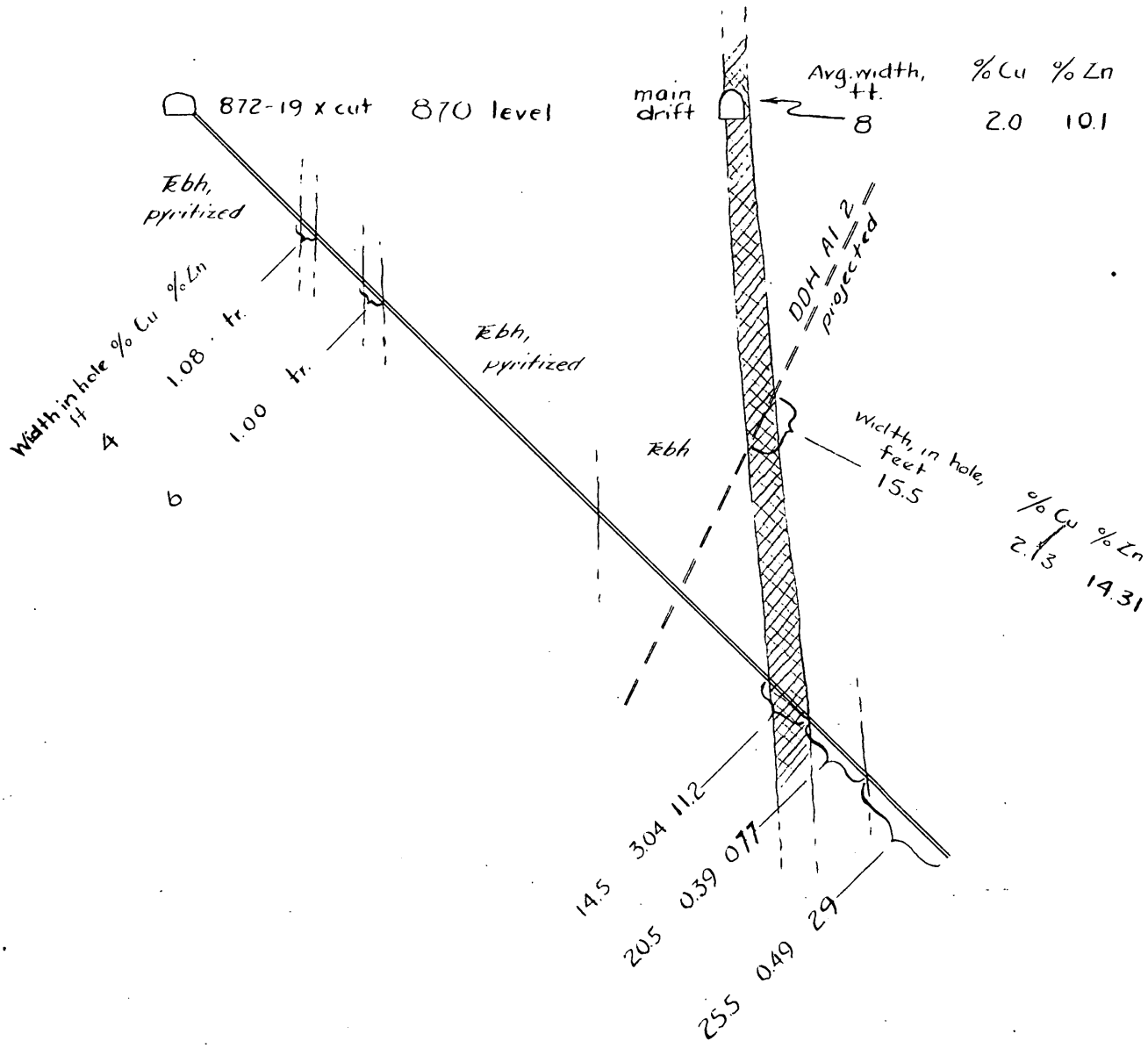


FIGURE 1. INDEX MAP SHOWING LOCATION OF THE BULLY HILL MINE.



1 inch equals 40 feet

FIGURE 6. SECTION THROUGH DIAMOND DRILL HOLE "C"

EXPLANATION

FOR ALL BULLY HILL MINE MAPS

JURASSIC OR CRETACEOUS

Metadiabase
Dark greenish-gray, aphanitic rock; locally porphyritic and amygdaloidal.

TRIASSIC

Pit formation
Meta-andesite tuff and keratophyre tuff, undifferentiated, $T_R$pl; metadacite tuff and quartz keratophyre tuff, undifferentiated, T_Rp2; shale, mudstone, and siltstone, undifferentiated, T_Rp3.

TRIASSIC(?)

Bully Hill rhyolite
Porphyritic quartz keratophyre and quartz keratophyre breccia, $T_R$bh1 (contains quartz and feldspar phenocrysts 1 to 4 mm in diameter in an aphanitic groundmass); quartz keratophyre crystal-lithic tuff, $T_R$bh2; metadacite tuff and breccia, $T_R$bh3; massive feldspathic quartz keratophyre, locally brecciated, probably a shallow intrusive facies of the Bully Hill rhyolite, $T_R$bh4.

Mineralized Rocks

Gypsum and anhydrite

Disseminated or inferred sulfides, mainly pyrite.

Heavily mineralized, veinlets and seams

Massive sulfide

Map Symbols

Contact, showing dip
(Dashed where approximately located)

Indefinite contact

Fault, showing dip
(Dashed where approximately located; short dashes where indefinite; U, upthrown side, D, downthrown side)

Doubtful or probable fault

Fault or shear zone, (Dashed where approximately located, short dashes where inferred, query (?) where probable or doubtful.)

Strike & dip of beds

Strike of vertical beds

Strike and dip of cleavage

Strike & dip of joints

RECEIVED
MAR 16 1956

Shaft at surface

Head of raise or winze

Foot of raise or winze

Raise or winze extending through level

Stope

Inclined raise
(Chevrons point down)

Lagging or cribbing along drift

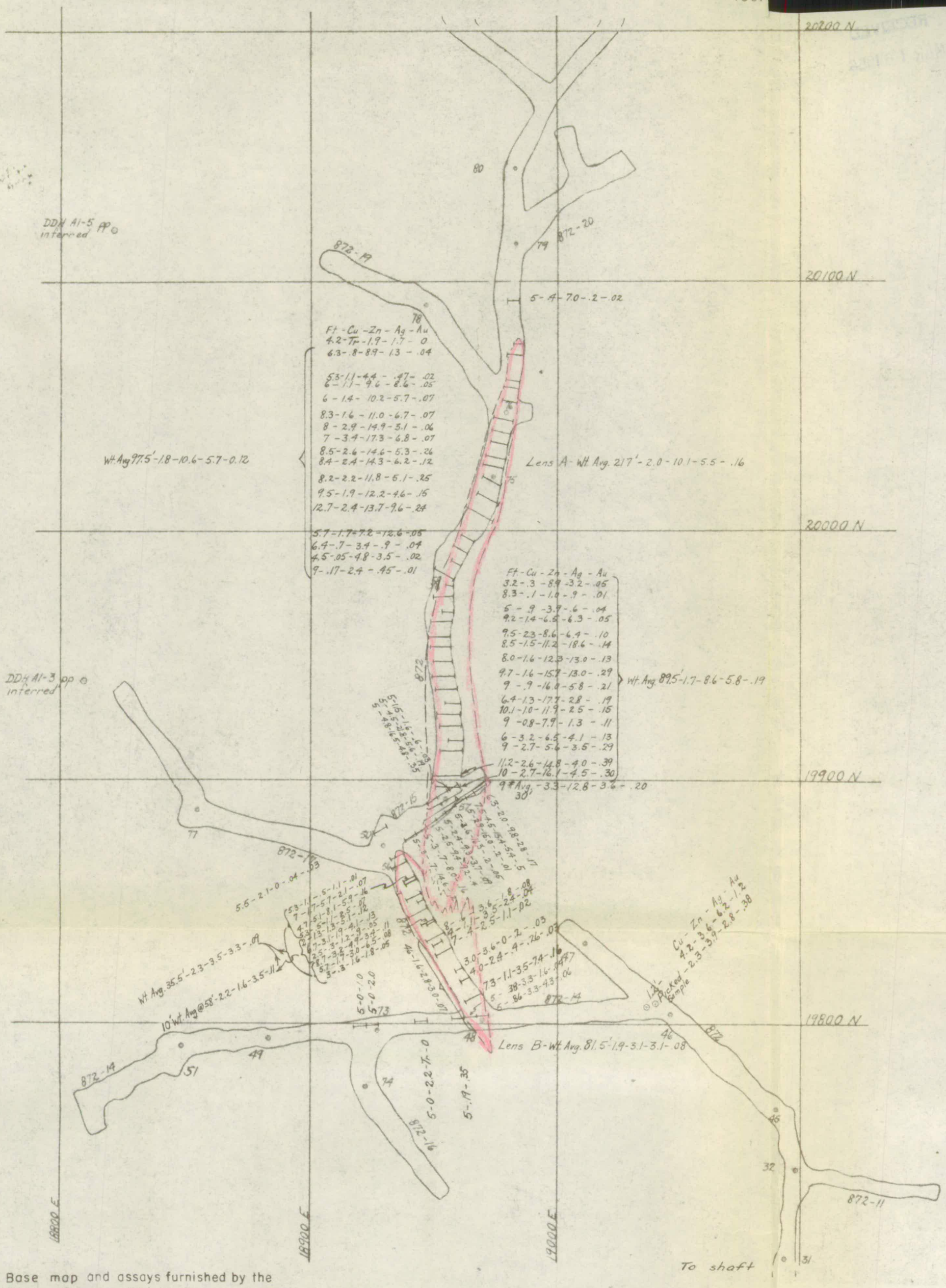
Caved workings

DDH 870-D
Horizontal diamond-drill hole

DDH 870-C
Inclined diamond drill hole projected to horizontal

PP DDH A1-3
Piercing point of diamond-drill hole at elevation of level.

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



Base map and assays furnished by the Glidden Company. Weighted average assays computed and compiled by J. F. Robertson

ASSAY MAP OF THE NORTH WORKINGS OF THE 870 LEVEL
BULLY HILL MINE, SHASTA COUNTY, CALIFORNIA

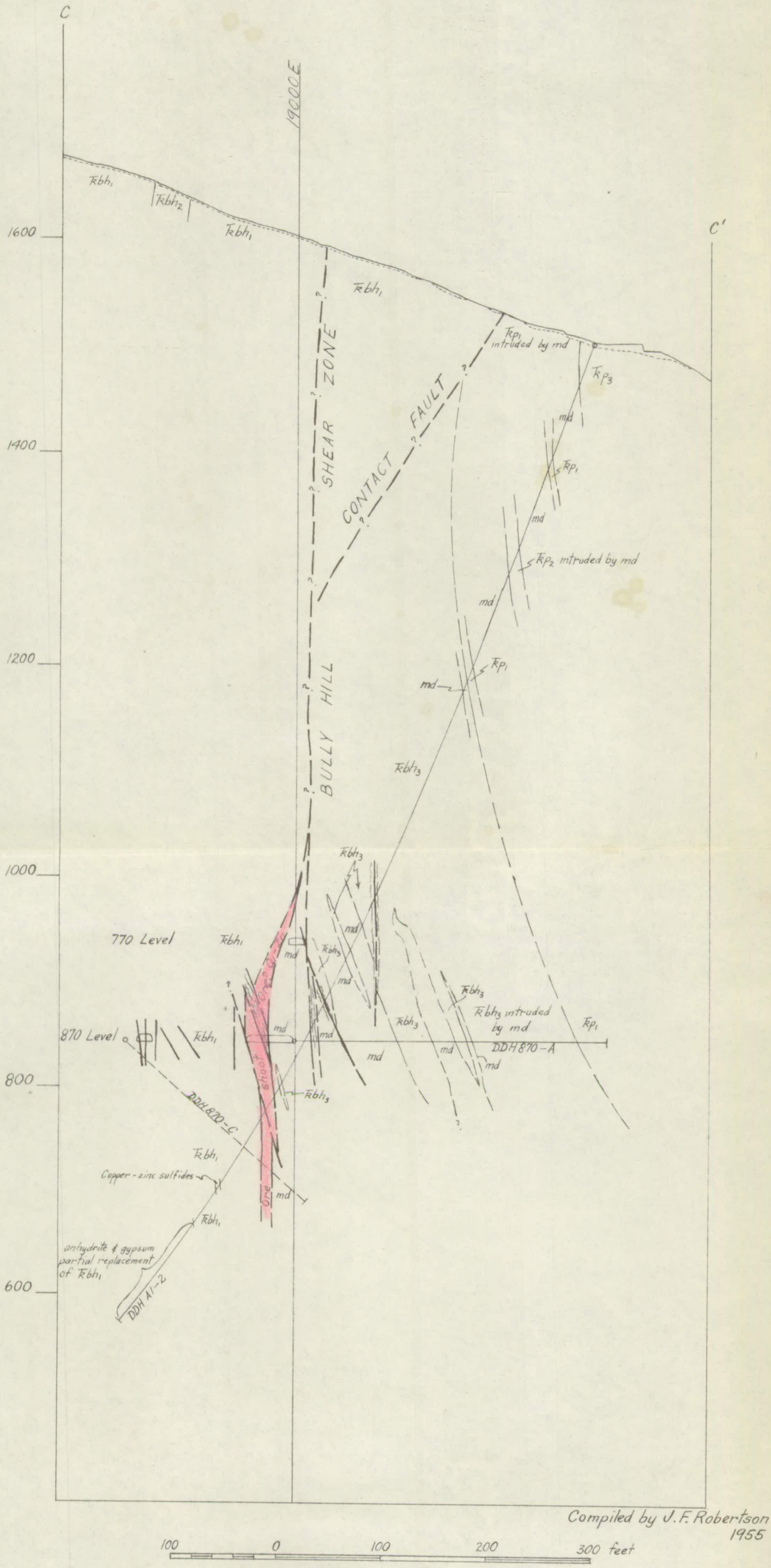
40 0 40 80 Feet

Figure 5

RECEIVED
MAR 16 1956

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DMEA 1219
1dm-E187
(Copper-Zinc)



Compiled by J. F. Robertson
1955

FIG. 9 GEOLOGIC SECTION ALONG DIAMOND DRILL HOLE A1-2
BULLY HILL MINE
SHASTA COUNTY, CALIFORNIA

RECEIVED
MAR 16 1956

Talbert

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

FEB 28 1956

Mr. George Mayer
DMEA Auditor
420 Custom House
555 Battery Street
San Francisco 11, California

Re: IAm-2187, DMA-1279X
The Gliddon Company
Bully Hill Mine
Shasta County, California

Dear Mr. Mayer:

Receipt is acknowledged of your letter of February 23, 1956, relative to the issuance of a Report of Review, in lieu of a final audit, covering the referenced project.

If the "actual cost" portion of the Operator's claims on the Forms MF-104 are sufficiently documented to enable you to certify to the validity, propriety, and acceptableness of such costs, the issuance of a Report of Review would appear to be in order. The justifying reasons (a) and (c), as suggested in your letter, are appropriate; however, it is suggested that reason (b) be restated as follows:

> "The Monthly Reports were supported by documentary proof of the costs claimed ($106,014.98) under contract provisions for contribution by the Government on the basis of actual costs incurred."

Sincerely yours,

(Signed) J. L. Chambers

Jay L. Chambers, Chief
Contract Administration
and Audit Division

EDTalbert/wb
February 28, 1956

Copy to: Docket
Admr. Reading File
Mr. Chambers

Talbot Chambers

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

FEB 16 1956

Mr. George Never
DMEA Auditor
420 Custom House
555 Battery Street
San Francisco 11, California

Re: Idm-2157, DMA-1229K
The Gliddon Company
Bally Hill Mine
Shasta County, Calif.

Dear Mr. Never:

By letter dated February 20, 1956, you have requested advice relative to the disallowance of $332.90 for excess footage in the rehabilitation work performed on the 300 level under the referenced contract.

You state that it is your understanding that under contract provisions for contribution by the Government on the basis of agreed or fixed unit costs the number of units, the unit costs, and the total costs of each item are maximum and, therefore, the excess in this case appears to be an unacceptable cost. You are correct in your understanding of the unit cost provisions of our contracts; however, it appears that you have misinterpreted this contract.

The Exhibit "A" of the Amended Contract dated April 30, 1953, provides for various items of work to be performed under three different cost bases for contribution by the Government, i. e.:

(1) 5,299' 4" of diamond drilling on an actual cost basis, but not in excess of $9.00 per foot (including not to exceed $1.00 per foot for geological work), under the terms of the prior contract dated October 18, 1951;

(2) 2,500' of drifting and crosscutting at $45.00 per foot and 4,000' of diamond drilling at $9.00 per foot" on the basis of these agreed unit costs per foot as they accrue for units of work actually performed in lieu of actual costs"; and

(3) Under the title of "Estimated Actual Costs", 975' of rehabilitation on the 300 level at $14.00 (maximum) per foot, 690' of shaft unwatering and rehabilitation at $50.00 (maximum) per foot, and 1,000' of rehabilitation on the 870 level at $14.00 (maximum) per foot, with

R.C.L.

a footnoted provision that "Of the eight categories of costs set forth in Article 6 of the contract form, all are allowable costs except (4) Operating Equipment (which the Operator shall furnish without cost) and (6) New buildings, improvements, installations. All other schedules are waived. However, the cost of a supervisor (for all rehabilitation work under this project) shall not exceed $750 per month."

It should be noted that the excess footage, referred to in your letter, occurred in one of the work items which is on an "actual cost" rather than a "unit cost" basis and for which footage figures are merely estimates. It, therefore, appears that the actual cost (up to a maximum of $14.00 per foot) of the footage in excess of the estimate is allowable provided that (1) the Field Team approves such excess (which they apparently have done) and (2) the contractual allowable maximums of $60,150.00 for all of the rehabilitation and unwatering work and $208,650.00 for all of the Stage II work are not exceeded thereby.

It is noted that your January 1956, Monthly Work Load Report indicates the scheduling of a Report of Review, in lieu of a final audit for this project. Presumably this decision was made as a result of your misinterpretation of the contract. However, as the Operator's claim includes a substantial amount ($106,014.98) under the actual costs provisions of the contract, it is suggested that you give the matter further consideration and, in the event that you determine only a review is required, be sure that you state justifiable reasons on your Report of Review for the review in lieu of an audit.

Sincerely yours,

(Signed) J. L. Chambers

Jay L. Chambers, Chief
Contract Administration
and Audit Division

EDTalbert/wb
February 16, 1956

Copy to: Docket
Admr. Reading File
Mr. Chambers

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

RECEIVED
DEC 12 1955

1605 Evans Avenue
Reno, Nevada

December 9, 1955

Memorandum

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

From: Executive Officer, DMEA Field Team, Region II

Subject: Docket No. DMEA-1219X (Lead-zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract No. Idm-E187

Reference is made to your letter of November 10, 1955 in which was enclosed the original and five copies of amendment No. 1 to the subject amended contract.

The amendment has been executed on the part of the Operator and one copy retained by him for his files. Distribution has been made of Finance Office and Field Team copies and the original and two remaining copies are being returned herewith.

S. Ricker

Encl.

File Copy
Surname
J. ALO
Swinwood
Chambers
Selfridge
FB Johnson

UNITED STATES
DEPARTMENT OF THE INTERIOR 500
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

NOV 1 0 1955

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

Re: Docket No. DMEA-1215X (Lead-Zinc)
The Glidden Company
Bully Hill Mine
Shasta County, California
Amended Contract No. Idm-8187

Dear Mr. Ricker:

We are enclosing the original and five copies of Amendment No. 1 for the cited amended contract, signed by the Administrator. Also enclosed are two extra copies of the amendment for the use of the Field Team.

If the amendment meets with your approval, kindly present it to the Operator for approval and signature and, when completed, distribute the copies in the usual manner. In the event that the amendment is not satisfactory and cannot be amended within your delegated authority, return all copies with your recommendation concerning any modification.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (S/B)

JWAlt/er 11/2/55
Copy to: Docket
Adm R File
Op. Committee
Base Metals
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Chron,

Enclosures

APPROVED:

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

Thor H. Kiilsgaard (S/B)
Member, Geological Survey

R.C.S.

Docket copy

AMENDMENT NO. 1
To
AMENDED EXPLORATION PROJECT CONTRACT Idm-E187 (DOCKET NO. DMEA-1219X)
Between
UNITED STATES OF AMERICA AND THE GLIDDEN COMPANY

It is agreed that the time fixed in Article 3 of Contract Idm-E187 (Docket No. DMEA-1219X) for completion of the work is extended to January 18, 1956.

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may be required to contribute, or the cost of any item of work.

Executed in sextuplicate this _____ day of _____, 1955.

THE UNITED STATES OF AMERICA

By _____
Administrator, Defense
Minerals Exploration
Administration

Indrity 10/31/55
Dwyer
"APPR. SOL. ONLY"
J. Ell.
Griswold
Chambers

THE GLIDDEN COMPANY

By _____

Title _____

File Copy
Surname
J. Alt

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

500

November 4, 1955

Memorandum

To: Associate Solicitor, Division of Mineral Resources

From: Chief, Base Metals Division

Subject: Preparation of Amendment No. 1 for Amended Contract No. Idm-K187, Docket No. DMEA-1219X, The Glidden Company, Bully Hill Mine, Shasta County, California (Lead-Zinc-Copper)

Will you please re-write Amendment No. 1 for the cited contract. In addition to the amendment prepared by you, there should be an item which will increase the royalty payment period from 10 years to 11 years.

W. R. Griswold

W. R. Griswold

JWAlt/er

Copy to: Docket
Base Metals
Chron.

File Copy
Surname
Alt
Griswold
Bishop
Kiilsgaard
Selfridge
Johnson

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

OCT 2 6 1955

TELEGRAM.

[redacted]

JWAlt/bjl, Rm. 4444, Ext. 3669

Base Metals Div., DMEA

[redacted]

14X4401(01) Revolving Fund, Defense Production Act, Interior (allocated Working Fund to Office of Secy.)

Date:

To: S. Ricker, Executive Officer, DMEA Field Team, Region II, Reno, Nevada

Reurltr October 21, 1955, Docket No. DMEA-1219X, The Glidden Company, Contract No. Idm-E187 (Amended). We will have amendment prepared allowing Operator three months' extension of completion time.

George C. Selfridge (JHB)
Chairman, Operating Committee

Written 10/26/55

Copy to: Docket
Admr. R. File
Op. Committee
Base Metals
Mr. Bishop
Mr. Kiilsgaard
Chron.

R.C.G.

File Copy
urname
J. Alt.

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

500

October 26, 1955

Memorandum

To: Associate Solicitor, Division of Mineral Resources

From: Chief, Base Metals Division

Subject: Preparation of Amendment No. 1 for Amended Contract No. Idm-R187, Docket No. DMEA-1219X, The Glidden Company, Bully Hill Mine, Shasta County, California, Lead-Zinc-Copper.

Will you please prepare Amendment No. 1 for the cited amended contract. This amendment will allow the Operator a three-months' extension of completion time, which would extend the completion time to January 18, 1956.

Please refer to the memorandum from the Executive Officer, Region II, dated October 21, 1955, and to the copy of a letter from Edward L. Ralston to Mr. Ricker, dated October 18, 1955.

W. R. Griswold

W. R. Griswold

JWAlt/er

Copy to: Docket
Base Metals

dl m Ea

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

RECEIVED
OCT 24 1955

1605 Evans Avenue
Reno, Nevada

October 21, 1955

Memorandum

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

From: Executive Officer, DMEA Field Team, Region II

Subject: Docket No. DMEA-1219X (Lead, zinc, copper)
The Glidden Company
Bully Hill Mine
Shasta County, California
Contract Idm-E187 (amended)

Relative to above subject contract, we are attaching two copies of a letter dated October 18, 1955 from Mr. Edward L. Ralston, Manager of Mines, in which he requests an extension of 60 days completion time.

Roscoe Smith and I recommend that an extension of 90 days be granted which will allow an extra 30 days to cover any contingencies that may arise. We would appreciate advice by telegram as to your reaction to the request in order that we may advise the operator so that current work will not be delayed.

S. Ricker

Attach.

RECEIVED
OCT 24 1955

THE GLIDDEN COMPANY

TIME TESTED
PAINTS · VARNISHES · LACQUERS · ENAMELS

REFER TO MR. MR. MR.
S. Ricker

P. O. Box 430
Redding, California
October 18, 1955

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

Re: Docket No. 1219X Amended
Commodity: Zinc-Copper
IDM-E187

Dear Mr. Ricker:

The contract between the United States of America, Department of the Interior, Defense Minerals Exploration Administration, and The Glidden Company, amended April 30, 1953, expires today. To date we have completed all work on this contract except diamond drilling, there remaining approximately 1500 lin. ft. of diamond drilling to be completed.

Due to the necessity of reopening the bottom levels and doing considerable exploration work in the way of crosscutting and drifting before diamond drilling could be planned, it has not been possible to complete the diamond drilling job. In addition to this, the contractor on this job, Boyles Brothers, have not been able to maintain the monthly footage promised since there have been numerous delays beyond their control.

In view of these facts, we would like to have an extension of 60 days on this contract so that diamond drilling can be completed. Since the only change in the contract will be the expiration date, we feel that the request is not out of line, and we would like to have your advice on how to proceed to have this extension granted, if such a thing can be done. Our diamond drilling to date has proven a very extensive mineralized zone in the Bully Hill area, and one which we believe will ultimately outline a very large low grade copper deposit. Hence, it is of utmost importance that this exploration program be continued.

We will indeed be very pleased to hear from you regarding our request and whether or not your office could grant this extension, or would it be necessary for us to again go to Washington and present a formal request.

Thank you very kindly for your cooperation.

Respectfully yours,
THE GLIDDEN COMPANY

Edward L. Ralston
Manager of Mines

QUALITY Glidden

ELR:HM

FILE COPY
SURNAME

Chambers

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

OCT - 6 1953

Mr. George Mayer
DMEA Auditor
1012 Flood Building
870 Market Street
San Francisco 2, California

Re: The Glidden Company
Idn-8187, DMA-1219X

Dear Mr. Mayer:

It is noted that the Glidden Company, Operator of the above-cited project prepares a detailed MF-104 voucher each month. I don't know whether the Company realizes that this detail is not necessary on an agreed unit costs contract.

You might want to discuss the matter with Mr. Miller and see whether he would like to tell the Company that it is not necessary to detail their vouchers.

Sincerely yours,

(Signed) J. L. Chambers

Jay L. Chambers, Chief
Contract Administration
and Audit Division

JLChambers/wb
October 5, 1953

Copy to: Docket
Admr. Reading File
Mr. Chambers
Mr. Griswold

HHR
10-6-53

FILE COPY
SURNAME:
Docket
J.W. Alt
Chairman
Echeve
Rubin
Selfridge
Mittendorf

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

JUL 13 1953

Mr. H. C. Miller, Executive Officer
DMA Field Rep., Region III
1312 Flood Building
870 Market Street
San Francisco 2, California

Re: Docket No. [illegible]-1219 (Zinc-Copper)
The Glidden Company
Bully Hill Mine
Shasta County, California
Contract No. IDm-[illegible]

Dear Mr. Miller:

In reply to your memorandum of July 3, 1953, to G. J. Mittendorf, Administrator, we are advised by our auditor and by our legal department that payments should be made to the above company for any necessary work done prior to the date of the Amended Contract, if subsequent to October 18, 1951. Previous to the drawing up of the Amended Contract, when Mr. Edward D. Ralston was here to talk over the terms of the contract, it was agreed ~~with Mr. [illegible]~~ that any further work done by the company on the proposed agreed work prior to the date of the Amended Contract would be allowed and paid for according to the terms of Exhibit "A" of the Amended Contract.

This is your authority to approve the payment for the work that has been done according to the terms of Exhibit "A" of the Amended Contract.

Sincerely yours,

George C. Selfridge
(JWB)
Chairman, Operating Committee

APPROVED:

J. H. Hodges (JWB)
Member, Bureau of Mines

A. R. Kinkel, Jr. (JWB)
Member, Geological Survey

JWAlt/jh
7/8/53
cc. to: Docket
Adm. Reading File
Oper. Comm.
Base Metals
Chron.
Messrs. Bishop
Kinkel

R.C.B.
7-13-53

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL - 6 1953

Office of
Executive Officer
DMEA Field Team
Region III

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

AIR MAIL

July 3, 1953

Memorandum

To: C. O. Mittendorf, Administrator, DMEA, Interior Building, Washington 25, D. C.

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA-1219 (Zinc-Copper)
The Glidden Company, Bully Hill Mine, Shasta County, Calif.
Contract Idm-E187

The subject contract (amended) is dated April 30, 1953. However, we note when the Operator submitted his March, April, and May MF-104 and 104A forms that he actually started work under the amended contract on March 23, 1953. In a statement accompanying the voucher forms, Mr. Edward L. Ralston, Manager of Mines for Glidden Company, states that "according to Mr. Griswold, Chairman of the DMEA Board, that the contract would be retroactive on the work in reopening the 300 adit."

Only a small portion of the work precedes the date of the amended contract. However, there is nothing in the files of this office that indicates an agreement whereby work under the contract may be started prior to the date thereof.

We are holding up the processing of the vouchers until we hear from you as to what steps need be taken, if any can and should be taken, by amendment or otherwise, to allow us to make a retroactive payment.

An early reply will be appreciated.

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

Copy to: E. H. Bailey, USGS
A. C. Johnson, Reno

MDA 5/11/53

DMA-1219-The Glidden Co.

Zinc - Copper

Contract executed 4/30/53

Changes made —
Reduces total amount of contract.
Puts contract on new form.

Letter of transmittal to
Gold Team.

Appears to be no objection
to mailing

JEJ

OK to mail

[illegible]

FILE COPY
SURNAME:
$00

Talbert
Chambers

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

JUN 3 1953

Mr. George Mavor
c/o Mr. Robert M. Hull
1201 North Division Street
Spokane 2, Washington

Re: DMA-1219, Idm-E187
The Glidden Company

Dear Mr. Mavor:

In the comments portion of your work report for the month of May you request advice as to the type of audit report, if any, required for the referenced project.

If it is your opinion that a site audit is not necessary for the reasons usually given for issuing a Report of Review in lieu of making a site audit, no further action on your part is required at this time. Since the original contract was amended and superseded by a new contract, dated April 30, 1953, which provides for part of the work on an agreed unit cost basis and part on an actual cost basis, it appears that an interim site audit may be deferred until a substantial portion of the new work has been performed.

Sincerely yours,

S.N. 6-3-53

(Signed) J. L. Chambers

Jay L. Chambers, Chief
Contract Administration
and Audit Division

EDTalbert/wb
June 3, 1953

cc: Docket
Admr. Reading File
Mr. Chambers

FILE COPY
SURNAME:

800

Talbert
Chronicle

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

MAY 22 1953

AIR MAIL

Mr. George Mayer
DMEA Auditor
1012 Flood Building
870 Market Street
San Francisco 2, California

Re: IdM-F187, DMA-1219X
The Glidden Company

Dear Mr. Mayer:

Receipt is acknowledged of your letter of May 15, 1953, relative to the settlement of the referenced project's operation through the month of December, 1952.

The original contract, as amended on November 1, 1951, was on an actual cost basis, but provided that (1) "the Government will not participate in costs exceeding $9.00 per foot for diamond drilling and for geological work", (2) the allowance for the geological work "is not to exceed $1.00 per foot of the actual footage drilled, and this is to be included in the total cost which is not to exceed $9.00 per foot", and (3) "all costs of rehabilitation and engineering are to be borne by the Operator".

It appears that the Operator has always claimed costs in excess of the maximum of $9.00 per foot allowable under the contract and, therefore, payment has been effected each month on the basis of this rate of $9.00 per foot. Accordingly, if the certifying officer's files include sufficient and satisfactory documentation of costs, exclusive of rehabilitation and engineering, equal to or in excess of the costs allowable at the rate of $9.00 per foot, I see no reason for requesting the Operator to furnish information relative to the costs in excess of the amount allowable. Of course, the $9.00 per foot allowed must not include costs for geological work in excess of $1.00 per foot.

It appears that during the first six months of the project the Operator billed only for the costs in which the Government was to participate, (i. e., all costs except rehabilitation and engineering), but thereafter he reported all costs including those in which the Government did not participate. The probable explanation is that, with the promulgation of the revised Form MF-104, Technical Services and Rehabilitation and Repairs were stated on the report format as items of costs for the first time and the Operator concluded that these costs should be shown.

Since this contract has since been amended and superseded by a new contract dated April 30, 1953, I believe it would be pertinent to request, through the Field Team, that the Operator be advised to indicate the total costs, in which the Government has participated ($47,693.98) under the original contract, as the "Totals previously reported" on the first MF-104 submitted for work under the new contract. This action will result in future forms MF-104 depicting the true project costs.

Sincerely yours,

(Signed) J. L. Chambers

Jay L. Chambers, Chief
Contract Administration
and Audit Division

EDTalbert/wb
May 22, 1953

Copy to: Docket
Admr. Reading File
Mr. Chambers

J.H.
5-22-53

FILE COPY
SURNAME:

Bernard
Martin
H Johnson

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

MAY 12 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. DMA-1219X (Zinc-Copper)
The Glidden Company
Bully Hill Mine
Shasta County, California
Contract No. Idm-E187

Dear Mr. Miller:

Enclosed please find the Field Team and the Finance Office copies of the Amended Contract on the above project, properly executed and signed by the Government and Operator.

Sincerely yours,

W. S. Martin
ACTING Chairman, Operating Committee (JAB)

Enclosures 2

APPROVED:

J. H. Hedges
Member, Bureau of Mines (JAB)

T. P. Thayer
Member, Geological Survey (JAB)

JWAlt/hmj (5/8/53)

CC to: Docket
Adm. R. File
Op. Committee
Base Metals Division
Mr. Kinkel
Mr. Bishop
Mr. Alt
Chron

5-12-53

THE GLIDDEN COMPANY
1396 UNION COMMERCE BUILDING

ADRIAN D. JOYCE
CHAIRMAN OF THE BOARD

CLEVELAND 14, OHIO

May 5, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 6 1953

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

re: Docket No. DMEA-1219 (Zinc-Copper)
Rising Star and Bully Hill Mines
Shasta County, California
Contract No. Idm-E187

Dear Mr. Mittendorf:

Your letter of April 30, 1953 enclosing the original and five copies of the amended contract of the above project, signed by your office for the Government, together with Annex I (1 page), Exhibit "A" (3 pages) and two maps, addressed to Mr. Dwight P. Joyce, our President, has been received. In the absence of Mr. Joyce, who is on vacation, I have signed the original and five copies and have retained the one marked "Operator's Copy" and am returning herewith the other copies.

I find that the contract is exactly as per our understanding.

Yours truly,

Adrian D. Joyce

Chairman of the Board.

ADJ-G

cc 5/7

QUALITY Glidden PRODUCTS

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

Office of
Executive Officer
DMEA Field Team
Region III

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 8 1953

May 4, 1953

Memorandum

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

From: Executive Officer, DMEA Field Team, Region III

Subject: Final Report

Attached are four copies of Final Report on -

Docket DMEA-1219

Contract Idm-E187

Commodity Lead-Zinc

Operator - Glidden Company, 1396 Commerce Building
Cleveland, Ohio

Property - Bully Hill & Rising Star Claims
Shasta County, California

By W. T. Benson, Mining Engineer

Dated April 22, 1953

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

Attachment

Copy to: E. H. Bailey, USGS
George Mavor

Reviewed by
DMEA OPERATING COMMITTEE
5-15-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

Final Report

Contract Idm-E187

DMEA-1219, Glidden Company

Bully Hill and Rising Star Claims, Shasta County, Calif.

(Lead-Zinc)

W. T. Benson, Mining Engineer
U. S. Bureau of Mines

April 22, 1953

Reviewed by
DMEA OPERATING COMMITTEE
5-15-53
(date)

FINAL REPORT

Docket No.: DMEA-1219 (lead-zinc)

Name and address of Operator: The Glidden Company, an Ohio Corporation
1396 Commerce Building,
Cleveland 14, Ohio

Name and location of property: Bully Hill Mine AND Rising Star Mine
Shasta County, Calif.

Contract No.: Idm-E187

SUMMARY

The Bully Hill and Rising Star mines, controlled by the Glidden Company, are situated in the north central part of Shasta County, about 21 miles by road and boat north of Redding, the supply point on the Southern Pacific Railroad.

Appreciable quantities of copper, zinc, silver, and gold was produced from these properties during the period 1900 to 1927. Interest in the area was not again evidenced until December 1951 when the Glidden Company with DMEA assistance explored the north extension of the Bully Hill mine by surface diamond drilling methods.

Rocks in the area comprise altered ryholite conformably overlain by tuff and mudstone of the Pit formation, which have been complexly folded and sheared along wide zones roughly parallel to the rhyolite-sediment contact and intruded by dikes and sills of feldspathic rhyolite and diabase.

In the shear zones, the ore bodies occurred as irregular shaped lenses or pods in which the dimension of length is many times greater than the width or thickness.

Resulting from the diamond drilling, mineralization of varying thicknesses was encountered in four widely separated holes. In general, the results of drilling were not conclusive enough to permit making a tonnage estimate. Since it would be impossible from the work presently done to outline a mineralized segment of any definite size, a certification of discovery should be withheld until additional work is done and the size of the segments indicated by drilling determined.

The request of the Glidden Company to modify the contract to permit the rehabilitation of old workings to provide access to areas that are to be more fully explored should be favorably considered.

INTRODUCTION

The Glidden Company with DMEA assistance, contract Idm-E187, explored the north extension of the Bully Hill mine by surface diamond drilling methods from December 17, 1951 to December 31, 1952.

During this period, a total length of 5,193 feet was drilled in six holes, and on December 31, 1952, the contract with the E. J. Longyear Company was terminated because of the prohibitive costs of the diamond drilling operation. The drilling did, however, indicate new mineralized sections that were sufficiently interesting to warrant the Glidden Company to express the desire to re-negotiate the DMEA contract to permit development of the Bully Hill mine by underground methods.

Property holdings, including the Bully Hill and Rising Star mines, comprise 17 lode and one placer patented claims which are situated on Squaw Creek, sec's 15 and 16, T. 34 N., R. 3 W., Shasta County, Calif., about 18 miles (airline) northeast of Redding, the supply point on the Southern Pacific Railroad.

To reach the property from Redding, Highway 99 is followed northward 13.5 miles to the south approach of the Pit Bridge that crosses Shasta Lake. From this point, the property is 7.5 miles eastward and is reached by boat. It is possible to reach the property by road from Redding by a circuitous route, 74 miles in length.

HISTORY

The prominent gossan outcrops of the Bully Hill and the Rising Star mines were discovered in the early Sixties and was subsequently worked in a small way for gold and silver. Exploitation of the copper ores on these properties did not start until 1900 when a smelter was erected.

From 1900 to 1927, the Bully Hill and Rising Star mines, intermittently operated by various companies, produced about 48,800,000 pounds of copper, 2,377,500 ounces of silver, and 39,670 ounces of gold. Prior to 1913 zinc contained in the ores was lost in the copper smelter slag and fume. Production of zinc from 1913 to 1927 amounted to an estimated 24,600,000 pounds.

The Glidden Company acquired the Bully Hill and Rising Star mines and adjacent properties in 1924, and mined the Rising Star mine under the name of the California Zinc Company until 1927 when operations

were stopped. Interest in the area was not evidenced in recent years until the company secured a DMEA loan in 1951 for Government participation in an exploration drilling program.

PHYSICAL FEATURES

The properties are located in the drainage areas of the Pit and Sacramento Rivers. The topography is characterized by low rounded mountains, with a maximum relief of about 3,000 feet between the Shasta Lake level and the highest peaks immediately north of the properties. The altitude of the mines vary from 1,200 to 2,000 feet.

Climate in the area is temperate, with dry, hot summers and winters wet and mild. Annual precipitation ranges between 60 and 80 inches, principally as rain, but with some snow at the higher elevations, which is concentrated in late autumn, winter, and early spring.

Water for domestic and mine use is supplied from Town and First Creeks. This supply varies widely from the wet season to late summer when there is barely enough water for the camp. Additional water could be secured from other nearby creeks or from Shasta Lake.

Vegetation in the area comprises small shrubs with pine and fir at the higher elevations. All requirements for mine timber can probably be supplied from mills in the eastern part of the county.

Transmitted electric power is available at the mine. Since the take off is from a transformer rack on the property, power requirements probably could be supplied the operation in any desired quantity.

HOUSING FACILITIES

There are a number of old houses on the property, some of which

were repaired to accommodate the drilling crew of 18 which was recently employed. It is certain that additional housing space could be provided by repairing other houses in the event a larger crew is anticipated.

Several old shop buildings remain which are useable in their present state of repair.

EQUIPMENT

No equipment for mining is on the property.

GEOLOGY

The geological formation of the area, according to Robertson[1/] consists of mineralized and hydrothermally altered rhyolite conformably overlain by tuff and mudstone of the Pit formation. Both of these formations are Triassic in age. They have been complexly folded and sheared along wide zones roughly parallel to the rhyolite sediment contact, and intruded by sills and dikes of feldspathic rhyolite and diabase. On surface, the formations strike generally N. 10° E. and dip 70° to 80° E. Structural and general geological features are more fully described in the final geological report submitted by Mr. Robertson.

ORE DEPOSITS

The mineralized sections in the Bully Hill mine roughly parallel the bedding structure of volcanics and sediments, in a zone judged to be about 200 feet in width and 1,000 feet in length. The zone coincides with steep-dipping strike shears in rhyolite and adjacent

1/ Robertson, J. F., geologist, U. S. Geological Survey.

diabase sills. In this zone the ore bodies occurred as irregularly shaped lenses and pods in which the dimension of length is many times greater than the width or thickness.

The ore as described in early reports and noted on mine dumps is fine grained massive or banded, and contains sphalerite, chalcopyrite, and pyrite with minor amounts of gold and silver. The gangue minerals include altered rhyolite, barite, gypsum, and calcite. Secondary enrichment, as chalcocite, is reported to occur from near surface to the deep levels of the mine.

Production statistics taken from unpublished company reports show the copper ore mined during 1909, the last full year of operation, averaged 3.33 percent copper, 7.83 percent zinc, 0.12 ounces gold and 6.45 ounces silver per ton.

Zinc ores mined in 1922 from the Rising Star mine averaged 2.42 percent copper, 20.92 percent zinc, 0.03 ounces gold and 1.19 ounces silver per ton.

The ores in the Bully Hill property were mined principally for copper and it is possible that ore high in zinc was left in and adjacent to stoped areas.

DEVELOPMENT OPENINGS

In addition to near surface adits, 350, 550, 600, and 1,030 feet in length, the Bully Hill mine was opened by a main haulage level, the 300, which is 1,030 feet in length. Entrance to all surface openings are caved. Near the face of the haulage adit, a winze was sunk to a depth of 800 feet; from which eight levels were turned.

These openings follow a mineralized zone for a strike length of about 1,200 feet and through a vertical depth of about 1,100 feet.

PROJECT WORK PERFORMED

Under the contract, diamond drilling on the property started December 17, 1951 and was terminated December 31, 1952. During the period five exploratory holes were satisfactorily completed in the area north of the present Bully Hill workings, for a total length of 5,124 feet. A sixth hole was started, but it only reached a depth of 69 feet when the drilling contract with the Longyear Company was terminated.

Positions of the holes, their bearing, inclination and depth attained are listed in the geological report submitted.

Resulting from the drilling, copper-zinc mineralization of varying thicknesses was encountered in four holes.

In Hole Al-2 mineralization was encountered in two segments 15.5 and 6.0 feet in thickness which are about 83 feet apart. The material in the 15.5-foot segment has an average assay value of 2.15 percent copper, 14.3 percent zinc, 0.46 percent lead, 0.084 ounces gold and 3.67 ounces silver per ton, while the 6.0-foot section averaged 3.85 percent copper, 0.94 percent zinc, 0.09 percent lead, 0.02 ounces gold, and 0.33 ounces silver per ton.

In Hole Al-3 mineralization was encountered in five sections which vary from 2.5 to 5.0 feet in thickness that are 166, 34, 21, and 2 feet apart. The material encountered averaged 2.74 percent copper, 0.08 percent zinc, 0.06 percent lead, a trace of gold, and

0.05 ounces silver per ton.

Mineralization in Hole A1-4 was encountered in three segments separated by barren sections 6 and 9 feet wide. The mineralization encountered averaged 3.45 percent copper, 0.03 percent zinc, a trace of gold, and 0.06 ounces silver per ton.

In Hole A1-5 a segment 1.5 feet thick was encountered that assayed 0.55 percent copper, 14.20 percent zinc, no lead, 0.02 ounces gold, and 1.20 ounces silver per ton.

In the four holes, a total of 57 feet of mineralization was encountered that had a weighted average assay of 2.85 percent copper, 4.39 percent zinc, 0.15 percent lead, 0.03 ounces gold and 1.19 ounces silver per ton.

Material of this tenor would probably have to be treated as a copper ore and the zinc recovered as a by product, since the percentage of zinc is not high enough to warrant its treatment primarily for zinc.

ORE RESERVES

The drilling results indicate a northerly trending shear zone in which widely separated mineralized segments, possibly as disconnected irregular bodies, are contained. In general, the results of drilling were not conclusive enough to permit making a tonnage estimate. Since it would be impossible, from the work presently done, to outline a mineralized segment of any definite size, a certification of discovery should be withheld until additional work is done and the size of the segments indicated by drilling determined.

PLAN OF COMPANY OPERATION

The Glidden company have requested that the DMEA contract be modified so that underground development and exploration could be immediately undertaken. The reason for the underground work is not definitely stated but it is assumed that the rehabilitation of old workings is for the purpose of putting the property on a production basis, and that the development of new mineralized areas indicated by recent diamond drilling would be of secondary consideration. Undoubtedly, the company is reasonably sure the old workings contain some ore that could be mined, and that once the old areas are prepared for stoping, the development of new areas could be carried on in conjunction with the production of ore.

Should this be the intention of the company, then the work of rehabilitating the old workings would be essential, but the cost of such work should be credited to development and not exploration, even though the reopening of the old workings may be necessary in order to provide points of access to the new areas that are to be explored.

Work on the Bully Hill property was stopped in the early Twenties. All the surface openings are caved so there is no way of knowing the condition of the old workings. It is possible they may be in fair condition requiring little work to renovate them, and then again they may be so badly caved that the cost of rehabilitation would be excessively high. Before any program is approved, the company should open the near surface part of the 300 haulage adit for the purpose of

determining whether rehabilitation of the old workings would be practical.

In the event it is found the old workings are in bad shape, it may then be advisable to reach the exploratory areas by new openings. The new workings would include crosscutting on the 300 and 870 levels and a new shaft to reach the lower workings. For production purposes and the handling of water, a 3-compartment shaft from surface would be needed. Such a shaft 800 feet in length would cost about $350.00 per foot or roughly $280,000.00. To connect with the old workings, new crosscuts, totalling 630 feet would cost $41.82 per foot or roughly $28,755.00. The total cost of new work would then approximate $308,755.00. This cost is considerably higher than the $168,173.52 estimated by the Glidden Company to recondition 2,955 feet of crosscuts, drifts and 647 feet of winze in order to provide starting points for 2,700 feet of drifting on the 300 and 870 foot levels which are estimated to cost $112,914.00. From the above, it would appear the rehabilitation of old workings would be the most economical from a cost standpoint.

Which ever scheme is used, and assuming the property would eventually get into production, a second exit would have to be provided. In this event some raising from the lower levels would be justified.

Should the contract be amended to permit underground exploration, such items as crosscutting, drifting, and raising would be checked periodically for the purpose of determining if additional work was warranted.

Comments on other items included in the company proposal are arranged in the same order as the company's outline.

Housing at the mine is sufficient for immediate needs. Should more bunk space become necessary, it is certain some of the old houses could be repaired. Only minor repair would be necessary to put some of the old shops in shape so that they could be used.

No plant facilities are in the vicinity of the proposed work. Such facilities should include a blacksmith and repair shop, and a compressor room which could be under one roof. As long as such facilities would have to be erected, it would not be too costly to have the building include a dry room which sooner or later would be required.

Electric power is already on the property, and as long as it is available it should be utilized to the fullest extent. Electric power for pumping is a must and in this case it would be the most economical form of energy that could be used, especially when it is already available on the property.

Other items of equipment include a compressor which is necessary. In the event two levels are to be worked, a mucking machine for each level does not appear out of line.

Should tramming motors be used, the request for 24 one ton mine cars is a conservative estimate. Such an amount would provide two strings of 10 cars each, with 2 additional cars for each level. A shortage of cars can seriously affect any exploration or development program.

Drilling equipment is necessary and the amount would be dependent upon the work to be accomplished.

A pick-up truck is essential for the hauling of supplies, men and equipment.

It will be necessary to have sinking pumps for work below the 300-foot level.

The cost of assembling equipment for use on the property is a necessary expense and should be chargeable to the project.

The need for a caterpillar tractor and scraper and caterpillar loader is not apparent. It is possible equipment of this type would be used only occasionally, and when needed, it may be better to acquire it on a rental basis.

Should the property be put on an operational basis, boat transportation on Shasta Lake would be necessary. The boat would have to be available on a 24-hour per day basis. Were it owned by the company, it would require the services of at least two operators who would probably receive $14.00 per day. On a 30-day basis, this would amount to $840.00 per month. Add to this amortization of the boat, if company owned, repair and supply costs, the operational costs per month would probably exceed the $1,000.00 requested.

CONCLUSIONS

The recent diamond drilling operations indicated new mineralized sections that were sufficiently interesting to warrant the Glidden Company to express the desire to develop the area by underground exploratory openings.

In order to provide points of access to the areas to be prospected, the company proposes to rehabilitate parts of the old Bully Hill workings at an estimated cost of $413,417.22. While this amount may be excessively high, especially the part that relates to the reconditioning of old workings, the program proposed will probably be more economical from a cost stand point than to excavate new openings.

The property, in the past, had a substantial production and it is possible that production from the old area could be resumed if old workings are reconditioned. The opening of old workings would also provide access to areas that warrant further development.

It is recommended the proposal be given favorable consideration.

FILE COPY
SURNAME:

500

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

Chamberlin
Selfridge.

APR 30 1953

Memorandum

To: Administrator

From: Chief, Base Metals Division

Subject: Justification for Amended Contract to Docket No. DMA-1219, Contract No. Idm-E187, The Glidden Company, Bully Hill Mine, Shasta County, California (Zinc-Copper)

In concurrence with the commodity men of the USBM and USGS, this office approves of the work as stated in the Amended Contract.

Work under the original contract consisted of 32,700 feet of diamond drilling at $9.00 per foot. This work was to be done in two phases: 17,000 feet of diamond drilling in Phase I and 15,700 feet in Phase II, with work of Phase II depending on the results of Phase I. The proposed work of Phase I was divided into four areas, and that of Phase II into three areas. The total estimated cost for the project was $294,300.00.

The diamond drilling was begun on the first phase of this project on December 17, 1951. After completing the five holes of Area I of Phase I and starting one hole in another area, the Glidden Company desired to abandon the drilling program and amend the contract to rehabilitate some of the old workings of the Bully Hill mine in order to do exploration work from underground. The reason for this change was that the drilling costs for the Glidden Company were excessively high. The drilling contract was terminated on December 31, 1952.

The results of the drilling in Area I of Phase I are encouraging and warrant the underground exploration work as proposed in the Amended Contract. This work is to consist of:

1. Rehabilitate 975 feet of drift on the 300 level @ $14.00/ft. $ 13,650.00

2. Unwater and rehabilitate the vertical shaft from the 300 level to the 870 level, 650 feet @ $50.00/ft. 32,500.00

3.	Rehabilitate 1,000 feet of drift on the 870 level @ $14.00/ft.	$ 14,000.00
4.	2,500 feet of drifting and crosscutting on the 870 level @ $45.00/ft.	112,500.00
5.	4,000 feet of diamond drilling from the 870 level @ $9.00/ft.	36,000.00
	Total estimated cost of proposed underground work	$208,650.00
	Total cost of completed diamond drilling of original contract	47,693.98
	Total estimated cost of the project	$256,343.98

This contract may be amended to allow for costs for unforeseen conditions in the rehabilitation work.

W. R. Griswold

JWAlt/bjl (written 4/23/53)

Copy to: Docket
Admr. R. File
Op. Committee
Base Metals
Mr. Alt
Mr. Bishop
Mr. Kinkel
Region III (2)
Chron.

FILE COPY
SURNAME:

500

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

APR 3 0 1953

Mr. Dwight P. Joyce, President
The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Re: Docket No. DMEA-1219 (Zinc-Copper)
Rising Star and Bully Hill Mines
Shasta County, California
Contract No. Idm-E187

Dear Mr. Joyce:

We are enclosing the original and five copies of the amended contract of the above project, signed by this office for the Government, together with Annex I (1 page), Exhibit "A" (3 pages) and two maps.

If the contract meets with your approval, please sign the original and the five copies. Retain the one marked Operator's Copy for your use and return the other copies to this office.

Sincerely yours,

C. O. Mittendorf (fw)

Administrator

4-30-53

Enclosures 6
JWAlt/bjl (written 4/23/53)

Copy to: Docket
Admr. R. File
Op. Committee
Base Metals
Mr. Alt
Mr. Kinkel
Mr. Bishop
Region III (2)
Chron.

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

April 27, 1953

Memorandum

To: W. R. Griswold, DMEA

From: O. M. Bishop, Base Metals Branch

Subject: Amendment to contract on DMEA Project 1219 (Bully Hill Mine, Shasta County, California)

I have reviewed the proposed amendment and participated in a conference with A. R. Kinkel of the USGS and Messrs. Ralston and Hansen representing the applicant, and Mr. Alt and yourself. As a result of the review and conference I recommend the application as now amended be approved.

The work to be undertaken consists of rehabilitating 975 feet of adit leading to the winze on the 300-foot level, rehabilitation of 647 feet of winze and rehabilitation of about 890 feet of drift to the north of the winze on the 870-foot level. New work proposed and recommended consists of about 1,000 feet of drifting on the 870 level from the winze south, with drill holes totaling up to 4,000 feet to test for parallel structures in the ore zone.

The amendment proposed will explore the mineralization indicated by diamond drilling to the north of the present Bully Hill workings and will determine if that mineralization represents mineable orebodies or ore shoots of minor importance. The drift to the south with drilling to test for parallel structures will explore a considerable area of the shear zone where ore is expected to occur.

Because of the uncertainties in rehabilitation costs it is recommended that the Government participation be limited to a reasonable figure as a maximum. Such a maximum should be considerably less than half of the new cost of such work as to a degree the shaft and access work on the 300-foot level are development work.

C. H. Johnson
for O. M. Bishop

Copy to: A. R. Kinkle
O. M. Bishop
Minerals Division
Files

UNITED STATES 500
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

April 24, 1953

MEMORANDUM to Mr. Frank E. Johnson
and
Mr. George C. Selfridge

The Amended Contract for The Glidden Company is being sent direct to their Cleveland office for signature in order to expedite the signing of this contract.

On April 23, this office telephoned Mr. H. C. Miller, Executive Officer, Region III, to notify him that we were sending the contract to Cleveland for signature and explained to him what had transpired at a meeting here with representatives of The Glidden Company. He was also informed as to the terms of the contract.

Mr. Miller was in accord with sending this contract to the Cleveland office of the Glidden Company for signature and gave his approval to this action.

W. R. Griswold

500

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

April 23, 1953

Memorandum for the Files

From: Chief, Base Metals Division

Subject: Docket No. DMEA-1219, Contract No. Idm-E187, The Glidden Co.

W. R. Griswold phoned Mr. H. C. Miller in San Francisco this date. He explained to Mr. Miller that in order to save time it was proposed that the new amended contract for Glidden Company be sent direct to their head office in Cleveland, but that such action would only be taken subject to Mr. Miller's approval.

It was Mr. Miller's expressed opinion that since the amended contract, as explained to him over the phone, seemed reasonable and logical and since it had been cleared through Mr. Arthur Kinkel, who is thoroughly familiar with the project mine, he could see no reason for objecting to such transmittal of the amended contract directly to the Operator.

W R Griswold

W. R. Griswold

Griswold
Betty

THE GLIDDEN COMPANY

TIME-TESTED
PAINTS · VARNISHES · LACQUERS · ENAMELS

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 14 1953

Box 430, Redding, California
April 12, 1953

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

Re: Docket 1219 X
Exploration Project Contract
Idm-E187

Attention: Mr. Wm. Griswold
Chairman

Gentlemen:

Referring to our conferences, Tuesday, April 7, Wednesday, April 8, and Thursday, April 9, regarding the amending of our present contract to cover a minimum amount of rehabilitation work incidental to underground exploration, we feel it necessary to briefly outline our understanding of the amended contract, purely as a matter of clarification. In this connection it is also necessary to show the maximum amount of government participation in the various exploration and rehabilitation projects which are listed below:

REHABILITATION

#1. Reopening and retimbering No. 3 adit from the portal to the Bully Hill shaft, for a distance of approximately 975 feet.

#2. Unwatering and making necessary repairs to Bully Hill shaft from 300 level to 870 level, approximately 650 feet.

#3. Reopening and retimbering 870 level, approximately 1000 linear feet.

EXPLORATION

#4. Drifting 870 level, approximately 1500 feet from the north breast of the present workings to explore the mineralized zones encountered in diamond drill holes; also drifting from the south breast of present workings along Bully Hill shear zone for a distance of approximately 1000 feet.

#5. Diamond drilling: Approximately 1500 feet of diamond drilling from the north end of 870 level to explore parallel veins, and also 2500 feet of diamond drilling on the south end of 870 level to explore parallel veins.

The maximum cost per linear foot in which the government will participate is set forth below:

QUALITY Glidden PRODUCTS

Defense Minerals Exploration Administration Docket 1219-X

Location	Character of Work	Estd. Lin. Ft.	Maximum Cost Per Lin. Ft.	T O T A L
1. 300 Adit	Rehabilitation	975	$14.00	$13,650.00
2. Shaft	"	650	50.00	32,500.00
3. 870 level	"	1000	14.00	14,000.00
4. 870 level	Exploration Drifting	2500	45.00	112,500.00
5. 870 level	Diamond Drilling	4000	9.00	36,000.00
				$208,650.00
Government participation - 50%				$104,325.00

It was further mutually agreed that the monthly charge of supervision on rehabilitation would not exceed $750.00.

In the event that very bad conditions are encountered on rehabilitation, such as the retimbering of the 300 station and shaft above the sill of the 300 level, and other unforeseen conditions which cannot be determined at this time due to the inaccessibility of these workings, the DMEA would consider a further amendment to this contract whereby additional government participation would be made available to The Glidden Company. It is our understanding that the amended contract will be extended for a period of two years from the expiration date of the present contract.

Respectfully yours,

THE GLIDDEN COMPANY

Edward L. Ralston
Manager of Mines

ELR:HM

IN REPLY REFER TO:

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

April 10, 1953

Memorandum

Bully Hill Mine
Shasta County, California
Glidden Paint Company
DMEA-1219

To: Mr. W. R. Griswold

From: A. R. Kinkel, Jr

Subject: Amended exploration contract

The original exploration contract on this project was laid out to explore six separate areas in the vicinity of the Bully Hill and Rising Star mines, Shasta County, California. Five drill holes were completed in one of these areas and one was started in another area when drilling was stopped because ore had been encountered and because of drilling difficulties and high costs. The Glidden Company now proposes, by means of an amended contract, to explore the new ore, and some of the other areas originally proposed for exploration, by doing underground work instead of drilling from the surface.

The new proposal is to enter the mine through the 300 level adit, to go down the interior shaft to the 870 level, to rehabilitate part of the 870 level, and to explore favorable areas by drifting and underground drilling on the 870 level. This involves a large amount of rehabilitation because the mine has not been open since about 1916 and all of the former surface openings are caved. The proposal involves the rehabilitation of 975 feet of adit on the 300 level, 647 feet of shaft, and 890 feet of rehabilitation on the 870 level. The new work comprises 2500 feet of drifts and/or crosscuts and 4000 feet of drilling. This proposed work is shown on maps 1 and 2, submitted by the Glidden Company, to accompany this report. This is a large amount of rehabilitation, but there is no equally satisfactory means of looking at the ore cut by the diamond drill holes north of the main Bully Hill mine on about the 870 level, and at the same time explore for possible extensions of the main Bully Hill zone south of the mine workings on the 870 level.

Exploration north of the present mine workings on the 870 level is justified because although ore that appears to be of minable grade was encountered in three of the holes drilled from the surface, the holes are widely spaced, they cut ore at different elevations, and no continuous ore body can be postulated between the three holes. It remains to be demonstrated by underground exploration that ore bodies of minable size and continuity are indicated by the drill intersections. The latter is particularly important because massive sulfide ore, which

is the type of ore that constituted continuous, minable, ore bodies in the mine according to the old records, is present in only one hole. Material of ore grade in the other two holes is a disseminated mineralization, and continuity or size of bodies of this type of material is not known from past experience in the mine, as far as I know. It may or may not constitute minable ore, and it should be exposed by underground workings.

The area south of the workings of the Bully Hill mine (area 3 on the original drilling proposal) is regarded as favorable for exploration for three reasons: (1) a very strong zone of hydrothermal alteration and mineralization is present in this area on the surface: (2) mine maps show that an ore zone was explored by adits, and mine sections show that ore was found in the adits several hundred feet below the surface in this area. As far as the mine records show, this ore zone was not explored below the level of the lowest surface adit except for about 300 feet of drifting along the ore zone on the 770 level. The latter drifting did not encounter any ore, but it seems probable, even if the steep plunge of the ore shoots should carry the surface ore zone to the north of the shaft on the 870 level, that blind ore shoots could occur along the southward extension of the 870 level: (3) the strong shear zone in which all of the known ore is located continues south of the shaft at the surface (and apparently along the near surface adits) and can be expected to continue south of the shaft on the 870 level.

The present amended proposal is to drive south along the ore zone from the interior shaft on the 870 level for approximately 1000 feet and to test the entire width of the shear zone with horizontal and up and down drill holes from this drift. There is no indication from the surface mapping which the Survey did as to the geologic reasons for ore localization within the shear zone and the ore bodies appear to be erratically distributed. Underground mapping when the mine is reopened will supply additional information, but at present all that is known is that ore appears to be limited to a zone several hundred feet in width which contains numerous shear zones, that ore forms in the sheared rhyolite and is commonly accompanied by gypsum and/or anydrite, and that there may be a close relationship between ore and the contact between rhyolite and a basic rock that is probably a diabase sill.

For the above reasons, both the proposed drifting and the drilling layouts should be regarded as somewhat diagrammatic, and for the purpose of showing the general proposals; detailed locations will

depend on conditions encountered, as the drifts will follow the ore zone and any ore encountered in prospect drill holes will probably be explored by additional holes. It may prove advisable to substitute drilling for crosscutting, in part, in the north end of the mine.

I recommend that underground exploration on the 870 level of the Bully Hill mine be done to the extent of 1500 feet of drifting and crosscutting on the north end of the ore zone and 1000 feet of drifting and/or crosscutting south of the interior shaft, as shown on map No. 2, and that approximately 4000 feet of drilling be done on this level to prospect the ore zone.

A R Kinkel Jr.

Arthur R. Kinkel, Jr.

500

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

April 9, 1953

Memorandum for the Files

From: W. R. Griswold

Subject: Docket No. DMA-1219X, The Glidden Company

A meetwing was held between the representatives of the Glidden Company, Messrs. E. L. Ralston and Mayer Hansen, and DMEA and USGS representatives, A. G. Keating, J. W. Alt, W. R. Griswold and A. Kinkel, with a view of delineating further exploration work for the Bully Hill mine.

It was tentatively decided that a program would be about as follows:

975 feet rehabilitating the 300 level, with an estimated maximum cost allowance for rehabilitation of $14.00/ft.

650 feet rehabilitating the Interior mine shaft at an estimated maximum cost allowance of $50.00/ft.

890 feet rehabilitating the 870 mine level at an estimated maximum cost allowance of $14.00/ft.

2,500 feet of drifting and/or crosscutting on the870 level at an agreed unit cost of $45.00/ft.

4,000 feet of diamond drilling on the 870 level at an agreed unit cost of $9.00 per foot.

It was agreed with the Operator that all machinery and equipment for the project would be for company account at no cost to the ~~project~~. Government

It was agreed that if, as work progressed, unforeseen expenses of a major nature might arise, the Operator might request a contract amendment or amended contract to provide for such unforeseen items. An instance cited was that before shaft rehabilitation began, it might be necessary to do rock excavation to afford room for sheave-wheels, hoist installation, etc.

W. R. Griswold

W. R. Griswold

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

500

March 31, 1953

MEMORANDUM FOR THE FILES

Subject: Docket No. 1219, The Glidden Co., Bully Hill Mine, Shasta County, California, Contract No. Idm-E187.

On the morning of March 31 a conference was held, discussing the proposed exploration program of the Glidden Company, Bully Hill mine, Docket No. DMEA 1219.

Messrs. Joyce and Ruth were present representing the applicant, the DMEA was represented by Messrs. Keating, Alt, Kinkel and Griswold.

It was pointed out to the applicants that their new proposed project was not acceptable inasmuch as 75% of the proposed expenditures were for mine rehabilitation and that perhaps more diamond drilling was in order.

Applicants stated they were opposed to further diamond drilling, due to high costs of such work already done.

After some discussion it was decided that applicants' engineer and geological representative should come to Washington, to attempt to work out a program which would meet with DMEA approval.

W. R. Griswold

W. R. Griswold

THE GLIDDEN COMPANY
1396 UNION COMMERCE BUILDING

DWIGHT P. JOYCE
PRESIDENT

CLEVELAND 14, OHIO

March 25, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 26 1953

Mr. A. G. Keating, Acting Chief
Base Metals Division
U.S. Department of The Interior
Defense Minerals Exploration Administration
Washington 25, D.C.

Re: Docket No. DMA-1219X
(Zinc, Lead, Copper)
Rising Star and Bully Hill Mines
Shasta County, California

Dear Mr. Keating:

Confirming our telephone conversations today, Mr. J. P Ruth, Vice President in charge of our Chemicals-Pigments-Metals Division, and I will be in your office early Tuesday morning, March 31st, to discuss the above with you.

Looking forward to having the pleasure of meeting you, I am

Sincerely,

Dwight P. Joyce

President

DPJ:LG

QUALITY Glidden PRODUCTS

THE GLIDDEN COMPANY
1396 UNION COMMERCE BUILDING
Telephone Prospect 1-5121
DWIGHT P. JOYCE
PRESIDENT
CLEVELAND 14, OHIO

March 24, 1953

Mr. A. G. Keating, Acting Chief
Base Metals Division
U.S. Department of The Interior
Defense Minerals Exploration Administration
Washington 25, D.C.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 25 1953

Re: Docket No. DMA-1219X
(Zinc, Lead, Copper)
Rising Star and Bully Hill Mines
Shasta County, California

Dear Mr. Keating:

When I telephoned you yesterday relative to the above, you referred me to Mr. Alt. I was puzzled to have Mr. Alt report that he had just that day received the report of your Field Team and, in fact, was awaiting further information from your Field Team.

You may recall when I talked to you on the telephone on March 6th, you told me that you had received the report and recommendation of the Field Team and that this data was in the process of being studied, and that you were awaiting a report from the Commodity people.

You further advised me that you would telephone me as soon as you were ready for me to come to Washington to discuss this matter personally with you and it would not be necessary for me to bring any other data along. I specifically referred to the geological surface maps, etc., which had been requested of us, copies of which had been supplied Mr. Miller of your Field Team in San Francisco and Mr. Johnson at Reno. Now Mr. Alt tells me that he has not received these maps.

I am immediately communicating with Mr. Ralston in charge of our mining operations in Shasta County, asking that he promptly contact Mr. Miller and Mr. Johnson and do everything he can from his end to expedite the matter. If either of these gentlemen haven't already forwarded you a copy of the geological maps, I am asking Mr. Ralston to see to it that you do get a copy promptly.

We are very anxious to arrive at a proper course of action

QUALITY Glidden PRODUCTS

Mr. A. G. Keating, Acting Chief
U.S. Department of The Interior
Washington 25, D.C.

March 24, 1953

in regard to our exploration program, and I do hope that you will do everything possible to expedite the situation. I, frankly, cannot understand the delay nor the discrepancy in the information supplied to me by you on March 6th and that supplied to me yesterday by Mr. Alt regarding this project.

I will explain that I am leaving on April 10th for a month's vacation, and I am very anxious to get this matter in proper shape before I leave. I do hope I will be hearing from you or Mr. Alt shortly in regard to a convenient date for my visit with you in Washington.

Yours very truly,

Dwight P. Joyce

President

DPJ:LG

c c: Mr. Alt, Office of Mr. C.O. Mittendorf, Director
Production Expansion Division
Defense Minerals Administration
Department of Interior
Washington 25, D.C.

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

Office of
Executive Officer
DMEA Field Team
Region III

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
MAR 16 1953

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

March 11, 1953

Memorandum

BL

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

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMA-1219K (Zinc-Lead-Copper)
The Glidden Company, Shasta County, California
Contract Idm-E187

Attached are four copies of the geologic portion of a final report on the subject property entitled "Final Report, DMEA-1219, Idm-E187, Glidden Company, Shasta County, California, (Lead-Zinc)" by J. F. Robertson, Geologist, U. S. Geological Survey, dated March 3, 1953.

The report gives the results of the diamond drilling exploration program at the Bully Hill-Rising Star mines, and the appendix to the report discusses the underground exploration proposed by the Glidden Company in a letter, dated December 16, 1952, in the area drilled and extending north and west of existing cave workings. Three copies of Mr. E. L. Ralston's letter to me, dated December 16, 1952, with the proposed cost itemization attached, were sent to you with my covering memorandum dated December 19, 1952.

The diamond drilling exploration was successful in finding some ore, and it is recommended that a certificate of discovery be issued. Further diamond drilling in other areas on Bully Hill as outlined earlier under the DMEA program is highly recommended.

Some underground exploration at the Bully Hill mine is warranted, but the proposition to rehabilitate old workings is considered not necessary and too expensive for the exploration proposed. Cheaper and more efficient methods of reaching the same objectives are suggested. Several items of the Glidden Company's proposal are believed to be too costly or unnecessary.

Inasmuch as the president of the Glidden Company plans to discuss proposals for exploration with the DMEA committee in Washington, D. C., and plans to present complete surface and under-

Reviewed by
DMEA OPERATING COMMITTEE

3-20-53
(date)

ground information in maps compiled by their geologist, Mr. M. G. Hansen, only two maps are submitted with Robertson's report. Prints of the company maps to be presented have been examined and are entirely satisfactory.

A copy of the attached report is being sent to Mr. A. C. Johnson at Reno whose office is preparing a final Bureau of Mines-Geological Survey report on the work done. When the final report is received from Reno, the required number of copies will be sent to you. In the meantime, the attached report can be given studied consideration in your office.

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

Attachment

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

DEPARTMENT OF THE INTERIOR
Publication
MAR 13 1953

UNITED STATES
DEPARTMENT OF THE INTERIOR
Donald McKay, Secretary

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

FINAL REPORT
DMEA 1219, Idm E187, Glidden Company

Shasta County, California

(Lead-Zinc)

J. F. Robertson, Geologist
U. S. Geological Survey

March 3, 1953

Reviewed by
DMEA OPERATING COMMITTEE
3-20-53
(6860)

Abstract

The diamond drilling exploration program at the Bully Hill-Rising Star mines (DMEA 1219), Shasta County, California, which began December 17, 1951 with Government participation under DMEA contract Idm E187, was terminated by the owners, The Glidden Company, on December 31, 1952. Only one area, out of six proposed, was explored by surface diamond drilling. A total of 5,124 feet was expended in 5 holes in area no. 1, to explore for northward extensions of Bully Hill copper-zinc ore zone. Some copper and zinc ore was found, and appreciable mineralized rock was encountered. The Glidden Company, however, considers the cost of continuing diamond drilling prohibitive, and desires to renegotiate the DMEA contract to permit underground exploration.

The purpose of this report is to summarize the diamond drilling program from a geologic standpoint, and to render an appraisal of the results. It is recommended that a certificate of discovery be issued.

The DMEA committee has requested the necessary information with which to evaluate possibilities of underground exploration. Part of this information is contained in the account of the drilling program. Additional information concerning the Glidden Company's proposals, with recommendations, is included in an appendix to this report.

Introduction

The Glidden Company applied to DMEA for assistance in the spring of 1951 to explore, by surface diamond drilling, favorable areas of the Bully Hill and Rising Star mines. A. R. Kinkel and J. P. Albers of the U. S. Geological Survey outlined 6 areas having possible extensions of the ore deposits. Following their recommendations, DMEA contract Idm E187 was signed on October 18, 1951 with the Glidden Company. The contract called for 50 percent Government participation in the cost of drilling, on a cost basis of $9.00 per foot of hole drilled. Duration of the contract was for a period of two years.

Actual drilling operations began on December 17, 1951, after an initial period of camp rehabilitation. The E. J. Longyear Company did the drilling under the supervision of their geologist, Mr. M. G. Hansen. The Glidden Company terminated their contract with the E. J. Longyear Company on December 31, 1952, because of the prohibitive costs of the diamond drilling operation. Only one area was adequately explored and 5,193 feet of drilling was expended. The Glidden Company desires to renegotiate the DMEA contract to permit underground exploration in the Bully Hill mine (see appendix).

The year of diamond drilling was confined, practically, to area no. 1 immediately north of the Bully Hill ore zone. One hole was started at the south end of the Bully Hill ore zone but was only at a depth of 69 feet when the program was stopped.

During the diamond drilling program, the writer made periodic inspections of the operation, at which times he consulted with Mr. Hansen regarding drilling progress and reviewed the logging of the drill core.

The Bully Hill and Rising Star are copper-zinc mines owned by the Glidden Company. They are located on the Squaw Creek arm of Shasta Reservoir, 18 airline miles northeast of Redding in Shasta County, California. The mines lie close together in Bully Hill, which has an altitude of 2,030 feet.

The mines are half a mile from the reservoir, the level of which fluctuates between a maximum elevation of 1065 feet above sea level and a normal annual low of about 990 feet. Two small creeks, Town and First Creeks supply barely enough water for the camp, especially in late summer near the end of the dry season. If more water were needed several other nearby creeks could be trapped, however, and the lake is a perennial source of good water.

Construction of Shasta dam and the consequent flooding of valleys behind it has cut off convenient access to the mines by road. The shortest route from Redding to Bully Hill is via U. S. Highway 99 northward for 13½ miles to the Pit Bridge that crosses Shasta Lake, then eastward by boat on the lake for 7½ miles. Distance to the mines by road all the way from Redding is 74 miles: 36 miles via U. S. Highway 299 and 38 miles over winding, unsurfaced U. S. Forest Service and county roads. The main line of the Southern Pacific Railroad crosses Shasta Lake at the Pit Bridge, but the nearest loading point is at Central Valley, 6 miles south of the bridge.

Detailed mapping of the surface at the Bully Hill and Rising Star mines on a scale of 1 inch equals 100 feet was done on a company base map during the spring of 1951 by J. P. Albers and J. F. Robertson with the assistance of C. D. Rinehart as part of an investigation by the U. S. Geological Survey of the geology in the East Shasta copper-zinc district. A preliminary geologic map of the mines area with representative cross-sections has been placed in open files by the Geological Survey. More recent work by the company has established new coordinates and corrected some discrepancies on the earlier Company maps. Underground data is supplied from company maps and from drill cores obtained in the diamond drilling exploration program.

The surface geologic map made by the U. S. Geological Survey does not include area no. 1 and the sites of the diamond drill holes in the exploration program. A map being prepared by the geologist for the company extends into this area, and will be presented to DMEA by the company, but this report was made without benefit of a study of the new map.

History and Production

The Bully Hill and Rising Star mines are in the Shasta copper belt that has accounted for a major share of California's copper production. Bully Hill was discovered in 1862, but production from it prior to 1900 is not recorded. Several reports relate that interest before 1900 was mainly in extracting gold and silver from gossan and near-surface oxidized zones; evidence of this early activity is abundant.

Serious development of Bully Hill copper ores began with the erection of a smelter on the property around 1900. From 1900 through 1927, in intermittent operations by several companies, the Bully Hill and Rising Star mines produced about 48,800,000 lbs. of copper, 2,377,500 oz of silver, and 39,670 ozs. of gold. Although mined only for copper and precious metals before 1913, the ores were rich in zinc. Up to that time the zinc was lost in copper smelter slag and fumes , but from 1913 to 1927 zinc production, calculated for recoverable metal, amounted to an estimated 24,600,000 lbs.

The Glidden Company acquired the Bully Hill and Rising Star mines and adjacent properties in 1924, and mined the Rising Star Mine under the name of California Zinc Company until 1927 when operations were terminated. No further interest in the mines was evidenced until the company applied to DMEA in 1951 for Government participation in an exploration program. Lack of interest stemmed partly from the unfavorable position of the mines when flooding of river valleys, which provided access routes, was planned for Shasta Reservoir.

Mine workings

Neither the Bully Hill nor Rising Star mines are presently accessible. The Bully Hill mine has not been open since 1917 or earlier, and the entrances to all surface adits are caved. Company maps show that the Bully Hill mine workings consist mainly of drifts that follow a definite zone for 1200 feet, and have relatively short exploratory cross cuts. There are 12 main levels in a vertical range of 1100 feet. Haulage tunnels 500 to 900 feet long served the three upper levels. Eight levels were reached by an underground shaft that is 800 feet deep, and is collared on the 300 level. The 1100 level is the lowest, with an elevation of 607 feet above sea level.

Geology

General Statement-- Geology in the Bully Hill and Rising Star mines area consists of mineralized and hydrothermally altered Bully Hill rhyolite conformably overlain by tuff and mudstone of the Pit formation. Both of these formations are Triassic in age. The Pit sediments occupy the lower east flank of the Bully Hill up to an elevation of 1700 feet, and the volcanics underlie the rest of the hill to the west and north. At the south end of the area the dip of sediments is generally steep to east, but northward, along the strike, the beds are overturned to west. Felds-

pathic rhyolite intrudes the Pit formation in a couple of irregular masses at the northeast edge of the mine area and occurs as a sill between two units of the Bully Hill rhyolite. Intrusive diabase sills and dikes are common near the contacts between rock units.

Lithology — The diamond drill holes in area no. 1 penetrated fresh representatives of all the main rock units in the immediate mine area. This aided materially in identification and classification of rock types, and determination of relationships among them. They are described below in order of descending age, from oldest to youngest.

I Bully Hill rhyolite - The Bully Hill rhyolite consists of two units of well defined extrusive flow breccias; one is porphyritic and the other predominantly aphanitic. Practically all of the rhyolite has undergone some degree of hydrothermal alteration.

A. Porphyritic rhyolite flow breccia

The most prominent unit, a porphyritic rhyolite flow breccia underlies most of Bully Hill and is exposed as rough, knobby outcrops and bold, craggy ridges. Flow breccias typify this unit, but other varieties of the porphyritic rhyolite, ranging from unbrecciated flow rock to tuff breccias and coarse crystal-lithic tuffs, are included. No differentiation of types of porphyritic rhyolite is made in the graphic logs accompanying this report. Widespread brecciation and shearing have altered the original character of the rock in many places.

B. Aphanitic rhyolite flow breccia

The aphanitic rhyolite flow breccia occupies a position stratigraphically between the older porphyritic rhyolite flow breccia and the younger Pit sediments. It forms a distinct unit approximately 200 feet thick, striking northward along the east flank of Bully Hill and extending to the southwest corner of the area mapped.

On the east side of the hill diabase has been intruded along the contact between it and the porphyritic rhyolite flow breccia. The aphanitic rhyolite flow breccia has been altered hydrothermally, with the most profound alteration being along the east side of the hill above the Bully Hill ore zone.

II Pit formation --The Pit formation is made up of three rock types, mudstone, rhyolitic tuff, and andesitic tuff. Mudstone and rhyolite tuff are interbedded, and occur in nearly equal amounts in the mine area. Andesitic tuff occurs as a bed 100 to 150 feet thick at the base of the Pit formation, conformably overlying aphanitic rhyolite.

III Intrusive rocks --

A. Feldspathic rhyolite

The feldspathic rhyolite occurs as a sill, more than 300 feet in the thickest part and lenticular in plan, between the porphyritic rhyolite flow breccia and the aphanitic rhyolite in the SE part of the mine area. The same rock intrudes beds of the Pit formation in a small irregular mass, just east of the mine area. The feldspathic rhyolite is, therefore, younger than the Pit sediments it intrudes. It is in turn intruded by diabase dikes.

A mass of feldspathic rhyolite occurs in the nose of a syncline in the gully of Town Creek between the sites of DDHs Al-1 and Al-4. The shape of this mass is not known. Feldspathic rhyolite that has intruded mudstone and rhyolite tuff in DDH Al-1 is probably part of the same mass.

B. Diabase

Diabase intrudes the west edge of the feldspathic rhyolite sill in several discontinuous but parallel dikes, trending NE. Diabase is particularly copious on the east side of Bully Hill as anastomosing sills or dikes displacing a great amount of the aphanitic rhyolite and andesitic tuff. It occurs along the contact of the porphyritic rhyolite breccia in the Bully Hill ore zone. It was logged in every diamond drill hole, and was found to intrude every rock unit in the Bully Hill mine area.

Structure-- For the purpose of this report the discussion of structure is restricted to the Bully Hill mine area, inasmuch as the Rising Star mine was not explored during the drilling program.

The sediments on the east side of Bully Hill compose the west limb of a south plunging syncline. The area where the diamond drill holes were collared is at the nose of the syncline. Although not completely exposed, this structure was determined from the strike convergence of beds, from the trend of a synclinal axis observed just off the mine map to the southeast, and from the older rhyolite flanking the sediments to the west, north, and east.

The beds at the surface of the Bully Hill mine strike generally N.10 E. Off the southeast edge of the mine area they dip 70° to 80° E, but toward the north, above the mine proper, the beds are overturned to west. With increasing depth the beds change from overturned to vertical then to steep east dips, as shown by east-west sections through the mine, and by correlation of data in drill holes Al-1 and Al-2 with surface geology.

The contact between the sediments and rhyolite appears to dip in the same way.

In detail there are many minor drag folds in the sediments exposed on the surface. A majority of them are overturned with axial planes dipping west and axes plunging mostly north.

On the map of the 870 level in the Bully Hill mine are shown a number of wide gouge zones in rhyolite and diabase that are roughly parallel to the rhyolite-sediment contact. They probably represent large scale shear movements between rhyolite and the less competent sediments during folding of the syncline. They appear to cut the intrusive diabase, but the relationship is uncertain.

The shear zone is poorly expressed on the surface, as outcrops near the contact are few. Fragments of altered and sheared aphanitic rhyolite and andesitic tuff in float near the contact undoubtedly are related to the shear zone. Possibly the fault between porphyritic rhyolite and diabase, exposed in the open cut at the south end of the mine above tunnel No. 0 is an expression of the shear zone. It strikes north and dips 60° W. Other faults are abundantly evident in the diamond drill holes and on the surface, but correlations are speculative, and geologic relationships cannot be fairly appraised.

Ore Deposits

The Bully Hill ore zone strikes almost due north, roughly paralleling the bedding structure of volcanics and sediments. It coincides with steep-dipping strike shears that are in rhyolite and in adjacent diabase sills. In the mine, the copper-zinc ore occurred in pods and lenses scattered along the strike for a distance of over 1,000 feet. The zone, in which the ore occurs, is judged to be about 200 feet wide, but only parts of it are ore.

The ore lenses have their greater dimensions in the plane of the shears. They range from a foot to several hundred feet long. The height is normally slightly less than the length. The ratio of width to length is about 1 to 7, although one extreme departure of 1 to 40 is indicated on the underground maps. A pitch of about 70° N. is suggested from the longitudinal profile of stope development.

The ore has not been observed in place, but ore described as typical in early reports and noted on the dumps is fine grained, massive or banded, and contains sphalerite, chalcopyrite, and pyrite. These minerals appear to replace altered rhyolite along with barite, gypsum, and calcite as gangue minerals. Such ore is similar to that in DDH A1-2. Secondary chalcocite is reported to occur from near the surface to the deep levels of the mine.

Average analysis of the ore treated from the Bully Hill mine during 1909, the last full year of production shows:1/

1/ Beals, R. L., Unpublished company report, January 1920

Copper 3.33 %	Gold 0.12 oz./ton
Zinc 7.83%	Silver 6.45 oz./ ton
Iron 12.68%	

This was in copper ore not mined for zinc. Zinc was considered to be very undesirable at this time. Later ores from the Rising Star mines, when zinc was desired, averaged 2/:

2/ Nowland, R. C., Unpublished company report, September, 1922

Copper 2.42 %	Gold 0.03 oz./ ton
Zinc 20.92 %	Silver 1.19 oz. / ton

There is speculation that considerable zinc ore of the same tenor was left untouched in the Bully Hill stopes.

Analysis of the Diamond Drilling Program

Under the diamond drilling program, which began December 17, 1951, five exploratory holes were satisfactorily completed in one area. A sixth hole was begun, but when the drilling was terminated in December 1952, it had only reached a depth of 69 feet. Listed below are the critical data on the drill holes:

Diamond drill holes

	A1-1	A1-2	A1-3	A1-4	A1-5	A3-1
Coordinates N of collar	11,034	11,306	11,454.2	11,748	11,536	10,064
Coordinates E of collar	8,324	7,986.2	7,965	8,204	7,963	7,734
Initial Bearing	Due W.	S78W	S75W	N86W	N88W	S89½W
Initial Inclination	-69°	-70°	-59°	-45°	-64°	-65°
Length (ft)	1015	1038	905	1106	1060	69

Study of the diamond drill hole logs reveals some details that are significant. Mineralization occurs mainly in the porphyritic rhyolite breccia, although it occurs to a lesser extent in aphanitic rhyolite and diabase. The sediments and felspathic rhyolite are barren where encountered in DDHs A1-1 and A1-2; except for calcite and quartz veinlets and minor amounts of pyrite, they are little altered hydrothermally.

The metallic minerals consist mainly of disseminated pyrite, chalcopyrite, sphalerite, and a little galena. Gypsum, calcite, quartz, and some barite occur as gangue in veinlets and as partial replacement of

of rhyolite. Locally, veins of chalcopyrite and pyrite from a minute thickness to over an inch thick, occur near massive, fine-grained sphalerite, chalcopyrite, and pyrite of ore grade.

Portions of the diamond drill cores that assayed one percent or better in copper and zinc are shown in red on the illustrations, and are listed below. The rest of the cores that were assayed averaged around one or two tenths percent copper and zinc

Interval From	To	Length (ft.)	Cu. %	Zn. %	Pb. %	Au. oz./t	Ag. oz./t	
DDH A1-2								
778.5	781	2.5	2.01	25.29	0.29	.17	4.83	
781	786	5.0	3.26	18.41	0.81	.065	4.93	
786	787	1.0	2.31	7.45	0.20	.06	4.40	
787	791	4.0	1.75	13.92	0.35	.065	2.60	
791	794	3.0	0.82	1.12	0.25	.08	1.80	
877	882	5.0	4.46	0.36	0.10	0.02	0.38	
882	883	1.0	.80	.384	0.03	0.02	0.10	
DDH A1-3								
541.5	546.5	5.0	6.12	0.05	0.03	Tr	0.02	
712.5	715	2.5	1.48	0.05	0.21	Tr	0.10	
749	752.5	3.5	3.16	0.05	0.10	0.01	0.10	
773.5	778	4.5	1.30	0.21	0.04	Nil	Tr	
780	785	5.0	1.01	0.31	0.04	0.005	0.09	
DDH A1-4								
987	989	2.0	6.72	0.05		Tr	0.20	
1009.5	1012.5	3.0	6.01	0.04	~~Tr~~	Tr.	0.10	
985	987	2.0	3.23	0.04	~~Nil~~	Nil	0.10	redrilled portion
995.4	997.4	2.0	1.57	0.03		Nil	Tr	"
1006.3	1010.8	4.5	1.06	0.03		Nil	Tr	"
DDH A1-5								
607	608.5	1.5	0.55	14.20		0.02	1.20	

Assays were made by Abbot A. Hanks, Inc., San Francisco, California

The most significant interval assayed is in diamond drill hole A1-2 between 778.5 and 794 feet, a length of 15.5 feet along the core. If it is assumed that the ore encountered in this interval occurs in a lens similar to those shown on the underground maps and that the drill penetrated the thickest part of the lens, then the minimum size of the ore shoot can be roughly estimated. The projected horizontal thickness is 5.8 feet. The average length, computed from a ratio of 1 to 7(thickness to length) is 40 feet and the height is between 30 and 40 feet. Allowing for an elliptical shape of the ore body, about 412 tons of ore is inferred The weighted average assay of ore along this interval of core is:

Copper	2.13%
Zinc	14.31%
Gold	0.084 oz.
Silver	3.67 oz.

It is possible, of course, that this ore body does not conform to the average, and for that reason may be shorter or longer in ratio to thickness. Also, the drill may have penetrated the top, bottom, or lateral tail end of an extensive ore shoot.

Other intervals of cores that gave assays of ore grade are not long enough to permit speculation about ore bodies.

The mineralized intervals , as shown in the plan of the drill holes (fig. 2), indicate an apparent trend of ore shoots to the northwest. This apparent trend is a departure from the north trend of ore shoots in the mine farther south. It should be noted that:

1. The best ore showing described above is in DDH A1-2. This shoot is at the contact between porphyritic rhyolite and diabase, and is approximately at the contact with aphanitic rhyolite.
2. Other intervals of ore in the drill holes are small in comparison, and are entirely in porphyritic rhyolite.
3. The contact between porphyritic and aphanitic rhyolite or between sediments and rhyolite was not encountered in DDH's A1-3, A1-4, nor A1-5, as porphyritic rhyolite is the only unit of rock in them, except for some diabase dikes.
4. The contacts between rhyolites and sediments trend northeast on the surface at the northern end of the mine, toward the nose of the syncline in Town Creek.

It is difficult to evaluate what control the contact zones had in causing the deposition of ore, but they seem to have had some influence in the Bully Hill mine. On the other hand, the Rising Star mine is entirely in porphyritic rhyolite and, as there are no contact zones, shear zones were the main control of ore deposition. The possibility that ore has been deposited along the contact zones, which trend northeast from the ore shoot in DDH A1-2, and which are east and south ~~of~~

of DDHs A1-3, A1 -4, and A1-5, should not be discounted.

Conclusions and Recommendations

The diamond drilling exploration program at the Bully Hill mine under the Defense Minerals Exploration Administration was successful in finding copper and zinc ore. Six holes were drilled; five holes were drilled in Area 1 on the northern extension of the Bully Hill ore zone. Four out of the 5 holes in Area 1 encountered mineralized rock and penetrated small intervals of ore. It is recommended, that a certificate of discovery be issued.

The success of the diamond drilling program warrants further drilling exploration throughout the Bully Hill and Rising Star mines area, as outlined before the drilling program was launched. The porphyritic rhyolite, which contains ore and mineralized ground in area No. 1 and contained rich deposits of copper and zinc in both mines, covers considerable area not yet explored. The company terminated their drilling contract with the Longyear Company because of excessive costs, but it is the writer's belief that exploratory drilling could be done within the $9.00 per foot price schedule agreed to in the DMEA contract.

Appendix

Proposed Underground Exploration

The Glidden Company terminated the surface diamond drilling at Bully Hill mine on December 31, 1952, and now desires to modify or renegotiate their DMEA contract to permit underground exploration. The company's proposal is outlined in the attached copy of a letter from Mr. E. L. Ralston of the Glidden Company to Mr. H. C. Miller, Executive Officer of DMEA Field Team, Region III, dated December 16, 1952. The following discussion refers to items in this proposal.

Discussion

The general condition of the old workings and shaft is unknown. The upper levels of the Bully Hill mine have not been accessible since the early '20s and workings below the 300 level have not been open since 1917 or earlier. The Bully Hill shaft is not accessible as it was collared at the 300 level, and the portal of the 300 level haulage tunnel has been caved for at least 20 years.

Rehabilitation of old workings, as outlined in items 1 through 4, does not constitute exploration, although possibly it offers the quickest and cheapest means of access to the area of desired exploration. The feasibility of opening old workings for this purpose depends upon the condition of the workings and upon the company's ultimate intentions.

The old workings may be in good condition, requiring relatively modest cost for renovating. On the other hand, the old workings may be in such poor condition that the cost of rehabilitation would surpass the cost of completely new shaft and workings directly to the area of exploration. In the event that the company planned to reopen other parts of the mine to search for zinc ore left in old stopes or mineralized shoots indicated on other levels, then the cost of reconstructing extensive old workings might be justified from the company's viewpoint.

Solution of the problem would be facilitated if the Glidden Company would make clear its intentions. If rehabilitation is essential to mine development, perhaps part of the rehabilitation cost could be charged to the company as development, and part to exploration. Before any program is approved I feel the company should open the near surface part of the 300 level to determine whether or not cleaning out and retimbering of workings is practicable.

Geologically, little evidence is present to recommend reopening 1130 feet of old workings on the 300 level north drift, then exploring with additional 1300 feet of drifts and crosscuts farther north and west. No geologic data is available on the 300 level, although it is fairly certain that the main north drift follows strike shears in the ore zone. Two small

stopes are shown on old longitudinal sections above this drift, but a record of their production and grade of ore is not known. Above the 300 level, on the dump of the Bully Hill 3A adit there is considerable ore that is reported to have come from a shoot in the adit. Such a shoot might project downward to the 300 level. Of the holes drilled under the DMEA contract in this area, not one was near the 300 level workings; 400 to 600 feet vertical projection of ore shoings from the drill holes to the 300 level, as suggested in the company's exploration proposal, is highly speculative as the ore bodies previously mined did not have this great a vertical extent. The persistence of ore bearing strike shears in the lower levels of the mine, however, offers a possibility that ore shoots may exist at the 300 level.

If underground exploration north and west of the 300 level north drift is thought to be warranted the company's proposals for reaching this objective require review. Considered by itself, this exploration could be accomplished by an adit that would by-pass the old workings on the 300 level. That is, from the present caved portal of the 300 level haulage tunnel, a 610 foot long crosscut trending N.80°W. would connect with the 302-7 crosscut (refer to the composite level map) at the north end of the 300 level and would by-pass 1500 feet of old workings now proposed to be rehabilitated. Thus, only 80 feet of rehabilitation would be necessary in the 302-7 crosscut to reach the point where new exploratory workings are proposed. The 610 foot crosscut would cost $25,510.20 at $41.82 per foot which is the rate proposed by the company for new work. This is much more economic than the $66,927.30 required to rehabilitate 1500 feet of old workings.

In the event that the 300 level main haulage tunnel is to be opened anyway, for exploration or development elsewhere, it would still be more economic to drive new workings to the north end of the 300 level than to rehabilitate the old north drift. That is, from the first bend in the main haulage tunnel, 450 feet from the portal, a 345 foot crosscut could be driven to the 302-7 crosscut at a cost of $14,427.90. Rehabilitating the 645 feet of north drift to reach the same objective would cost $26,477.52. The new crosscut work would have the added feature of exploring unknown ground.

Exploration farther west off of the 302-9 north drift would require rehabilitation of 722 feet of old workings in the north drift if attempted under the company's proposal. Contrast this with 240 feet of new crosscut at the most, from the 302-7 crosscut to the 302-9 north drift.

The unknown factor in this discussion, of course, is the condition of the old workings. It would be worthwhile, undoubtedly, to open the 300 level main haulage tunnel for a short distance to see how it has stood, and to learn how much work would be necessary to put it in usable condition.

Exploration north and west of the 870 level (refer to enclosed 870 level map) is warranted on the basis of the ore indications at that general depth, both in grade of copper ore mined from that level and ore showings in the holes drilled under the DMEA exploration program. The geology at this level was mapped in the early days and shows ore lenses along strike shears. This structure may extend northward for some distance and similar structures may exist farther to west. Several ore bodies were mined from the 770 and 970 levels that are in the same zone of mineralization as the ore on the 870 level.

The company's proposals for exploration at the 870 level requiries some consideration in view of their desire to rehabilitate 647 feet of the old Bully Hill shaft and 850 feet of drift on the 870 level. Considering the project of opening up the 870 level by itself, the Glidden Company's total cost of (1) retimbering and cleaning out 975 feet of the 300 level main haulage tunnel, (2) rehabilitating and pumping out the old shaft, and (3) reopening and retimbering the drift on the 870 level is $121,787.22.

The same objective could be reached by sinking an entirely new shaft from the surface establishing the collar in the vicinity of the DDH A1-2 drill site, then crosscutting. The collar would be at about 1500 feet elevation and the shaft would need to be about 800 feet deep. Not more than 290 feet of crosscutting to west at the 870 level would be necessary to reach a point where the company proposes beginning exploration. Assuming that a 9x6 foot shaft could be sunk at a cost of $125 per foot, and that the crosscutting would cost $41.82 per foot, the total cost would be close to $100,000. Advantages to this more direct way, besides economy, are (1) it could be considered exploration since it in no way involves the old mine workings (2) a shaft open to the surface would be provided, and (3) if exploration of the area on other levels is desired, relatively short crosscuts from the shaft can be driven directly. Only 310 feet of crosscutting to the west from this shaft would be necessary to intersect the 302-7 crosscut on the 300 level, or 380 feet of crosscutting due west would reach the area of proposed exploration.

Concerning the exploration phases proposed in items 5, 6, and 7, the amounts of crosscutting, drifting, and raising should be guided by geological considerations as the work progresses. For this reason, two or more phases, restricting the amount of footage in each phase, and requiring geologic review upon completion of each phase, is recommended. The footage of drifting and crosscutting at the 870 level proposed by the company however, is warranted. A like amount is necessary, if exploration appears worthwhile on the 300 or any intermediate level. The 1150 feet of raises from the 800 level proposed by the company is excessive; that amount is not justified for exploration.

The following comments from an examination of items 8,9,10 of the company's proposal are arranged in the same order as the company's outline, copy of which is attached.

8. Buildings, Equipment, etc.

a. Housing at the mine was available during the diamond drilling program for as many as 18 men, without straining

the facilities. Probably a few more than this number could be accommodated without erecting a dormitory, at least for the period of exploration. The inclusion of a dormitory under a DMEA contract is not recommended.

b. Some rehabilitation shops may be necessary, but such does not seem essential to exploration work.

C. No facilities, as listed, are at the location of the proposed exploration. Several old houses in the near vicinity might serve the purpose of change house or tool shop. There may be justification for most of this, perhaps all.

d. Electric power already links the PG&E sub-station to some buildings in the mine vicinity. Although more power is probably desired by the company, such is not essential for successful exploration. Diesel power may serve the same purpose.

e. Compressor is necessary, but cost seems high.

f. One mucking machine may be warranted. More than one machine is not justified unless more than one heading would be driven at the same time.

g. 24 one ton mine cars are a gross overestimate. Three cars might be considered essential, and 6 desirable if two levels are explored, using tramming motors.

h. Drilling equipment is essential; an estimate of the total requirements depends on the exploration planned.

i. A pick up truck is an essential item for hauling supplies, men, and equipment from the dock at the lake to the boarding house, shops, or mine.

k. A sinking pump is essential for any work below the 300 level or for shaft sinking.

9. Moving some mining equipment from the Oakland, California company plant to Bully Hill may be necessary. The need, however for a D-7 caterpillar tractor and scraper and D-4 caterpillar leader is doubted. Access roads were built by the company for the drill sites and water lines, etc. during the DMEA diamond drilling program, but the portal of the 300 level haulage tunnel or the site of the recommended surface shaft do not require access roads or clearing of ground. If some work with a caterpillar is necessary, the need should be explained. The cats used during the drilling program were rented from operators around Redding.

10. Boat transportation on Shasta Lake during the DMEA drilling program was provided by the Glidden Company through a contract with the Shasta Navigation Company. Presumably, the same arrangement would be made under this proposal. The cost of boat rental to the Glidden Company during the diamond drilling program averaged $800 per month. This cost, as well as the $1000 per month proposed for a new DMEA contract, is exorbitant and indicates poor management. A good boat could be purchased for not more than $4,000, and the cost of operating it by the Glidden Company should be relatively small.

Recommendations and Conclusions

Underground exploration at the Bully Hill mine merits favorable consideration, although further surface drilling, as outlined in the DMEA diamond drilling program should also be continued. Exploration for ore bodies north and west of the 870 level is warranted, but exploration on the 300 level has little to recommend it except the probable continuity of structures that are mineralized. Early mine development on the 300 level was restricted mainly to a drift, with relatively little crosscutting to explore for other mineralized structures.

If it is determined that exploration should be undertaken, the writer recommends that the cheaper and more efficient method considering the company's proposed costs, is to sink a new shaft from the surface with the collar in the vicinity of DDH A1-2, then to crosscut to west from the shaft on the 870 level and on any other level considered for exploration.

On the other hand, the Glidden Company may insist that rehabilitation of old workings is essential to a more complete mine development program. The government should share in rehabilitation cost only to the extent that it provides access to areas approved for exploration, and provided it does not exceed the cost of more direct means of reaching the same objective. Before any agreement is made regarding rehabilitation of old workings, it is recommended that the caved portal of the 300 level haulage tunnel be opened, to determine whether or not retimbering and cleaning out is practicable.

The 1400 feet of exploratory drifting and crosscutting at the 870 level proposed by the company is warranted. A like amount is necessary if exploration appears worthwhile on the 300 or any intermediate level. Exploration should be guided by geological considerations as the work progresses. It is recommended, therefore, that exploration be broken down into two or more phases, each requiring review by the field team before beginning the next.

Items 7,8,9, and 10 of the Glidden Company's proposal are exorbitant, and should be revised.

THE CHEMICAL AND PIGMENT COMPANY

DIVISION OF THE GLIDDEN COMPANY

FACTORIES
BALTIMORE MD
COLLINSVILLE ILL
OAKLAND CALIF

SUNOLITH BRAND

WAREHOUSES
IN PRINCIPAL CITIES
THROUGHOUT THE U S A

[illegible] FIFTIETH AVENUE

OAKLAND 1, CALIFORNIA

December 16, 1952

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

Re: Docket DMEA 1214X
Exploration Project Contract
Idaho 8187

Dear Mr. Miller:

You will please be advised that we have canceled our diamond drilling contract with E. J. Longyear Co. of Minneapolis, Minnesota effective December 31, 1952.

Our reason for canceling this contract is due entirely to the fact that we feel sufficient progress has been made to warrant underground development work. You are very familiar with this situation and fully realize that this has been a very expensive operation thus far, and that we were unfortunate in encountering very difficult ground to diamond drill. However, we consider the geological data obtained thus far has been most important since a very well mineralized zone has been encountered on the north end of the Bully Hill Mine [illegible] virgin territory, thus providing a very attractive underground exploration prospect. While naturally the changing from a diamond drilling program to one of underground development entails a far greater expenditure and the realigning of our entire exploration program is in order.

It is not our idea to ask to have our contract with DMEA canceled but we would rather have it modified so that underground exploration work can be immediately undertaken and that the DMEA would bear a greater proportion of the expense. With this idea in view, we are hereby offering for your consideration our estimated cost of underground development of the Bully Hill mine. This entails the reopening of the old Bully Hill mine and the drifting to the north on both the main tunnel level and the 800 level. All data on the Bully Hill and Kearsarge Star mines filed with the original application under our contract, as a matter of record with you people and we feel it unnecessary to again make this filing to support our application for modification of the contract. Hence, we are only submitting for your consideration, the estimated cost of doing the proposed work along with maps of the [illegible] and 800 levels. Our people are quite anxious to get this work under way and would greatly appreciate your early consideration of this request so that the matter can be followed up with the officials in Washington.

Respectfully yours,
THE GLIDDEN COMPANY

Edward L. Ralston, Manager of Mines.

Glidden

ELR:HM Att.

BULLY HILL UNDERGROUND EXPLORATION

Estimated Cost of Reopening 300 Adit Tunnel, Bully Hill Mine, Unwatering Bully Hill Shaft to the 800 level, a distance of approximately 560 feet, and Reopening 300 Drift North on the 300 Level, and 870 Drift North on the 800 Level; also Extending 300 Level into Virgin Territory for a distance of 1300 feet, and 870 Level into Virgin Territory for a distance of 1400 feet, to develop mineralized zone encountered in diamond drill holes. This proposal also includes the driving of approximately 1150 feet of Upraises between the two levels, the definite location to be determined as the new work progresses.

This entails the erection of a dormitory for single men in the townsite, the rehabilitation of the machine shop, the building of a power line from the PG&E substation on the mine, the installation of a combined compressor building and tool room at the mine, the building of a change room at the mine, and the moving of mining equipment from the Oakland Plant to the Bully Hill Plant.

1. Reopening and retimbering main adit tunnel - 975 ft.

Labor, including general overhead	$26.63 per ft.	
Compensation Insurance	2.99 "	
FOAB & UC Tax	.88 "	
Hospitalization	.19 "	
Total Labor	$29.69 per ft.	
Timber	8.00 "	
Pipe	2.52 "	
Track	1.43 "	
Ventilation	1.35 "	
Power	4.22 "	
Total Cost	$47.31 per ft.	
Total amount		$46,127.25

2. Shaft and Station Repairs, and Unwatering Shaft to 800 Level - 667 ft.

Labor, including general overhead	$49.26 per ft.	
Compensation Insurance	3.87 "	
FOAB & UC Tax	1.63 "	
Hospitalization	.34 "	
Total Labor	$55.10 per ft.	
Timber	2.29 "	
Pipe	.60 "	
Ventilation	1.35 "	
Power	3.67 "	
Total Cost	$63.01 per ft.	
Total amount		40,767.67

3. Reopening and Retimbering 300 Drift North - 1130 ft.

Labor, including general overhead	$24.64 per ft.	
Compensation insurance	1.93 "	
FOAB & UC Tax	.81 "	
Hospitalization	.19 "	
Total Labor	$27.57 per ft.	
Timber	8.00 "	
Pipe	.60 "	
Track	1.43 "	
Ventilation	1.35 "	
Power	2.10 "	
Total Cost	$41.05 per ft.	
Total amount		46,[illegible]

4. Reopening and Retimbering 800 Drift North - 850 ft.

Labor, including general overhead	$24.64 per ft.	
Compensation Insurance	1.93 "	
FOAB & UC Tax	.81 "	
Hospitalization	.19 "	
Total Labor	$27.57 per ft.	
Timber	8.00 "	
Pipe	.60 "	
Track	1.43 "	
Ventilation	1.35 "	
Power	2.10 "	
Total Cost	$41.05 per ft.	
Total amount		$34,892.50

5. Drifting - 309 Drift North - 1300 Ft.

Labor, including general overhead	$23.52 per ft.	
Compensation Insurance	1.85 "	
FOAB & UC Tax	.78 "	
hospitalization	.19 "	
Total Labor	$26.34 per ft.	
Timber	8.00 "	
Pipe	.60 "	
Track	1.43 "	
Ventilation	1.35 "	
Power	1.10 "	
Blasting Supplies	3.00 "	
Total Cost	$41.82 per ft.	
Total amount		54,366.00

6. Drifting - 800 level - 1400 ft.

Labor, including general overhead	$23.52 per ft.	
Compensation Insurance	1.85 "	
FOAB & UC Tax	.78 "	
Hospitalization	.19 "	
Total Labor	$26.34 per ft.	
Timber	8.00 "	
Pipe	.60 "	
Track	1.43 "	
Ventilation	1.35 "	
Power	1.10 "	
Blasting Supplies	3.00 "	
Total Cost	$41.82 per ft.	
Total amount		58,548.00

7. Upraises above 800 level

Labor, including general overhead	$21.12 per ft.	
Compensation Insurance	1.66 "	
FOAB& UC Tax	.70 "	
Hospitalization	.19 "	
Total Labor	$23.67 per ft.	
Timber	6.43 "	
Pipe	.60 "	
Ventilation	1.35 "	
Power	1.60 "	
Blasting Supplies	3.00 "	
Total Cost	$36.65 per ft.	
Total amount		42,147.50

8. Buildings, Equipment, etc.

a.	Dormitory for single men, including furnishings, etc.	$15,000.00	
b.	Rehabilitation machine shop, plant, and facilities necessary to carry on active development operations	7,500.00	
c.	Combination compressor building, tool shop at mine, and change room for underground employees	2,500.00	
d.	Power line from PG&E substation to mine	3,500.00	
e.	Purchase and installation of compressor - mine	6,000.00	
f.	2 - EIMCO 12-B mucking machines	5,914.00	
g.	2 - GE Battery Electric Motors for Tramming	9,600.00	
h.	1 - Battery Charging Unit	1,358.00	
i.	24/1 ton mine cars	12,960.00	
j.	Drilling equipment	3,600.00	
k.	[illegible] - 1½ ton pick up truck	1,500.00	
l.	1 sinking pump for dewatering	1,250.00	
	Contingencies	2,000.00	72,682.00

9. Moving Mining Equipment, Oakland to Bully Hill Plant

D-7 caterpillar tractor and scraper, D-4 caterpillar loader, 320 ft. Diesel compressor, 120 ft. gasoline compressor and other mining equipment	1,500.00

10. Transportation - Shasta Lake
16 months @ $1,000 per month — 16,000.00

TOTAL ESTIMATED COST OF PROJECT — $[illegible]

Estimated time to complete project: 16 months.

THE GLIDDEN COMPANY

1396 UNION COMMERCE BUILDING

DWIGHT P. JOYCE
PRESIDENT

CLEVELAND 14, OHIO

February 24, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 26 1953

Mr. A. G. Keating, Acting Chief
Base Metals Division
U.S. Department of The Interior
Defense Minerals Exploration Administration
Washington 25, D.C.

Re: Docket No. DMA-1219X
(Zinc, Lead, Copper)
Rising Star and Bully Hill Mines
Shasta County, California

Dear Mr. Keating:

Referring to my letter of January 15th, I have now received a copy of the geological maps relative to the above. I understand that a complete set has also been delivered to your Field Team, c/o Mr. Miller in San Francisco and a copy to Mr. Johnson at Reno.

Doubtless before long these gentlemen will forward a set to you with their recommendations, and I am looking forward to hearing from you as to a mutually convenient time for our meeting in Washington.

Yours very truly,

Dwight P. Joyce

President

DPJ:LG

c c: Mr. Frank Johnson, Acting Director
Defense Minerals Exploration Administration
Department of the Interior
Washington 25, D.C.

QUALITY Glidden PRODUCTS

2/27/53

I do not believe any answer is required to this letter.

J. W. Ad.

Please remember to advise the Operator where to call in so

the Operator has to have [illegible]. We could be flying until we get the report.

J.W.G.

THE GLIDDEN COMPANY
1396 UNION COMMERCE BUILDING

DWIGHT P. JOYCE
PRESIDENT

CLEVELAND 14, OHIO

January 15, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 19 1953

Mr. A. G. Keating, Acting Chief
Base Metals Division
U.S. Department of The Interior
Defense Minerals Exploration Administration
Washington 25, D.C.

Re: Docket No. DMA-1219X
(Zinc, Lead, Copper)
Rising Star and Bully Hill Mines
Shasta County, California

Dear Mr. Keating:

Referring to your courteous letter on the above subject, which I received late in December, I have just learned from our Mr. E. L. Ralston that the Longyear geologist on this project has been delayed in getting his reports and maps to the DMEA Field Team, which has of course delayed my discussion with you and your associates about our application.

As far as I know now, these maps and reports should be completed about the 23rd of this month, and I imagine that shortly thereafter you will receive a report with recommendations from your Field Team. After you and your associates have had a chance to study this data, I will look forward to hearing from you as to a convenient time for our meeting in Washington.

Yours very truly,

Dwight P. Joyce

President

DPJ:LG

c c: Mr. Frank Johnson, Acting Director
Defense Minerals Exploration Administration
Department of the Interior
Washington, D.C.

QUALITY Glidden PRODUCTS

FILE COPY
SURNAME:

Give call
Keating

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

Mr. Dwight P. Joyce, President
The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Re: Docket No. DMA-1219X
(Zinc, Lead, Copper)
Rising Star and Bully Hill Mines
Shasta County, California

Dear Mr. Joyce:

In reply to your letter regarding the above subject, we wish to advise you that as soon as the information from our Field Team has been received, and we have had the necessary time to review and study it, you will be notified. Then as you have suggested, arrangements can be made to discuss the various phases of your application. You may be assured that every consideration will be given your request.

Sincerely yours,

/s/ A. G. Keating
(Lyl)

A. G. Keating, Acting Chief
Base Metals Division

JWAlt/hmj
(12-24-52)
CC to: Adm. Reading File
Operating Committee
Mr. Keating (2)
Docket
Mr. Alt
Mr. Kinkle
Mr. Bishop
Region III

THE GLIDDEN COMPANY
1396 UNION COMMERCE BUILDING

DWIGHT P. JOYCE
PRESIDENT

CLEVELAND 14, OHIO

ALB
Keating
Betty

December 19, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 22 1952

Mr. H.F. Keller, Chief
Base Metals Division
U.S. Department of The Interior
Defense Minerals Exploration Administration
Washington 25, D.C.

RE: Docket No. DMA-1219X (Zinc, Lead, Copper)
Contract No. IDM-E187
Rising Star and Bully Hill Mines
Shasta County, California

Dear Mr. Keller:

Referring to my letter of December 15 on the above subject, I have just finished talking long distance with Mr. E.L. Ralston, who is in charge of our mining operations on the Pacific Coast.

He informs me that it has taken more time than he anticipated to get all the information required in the hands of your field team. However, he expects to have all this data turned over to them within the next few days and then your men can forward it on to you with their recommendations. From Mr. Ralston's remarks I am inclined to believe that it should be in your hands within the next week or 10 days. I am looking forward to hearing from you after you have received and digested the reports of your field team so that I can make arrangements to come to Washington and discuss the various phases of the matter with you and your associates personally. I am rather inclined to believe this will be sometime during the first week in January.

Yours very truly,

Dwight P. Joyce

President

DPJ:S

CC Mr. Frank Johnson, Acting Director
Defense Minerals Exploration Administration
Department of the Interior
Washington, D.C.

QUALITY Glidden PRODUCTS

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

Office of
Executive Officer
DMEA Field Team
Region III

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 23 1952

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

December 19, 1952
12/30/52 Received by [illegible]

Memorandum

To: Ernest Wm. Ellis, Acting Chairman, Operating Committee, DMEA, Interior Building, Washington 25, D. C.

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMA-1219X (Zinc-Lead-Copper), Contract Idm-E187, The Glidden Company, Shasta County, California

We acknowledge receipt of your subject letter, dated December 12, requesting our comments and recommendations concerning the proposed request by The Glidden Company for underground exploration in lieu of further diamond drilling at its Shasta County, California property. Steps are being taken to collect assay report, maps, etc. on the mine and work recently done in order to assist us in making our recommendations. Our Mining Division and the Geological Survey will work together on the collection of the basic data, assisted by Mr. N. Hansen of the Longyear Company and Mr. Ralston, General Manager, The Glidden Company.

Mr. Ralston called me on the phone sometime ago to inform me that his company was terminating the diamond drilling contract with the Longyear Company as of December 31, 1952. After telling me that they planned to continue exploration by underground drifting and raising, he asked how his request to substitute underground for diamond drilling should be handled. He had no idea at the time how extensive the underground exploration would be, so I suggested to him that it might be handled by means of an amendment to a contract. For that purpose I told him we would need maps, showing the proposed work and itemized costs, etc. I note in my copy of Mr. H. F. Keller's letter to Mr. Dwight P. Joyce, President, The Glidden Company, dated December 12, 1952, that Keller instructs Joyce to present a new application on MF-103 Form.

Following up on my suggestion, Mr. Ralston personally delivered to me on December 17 four copies of the company's underground exploration proposal and maps, showing the location of the proposed work. I was very much surprised to learn that the company's proposed work will cost $413,417.22, according to the company's estimate, or much more than the original contract.

I jokingly accused Mr. Ralston of wanting to open the mine for production purposes rather than for exploration, but he insisted that the work outlined is exploration. Most of the proposed work consists of driving drifts on the 300 and 870 levels of the mine to intercept the diamond drill holes which were drilled under the contract. To prepare for this work the adits on these levels will first have to be cleaned out and retimbered. There is serious doubt in my mind that the proposed work is exploration, but that will be something the Washington Office may have to decide.

Another reason for thinking that the company desires to do the proposed work preparatory to mining is that the proposed drifts are to be 8 by 9 feet in cross section and the raise is to be a two-compartment one. These dimensions are not given in the preliminary cost statement but were obtained verbally from Mr. Ralston when he was in the office on December 17.

For your immediate information there are attached three copies of Mr. Ralston's letter to me, dated December 16, to which are attached the proposed cost itemizations.

At our conference in this office on December 17, it was decided that Mr. Hansen of the Longyear Company is to be retained by The Glidden Company for a long enough period of time to prepare maps and cross sections of the work done by the Longyear Company under the contract and to have assays run of the cores. This information is to be made available to us. This work, according to Mr. Hansen, cannot be completed before the middle or latter part of January, 1953, so that our recommendations cannot possibly be formulated until sometime in February at the earliest.

We will keep you informed of developments.

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

Attachments

Copy to: E. H. Bailey, USGS
A. C. Johnson, Reno, Nevada

December 16, 1952

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

Re: Docket DMEA 1219X
Exploration Project Contract
Idm-E187

Dear Mr. Miller:

You will please be advised that we have canceled our diamond drilling contract with E. J. Longyear Co. of Minneapolis, Minnesota, effective December 31, 1952.

Our reason for canceling this contract is due entirely to the fact that we feel sufficient progress has been made to warrant underground development work. You are very familiar with this situation and fully realize that this has been a very expensive operation thus far, and that we were unfortunate in encountering very difficult ground to diamond drill. However, we consider the geological data obtained thus far has been most important since a very well mineralized zone has been encountered on the north end of the Bully Hill Mine, in virgin territory, thus providing a very attractive underground exploration project. Quite naturally the changing from a diamond drilling program to one of underground development entails a far greater expenditure and the realigning of our entire exploration program is in order.

It is not our idea to ask to have our contract with DMEA canceled but we would rather have it modified so that underground exploration work could be immediately undertaken, and that the DMEA would bear a greater proportion of the expense. With this idea in view, we are hereby offering for your consideration our estimated cost of underground development of the Bully Hill mine. This entails the reopening of the old Bully Hill mine and the drifting to the north on both the main tunnel level and the 800 level. All data on the Bully Hill and Rising Star mines, filed with the original application under our contract, is a matter of record with your people and we feel it unnecessary to again make this filing to support our application for modification of the contract. Hence, we are only submitting, for your consideration, the estimated cost of doing the proposed work, along with maps of the 300 and 800 levels. Our people are quite anxious to get this work under way and would greatly appreciate your early consideration of this request so that the matter can be followed up with the officials in Washington.

Respectfully yours,
THE GLADDEN COMPANY

Edward L. Ralston, Manager of Mines.

KLR:MM Att.

BULLY HILL UNDERGROUND EXPLORATION

Estimated Cost of Reopening 300 Adit Tunnel, Bully Hill Mine, Unwatering Bully Hill Shaft to the 800 level, a distance of approximately 560 feet, and Reopening 300 Drift North on the 300 Level, and 870 Drift North on the 800 Level; also Extending 300 Level into Virgin Territory for a distance of 1300 feet, and 870 Level into Virgin Territory for a distance of 1400 feet, to develop mineralized zone encountered in diamond drill holes. This proposal also includes the driving of approximately 1150 feet of Upraises between the two levels, the definite location to be determined as the new work progresses.

This entails the erection of a dormitory for single men in the townsite, the rehabilitation of the machine shop, the building of a power line from the PG&E substation to the mine, the installation of a combined compressor building and tool shop at the mine, the building of a change room at the mine, and the moving of mining equipment from the Oakland Plant to the Bully Hill Plant.

1. Reopening and retimbering main adit tunnel - 975 ft.

Labor, including general overhead	$26.63 per ft.	
Compensation insurance	2.09 "	
FOAB & UC Tax	.88 "	
Hospitalization	.19 "	
Total Labor	$29.79 per ft.	
Timber	8.00 "	
Pipe	2.52 "	
Track	1.43 "	
Ventilation	1.35 "	
Power	4.22 "	
Total Cost	$47.31 per ft.	
Total amount		$46,127.25

2. Shaft and Station Repairs, and Unwatering Shaft to 800 Level - 647 ft.

Labor, including general overhead	$49.26 per ft.	
Compensation Insurance	3.87 "	
FOAB & UC Tax	1.63 "	
Hospitalization	.34 "	
Total Labor	$55.10 per ft.	
Timber	2.29 "	
Pipe	.60 "	
Ventilation	1.35 "	
Power	3.67 "	
Total Cost	$63.01 per ft.	
Total amount		40,767.47

3. Reopening and Retimbering 300 Drift North - 1130 ft.

Labor, including general overhead	$24.64 per ft.	
Compensation insurance	1.93 "	
FOAB & UC Tax	.81 "	
Hospitalization	.19 "	
Total Labor	$27.37 per ft.	
Timber	8.00 "	
Pipe	.60 "	
Track	1.43 "	
Ventilation	1.35 "	
Power	2.10 "	
Total Cost	$41.05 per ft.	
Total amount		46,386.50

4. Reopening and Retimbering 800 Drift North - 850 ft.

Labor, including general overhead	$24.64 per ft.	
Compensation Insurance	1.93 "	
FOAB & UC Tax	.81 "	
Hospitalization	.19 "	
Total Labor	$27.57 per ft.	
Timber	8.00 "	
Pipe	.60 "	
Track	1.43 "	
Ventilation	1.35 "	
Power	2.10 "	
Total Cost	$41.05 per ft.	
Total amount		$34,892.50

5. Drifting - 300 Drift North - 1300 Ft.

Labor, including general overhead	$23.52 per ft.	
Compensation Insurance	1.85 "	
FOAB & UC Tax	.78 "	
Hospitalization	.19 "	
Total Labor	$26.34 per ft.	
Timber	8.00 "	
Pipe	.60 "	
Track	1.43 "	
Ventilation	1.35 "	
Power	1.10 "	
Blasting Supplies	3.00 "	
Total Cost	$41.82 per ft.	
Total amount		54,366.00

6. Drifting - 800 level - 1400 ft.

Labor, including general overhead	$23.52 per ft.	
Compensation Insurance	1.85 "	
FOAB & UC Tax	.78 "	
Hospitalization	.19 "	
Total Labor	$26.34 per ft.	
Timber	8.00 "	
Pipe	.60 "	
Track	1.43 "	
Ventilation	1.35 "	
Power	1.10 "	
Blasting Supplies	3.00 "	
Total Cost	$41.82 per ft.	
Total amount		58,548.00

7. Upraises above 800 level

Labor, including general overhead	$21.12 per ft.	
Compensation Insurance	1.66 "	
FOAB& UC Tax	.70 "	
Hospitalization	.19 "	
Total Labor	$23.67 per ft.	
Timber	6.43 "	
Pipe	.60 "	
Ventilation	1.35 "	
Power	1.60 "	
Blasting Supplies	3.00 "	
Total Cost	$36.65 per ft.	
Total amount		42,147.50

8. Buildings, Equipment, etc.

a.	Dormitory for single men, including furnishings, etc.	$15,000.00	
b.	Rehabilitation machine shop, plant, and facilities necessary to carry on active development operations	7,500.00	
c.	Combination compressor building, tool shop at mine, and change room for underground employees	2,500.00	
d.	Power line from PG&E substation to mine	3,500.00	
e.	Purchase and installation of compressor - mine	6,000.00	
f.	2 - EIMCO 12-B mucking machines	5,914.00	
g.	2 - GE Battery Electric Motors for Tramming	9,600.00	
h.	1 - Battery Charging Unit	1,358.00	
i.	24/1 ton mine cars	12,960.00	
j.	Drilling equipment	3,600.00	
k.	1 - 1½ ton pick-up truck	1,500.00	
l.	1 sinking pump for unwatering	1,250.00	
	Contingencies	2,000.00	72,682.00

9. Moving Mining Equipment, Oakland to Bully Hill Plant

D-7 caterpillar tractor and scraper, D-4 caterpillar leader, 320 ft. Diesel compressor, 120 ft. gasoline compressor and other mining equipment 1,500.00

10. Transportation - Shasta Lake
16 months @ $1,000 per month 16,000.00

TOTAL ESTIMATED COST OF PROJECT $413,417.22

Estimated time to complete project: 16 months.

THE GLIDDEN COMPANY
1396 UNION COMMERCE BUILDING
CLEVELAND 14, OHIO

DWIGHT P. JOYCE
PRESIDENT

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 16 1952

December 15, 1952

Mr. H. F. Keller, Chief
Base Metals Division
U.S. Department of The Interior
Defense Minerals Exploration Administration
Washington 25, D. C.

Re: Docket No. DMA-1219X (Zinc, Lead, Copper)
Contract No. IDM-E187
Rising Star and Bully Hill Mines
Shasta County, California

Dear Mr. Keller:

This will acknowledge receipt of your letter of December 12 under the above subject.

I am forwarding a copy of your letter and one of the blanks attached to Mr. E. L. Ralston, who is in charge of our mining operations on the Pacific Coast, in order that he may be guided accordingly.

I understand from a letter received from Mr. Ralston today that by tomorrow he expects to have his various reports in the hands of Mr. Miller of your field team.

I am looking forward to hearing from you just as soon as you have received the reports from your field team so I can make my plans to come to Washington to discuss the situation personally with you.

Yours very truly,

Dwight P. Joyce

President

QUALITY Glidden PRODUCTS

DPJ:LG

FILE COPY
SURNAME:

500

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

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

DEC 12 1952

Re: Docket No. DMA-1219X (Zinc-Lead-Copper)
Contract No. Idm-8187
The Glidden Company
Shasta County, California

Dear Mr. Miller:

For your information there is enclosed a copy of a letter dated December 5, 1952, to Mr. Frank Johnson from Mr. Dwight P. Joyce, President of the Glidden Company, and a copy of a reply to that letter.

We would appreciate it if you would furnish us the necessary information with which to evaluate the possibilities of underground exploration. Your comments and recommendations are requested and will be appreciated. We realize that our request for information on a project that has not been formally presented and on which we have little information is not the customary procedure, but under the circumstances, in order to aid the operator or applicant in presenting an application we believe the procedure justified.

Sincerely yours,

Ernest Wm. Ellis

ACTING Chairman, Operating Committee

HFKeller/bjl (written 12/11/52)

Enclosures 2

Copy to: Docket
Admr. R. File
Op. Committee
H. F. Keller (2)
Mr. Bishop
Mr. Kinkle
Chron.

APPROVED:

J. H. Hedges

Member, Bureau of Mines

A. L. Kinkel, Jr.

Member, Geological Survey

FILE COPY
SURNAME:

500

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

Mr. Dwight P. Joyce, President
The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

DEC 12 1952

Re: Docket No. DMA-1219X (Zinc, Lead, Copper)
Contract No. Idm-1187
Rising Star and Bully Hill Mines
Shasta County, California

Dear Mr. Joyce:

Reference is made to your letter of December 5, 1952, to Mr. Johnson, concerning your telephone conversation with him and the steps you have taken to terminate the exploration work being done under the subject contract.

Our executive officer in San Francisco was advised of the possibility of your company terminating the exploration work being done by diamond drilling and requesting Government participation in an underground exploration project. At the same time, he was requested to furnish this office with a report on the diamond drilling exploration project and his recommendations on underground exploration.

If your company proposes to present an application for underground exploration, such an application should be presented on the standard application form, MF-103, of which we are enclosing six blank copies.

Your company should present with the application all the underground and surface geological plans and sections, assay maps and all other data that would aid this Department in its evaluation of the proposed underground exploration project.

We shall advise you as soon as we have received the reports from the field team so that you may come to Washington to discuss the various aspects of the situation. When you come to Washington, it

would be advisable for you to bring an outline of the proposed project and a rough estimate of the unit costs of the project. Details naturally can be presented later with the formal application.

Sincerely yours,

H. F. Keller

H. F. Keller, Chief
Base Metals Division

P.H.
12-12-52

Enclosures 6
HFKeller/bjl (Written 12/11/52)

Copy to: Docket
Admr. R. File
Op. Committee
H. F. Keller (2)
Mr. Bishop
Mr. Kinkle
Region III (2)
Chron.

THE GLIDDEN COMPANY

1396 UNION COMMERCE BUILDING

DWIGHT P. JOYCE
PRESIDENT

CLEVELAND 14, OHIO

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 8 1952

December 5, 1952

Received by Mr. G. 12/9/52
Betty

Mr. Frank Johnson, Acting Director
Defense Minerals Exploration Administration
Department of The Interior
Washington, D. C.

In re: Docket No. DMEA 1219X

Dear Mr. Johnson:

Referring to our telephone conversation today, I have just finished talking with our Mr. Ralston at Oakland over long distant telephone. He will promptly communicate with your "local team" out there and explain our reasons for wanting to cancel the contract we have with DMEA.

He will also explore with them the possibilities of government participation in an underground exploration project, so that your people out there will be in position to give you their recommendations on that subject.

I would very much appreciate it if you or one of your associates would promptly advise me after you have received a report from your field men, so that I can make arrangements to come to Washington and discuss the situation with you in detail.

I have advised Mr. Ralston that you would be interested in having a report on the surface geology of the area where we have conducted our drilling operations, and this will be forthcoming promptly.

I am hopeful that as a result of our forthcoming meeting we can develop some mutually satisfactory new arrangement whereby we, on some co-operative basis with the Government, can proceed further to develop the mineral resources in our Shasta property. This might take the form of a 50-50 split on underground exploration costs, or possibly a guaranteed base price on the minerals that are taken out of the property.

I am looking forward to hearing from you as soon as you have a report from your field team and will be in position to discuss the various aspects of the situation.

With personal regards, I am

Sincerely,

Dwight P. Joyce

President

DPJ:LG

QUALITY Glidden PRODUCTS

500

FILE COPY
SURNAME:

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

DEC 10 1952

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

Re: Docket No. WA-1219X (Zinc-Lead)
Contract No. Idm-E187
The Glidden Company

Dear Mr. Miller:

For your files and information are enclosed two copies of a letter dated December 3 from Mr. Dwight P. Joyce, concerning the subject contract and its possible termination.

Mr. Joyce, in his telephone conversation with Mr. Johnson, implied that his company might present an application for an underground exploration project. He was advised to present the available geological data to substantiate such an application on his trip to Washington, which he proposes to make for that purpose in the near future.

In the meantime we would appreciate obtaining an appraisal by your office of the results of the diamond drilling done under the contract and your opinion on whether a certificate of discovery should be issued, and whether an underground exploration project might be justified.

It would be very helpful if we could obtain this information as soon as possible.

Sincerely yours,

Ernest Wm. Ellis

ACTING Chairman, Operating Committee

12-10-52 (JHB)

Enclosure
APPROVED:

J. H. Hedges (JHB)
Member, Bureau of Mines

A. R. Kinkel, Jr. (JHB)
Member, Geological Survey

HFKeller/hmj 12-8-52
Copy to: Adm. Reading File
Docket File Copy
Operating Committee
Mr. Keller (2)
Mr. Kinkle
Mr. Bishop

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 4 1952

THE GLIDDEN COMPANY
1396 UNION COMMERCE BUILDING

DWIGHT P. JOYCE
PRESIDENT

CLEVELAND 14, OHIO

December 3, 1952

Rec'd. Betty

Defense Minerals Exploration Administration
Department of The Interior
Washington, D. C.

Attention: Mr. Frank Johnson, Acting Director

In re: Docket No. DMEA 1219X

Gentlemen:

I have recently returned from a careful personal inspection of our diamond drilling operations we are carrying on jointly with the Defense Minerals Exploration Administration in Shasta County, California. While there I had an opportunity of discussing all aspects of the situation both with our own people and with the Longyear representatives and the geologist supervising the work.

After I returned to Cleveland I participated in a conference with several of our executives and one of the high officials of the Longyear organization for the purpose of arriving at a decision as to the course of action to be followed in view of our experiences thus far and the outlook for the future.

As you doubtless are aware, this whole exploratory operation has proven far more expensive than was originally anticipated, and we have already expended about ten times what the Government has put into this exploratory venture.

Based on these discussions we have come to the conclusion that any further surface diamond drilling of this property would be unjustifiable. The Longyear people also share this viewpoint, and we are terminating our contract with them as of Dec. 31st.

In view of this, we feel that our contract with the Government for this operation should be terminated promptly. I will telephone you on Friday morning of this week to arrange an appointment for some mutually convenient day next week when I can come to Washington and discuss this situation in detail with you.

In view of the facts in the matter, I am confident

QUALITY Glidden PRODUCTS

File in Docket.
MK

December 3, 1952

Defense Minerals Exploration Administration
Department of The Interior

that you will agree it is to the Government's interests as well as our own to cancel our present arrangement at once.

Yours very truly,

Dingley P. Jayne

President

DPJ:LG

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

Office of
Executive Officer
DMEA Field Team
Region III

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

August 4, 1952

Memorandum

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

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMA 1219 (Zinc-Copper), Contract No. Idm-E187, The Glidden Company, Rising Star and Bully Hill Mines, Shasta County, California

Your letter to me, dated July 17, concerning core recovery at the Bully Hill Mines was referred by me to Mr. A. C. Johnson, Chief, Mining Division, Bureau of Mines, Region III, Reno, Nevada. I now have a reply from Mr. Johnson and a copy of it is attached herewith.

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

Attachment

Copy to E. H. Bailey, USGS

C
O
P
Y

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

P O BOX 1551
Reno, Nevada

July 30, 1952

Memorandum

To: H. C. Miller, Regional Director, Region III

From: Chief, Mining Division, Region III

Subject: Docket DMA-1219 (Zinc-Copper), Contract Idm-E187, The Glidden Company, Rising Star and Bully Hill Mines, Shasta County, California

I have read with interest your excerpts from Mr. Selfridge's letter relative to the core recovery that is being made on the diamond drilling on the Glidden Company's property in Shasta County, Calif.

There is nothing unusual about getting a 50 percent core recovery in diamond drilling. As you will note from the reports that have been made by the inspecting engineer, the company has had considerable trouble with caving in the holes.

Meyer G. Hanson, geologist and engineer in charge of the E. J. Longyear Co., is a competent geologist and engineer and is making every endeavor to obtain accurate results from the diamond drilling work that is in progress. The Mining Division of Region III has loaned the company two of its automatic samplers which are being used for the recovery of sludge. However, I want to bring to your attention, when a hole is caving, sludge recovery is not accurate and would carry little weight in the final analyses of the values obtained in the drilling. The results would have to be based more or less on the core that is being recovered. Where there is no caving in the hole, you can be assured that sludges are being saved and will be weighted with the core.

Mr. Hanson has advised me that they are sending the cores through the mineralized zones to Abbot and Hanks for analyses and as soon as the results are obtained, they will be included in one of the inspection reports unless Mr. Hanson advises me before the engineer makes his next visit. In this event, the results will be made available to your office immediately.

/s/ A. C. Johnson

FILE COPY
SURNAME:

UNITED STATES 500
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

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

JUL 3 7 1952

Re: Docket No. DMA-1219 (Zinc-Copper)
Contract No. Idm-E-187
The Glidden Company
Rising Star and Bully Hill Mines
Shasta County, California

Dear Mr. Miller:

We have recently seen the report by the Mining Division of Region III on the progress of the diamond drilling being done under the subject contract. In this report we were disturbed to learn that the average core recovery in the ore zone is only about 50 percent and varies from a recovery of nothing to 90-100 percent. As the value of diamond drilling is directly proportional to the accuracy of the information obtained, especially while drilling through the ore horizon, we believe that everything possible should be done to improve the core recovery.

We would appreciate it if the engineers who make the monthly field examinations would study this problem with the Operator with that object in view.

To date we have received no report on assays of samples of either the core or sludge, and have had no information whether the sludge samples are being saved for assay. As soon as any assay results on the work being done under this contract are available, we would appreciate it if they were forwarded to this office with a report or comments by the engineers who have made the monthly examination of the progress being made under this contract.

Sincerely yours,

7/17/52

George C. Selfridge
(GHB)
Chairman, Operating Committee

cc: Docket
Admr. R. File
Oper. Com.
Mr. Keller
Mr. Bishop
C.H.Johnson
Mr. McKnight
Chron.

APPROVED:

J. H. Hedges (GHB)
Member, Bureau of Mines

T. P. Thayer (GHB)
Member, Geological Survey

HFKeller/bjl (7/15/52)

C
O
P
Y

MINING DIVISION
REGION III

May 20 to June 20, 1952

Idm-E187, Glidden Co., (zinc-copper), Shasta County, Calif. was inspected by E. J. Matson on June 4 and 5. Hole Al-1 had been completed to a depth of 1,038 feet. No mineralization was encountered in the hole. Hole Al-3 was down to a depth of 869 feet. It had encountered mineralization at 541.5 feet and was still in it at the 869 foot depth. The mineralization was visible to the naked eye. The chalcopyrite was confined chiefly to small fractures, some paralleling the core and others crisscrossing it. Some very finely disseminated chalcopyrite was also visible. No assays have been made of the mineralized section yet. Some sections of it may go 3% copper. Mineralization is spotty. Core recovery in Hole Al-3 has been about 50 percent in the ore zone. Some places no core, other places 90-100 percent recovery. Hole Al-4 has been drilled to a depth of 10 feet.

Hole Al-1 did not encounter ore. It did not reach out far enough.

Hole Al-2 encountered the ore zone at 778 feet, or 460 feet vertically below the collar and 670 feet in elevation. Note, all collars are relatively near 1,500 feet in elevation.

Hole Al-3 encountered the ore zone at 541.5 feet or 460 feet vertically below the collar and 955 feet in elevation.

Hole Al-4 is designed to encounter the ore zone at about the same elevation as hole Al-2.

Hole Al-5 is designed to encounter the ore zone at about the same elevation as hole Al-3.

ltr 2/4 from J. Johnson
to Miller Re memo of 1/22/52
with memo 1/22/52
from field Re degree of
adherence to ep project
contract provisions.
for Mr Chambers
Hilma Borowes

Copied from our original report. (Signed) Art

Proposed exploration at the Bully Hill & Rising Star mines,

Shasta County, California

A. R. Kinkel J. P. Albers

Recommendations

The drilling program proposed by the Glidden Paint Co. for their Rising Star and Bully Hill mines in Shasta County, Calif., and as shown on the composite plan of these two mines, is approved by the writers. It is justified by the high copper and zinc content of the ore which has been produced by these mines, and by the numerous areas that may contain ore but which were not prospected by the owners at the time the mines were in operation. The proposed holes will prospect all of the favorable areas within a reasonable depth from the surface, and although the spacing between holes is large at some places in relation to the length of ore shoots, any major ore zone should be located by the proposed holes.

Some unmined ore is known to occur in the mines, and some areas could be more easily explored by holes from underground if the mines were unwatered. However, as most of the favorable areas could not be reached by underground drilling, and as entirely new ore shoots must be found to encourage reopening of the mines, exploration by surface drilling is justified at this time.

Data pertinent to the exploration proposal

Location and Accessibility

The Bully Hill-Rising Star mine area is 18 miles air-line northeast of Redding, in secs. 16 and 21, T. 34 N., R. 3 W., Shasta County, California. It lies on the north side of Shasta Reservoir at an approximate altitude of 1500 feet. The property is most easily reached by boat or barge on Shasta Reservoir; it is also possible to drive from Redding to the mine area, but the driving distance is 70 miles, half of which is over a Forest Service dirt road that is adequate in the summer but almost impassable in the winter.

General geology

The areal geology in the vicinity of the Bully Hill-Rising Star mine area has recently been mapped by Survey geologists and the following information is based upon that work.

The rocks in the general vicinity of the mine are volcanic and sedimentary rocks of Triassic age. Three formations are represented. The oldest is the Dekkas andesite, a series of andesitic flows, tuffs, and tabular intrusive bodies of andesite porphyry. The ore bodies in the Bully Hill mine are in sheared portions of the tabular intrusive bodies. The Bully Hill rhyolite overlies the Dekkas andesite and is locally intruded by facies of the andesite. The Bully Hill rhyolite consists of a series of rhyolitic flows, breccias, and tuffs. It is commonly light gray in color and has a porphyritic texture with coarse 1-2 mm. quartz phenocrysts. Most of the ore bodies in the Rising Star mine are in the Bully Hill rhyolite.

The Pit formation, which consists of interbedded shale and crystal-lithic tuff conformably overlies the Bully Hill rhyolite. No sulfide bodies have been found in the Pit formation near Bully Hill.

The rocks in the vicinity of Bully Hill have been folded into a series of southward plunging anticlines and synclines. Bully Hill itself is essentially an anticline plunging south at an angle of 50 degrees. The folds are well outlined by the contact between the Bully Hill rhyolite and the overlying Pit sediments to the south, east, and west of Bully Hill. North of Bully Hill, however, the contact between the rhyolite and underlying Dekkas andesite is less intensely folded and dips are essentially homoclinal to the southeast.

Small faults and shear zones are very numerous in the immediate mine area, but elsewhere they are much less abundant and are of little structural importance.

Much of the area north and east of Bully Hill is covered by alluvial fan material and by landslide debris. Likewise, the geology on the eastern slopes of Bully Hill is obscured by a thick mantle of slope wash containing large boulders. In many places these boulders are so large that it is difficult to determine whether or not the rock is in place.

Geology of the mine area

The surface geology of most of the Bully Hill-Rising Star area was mapped during the spring of 1951 by the U. S. Geological Survey, and is shown in generalized form on the accompanying map (fig. 1). The underground workings are inaccessible and all information on underground geology is taken from company maps and sections.

Three geologic features that appear to be related to the sulfide mineralization are the dike-like bodies of andesite porphyry, the shear zones, and the strongly silicified areas.

The andesite porphyry dike in which the Bully Hill ore bodies are localized crops out along the strike of the ore zone about 1200 feet north of the northernmost known ore body. The intervening area is covered by wash. If the dike continues under the covered area, as seems likely, there is a good chance of more sulfide ore shoots being localized in it. The same condition occurs to the south along the strike of the Bully Hill ore zone. A zone of moderately well silicified rhyolite and a small amount of gossan is found along the ore zone on the surface.

The Rising Star shear zone, and the Middle shear zone are the chief geologic structures in the Rising Star ore zone. Each shear zone measures several tens of feet wide on the surface, and according to company maps and sections some of the ore bodies occur as pods within the shear zones. A third shear zone further east has also been productive. It extends for several hundred feet north of the known ore bodies, and this northward extension appears to be a worthwhile area to prospect (Fig. 2, south end of Area 8, east end of Area 2). All of the shear zones seem to converge in the vicinity of the Rising Star dump (Fig. 2, Area 2).

The Rising Star ore bodies are capped on the surface by very highly silicified rhyolite and rhyolite breccia. A small amount of limonite, in the form of stringers and knots, is present in the silicified rhyolite.

The area between the Bully Hill and Rising Star areas is underlain by rhyolite with is cut by many small faults and one strong shear zone (Fig. 2, south end Area 6, east end Area 2). Much of the rhyolite is highly silicified, and has the same general appearance as the silicified rhyolite over the Rising Star ore bodies. Therefore, the silicified areas, especially the large area trending northward along the axis of the hill, are considered good prospecting ground, (Fig. 2, Area 6).

Ore Deposits

The Bully Hill and Rising Star mines have a combined total production of approximately 800,000 tons of copper-zinc sulfide ore, about 60 percent of which was from the Rising Star. The average assay of Rising Star ore was .02 oz. Au, 2.5 oz. Ag, 2.8% Cu, and 20.0% Zn. The average grade of Bully Hill ore was approximately .10 oz. Au, 4.5 oz. Ag, and 3.0% Cu. No reliable zinc assays are available because all mining at Bully Hill was done prior to 1917 and zinc ore was not recovered in direct smelting. However, from the scant data at hand, it is evident that some of the Bully Hill ore bodies carried as much as 15 percent zinc.

The Bully Hill ore zone strikes about N. 5 E. and is composed of several ore sheets that pitch steeply northeast. The zone has a strike length of about 1000 feet, and a known vertical extent of 1000 feet (Fig. 3). The lowest known ore bodies are at 607 elevation, and the highest are at 1610 elevation. Individual sheets have a pitch length several times greater than their strike length. They seem to occur, according to company maps, in shear zones in the andesite porphyry dikes.

The Rising Star ore zone trends slightly west of north and is likewise composed of several ore sheets. The ore zone is about 700 feet long by 250 feet wide. It has a known vertical extent of 700 feet, and has a moderately steep pitch to the south (Figs. 4-9). Individual ore bodies have a rather definite N. 30-45 W. trend, and some of them appear to be related to two strong shear zones. A curious feature of the Rising Star mine is that the country rock in the lower levels is gypsum. Pods of massive sulfide ore occur in the gypsum.

Both the Sully Hill and Rising Star mines were still in ore at the lowest levels.

OFFICE OF THE ADMINISTRATOR

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

Office of
Executive Officer
DMEA Field Team
Region III

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

April 29, 1952

Memorandum

To: Frank L. Johnson, Chairman, Operating Committee,
Defense Minerals Exploration Administration,
Interior Building, Washington 25, D. C.

From: Executive Officer, DMEA Field Team, Region III

Subject: Form MF-104, Operator's Monthly Progress Report

Enclosed herewith are two copies each of the subject reports rendered by the Glidden Company for the months of February and March 1952, in connection with their Contract Idm-E187, DMA-1219X. These reports have been audited and passed to the Treasury for payment.

Two copies of inspection report of March 10, 1952, by E. J. Matson, Mining Engineer, Bureau of Mines, Region III, are also enclosed herewith.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 5 1952

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

Attachments

Copy to: E. H. Bailey, USGS

FILE COPY
SURNAME:

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

Mittendorf (for)

NOV 30 1951

Mr. Dwight P. Joyce, Pres.
The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Re: Docket No. DMA 1219X
The Glidden Company
Exploration Project Contract
Idm-E197

Dear Mr. Joyce:

This will acknowledge your two letters of November 26, 1951, one in which you enclosed the original and four copies of the signed Amendment to your contract. We will make the proper distribution of these copies and they will be attached to the contracts.

In your other letter, you attached a copy of a letter from the E. J. Longyear Company. We wish to thank you for this copy and it will be placed in our files.

Sincerely yours,

C. O. Mittendorf (for) J.H. 11-30

Acting Administrator
Defense Minerals Exploration
Administration

JMAlt/meh
11-29-51
cc to: Adm. Reading File
Reports and Records
Mr. Mittendorf
Mr. Alt
Region III (2)
Docket

JL

410
FILE COPY
SURNAME:

Alt

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

NOV 30 1951

Memorandum

To: Mr. H. C. Miller, Executive Officer Region III

From: Acting Administrator

Subject: Docket No. DMA 1219X, The Glidden Company
Amendment to Exploration Project Contract Idm-E187

Enclosed herewith is your copy of an Amendment to the above Exploration Project Contract to be attached to the copy of the contract filed in your office.

The Operator has his copy of the Amendment, and the copy required by the Regional Finance Officer will be forwarded directly by the Washington Finance Section.

C. O. Mittendorf (for)
C. O. Mittendorf
cc
11/30

Enclosure

JWAlt/meh
11-29-51
cc to: Adm. Reading File
Reports and Records
Mr. Mittendorf
Region III
Mr. Alt
Docket

410
FILE COPY
SURNAME:

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

November 29, 1951

Memorandum

To: Chief, Finance Section

From: C. O. Mittendorf, Acting Administrator

Subject: Docket No. DMA 1219X, The Glidden Company
Amendment to Exploration Project Contract Idm-E187

This Amendment has been executed by the Operator and for the Government in order to fully carry out the intent of the above contract. No increase in the Government's financial participation in the contract is made.

Please forward to Finance Officer, Region III, for attachment to his copy of this contract.

C. O. Mittendorf

Attachment

Mr. J. W. Alt/meh
cc to: Reports and Records
Mr. Mittendorf
Mr. Alt
Docket

Mr. Alt

THE GLIDDEN COMPANY

1396 UNION COMMERCE BUILDING

DEPARTMENT OF THE INTERIOR
RECEIVED
NOV 28 1951
Defense Minerals Administration,
Production Expansion Division.

November 26, 1951

CLEVELAND 14, OHIO

Mr. Frank E. Johnson
Acting Director
Production Expansion Division
Defense Minerals Administration
U. S. Department of the Interior
Washington 25, D. C.

Re: Docket No. DMA - 1219X - ZINC + COPPER
The Glidden Company
Exploration Project Contract Idm-E187

Dear Mr. Johnson:

Thank you for the attention given the recent Amendment of our Exploration Project Contract by the Defense Minerals Administration. An executed original and four copies of this Amendment, which we received today, are being returned immediately to your Office marked for the attention of Mr. Mittendorf, together with a reply to Mr. Mittendorf's letter of November 21.

Very truly yours,

Dwight P. Joyce

Dwight P. Joyce
President

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D.C.
Nov 28 9 08 AM '51

J:H:S
Encls.

Glidden QUALITY PRODUCTS

Mr. Ret

DEPARTMENT OF THE INTERIOR
RECEIVED
NOV 28 1951
Defense Minerals Administration,
Production Expansion Division.

THE GLIDDEN COMPANY
1396 UNION COMMERCE BUILDING
CLEVELAND 14, OHIO

November 26, 1951

Mr. C. O. Mittendorf
Acting Administrator
Defense Minerals Administration
Department of the Interior
Washington 25, D. C.

D.M.E. 1219X

Dear Mr. Mittendorf:

This will acknowledge your letter of November 21, 1951 in which you point out that a letter from the E. J. Longyear Company to The Glidden Company dated August 24, 1951 does not purport to be a part of our present agreement with the Longyear Company. This August 24 letter was inadvertently included in my letter to you of November 2 in place of an E. J. Longyear Company letter dated May 3, 1951. A copy of this May 3, 1951 letter, which covers the furnishing of geological services by Longyear, is enclosed.

The E. J. Longyear Company's proposals of April 27, 1951 and May 3, 1951, which have been accepted by The Glidden Company, constitute our entire agreement with Longyear relative to diamond drilling operations and the performance of geological services pertaining to our Shasta County, California mineral property.

In accordance with your letter of November 15, 1951, received today, we are returning the executed original and four copies of the Amendment to our Exploration Project Contract Idm-E187.

Very truly yours,

Dwight P. Joyce

Dwight P. Joyce
President

J:H:S
Encls.

DEFENSE MINERALS
ADMINISTRATION
WASHINGTON, D.C.
Nov 28 9 05 AM '51

QUALITY Glidden PRODUCTS

140

FILE COPY
SURNAME:

Hoffland
Mittendorf

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

NOV 21 1951

Mr. Dwight P. Joyce, President
The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

My dear Mr. Joyce:

Reference is made to your letter to me dated November 2, with which was enclosed what you have referred to as "contracts" with E. J. Longyear Company for the performance of drilling under your Exploration Project Contract Idm-E-187 (Docket DMA-1219x). The contracts apparently consist of two letters from E. J. Longyear Company to The Glidden Company, one dated August 24 and one dated April 27, both bearing a signed acceptance by The Glidden Company.

Your attention is called to the fact that the letter dated August 24 does not seem to be contractual in nature, but is rather for your information. It estimates the total cost of the project at $417,810, whereas the Exploration Project Contract estimates the cost at $294,300. The Government does not approve this letter of August 24, as it seems to form no part of your agreement with E. J. Longyear Company.

Assuming that the letter of April 27, a copy of which is attached to this letter of approval, sets forth to your satisfaction your agreement with E. J. Longyear Company, it is hereby approved by the Government subject to all of the provisions of the Exploration Project Contract as amended, which will have the following effect:

1. No payments will be made by the Government except as related to and on a basis of footage drilled, and then not in excess of the amount per foot provided for in the Exploration Project Contract.

2. Your vouchers for payment will show actual payments to E. J. Longyear Company and the items paid, under the provisions of your contract with that company, but the amount claimed from the Government cannot exceed the maximum

B2

fixed by the Exploration Project Contract for the contribution by the Government on a basis of footage drilled at the time the voucher is prepared.

3. This approval does not affect the Government's right to terminate the Exploration Project Contract under the terms thereof.

Your attention is called to the fact that your contract with E. J. Longyear Company contains no express provision for suspending rental or cost charges in the event of breakdown of equipment. If the Government considers drilling costs to be inappropriate under the provisions of your contract, it may terminate the Exploration Project Contract as provided therein.

Sincerely yours,

C. O. Mittendorf (for) N.S. R&R

Acting Administrator

Enclosure

JLHofflund/em
written 11/13/51

Copy to: Records & Reports
Adm. Reading File
PED
J. L. Hofflund
R. R. Guthrie
chron.
pending

COPY

E. J. LONGYEAR COMPANY
Mining Engineers
General Office
Foshay Tower
Minneapolis 2, Minnesota

April 27, 1951

Mr. Adrian D. Joyce, Chairman of the Board
The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Dear Mr. Joyce:

We are pleased to submit herewith our proposal for your contemplated diamond core drilling program to be carried out in Shasta County, California. We have been delayed in submitting our proposal to you due to critical material shortages and also personnel shortages which have developed during the past few months, but now believe we have made sufficient progress so that we will be in a position to proceed with the work in accordance with our proposal.

As indicated in our proposal, we would expect to furnish a crew consisting of 4 to 5 drillers, an equal number of drill helpers, a drill foreman, truck driver, camp cook and cook's helper. We expect that it would be necessary to pay wages approximately as follows:

Foreman	$500 to $550 per month
Drill runners	$2.00 per hour
Drill helpers	$1.50 to $1.75 per hour
Truck Driver	$1.75 per hour
Cook	$350 to $400 per month
Cook's Helper	Going rate for common labor

At the time our Mr. P. W. Donovan called on your Mr. Edward L. Ralston at Oakland, California, it was learned that you desire that we furnish a geologist for the purpose of supervising the sampling procedures and to assist in the planning of the locations of the drill holes and generally superintend the drilling operation. We have asked Dr. D. L. Davidson, Manager of our Mining Division to submit to you under separate cover proposal for the provision of this service. Dr. Davidson's proposal should be in the mail during the early part of the week of April 30.

We appreciate very much the opportunity of considering this work and should our proposal be acceptable we will make every effort to get the drilling operations under way at the earliest possible date.

Very truly yours,

/s/ V. F. Burnhart
V. F. Burnhart, Manager
Contract Drilling Division

VFB:EF
cc to: Mr. Edward L. Ralston

COPY

E. J. LONGYEAR COMPANY
Mining Engineers
General Office
Foshay Tower
Minneapolis 2, Minnesota

April 27, 1951

The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Attention: Mr. Adrian D. Joyce, Chairman of the Board

Gentlemen:

1. In accordance with our previous correspondence, we are pleased to submit below cost and rental agreement for your contemplated diamond core drilling program to be carried out at your property known as the Bully Hill Mine, Shasta County, California.

2. We understand that the preliminary phase of the drilling program will consist of a series of vertical holes to be drilled to depths varying from 600 to 1,000 feet and averaging probably around 800 feet; that if the results of the initial phase of the work are favorable, the old workings may be reopened and arrangements made for drilling from underground stations. We also understand that water required for drilling purposes would have to be hauled 1½ to 2 miles to secondary storage points where water could be pumped to the drill hole locations; and that it will be necessary to operate a camp for the accommodation of the drill crews. We further understand that there are two possible routes by which the property may be reached but that the most desirable means of transport to and from the property would depend upon the results of a further reconnaissance of the old truck road from Redding by-passing the northeast end of Shasta Lake to the Bully Hill property or whether satisfactory arrangements could be made with the Federal Government for the rental of a barge for the transport of equipment and supplies to the property.

3. For this work, we propose

a. To furnish two Longyear diamond core drilling units together with the necessary bortz bits, supplies, spares and other equipment required for recovering cores of EX, AX and BX sizes, approximately 1-5/8", 1-1/8" and 7/8" respectively, as required by drilling conditions for holes to a maximum depth of approximately 1,000 feet.

b. Core boxes will be furnished by the Longyear Company, if desired, as a supply item.

c. To provide the necessary crew of carefully selected men to operate the two drilling units on 2 or 3-shift basis, 6 days per week, the contemplated drill crew to consist of the following: 1 foreman, 4 to 5 drill runners, 4 to 5 drill helpers, and 1 truck driver. We will also furnish one competent camp cook and cook's helper as required.

d. To furnish one 1-ton pickup truck to transport supplies to and from Redding or other nearby points to camp or dock from which said supplies may be transported to a point which is accessible to the camp.

e. To provide all camp equipment required, including cook stove, all culinary equipment, beds, mattresses and other fixtures as required to operate camp.

4. We will carry public liability insurance covering personal injury and property damage; Workmen's Compensation, Old Age Benefit, Unemployment and any other insurance on our employees required by state or federal laws; also, all-risk insurance on the drilling equipment protecting against loss by theft, fire, flood, land-slides and other similar hazards, and special endorsement or coverage for marine hazard. Certificates showing the coverage referred to will be furnished, if desired.

5. COSTS

It is agreed that you will reimburse the Longyear Company for or pay directly the expenses of the Longyear Company in the performance of this contract as follows: all wages of workmen and their traveling expenses from the nearest available points to the scene of the work and return, also the board of the workmen less $1.50 per man per day, except cook and cook's helper whose board will be furnished without cost to them; all freight, express and trucking charges; food and all other supplies used; repairs and replacements; fuel; oil; bortz bits and bortz reaming shells at our listed retail prices less credit received for salvaged stones, Carboloy or other special bits at list price as used, mechanically-set bits and reaming shells; cost of compensation or other employee insurance as required by law; miscellaneous expenses; rods and casing to be charged at the rate of one foot of rods or casing for each ten feet drilled or cased, plus payment in full for any rods or casing lost in drill holes or discarded on account of damage due to causes other than ordinary wear and tear.

You will also pay for all expenses incurred in connection with rental of barge or other water transport as may be required for the delivery of drill equipment or the maintenance of drilling operations.

6. RENTAL:

In addition to all costs outlined above, you will pay the sum of $475.00 per drill per month for single shift operation, or $600.00 per drill per month for double shift operation, or $675.00 per drill per month for 3-shift operation, this charge to cover rental of drill outfit, interest, depreciation and overhead expense. This rental charge is to commence at the time the drill outfit and crew are delivered at Redding, California, and continue until drill outfit is returned to Redding for return shipment to Marquette, Michigan, or equivalent point.

You will also pay the sum of $100.00 per month for the use of truck plus gas, oil and maintenance.

7. COMPENSATION.

In addition to all costs outlined in the preceding paragraph 6, you will pay us as compensation the sum of 50¢ per foot drilled. It is understood that the charge of 50¢ per foot drilled covers total compensation for overburden drilling, diamond core drilling, and reaming or other work pertaining to the execution of this drilling program.

8. It is agreed that in the event drilling operations are temporarily terminated at your request, retaining the drill and equipment at the drilling site on standby basis, the rental charge for the complete outfit less personnel will be $250.00 per drill per month or fractional part thereof.

9. It is agreed that deductions for board as specified in paragraph 5 will be credited against expense on our monthly invoices.

10. It is agreed that the Longyear Company will be reimbursed for all camp equipment when purchased and that following the completion of the drilling program, the camp equipment may be disposed of in accordance with your instruction.

11. It is agreed that you will be responsible for or furnish the following: adequate housing required for kitchen, mess hall, housing for all employees of the Longyear company; repair and maintenance of all roads leading to the property, to and from drilling sites; lights and water required for camp facilities and our operation of camp; transport of water required for drilling purposes from source of supply to storage tanks to be provided by the Longyear Company to be located not over 1,500 feet from any planned drill hole location; construction of docks or dock facilities which may be required for the transport of equipment and supplies to the property.

12. TERMINATION OF CONTRACT AND MINIMUM RENTAL:

It is agreed that should the results of the exploration make it seem advisable, you may terminate the drilling at any time provided that if rentals paid or accrued under paragraph 6 do not amount to a total of $2,000.00, you will pay such additional sum as may be necessary to make that amount.

13. Statements are to be rendered as promptly as possible after the first of the month and are to be accompanied by copies of the payroll and such other supporting data as may be desired by you.

14. We understand that it is your desire to have this work commenced as soon as possible. We are prepared to proceed with this objective in mind realizing it will be necessary first to determine the most accessible route to the property to provide adequate transport of supplies and equipment, also to purchase or otherwise supply camp equipment necessary to feed and properly accommodate the drill crew. It is suggested that such preparations for mobilization be carried out with the assistance of Mr. Edward L. Ralston. To assist on the mobilization phase, we would send one of our field superintendents on the basis of $650.00 per month or fractional part thereof, plus travel expenses. Based upon the information at hand, we would endeavor to commence drilling operations on or about June 1, 1951.

Yours very truly,

E. J. LONGYEAR COMPANY

/s/ V. H. Burnhart
Manager, Contract Drilling Division

VHB:LT
ACCEPTED:
THE GLIDDEN COMPANY

Adrian D. Joyce, Chairman of the Board
Acceptance subject to the commencement of drilling operations on or before December 17, 1951.

There evidence approval Legal by Surname

11/21/51

Mr. M:

Mr. Koontz has surnamed letter.

He says the Amendments are o.k.; that he did a memo. saying so that should be in the file. It isn't in the file and Mr. Alt is away. I'll check it Friday.

fw

Johnson Sign

FILE COPY
SURNAME:

410

Koontz
Johnson (for)

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

Submitted to:

NOV 1 5 1951

Mr. Dwight P. Joyce
The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Re: Docket No. DMA - 1219X
The Glidden Company
Exploration Project Contract Idm-E187

Dear Mr. Joyce:

We are enclosing the original and five copies of the Amendment to the above-referenced contract.

If the terms and conditions of this Amendment meet with your approval, all six copies should be signed by you, one copy should be retained by your office, and the original and four copies returned to this office.

If any part of this Amendment does not meet with your approval, the original and all copies are to be returned to this office together with the proposed changes for consideration.

Sincerely yours,

(signed) FRANK E. JOHNSON

cc 11/23

Acting Director
Production Expansion Division

BL

Enclosures

JWAlt/meb
11/14/51

cc to: Admr's Reading Files
Reports and Records
FED
Field Team, Reg III, (2)
Alt
Docket

FILE COPY
SURNAME:
140
DMA-1219X

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

November 7, 1951

Memorandum

To: Director, Production Expansion Division

From: General Counsel

Subject: Amendment to the Glidden Company's Exploration Project Contract -- Docket No. DMA-1219X

The proposed amendment of the exploration contract in this case, submitted to us by your memo of November 5, 1951, is approved as to legal form and sufficiency for signature on behalf of the Government.

Your file is returned herewith.

J. L. Hofflund

J. L. Hofflund
General Counsel

Attachment

RRGuthrie/ema

Copy to: Reports & Records
J. L. Hofflund
R. R. Guthrie
Chron.

FILE COPY
SURNAME:

410

FEJohnson

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

November 5, 1951

Memorandum

To: Mr. John Hofflund
General Counsel

From: Acting Director
Production Expansion Division

Subject: Amendment to the Glidden Company's
Exploration Project Contract
Docket No. DMA 1219X

Attached hereto is the subject docket including copy executed contract and proposed amendment to the contract.

Kindly review the amendment as to legal form and sufficiency and, if it meets with your approval, return the docket to this office at your earliest convenience.

(signed) FRANK E. JOHNSON

Acting Director

Enclosures

11/5/51
JWAlt/meb

cc to: Admr's Reading Files
Reports & Records
PED
Mr. Alt
Docket

not stripped in R&R.

Mr. Alt

DEPARTMENT OF THE INTERIOR
RECEIVED
NOV 7 1951
Defense Minerals Administration,
Production Expansion Division.

THE GLIDDEN COMPANY
1396 UNION COMMERCE BUILDING
CLEVELAND 14, OHIO

DWIGHT P. JOYCE
PRESIDENT

OFFICE FILE COPY

To		Date
210		

November 2, 1951

Rec. 11/13/51
Gottfem

Mr. Frank E. Johnson, Acting Director
Production Expansion Division
United States Department of the Interior
Defense Minerals Administration
Washington 25, D. C.

Re: Docket No. DMA 1219X
Exploration Contract Idm-E187

Dear Mr. Johnson:

Upon my return to the office this morning I find that the contracts we executed with the Longyear people are identical with those you already have in your files with the exception of a change in dates.

To make sure there is no misunderstanding about this, I will mail you today or Monday two copies of the contracts with the acceptance notifications marked on them.

I want to take this opportunity of again thanking you and Mr. Alt for your splendid cooperation yesterday in connection with getting this matter of geology and engineering properly straightened out. I feel that the understanding we arrived at is fair to both ourselves and to the Government. I will look forward to receiving next week the six copies of the Supplemental Agreement to the contract which I will promptly sign and return to you.

I now feel that all matters pertaining to this exploratory operation are properly straightened out between the Government and ourselves, and I am confident that the whole project will be very worthwhile.

With personal regards, I am

Yours very truly,

Dwight P. Joyce

President

DPJ:LG

P. S. Two copies of the contracts referred to above are enclosed.

D.P.J.

QUALITY Glidden PRODUCTS

C O P Y

E. J. LONGYEAR COMPANY
Mining Engineers
General Office
Pashay Tower
Minneapolis 2, Minnesota

August 24, 1951

Mr. R. D. Barner, Secretary
The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Dear Mr. Barner:

Bully Hill Mine Exploration,
Shasta County, California

We acknowledge receipt of your letter of August 16, together with the enclosures concerning the application to Defense Minerals Administration for the exploration of the above property in California.

In accordance with the request made by Mr. C. O. Mittendorf of Defense Minerals Administration, we submit herewith estimates for the cost of the drilling, engineering, and other expenses which will be involved in the execution of this work.

In view of the nature of the exploration project contract with the Federal Government, we have submitted estimates which represent the maximum expenses rather than the minimum, so as to cover contingencies which are unforeseeable at this time.

We would suggest that the blank spaces in paragraph 3 be filled in with the following information:

> The operator within 60 days from the date of this contract shall commence work on a project----------completion within a period of 24 months from the date of this contract.

With regard to paragraph 5 in the exploration project contract, in discussing this matter with Mr. Ralston, it was understood that no fixtures or improvements will be necessary, and, therefore, there need not be any listing in Exhibit "A." A list of all items which should appear in Exhibit "A" is attached hereto.

We estimate the total cost of this project to be $417,810.00.

The estimate of total costs of this project, based upon our own figures and those supplied by Mr. Ralston, can be broken down categorically as follows:

Diamond drilling.....	$339,810.00
Rehabilitation camp	20,000.00
Const. access roads and water supply facilities.....	10,000.00
Engineering	48,000.00

The figure of $46,000.00 for engineering which I have (given) you over the telephone is an estimate based upon 12 months complete service. I should point out that if the period is increased to 22 months, which is the base period for all other figures, the estimate would be proportionally higher, but Mr. Ralston intimated that the above figure might be more acceptable to the government.

We have no idea as to the amount of money specified in your original application; but it has occurred to us that if the estimated expenses are in excess of the amount applied for, you should either arrange to amend the application or be prepared to furnish funds for the difference.

We trust the information which we have assembled will be sufficient so that you can satisfy the requirements of the Government.

Yours very truly,

E. J. LONGYEAR COMPANY

/s/ V. H. Burnhart

V. H. BURNHART, Manager
Contract Drilling Division

VHB:LT

ACCEPTED:
THE GLIDDEN COMPANY

/S/ Adrian D. Joyce, Chairman of the Board

C O P Y

E. J. LONGYEAR COMPANY
Mining Engineers
General Office
Foshay Tower
Minneapolis 2, Minnesota

April 27, 1951

Mr. Adrian D. Joyce, Chairman of the Board
The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Dear Mr. Joyce:

We are pleased to submit herewith our proposal for your contemplated diamond core drilling program to be carried out in Shasta County, California. We have been delayed in submitting our proposal to you due to critical material shortages and also personnel shortages which have developed during the past few months, but now believe we have made sufficient progress so that we will be in a position to proceed with the work in accordance with our proposal.

As indicated in our proposal, we would expect to furnish a crew consisting of 4 to 5 drillers, an equal number of drill helpers, a drill foreman, truck driver, camp cook and cook's helper. We expect that it would be necessary to pay wages approximately as follows:

Foreman	- $500 to $550 per month
Drill runners	- $2.00 per hour
Drill helpers	- $1.50 to $1.75 per hour
Truck driver	- $1.75 per hour
Cook	- $350 to $400 per month
Cook's helper	- Going rate for common labor

At the time our Mr. F. W. Donovan called on your Mr. Edward L. Ralston at Oakland, California, it was learned that you desire that we furnish a geologist for the purpose of supervising the sampling procedures and to assist in the planning of the locations of the drill holes and generally superintend the drilling operation. We have asked Dr. D. M. Davidson, Manager of our Mining Division to submit to you under separate cover proposal for the provision of this service. Dr. Davidson's proposal should be in the mail during the early part of theweek of April 30.

We appreciate very much the opportunity of considering this work and should our proposal be acceptable we will make every effort to get the drilling operations under way at the earliest possible date.

Very truly yours,

/s/ V. H. Burnhart
V. H. Burnhart, Manager
Contract Drilling Division

VHB:LP
cc: Mr. Edward L. Ralston

C O P Y

E. J. LONGYEAR COMPANY
Mining Engineers
General Office
Foshay Tower
Minneapolis 2, Minnesota

April 27, 1951

The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Attention: Mr. Adrian D. Joyce, Chairman of the Board

Gentlemen:

1. In accordance with our previous correspondence, we are pleased to submit below cost and rental agreement for your contemplated diamond core drilling program to be carried out at your property known as the Bully Hill Mine, Shasta County, California.

2. We understand that the preliminary phase of the drilling program will consist of a series of vertical holes to be drilled to depths varying from 500 to 1,000 feet and averaging probably around 800 feet; that if the results of the initial phase of the work are favorable, the old workings may be reopened and arrangements made for drilling from underground stations. We also understand that water required for drilling purposes would have to be hauled 1½ to 2 miles to secondary storage points where water could be pumped to the drill hole locations; and that it will be necessary to operate a camp for the accomodation of the drill crews. We further understand that there are two possible routes by which the property may be reached but that the most desirable means of transport to and from the property would depend upon the results of a further reconnaissance of the old truck road from Redding by-passing the northeast end of Shasta Lake to the Bully Hill property or whether satisfactory arrangements could be made with the Federal Government for the rental of a barge for the transport of equipment and supplies to the property.

3. For this work, we propose

a. To furnish two Longyear diamond core drilling units together with the necessary bortz bits, supplies, spares and other equipment required for recovering cores of BX, AX AND EX sizes, approximately 1-5/8", 1-1/8" and 7/8" respectively, as required by drilling conditions for holes to a maximum depth of approximately 1,000 feet.

b. Core boxes will be furnished by the Longyear Company, if desired, as a supply item.

c. To provide the necessary crew of carefully selected men to operate the two drilling units on 2- or 3-shift basis, 6 days per week, the contemplated drill crew to consist of the following: 1 foreman, 4 to 5 drill runners, 4 to 5 drill helpers, and 1 truck driver. We will also furnish one competent camp cook and cook's helper as required.

d. To furnish one 1-ton pickup truck to transport supplies to and from Redding or other nearby points to camp or dock from which said supplies may be transported to a point which is accessible to the camp.

e. To provide all camp equipment required, including cook stove, all culinary equipment, beds, mattresses and other fixtures as required to operate camp.

4. We will carry public liability insurance covering personal injury and property damage; Workmen's Compensation, Old Age Benefit, Unemployment and any other insurance on our employees required by state or federal laws; also, all-risk insurance on the drilling equipment protecting against loss by theft, fire, flood, land-slides and other similar hazards, and special endorsement or coverage for marine hazard. Certificates showing the coverage referred to will be furnished, if desired.

5. COSTS:

It is agreed that you will reimburse the Longyear Company for or pay directly the expenses of the Longyear Company in the performance of this contract as follows: all wages of workmen and their traveling expenses from the nearest available points to the scene of the work and return, also the board of the workmen less $1.50 per man per day, except cook and cook's helper whose board will be furnished without cost to them; all freight, express and trucking charges; feed and all other supplies used; repairs and replacements; fuel; oil; bortz bits and bortz reaming shells at our listed retail prices less credit received for salvaged stones, Carbaloy or other special bits at list price as used, mechanically-set bits and reaming shells; cost of compensation or other employee insurance as required by law; miscellaneous expenses; rods and casing to be charged at the rate of one foot of rods or casing for each ten feet drilled or cased, plus payment in full for any rods or casing lost in drill holes or discarded on account of damage due to causes other than ordinary wear and tear.

You will also pay for all expenses incurred in connection with rental of barge or other water transport as may be required for the delivery of drill equipment or the maintenance of drilling operations.

6. RENTAL:

In addition to all costs outlined above, you will pay the sum of $475.00 per drill per month for single shift operation, or $600.00 per drill per month for double shift operation, or $675.00 per drill per month for 3-shift operation, this charge to cover rental of drill outfit, interest, depreciation and overhead expense. This rental charge is to commence at the time the drill outfit and crew are delivered at Redding, California, and continue until drill outfit is returned to Redding for return shipment to Marquette, Michigan, or equivalent point.

You will also pay the sum of $100.00 per month for the use of truck plus gas, oil and maintenance.

7. COMPENSATION.

In addition to all costs outlined in the preceding paragraph 6, you will pay us as compensation the sum of 50¢ per foot drilled. It is understood that the charge of 50¢ per foot drilled covers total compensation for overburden drilling, diamond core drilling, and reaming or other work pertaining to the execution of this drilling program.

8. It is agreed that in the event drilling operations are temporarily terminated at your request, retaining the drill and equipment at the drilling site on standby basis, the rental charge for the complete outfit less personnel will be $850.00 per drill per month or fractional part thereof.

9. It is agreed that deductions for board as specified in paragraph 5 will be credited against expense on our monthly invoices.

10. It is agreed that the Longyear Company will be reimbursed for all camp equipment when purchased and that following the completion of the drilling program, the camp equipment may be disposed of in accordance with your instructions.

11. It is agreed that you will be responsible for or furnish the following: adequate housing required for kitchen, mess hall, housing for all employees of the Longyear Company; repair and maintenance of all roads leading to the property, to and from drilling sites; lights and water required for camp facilities and our operation of camp; transport of water required for drilling purposes from source of supply to storage tanks to be provided by the Longyear Company to be located not over 1,500 feet from any planned drill hole location; construction of docks or dock facilities which may be required for the transport of equipment and supplies to the property.

12. <u>TERMINATION OF CONTRACT AND MINIMUM RENTAL:</u>

It is agreed that should the results of the exploration make it seem advisable, you may terminate the drilling at any time provided that if rentals paid or accrued under paragraph 6 do not amount to a total of $2,000.00, you will pay such additional sum as may be necessary to make that amount.

13. Statements are to be rendered as promptly as possible after the first of the month and are to be accompanied by copies of the payroll and such other supporting data as may be desired by you.

14. We understand that it is your desire to have this work commenced as soon as possible. We are prepared to proceed with this objective in mind realizing it will be necessary first to determine the most accessible route to the property to provide adequate transport of supplies and equipment, also to purchase or otherwise supply camp equipment necessary to feed and properly accommodate the drill crew. It is suggested that such preparations for mobilization be carried out with the assistance of Mr. Edward L. Ralston. To assist on the mobilization phase, we would send one of our field superintendents on the basis of $650.00 per month or fractional part thereof, plus travel expenses. Based upon the information at hand, we would endeavor to commence drilling operations on or about June 1, 1951.

Yours very truly,

E. J. LONGYEAR COMPANY

/S/ V. H. Burnhart
Manager, Contract Drilling Division

VHB:LF
ACCEPTED:
THE GLIDDEN COMPANY

Adrian D. Joyce, Chairman of the Board

Acceptance subject to the commencement of drilling operations on or before December 17, 1951
/S/ VHB

DEPARTMENT OF THE INTERIOR
RECEIVED
OCT 31 1951
Defense Minerals Administration,
Production Expansion Division

THE GLIDDEN COMPANY

1396 UNION COMMERCE BUILDING

ADRIAN D. JOYCE
CHAIRMAN OF THE BOARD

CLEVELAND 14, OHIO

DEPARTMENT OF THE INTERIOR
RECEIVED
OCT 30 1951
Defense Minerals Administration

October 29, 1951

Mr. Frank E. Johnson, Acting Director
Production Expansion Division
United States Department of the Interior
Defense Minerals Administration
Washington 25, D.C.

Re: Docket No. DMA 1219X
Exploration Contract Idm-E187

Dear Mr. Johnson:

Our President, Mr. Dwight P. Joyce, is obliged to be out of the office today but he passed through to me your letter of October 18th together with the copy of the Exploration Project Contract between the United States Government and The Glidden Company. I wish to thank you for the courtesies extended to Mr. Dwight P. Joyce and I can assure you that we will contact Mr. H. C. Miller, Executive Officer, DMA Field Team, Region III, 1012 Flood Building, 870 Market Street, San Francisco 2, California, and advise him the exact date when we will start work on the project.

I am today having a conference with the E. J. Longyear Company working out the details.

In looking over the Exploration Project Contract and Exhibit A, I was somewhat confused in connection with the last page of this Exhibit. I therefore called your office by telephone but found that you were absent and then talked with Mr. Alt. It was my understanding that the items of Fixtures and Improvements, Operating Equipment, Labor and Supervision, Rehabilitation and Repairs, referred to any of these things that would have to be purchased, or to labor and supervision of The Glidden Company's employees. Mr. Alt agreed with me in regard to this, and in connection with the last sentence, "All costs of rehabilitation, engineering, geology, etc. are to be borne by the Operator." It is my understanding that our company will stand all costs of rehabilitation and all engineering expense in connection with the topography, which will be handled by The Glidden Company's engineers, and in connection with the mine geology, but that the engineering in connection with the handling of the drilling equipment and field geology in connection with the drilling operation, and the checking of the cores, is to be a part of the drilling expense.

It is also my understanding that the Government will not participate in costs exceeding $9.00 per foot for the diamond drilling

QUALITY Glidden PRODUCTS

and that any additional costs will be borne by The Glidden Company. I explained this to Mr. Alt and I understood that he was in agreement on this point.

It is our earnest desire to handle this work as economically as possible but to do a job that will give us definite information as to the location of the ores; as to the extent of the various deposits, and other information that will permit us to open the mines if the results are satisfactory.

We very greatly appreciate the Department of Interior permitting us to use the Government barges for the transportation of supplies and equipment to the property which is to be explored.

Yours truly,

Adrian D. Joyce

ADJ-G

Chairman of the Board.

FILE COPY
SURNAME:

410

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

OCT 29 1951

G. E. C.

Contract Service Section
General Accounting Office
Fourth Floor - New GAO Building
Washington 25, D. C.

Re: Docket No. DMA 1219X
The Glidden Company
Exploration Project Contract Idm-E187

Gentlemen:

Enclosed for recording in your office is the original, signed copy of an Exploration Project Contract executed between the Operator named in the above reference and the Government of the United States.

Sincerely yours,

(signed) FRANK E. JOHNSON (fw)

Acting Director
Production Expansion Division

Enclosure

JWAlt/meb
10/25/51

cc to: Admr's Reading Files
Reports & Records
Messrs. Mittendorf/Olund
Mr. Alt
Docket

FILE COPY
SURNAME:

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

OCT 29 1951

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

Re: Docket No. DMA - 1219 X
The Glidden Company
Exploration Project Contract Idm-X187

Dear Mr. Miller:

We are enclosing your copy of the above-referenced contract which was signed in this office on October 24, 1951 by Mr. Dwight P. Joyce, President of the Glidden Company. The Washington Finance Office will forward a copy of the contract to the Field Finance Office with appropriate instructions.

A report on this Exploration Project was prepared by A. R. Kinkel, Jr., and J. P. Albers, Geologists of the U. S. Geological Survey. We regret that we cannot supply you with a copy of this report. However, possibly Mr. Kinkel or Mr. Albers can supply you with a copy.

We are also enclosing for your information a copy of a letter to Mr. Mittendorf from R. D. Horner, and a copy of the letter with report from Edward L. Ralston to Mr. Horner.

Sincerely yours,

(signed) FRANK E. JOHNSON

Acting Director,
Production Expansion Division

Enclosures
[redacted]JW/klt/hmj10-26-51
cc to: Reports and Records
Adm. Reading File
PED
Mr. Alt
Region III (2)
Docket
Mr. Gunnard Johnson
Mr. Gowen
Mr. McKnight

FILE COPY
SURNAME:
400

F. Johnson

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

Operator's copy of
NOTE: /Contract handed Mr. D.P.Joyce, Pres.,
by Mr. F. E. Johnson, Acting Admr.,
10/~~23~~ 24/51.

OCT 2 4 1951

Mr. Dwight P. Joyce, Pres.
~~The Glidden Company~~
1396 Commerce Building
Cleveland 14, Ohio

Re: Docket No. DMA 1219X
Exploration Contract
Idm-E187

Dear Mr. Joyce:

Transmitted herewith is your copy of the exploration contract between the United States Government and the Glidden Company.

We have previously furnished you instructions concerning the submission of progress reports in connection with the operations under the contract. If additional copies of the progress reports (MF-104) are needed, they may be obtained from the DMA Field Team Office for the region in which your mine is located.

We will appreciate your contacting the Executive Officer and advise him as to when you will start work on the project. The address of the Executive Officer is as follows: Mr. H. C. Miller, Executive Officer, DMA Field Team, Region III, 1012 Flood Building, 870 Market Street, San Francisco 2, California.

Sincerely yours,

(signed) FRANK E. JOHNSON (for)

Frank E. Johnson, Acting Director
Production Expansion Division

Enclosure-1

FEJohnson/meh
10/24/51
cc to: Adm. ReadingFile
Reports and Records
PED
Mr. Alt
Region III (2)
Docket
Mr. Gunnard Johnson
Mr. Gowen
Mr. McKnight

FILE COPY
SURNAME:

Jwalt (cmd)

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

October 19, 1951

Memorandum

To: Frank E. Johnson, Acting Director
Production Expansion Division

From: Jacob W. Alt

Subject: Exploration Project Contract, Docket No. DMA 1219X
The Glidden Company 1396 Union Commerce Building
Cleveland 14, Ohio.

In the application for assistance to the exploration project, it was stated that the drilling could be done for about $7.00 per foot. We asked for a firm contract for the diamond drilling, or an estimate of the various items which make up the cost per foot of drilling.

On August 27, 1951, The Glidden Company replied to our inquiry regarding the cost of the diamond drilling by stating that the total estimated cost for their exploration project would be $417,810.00, broken down as follows:

Diamond drilling	$339,810.00
Rehabilitating Camp	20,000.00
Const. access roads and water supply facilities	10,000.00
Engineering	48,000.00
Total	$417,810.00

For 32,700 feet of drilling the cost would approximately be $12.78 per foot of drilling.

A breakdown on the drilling cost was supplied, also a breakdown on the engineering cost.

These figures were throughly discussed with Mr. Blakemore of this Division. We both agreed that the total estimated cost for this exploration project was too high. Mr. Blakemore, by long distance telephone talked to Mr. Joyce of The Glidden Company, and he said he would have his Engineer, Mr. Ralston who is in California, come to our office to go over the project with us.

O.K.

Mr. Ralston did meet with Mr. Blakemore and myself. He was advised that The Glidden Company's estimated costs were too high, and that the costs would have to be revised.

The contract was drawn up from the letter of September 27, 1951 from the Glidden Company and after again discussing the entire matter with Mr. Blakemore, Mr. Horner, of The Glidden Company was contacted and it was agreed the drilling costs would not exceed $9.00 per foot. Any cost exceeding this amount would be borne by The Glidden Company, also that The Glidden Company would pay all other costs.

Mr. Miller, Executive Officer, Region III was contacted, and this exploration project was explained to him before the contract was drawn up.

[redacted]

Jacob W. Alt

JWAlt/hmk
Typed: 10-19-51

cc to: Reports and Records
Adm. Reading File
Mr. Mittendorf, Olund
Mr. Alt
Mr. Blakemore
Docket

Not stripped in R.R.

Mr. H. C. Miller
Executive Officer, Reg. III
Defense Minerals Administration
1012 Flood Building
870 Market Street
San Francisco, California

Re: Docket No. DMA 12197
The Glidden Company
Contract DMA-2197

Dear Mr. Miller:

We are enclosing the original and five copies of the above subject contract, signed for the Government, together with the attached Appendix I (2 pages), Exhibit "A" (2 pages), and one map.

If the terms and conditions of this contract meet with the approval of the Operator, all six copies should be signed by a duly authorized official of the Company; one copy should be given to the Operator, one copy retained by your office, and the original and three copies returned to this office.

If any part of this contract does not meet with the approval of the Operator, the original and all copies of the contract are to be returned to this office together with the proposed changes for consideration.

A report on this exploration project was prepared by A. R. Kinkel, Jr. and J. F. Albers, Geologists of the U. S. Geological Survey. We regret that we can not supply you with a copy of this report. We are enclosing for your information a copy of a letter to Mr. Wittendorf from R. L. Horner, and a copy of the letter with report from Edward L. Walton to Mr. Horner.

Sincerely yours,

G. W. Wittendorf, Director
Production Expansion Division

Enclosures-9
cc:

Jeslt/mch 10/18/51
cc to: Adm. Reading File
Reports and Records
Messrs. Wittendorf, Olund
Mr. Moon Mr. Ait
Mr. Billings Mr. Cowen
Mr. Knight Region III
Docket

Chairman, Coordinating Committee

Director, Bureau of Mines

Director, Geological Survey

FILE COPY
DMA-1219X
SURNAME:

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

October 17, 1951

Memorandum

To: Director, Production Expansion Division

From: General Counsel

Subject: The Glidden Company exploration contract -- Docket No. DMA-1219X

The proposed exploration contract in this case, submitted to us on October 12 is approved as to legal form and sufficiency for signature on behalf of the Government subject to:

1. Proper signature on behalf of the applicant.

2. Proper dating prior to delivery.

3. Government approval of any subcontracts under which work upon the project is to be performed.

Your file is returned herewith.

John G. Liebert, Acting for
J. L. Hofflund
General Counsel

Attachment
RRGuthrie/ema

Copy to: Reports & Records
R. R. Guthrie
J. L. Hofflund
Chron.

Mr. Alt

DEFENSE MINERALS
ADMINISTRATION
WASHINGTON, D. C.

THE GLIDDEN COMPANY

SEP 28 11 23 AM '51

1396 UNION COMMERCE BUILDING

CLEVELAND 14, OHIO

September 27, 1951

Mr. C. O. Mittendorf, Director
Production Expansion Division
United States Department of the Interior
Defense Minerals Administration
Washington 25, D. C.

DEPARTMENT OF THE INTERIOR
RECEIVED
SEP 28 1951
Defense Minerals Administration,
Production Expansion Division.

Re: Docket No. DMA - 1219X

Dear Mr. Mittendorf:

A letter received from Mr. E. L. Ralston, our Mining Engineer, regarding general conditions anticipated in our proposed copper and zinc exploration program in Shasta County, California is attached. As you may know, Mr. Ralston discussed this matter recently with Messrs. Blackmore and Alt of the Defense Minerals Administration, and at that time the DMA expressed the opinion that our $10.00 per linear foot estimated cost of our exploration project as submitted in our August 27, 1951 proposal was somewhat high. We believe that for reasons set forth in Mr. Ralston's letter this estimated cost is justified, but in order to meet DMA requirements, wish to submit the following proposal:

The Glidden Company's diamond core drilling exploration program would be carried out in accordance with the April 27, 1951 proposal of the E. J. Longyear Company submitted to the DMA with our May 4, 1951 application. Federal Government participation in this program would consist of 50% of all drilling costs not exceeding $9.00 per linear foot. Any drilling costs in excess of $9.00 per linear foot would be borne entirely by The Glidden Company.

These costs are based upon an estimated 34,000 linear feet of diamond drilling and upon an operating period of 22 months as set forth in Exhibits attached to our August 27, 1951 letter.

This proposal, we believe, will satisfy any objections which the DMA has made to our previous application. Prompt action in commencing this exploration program is of the utmost importance, and we will sincerely appreciate your advising us immediately of action taken by the DMA on this proposal.

Very truly yours,

R. D. Horner
Secretary

RDH:gs
Encl.

Glidden

COPY

THE CHEMICAL & PIGMENT COMPANY
Division of The Glidden Company
766 - 50th Avenue
Oakland 1, California

Sept. 24, 1951

Mr. R. D. Horner
The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Dear Mr. Horner:

I feel that further consideration should be given to our proposed core drilling campaign in Shasta County, and that much further clarification of this proposed job is now in order since there seems to be some confusion among all parties concerned. I have discussed this situation in some detail with Messrs. Blackmore and Alt of the Defense Minerals Administration, Department of Interior, also with our own people and with the Longyear people. Ifind that the government officials feel the cost of this project which has been submitted by your office is somewhat out of line and I believe this comes about through the many unknowns which have entered the equation, making the solution highly intricate. Therefore, in order to clarify this matter, there are certain basic facts which must be given due consideration and these I will briefly outline.

LOCATION

The Bully Hill property is located in Shasta County, 26 miles northeast of Redding. Originally the property was easily accessible by automobile road from Redding, the road following Highway 99 to the intersection of the McCloud and Pitt Rivers, and then up Pitt River to Squaw Creek, and up Squaw Creek to the property, the distance from the highway to the property being approximately ten miles. In 1907 a standard gauge railroad from Pitt, on the Southern Pacific, to Bully Hill was built and this railroad operated until 1927.

On the building of Shasta Dam, both the automobile road and the railroad were inundated and the only means at this time of reaching the property is by boat across Shasta Lake, a distance of ten miles, or over the Redding - Alturas Lateral to Montgomery Creek and then over the Forest Service road into the property, a total distance of 75 miles. Unfortunately the Forest Service road is not open in the winter months and is only usable from April first to November. Consequently it will be necessary to establish barge service across Shasta Lake either from the government landing or the boat house operated by Shasta Navigation, both of these locations being about fifteen miles north of Redding.

Thus far commercial barge service has not been established and while Shasta Navigation has a few small power boats for use on the Lake, yet this company has not established satisfactory barge service. The Bureau of Reclamation operates barge service for the stock men and a few others, but thus far has not made this service available for mining operations. Hence, in the event of a continuous drilling program at Bully Hill, transportation is of vital importance in considering the cost of this operation.

BULLY HILL TOWNSITE

The buildings in the townsite were kept in reasonably good condition during the operating period and for some considerable time thereafter, but later it was found more economical to discontinue maintenance operations on these buildings until such time as operations were resumed, and then to rehabilitate them and put them in livable condition. Thus far it has not been determined just how many buildings will be required to house a crew and I do not believe this can be determined until operations are actually started. Providing the employees have families and are desirous of having their families with them, it naturally follows that more living quarters will be required, but in case of single men, expenditures for this purpose will be much less. Office space for the technical staff, both Longyear's and our own, is readily available and repairs here will not be extensive. At the present time single phase electrical power is available and a three phase current could be made quickly available by the installation of a bank of transformers. Telephone service is not available at this time, nor is it possible to economically tie on to the Forest Service line. However, a telephone line could undoubtedly be erected across Shasta Lake at some of the narrow points without too much expense. Other buildings suitable for housing equipment, supplies, etc., for this operation are available. However, before an accurate determination can be made as to the cost, it will be necessary to know the requirements of the Longyear people, an unknown at this time.

CLIMATE

Generally speaking, the climate at Bully Hill is mild, with only light frosts from December to April first. The ground does not freeze and only in extreme cases do the surface pipe lines freeze. However, the winter months are very wet, annual rainfall of 100 inches not being uncommon, and an occasional heavy snowstorm during February and March. Under the proper set-up no difficulties should be encountered in carrying on continuous drilling operations throughout the year. There is a fair road from the plant through the property, and with a little repair work this road can be put in good condition. However, it will be necessary to do a small amount of work in order to provide access roads for drilling locations, but all of this work can be done with a heavy bulldozer and should not be too expensive. Water is readily available for drilling operations and can either be piped to the drilling locations or hauled.

DRILLING COST

The ground to be core drilled is largely alaskite porphyry with small amounts of diorite, sediments, and vein matters. The depth of holes as projected varies from 400 feet to 1250 feet. While there has been some diamond drilling done in this area yet this work was done many years ago and there are no authentic records of the actual cost of drilling or other progress reports. Furthermore, in drilling orebodies of this kind, it will be necessary to penetrate open levels, stopes and old gobs where the hazard of losing equipment is great. Hence, until such time as these factors can be determined, it is not in the province of any operator to specifically state the cost per linear foot of drilling.

In presenting these facts I am trying to bring to your attention the existing conditions on the ground and the reason why this job would be more expensive than the ordinary set-up encountered in diamond drilling, since in most cases, this work is done around operating mines where facilities are available with no additional cost. Hence, you can readily see how difficult it would be for any contractor to contract on a per linear foot basis with so many unknowns

entering the equation. For this reason I feel we should absorb all of these extra expenses and confine the work to a clear cut drilling contract.. Under the present high cost of labor and material, I feel that $9.00 per lineal foot is a fair cost for the work and suggest that the contract with the Defense Minerals Administration of the Department of the Interior be drawn on this basis. In this way the Government officials will be in position to accurately determine the cost of the work at all times since under no condition will there be any extras allowed.

It is needless for me to say that this is a most worthwhile project since the Shasta Copper Belt is too well known by the mining fraternity to require further comment. John Albers and Art Kinkel of the U.S. Geological Survey have passed very favorably on the proposed work and since both of these men have done an untold amount of detail work on the ground in question, it is most certainly a good recommendation. The Bully Hill property has a beautiful production record and the closing down of these mines did not result from the depletion of the ore reserves but from adverse economic conditions. However, time is of essence since both copper and zinc are scarce and additional ore reserves must be blocked out for the proper defense of our country.

Very truly yours,

EDWARD L. RALSTON (Signed)

Manager

ELR:HM

FILE COPY
SURNAME:

410

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

Mittendorf

Q.E.C.

SEP 21 1951

Mr. E. L. Ralston
766 Fiftieth Avenue
Oakland 1, California

Re: Docket No. DMA 1219X
The Glidden Company
Exploration Project Contract

Dear Mr. Ralston:

Enclosed please find a copy of the Government's Specifications for Core Drilling, B. of M. Form 6-758(a). This, as explained to you on your recent visit here, may be helpful in drawing up your drilling contract. You understand, however, that it is not necessary for you to enter into this exact type of drilling agreement in order to receive approval of an Exploration Contract.

Sincerely yours,

BJ 9-21

C. O. Mittendorf

C. O. Mittendorf, Director
Production Expansion Division

Enclosure

JWAlt/meb
9/20/51
cc to: Admr's Reading Files
Reports & Records
Mittendorf/Olund
Field Team, Reg III, (2)
Mr. Alt
Docket

CLASS OF SERVICE

This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address.

WESTERN UNION

W. P. MARSHALL, PRESIDENT

1201

(218PM)

1951 SEP 18 PM 3 18

SYMBOLS

DL=Day Letter

NL=Night Letter

LT=Int'l Letter Telegram

VLT=Int'l Victory Ltr.

The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

WP124 PD=CLEVELAND OHIO 18 218P=

C O MITTENDORF, DIRECTOR PRODUCTION EXPANSION DIVN=

U S DEPT OF THE INTERIOR DEFENSE MINERALS ADMN

OUR MR. E L RALSTON WILL CALL ON YOUR WEDNESDAY MORNING, SEPTEMBER NINETEENTH RE DOCKET NO. DMA - 1219X=

ADRIAN D JOYCE CHAIRMAN THE GILDDEN CO=

DEPARTMENT OF THE INTERIOR
RECEIVED
SEP 19 1951
Defense Minerals Administration,
Production Expansion Division.

OFFICIAL FILE COPY

To	Init.	Date
210		

DMA - 1219X

DEFENSE MINERALS
ADMINISTRATION
WASHINGTON, D.C.
SEP 19 8 40 AM '51

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

SEP 19 7 16 AM '51
BUREAU OF MINES
MAIL ROOM
WASHINGTON, D. C.

CLASS OF SERVICE

This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address.

WESTERN UNION

W. P. MARSHALL, PRESIDENT

1201

SYMBOLS

DL=Day Letter

NL=Night Letter

LT=Int'l Letter Telegram

VLT=Int'l Victory Ltr.

The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

:OA510

O. JDA396 NL PD=JD OAKLAND CALIF 17= 1951 SEP 18 AM 1 21

C O MITTENDORF DIRECTOR OF PRODUCTION DIV=

DEFENSE MINERALS ADMINISTRATION WASHDC=

REFER A. D. JOYCE LETTER SEPTEMBER 13 REGARDING DOCKET DMA 1219X. ARRIVING WASHINGTON EARLY WEDNESDAY MORNING SEPTEMBER 19. WILL APPRECIATE OPPORTUNITY OF FURTHER DISCUSSING MATTER WITH YOU=

:E L RALSTON THE GLIDDEN CO..

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

OFFICIAL FILE COPY

To	Init.	Date
400	ce	9-18
210		

SEP 18 11 21 AM '51
BUREAU OF THE BUDGET
WASHINGTON 25, D. C.

Mr. Adt

DEPARTMENT OF THE INTERIOR
RECEIVED
SEP 17 1951
Defense Minerals Administration,
Production Expansion Division

THE GLIDDEN COMPANY
1396 UNION COMMERCE BUILDING

ADRIAN D. JOYCE
CHAIRMAN OF THE BOARD

CLEVELAND 14, OHIO

September 13,1951

Mr. C. O. Mittendorf, Director
Production Expansion Division
United States Department of the Interior
Defense Minerals Administration
Washington 25, D.C.

Dear Mr. Mittendorf: re: Docket No. DMA - 1219X

I talked by telephone with your office today and endeavored to get in touch with you but found you were absent from the office and therefore talked with one of your assistants.

He said that there was some delay because of some question as to the way the applications were made out and asked me if we had a competent mining engineer. I told him we had, in the person of Mr. E. L. Ralston, and he then suggested that if we could have Mr. Ralston go to Washington for a conference that no doubt the matter could be straightened out quickly. I told him I would telephone Mr.Ralston and arrange for him to go to Washington.

I have just talked with Mr. Ralston and he will go to Washington early next week. He will telegraph you as soon as he has airplane reservations from California to Washington. I sincerely hope that the coming of Mr. Ralston will enable you to expedite our application because if we are going ahead with this work we should proceed promptly.

SEP 17 8 54 AM '51
DEFENSE MINERALS ADMINISTRATION
WASHINGTON, D.C.

Yours truly,

Adrian D. Joyce

ADJ-G

Chairman of the Board.

QUALITY Glidden PRODUCTS

Mr. Ad

DEPARTMENT OF THE INTERIOR
RECEIVED
AUG 28 1951
Defense Minerals Administration,
Production Expansion Division

THE GLIDDEN COMPANY
1396 UNION COMMERCE BUILDING
CLEVELAND 14, OHIO

August 27, 1951

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 28 1951

Mr. C. O. Mittendorf, Director
Production Expansion Division
United States Department of the Interior
Defense Minerals Administration
Washington 25, D. C.

Re: Docket No. DMA - 1219X

Dear Mr. Mittendorf:

Six executed copies of The Glidden Company's Exploration Project Contract, Form MF-200, Exhibit A attached, are submitted herewith.

In view of the many variables and unknown conditions involved in preparing a firm estimate of the cost per foot of diamond drilling on our Company's Bully Hill and Rising Star mining properties, it has been necessary to increase our original estimate of "about $7.00 per linear foot" to a firm estimate of not to exceed $10.00 per linear foot. A breakdown of this estimated diamond drilling expense item, based upon 34,000 linear feet of drilling and upon an operating period of 22 months, is set forth in an attached schedule. It is felt that this firm estimate of $10.00 per linear foot is necessary to cover contingencies unforeseeable at the present time, which may occur during the exploration period.

It will also be necessary, because of these unknown factors, for us to increase the estimated total cost of the exploration project of "between $250,000.00 and $300,000.00" set forth in Item 23 of our May 4, 1951 Application under Mineral Order 5 to a total estimated cost of $417,810.00. The total estimated cost of this project can be broken down categorically as follows:

Diamond drilling.....	$339,810.00
Rehabilitating camp	20,000.00
Const. access roads and water supply facilities.....	10,000.00
Engineering	48,000.00

We will appreciate very much your giving your continued prompt attention to this project. Please let me know if I can supply any further data which will expedite approval of our May 4, 1951 Application.

Very truly yours,

R. D. Horner
Secretary

RDH:gs
Encl.

DIAMOND DRILLING EXPENSE ESTIMATE
BASED UPON 34,000 LINEAL FEET OF
DRILLING AND UPON AN OPERATING
PERIOD OF 22 MONTHS

Assembling and crating	$ 1,700.00
Trucking	5,100.00
Freight and Express	8,500.00
Supplies used	34,000.00
Repairs	5,100.00
Fuel and oil	10,200.00
Telephone and telegraph	5,100.00
Labor	106,640.00
Insurance, F.O.A.B., U.T. & COMP.	15,980.00
Insurance, General	1,700.00
Diamond bits	51,000.00
Travel	6,800.00
Rental Drilling Equipment	28,150.00
Rental Trucks	2,200.00
Overhead	24,140.00
Compensation	17,000.00
Camp Operating Expense less labor	16,500.00
	$339,810.00

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
Defense Minerals Administration

EXPLORATION PROJECT CONTRACT

It is agreed this _____ day of _____, 1951, between the United States of America, acting through the Department of the Interior, Defense Minerals Administration, hereinafter called the "Government," and The Glidden Company, an Ohio Corporation, 1396 Union Commerce Bldg., Cleveland, Ohio, hereinafter called the "Operator," as follows:

1. AUTHORITY FOR CONTRACT. This agreement is entered into under the authority of the Defense Production Act of 1950, pursuant to Mineral Order 5, entitled "Regulations Governing Government Aid in Defense Exploration Projects."

2. OPERATOR'S PROPERTY RIGHTS. The exploration project shall be conducted on that certain property situated in the State of California, County of Shasta, described as follows:

Property known as Bully Hill and Rising Star mines, fully described in Item 10 of The Glidden Company's Application for Aid for an Exploration Project Pursuant to Mineral Order 5, Under Defense Production Act of 1950

with respect to which the Operator represents and undertakes:

(a) That he is the sole owner, in possession and entitled to possession, and that the property is subject only to the following claims, liens, or encumbrances as to each of which the subordination agreement of the holder is attached:

No claims, liens, or encumbrances other than local taxes in small amount which will be paid by The Glidden Company.

3. EXPLORATION PROJECT. The Operator, within sixty (60) days from the date of this contract shall commence work on a project of exploration for Zinc, Copper, and Cadmium; shall prosecute the work efficiently, expertly, in a workmanlike manner, in accordance with good mining standards, with suitable and adequate equipment, materials, and labor, all properly designed to bring the project to completion within a period of twenty-four (24) months from the date of this contract. The exploration project and the work to be performed are more fully described on Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, is made a part of this contract.

4. PERFORMANCE OF THE WORK. The work shall be performed by the Operator, under his sole direction and control: PROVIDED, That with the consent of the Government and its written approval of the contract or contracts, all or any part of the work may be performed by the Operator through contract or contracts with independent contractors. The Government shall have the right to enter and observe and inspect the work at all reasonable times, and the Operator shall provide the Government with all available means for doing so. The Government may consult with and advise the Operator on all phases of the work.

5. FIXTURES AND IMPROVEMENTS. The Operator shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of the exploration project without any allowance for the use, rental value, depreciation, depletion, or other cost of acquiring, owning, or holding possession thereof. Any additional facilities, buildings, and fixtures, to be purchased, installed, or erected by the Operator, with the estimated cost of each, to which the Government will contribute currently its agreed pro rata share, are listed in Exhibit "A" attached hereto. The difference between the cost of such additional facilities, buildings, or fixtures, and the salvage value thereof at the conclusion of the work, shall be charged as a cost of the project to which the Government has contributed its pro rata share.

6. OPERATING EQUIPMENT. Any operating equipment to be rented, purchased, or furnished by the Operator, with the allowable rental, purchase price, or depreciation, as the case may be, is listed under appropriate headings in Exhibit "A" attached hereto. As to equipment purchased for the project, the Government will contribute its agreed pro rata share of the cost thereof, and the difference between the cost and the salvage value at the conclusion of the work shall be charged as a cost of the project to which the Government has contributed its pro rata share.

7. TITLE TO AND DISPOSITION OF PROPERTY. All facilities, buildings, fixtures, equipment, or other items costing more than $50 each, paid for or purchased with funds contributed jointly by the Operator and the Government, shall belong to the Operator and the Government jointly, in proportion to their respective contributions, and upon the termination of the contract, if they have any salvage value, shall be disposed of for their joint account unless the Government, in writing, waives its interest in any such items. The Government may require the dismantling, severance from land, and removal of any such items in order to realize its interest in the salvage value thereof, and the cost of any such removal and of the disposal of the items shall be for the joint account of the parties in proportion to their respective interests.

8. LABOR AND SUPERVISION. An itemized schedule of labor, by numbers and classes (miners, muckers, millmen, etc.), and of supervisors, by numbers and positions, with the maximum wages or salaries that may be paid to each as an allowable cost of the project is set forth in Exhibit "A" attached hereto.

9. REHABILITATION AND REPAIRS. A statement of the cost of any necessary rehabilitation or repairs to put existing facilities, buildings, installations, and fixtures into useful and operable condition and which are to be allowed as costs of the project is included in Exhibit "A".

10. ALLOWABLE COSTS OF THE PROJECT. The costs of the project in which the Government will participate are limited to the necessary, reasonable, direct costs of performing the exploration work, including the costs of materials, supplies, engineering, power, water, analytical work, accounting, and utilities, including items of equipment costing less than $50 each; and the costs referred to in Articles 5, 6, 8, and 9, and the exhibits annexed to and referred to in this contract. Although the Government may pay part of the cost of new or additional facilities, structures, buildings, and equipment, only the depreciation on such items, computed as indicated in Articles 5 and 6, will be charged as a cost of the project. No items of general overhead, corporate management, interest, taxes, or any other indirect costs not expressly allowed by these provisions, or work performed or costs incurred before the date of this contract, shall be allowed as costs of the project in which the Government will participate.

11. ACCOUNTS AND AUDITS. The Operator shall keep suitable records and accounts of operations, which the Government may inspect and audit at any time. The Government may at any time require an audit of the Operator's records and accounts by a certified public accountant, the cost thereof to be treated as a cost of the project. The Operator shall keep and preserve said records and accounts for at least 3 years after the completion of the project or the termination of this contract.

12. PROGRESS REPORTS. The Operator shall provide the Government with monthly reports of work performed under the contract upon forms to be provided by the Government. Each

monthly progress report shall bear the certification of the Operator and shall constitute the Operator's invoice of costs incurred on the project during the period covered by the report.

13. PAYMENT TO THE OPERATOR. The monthly progress report (invoice), to the extent approved by the Government, shall be processed for payment by the Government. Payment shall be made in the amount of 50 percent of the approved costs incurred; PROVIDED, That the aggregate total of all sums paid by the Government under this agreement shall not exceed $208,905.00 which is 50 percent of the agreed estimated total cost of this project, $417,810.00.

14. FINAL REPORTS BY OPERATOR. Upon completion of the project or termination of this contract, the Operator shall provide the Government with a comprehensive geologic and engineering report, including an estimate of ore reserves, to the best of his ability. Four copies of all reports shall be furnished to the Government.

15. REPAYMENT BY OPERATOR. If, upon the completion of the exploration project or termination of the contract, the Government considers that a discovery or development has resulted from the work from which commercial production of ore may be made, the Government, within 6 months thereafter, shall so certify to the Operator, particularly describing and delimiting its estimate of the discovery or the development. Thereafter, if and as ore is produced as a result of such discovery or development, the Operator and his successor in interest shall be and become obligated to pay to the Government a percentage royalty on the net smelter returns or other net proceeds realized from such ore, concentrates, or metal produced within ten (10) years from the date of this contract, until the total amount contributed by the Government, without interest, is fully repaid or said 10 years have elapsed, whichever occurs first as follows:

Of net smelter returns or other net proceeds not in excess of eight dollars ($8.00) per ton of ore: One and one-half ($1\frac{1}{2}$) percent.

Of net smelter returns or other net proceeds in excess of eight dollars ($8.00) per ton of ore: One and one-half ($1\frac{1}{2}$) percent, plus one-half ($\frac{1}{2}$) percent for each additional full fifty cents ($0.50) in excess of eight dollars ($8.00) per ton of ore, but not in excess of a maximum of five (5) percent.

This obligation to repay from net returns or proceeds shall be and remain a claim and a lien upon the mineral deposit which is the subject of the exploration project and upon any production resulting from such discovery or development, in favor of the Government, until fully paid, or until said 10-year period has elapsed; and this claim and lien and the Government's right to repayment shall survive any termination of the contract, whether by completion of the exploration project or otherwise. This article is not to be construed as imposing any obligation on the Operator or his successor in interest to produce ore from any such discovery or development.

16. NO ASSIGNMENT OF CONTRACT. Without the written consent of the Government, the Operator shall not assign or otherwise transfer or hypothecate this contract or any rights thereunder.

17. TERMINATION AND COMPLETION. The Government may, at any time, by written notice to the Operator terminate this contract: (a) If the Operator fails to provide his share of the money necessary to prosecute operations pursuant to the terms of the contract; (b) if the Operator, in the opinion of the Government, fails to prosecute operations pursuant to the terms of the contract; or (c) if in the opinion of the Government, operations up to the time of the notice have not indicated the probability of making any worthwhile discovery and in the opinion of the Government further operations are not justified. Upon the completion of the project or any termination of the contract the Operator shall render to the Government a full and final accounting of his operations under the contract and his expenditures of money; shall dispose of any unused materials, supplies, and equipment for the joint account of the Operator and the Government in the proportion of their respective interests; and shall pay to the Government its pro-rata share of any money remaining.

Executed in sextuplicate the day and year first above written.

THE GLIDDEN COMPANY

By Dwight P. Joyce
Dwight P. Joyce, President

THE UNITED STATES OF AMERICA

By _____

EXHIBIT "A"

Labor and Supervision (Maximum Wages and Salaries)

1	Senior engineer	$2,000.00	per month
1	Junior engineer	1,000.00	" "
	Travel and living expenses of engineer	1,000.00	" "
1	Diamond drill foreman, maximum salary	600.00	" "
1	Cook	400.00	" "
6	Diamond core drill operators, maximum wage	2.25	per hour
5	Diamond drill helpers " "	1.75	" "
1	Truck driver " "	1.90	" "
1	Mechanic " "	1.90	" "
1	Cook's helper " "	1.75	" "

Rehabilitation and Repairs

It is estimated that the cost of rehabilitation and repairs to existing buildings, installations and fixtures for the usable, operable condition of the camp will amount of $30,000.00

400

AUG 20 1951

Air Mail

THE GLIDDEN COMPANY

TIME-TESTED REG. U.S. PAT. OFF.
PAINTS · VARNISHES · LACQUERS · ENAMELS

1396 UNION COMMERCE BUILDING

CLEVELAND 14, OHIO

File

August 17, 1951

Mr. C. O. Mittendorf, Director
Production Expansion Division
Defense Minerals Administration
Department of the Interior
Washington 25, D. C.

Reference: Docket No. DMA 1219X

Dear Mr. Mittendorf:

Your letter of August 14, 1951 addressed to Mr. Clifton M. Kolb has, as a result of Mr. Kolb's retirement on August 10, been referred to Mr. Dwight P. Joyce, our President, who has instructed me to advise you that we are obtaining immediately from the E. J. Longyear Company the information regarding drilling costs requested by your letter.

As soon as the information necessary for Exhibit A, as shown on Form MF 200, has been obtained, we will forward the required data together with the executed contract forms to you. We appreciate very much the prompt attention which has been given our application.

Very truly yours,

R. D. Horner
Secretary

RDH:gs

QUALITY Glidden PRODUCTS

FILE COPY
SURNAME:

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

August 14, 1951

Mr. Clifton M. Kolb
Senior Vice President
The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Re: Docket No. DMA - 1219X

Dear Mr. Kolb:

In order to proceed with the processing of your application for Governmental assistance for the exploration of your property in Shasta County, California, we would need a firm contract for the diamond drilling or an estimate of costs of the various items which make up the cost per foot of drilling. It is impossible for us to draw up a contract on the assumption that the drilling will cost about $7.00 per linear foot.

To expedite this contract we are enclosing six copies of the Exploration Project Contract, Form MF-200. Please supply all the information requested for Exhibit "A" with subject headings as shown on Form MF-200. As we have your maps here we will have the necessary number of copies made to accompany your contract.

Please sign the contract forms and return them to us, but do not date them. They will be dated when the contract has been signed by the authorized Government official. One copy will be mailed to you.

Sincerely yours,

C. O. Mittendorf

C. O. Mittendorf, Director
Production Expansion Division

Enclosures - 6

JWAlt/meb
cc to: Adm. Reading File
Reports & Records
Mr. Mittendorf-Olund
Mr. E.Bailey,USGS
Mr. Miller Reg III (2)
Mr. Gowan
Mr. C.H.Johnson
Mr. McKnight
Mr. Alt
~~Docket~~

FILE COPY 350
SURNAME:

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

G. E. C. McKnight
D'Lemay
(con Mote)

AUG 10 1951

Mr. Adrian D. Joyce
The Glidden Company
1396 Union Commerce Bldg.
Cleveland 14, Ohio

Dear Mr. Joyce:

In reply to your telephone call today with respect to the status of your application - DMA 1219X - Bully Hill - I am sorry that I am unable to give you any more information than I did in my letter to you of July 31.

This project, as stated before, has been reviewed by the Lead-Zinc Branch and is now in the hands of the Production Expansion Division for further review. I have discussed your project with this department and on account of the many applications to be reviewed, yours must wait its turn.

Everything possible is being done to expedite the processing of your application for final action.

Very truly yours,

T. P. Billings

T. P. Billings, Chief
Lead-Zinc Branch

T. P. Billings'lm
8/9/51

ccL Reports and Records
Mote
McKnight
✓ DMA Docket File

L

No answer necessary

THE GLIDDEN COMPANY

1396 UNION COMMERCE BUILDING

ADRIAN D. JOYCE
CHAIRMAN OF THE BOARD

CLEVELAND 14, OHIO

August 1, 1951

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 3 1951

Mr. T. P. Billings, Chief
Lead-Zinc Branch
United States Department of the Interior
Defense Minerals Administration
Washington 25, D.C.

DMA 1219
Bully Hill

Dear Mr. Billings:

I am in receipt of your letter of July 31st conveying the good news that Project DMA 1219, Bully Hill, has been approved by the Lead-Zinc Branch and is now in the hands of the Production Expansion Division for further review. I sincerely hope that this Division will report promptly.

I appreciate your endeavor to expedite final action.

Yours truly,

Adrian D. Joyce

Chairman of the Board.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 6 1951

LANDON F. STROBEL
Executive Secretary

AUG 6 1951

QUALITY Glidden PRODUCTS

FILE COPY
SURNAME:

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

Billings
McKnight
Dickey
(For Note)

July 31, 1951

DMA 1219
Bully Hill

Q.E.C.

Mr. Adrian D. Joyce
The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Dear Mr. Joyce:

I note from your letter of July 24 that Dr. D. M. Davidson, your geologist, has already obtained information respecting the status of your exploration loan on the Bully Hill mine.

This project has been approved by the Lead-Zinc Branch and is now in the hands of the Production Expansion Division for further review. We will endeavor to expedite final action.

Yours very truly,

T. P. Billings, Chief
Lead-Zinc Branch

TPBILLINGS:lm

cc: Reports & Records
Mote
McKnight
Billings
Files- DMA docket

THE GLIDDEN COMPANY
1396 UNION COMMERCE BUILDING

ADRIAN D. JOYCE
CHAIRMAN OF THE BOARD

CLEVELAND 14, OHIO

July 24, 1951

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 2 5 1951
LANDON F. STROBEL
Executive Secretary

Mr. Thomas Billings
Chief, Lead-Zinc Branch
United States Department of the Interior
Defense Minerals Administration
Washington 25, D. C.

Subject: DMA-1219X
Re: Exploration Loan
Bully Hill

Dear Mr. Billings:

Referring to my conversation with you by telephone yesterday, I am happy to know that you are giving prompt attention to our request for the above loan. Dr. D. M. Davidson, who is representing us as a geologist, has been in touch with you in connection with this matter and a letter from him today tells me that it is expected that the application will go to the Contract Branch early next week.

As I told you over the telephone, it is very important that we start this diamond drilling during the summertime and before snowfall, and inasmuch as the season is passing rapidly, it is very important that we get a decision on this matter.

Thanking you for your cooperation, I am

Yours truly,

Adrian D. Joyce

Chairman of the Board

to P.E.D.

ADJ:V

JUL 25 1951

QUALITY Glidden PRODUCTS

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

DEFENSE MINERALS ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III - CALIFORNIA-NEVADA

DMA 1219X

(No docket No.) Bully Hill and Rising Star copper-zinc mines, Shasta County, California

A. R. Kinkel, Jr., Geologist
U. S. Geological Survey

J. P. Albers, Geologist
U. S. Geological Survey

Contents

Recommendations..... 4

Data Pertinent to the exploration proposal..... 5

Location and Accessibility..... 5

General geology..... 6

Geology of the mine area..... 8

Ore deposits.....10

Method of preparing the exploration program.....12

Proposed exploration at the Bully Hill and Rising Star mines.....13

Areas proposed for exploration.....14

Illustrations

Figure 1. Geologic map of the Bully Hill and Rising Star mines.

2. Composite plan of ore bodies and main workings Bully Hill and Rising Star mines.

3. Cross sections of the Bully Hill mine

4. Cross section 1, Rising Star mine

5. Cross section 4, Rising Star mine

6. Cross section 6, Rising Star mine

7. Cross section 8, Rising Star mine

8. Cross section 10, Rising Star mine

9. Longitudinal section 11, Rising Star mine.

Proposed exploration at the Bully Hill and Rising Star mines, Shasta County, California

Recommendations

The drilling program proposed by the Glidden Paint Co. for their Rising Star and Bully Hill mines in Shasta County, Calif., and as shown on the composite plan of these two mines, is approved by the writers. It is justified by the high copper and zinc content of the ore which has been produced by these mines, and by the numerous areas that may contain ore but which were not prospected by the owners at the time the mines were in operation. The proposed holes will prospect all of the favorable areas within a reasonable depth from the surface, and although the spacing between holes is large at some places in relation to the length of ore shoots, any major ore zone should be located by the proposed holes.

Some unmined ore is known to occur in the mines, and some areas could be more easily explored by holes from underground if the mines were unwatered. However, as most of the favorable areas could not be reached by underground drilling, and as entirely new ore shoots must be found to encourage reopening of the mines, exploration by surface drilling is justified at this time.

Data pertinent to the exploration proposal

Location and Accessibility

The Bully Hill-Rising Star mine area is 18 miles air-line northeast of Redding, in secs. 16 and 21, T. 34 N., R. 3 W., Shasta County, California. It lies on the north side of Shasta Reservoir at an approximate altitude of 1500 feet. The property is most easily reached by boat or barge on Shasta Reservoir; it is also possible to drive from Redding to the mine area, but the driving distance is 70 miles, half of which is over a Forest Service dirt road that is adequate in the summer but almost impassible in the winter.

General geology

The areal geology in the vicinity of the Bully Hill-Rising Star mine area has recently been mapped by Survey geologists and the following information is based upon that work.

The rocks in the general vicinity of the mine are volcanic and sedimentary rocks of Triassic age. Three formations are represented. The oldest is the Dekkas andesite, a series of andesitic flows, tuffs, and tabular intrusive bodies of andesite porphyry. The ore bodies in the Bully Hill mine are in sheared portions of the tabular intrusive bodies. The Bully Hill rhyolite overlies the Dekkas andesite and is locally intruded by facies of the andesite. The Bully Hill rhyolite consists of a series of rhyolitic flows, breccias, and tuffs. It is commonly light gray in color and has a porphyritic texture with coarse 1-2 mm. quartz phenocrysts. Most of the ore bodies in the Rising Star mine are in the Bully Hill rhyolite.

The Pit formation, which consists of interbedded shale and crystal-lithic tuff conformably overlies the Bully Hill rhyolite. No sulfide bodies have been found in the Pit formation near Bully Hill.

The rocks in the vicinity of Bully Hill have been folded into a series of southward plunging anticlines and synclines. Bully Hill itself is essentially an anticline plunging south at an angle of 50 degrees. The folds are well outlined by the contact between the Bully Hill rhyolite and the overlying Pit sediments to the south, east, and west of Bully Hill. North of Bully Hill, however, the contact between the rhyolite and underlying Dekkas andesite is less intensely folded and dips are essentially homoclinal to the southeast.

Small faults and shear zones are very numerous in the immediate mine area, but elsewhere they are much less abundant and are of little structural importance.

Much of the area north and east of Bully Hill is covered by alluvial fan material and by landslide debris. Likewise, the geology on the eastern slopes of Bully Hill is obscured by a thick mantle of slope wash containing large boulders. In many places these boulders are so large that it is difficult to determine whether or not the rock is in place.

Geology of the mine area

The surface geology of most of the Bully Hill-Rising Star area was mapped during the spring of 1951 by the U. S. Geological Survey, and is shown in generalized form on the accompanying map (fig. 1). The underground workings are inaccessible and all information on underground geology is taken from company maps and sections.

Three geologic features, which appear to be related to the sulfide mineralization, are the dike-like bodies of andesite porphyry, the shear zones, and the strongly silicified areas.

The andesite porphyry dike in which the Bully Hill ore bodies are localized crops out along the strike of the ore zone about 1200 feet north of the northernmost known ore body. The intervening area is covered by wash. If the dike continues under the covered area, as seems likely, there is a good chance of more sulfide ore shoots being localized in it. The same condition occurs to the south along the strike of the Bully Hill ore zone. A zone of moderately well silicified rhyolite and a small amount of gossan is found along the ore zone on the surface.

The Rising Star shear zone, and the Middle shear zone are thechief geologic structures in the Rising Star ore zone. Each shear zone measures several tens of feet wide on the surface, and according to company maps and sections some of the ore bodies occur as pods within the shear zones. A third shear zone farther east has also been productive. It extends for several hundred feet north of the known ore bodies, and this northward extension appears to be a worthwhile area to prospect (Fig. 2, south end of Area 6, east end of Area 2). All of the shear zones seem to converge in the vicinity of the Rising Star dump (Fig. 2, Area 2).

The Rising Star ore bodies are capped on the surface by very highly silicified rhyolite and rhyolite breccia. A small amount of limonite, in the form of stringers and knots, is present in the silicified rhyolite.

The area between the Bully Hill and Rising Star areas is underlain by rhyolite which is cut by many small faults and one strong shear zone (Fig. 2, south end Area 6, east end Area 2). Much of the rhyolite is highly silicified, and has the same general appearance as the silicified rhyolite over the Rising Star ore bodies. Therefore, the silicified areas, especially the large area trending northward along the axis of the hill, are considered good prospecting ground, (Fig. 2, Area 6).

Ore Deposits

The Bully Hill andRising Star mines have a combined total production of approximately 500,000 tons of copper-zinc sulfide ore, about 60 percent of which was from the Rising Star. The average assay of Rising Star ore was .02 oz. Au, 2.5 oz. Ag, 2.5% Cu, and 20.0% Zn. The average grade of Bully Hill ore was approximately .10 oz. Au, 4.5 oz. Ag, and 3.5% Cu. No reliable zinc assays are available because all mining at Bully Hill was done prior to 1917 and zinc ore was not recovered in direct smelting. However, from the scant data at hand, it is evident that some of the Bully Hill ore bodies carried as much as 15 percent zinc.

The Bully Hill ore zone strikes about N 5 E and is composed of several ore shoots that pitch steeply northeast. The zone has a strike length of about 1000 feet, and a known vertical extent of 1000 feet (Fig. 3). The lowest known ore bodies are at 607 elevation, and the highest are at 1610 elevation. Individual shoots have a pitch length several times greater than their strike length. They seem to occur, according to company maps, in shear zones in the andesite porphyry dikes.

The Rising Star ore zone trends slightly west of north and is likewise composed of several ore shoots. The ore zone is about 700 feet long by 250 feet wide. It has a known vertical extent of 700 feet, and has a moderately steep pitch to the south (Figs. 4-9). Individual ore bodies have a rather definite N 30-45 W trend, and some of them appear to be related to two strong shear zones. A curious feature of the Rising Star mine is that the country rock in the lower levels is gypsum. Pods of massive sulfide ore occur in the gypsum.

Both the Bully Hill and Rising Star mines were still in ore at the lowest levels.

Method of preparing the exploration program

The original proposal, submitted by the Glidden Paint Co., for exploration to extend the known ore zones in the Bully Hill and Rising Star mines owned by this company were not specific as to areas to be drilled or hole locations. The company does not have a geologist in this area, and they requested that the members of the Survey who were familiar with the mines aid them in setting up the exploration program. This seemed reasonable because Mr. Albers and Mr. Robertson of the Survey had mapped the areal geology around the mines and had mapped the geology over the mines in detail (1" 100'). In addition, the Glidden Paint Co., through its western representative, Mr. E. L. Ralston, had furnished to the Survey almost 200 maps of the underground workings of the mines to aid the Survey representatives in writing a report on the mines. Further, as a cursory examination of the mine maps and the correlation of these with the surface geology had indicated numerous unexplored areas favorable for ore deposits, the writers had contemplated proposing certain areas in these mines for a Survey exploration program.

The present exploration program was laid out at a conference between Mr. E. L. Ralston and Survey representatives.

Proposed Exploration at the Bully Hill and Rising Star Mines

Little exploration was carried on at the time of mining operations, except for shallow surface adits. The ore bodies were followed from level to level on steep plunges, and although numerous short cross cuts were driven in the main areas of mining, practically no diamond drilling was done. Some ore bodies that were exposed in upper levels were not prospected by the lower levels. The accompanying composite plan of the ore bodies shows the principal areas that are thought to be worth additional exploration at the present time. They are either areas under known ore that have not been explored, extensions along the strike of ore zones, or highly silicified areas on the surface which are very similar to those that occur over known ore bodies.

The locations of the diamond drill holes shown on the map are tentative in most holes and will depend on the most convenient drill setup that can be utilized to reach the areas to be explored. In addition it may be advisable to concentrate drilling around any hole that encounters ore and drill either above or below the ore to follow the ore shoot along its plunge.

Areas proposed for exploration

The 6 areas proposed for exploration are numbered 1 to 6 on the composite plan and are described in that order. The order of numbering does not necessarily indicate the order of favorability of individual areas. The ore shoots at both the Rising Star and Bully Hill mines commonly have a short strike length but a long plunge length. The Bully Hill ore bodies plunge steeply to the north and those of the Rising Star plunge steeply to the south. Some of the holes that are shown on the composite plan are designed to explore under the plunge direction of known ore, but most of the holes are laid out to find new shoots of ore that may not show at the surface, along the ore zone extension.

Area 1: 5 diamond drill holes are proposed in Area 1 to explore the northward extension of the Bully Hill ore zone. The two most southerly holes will explore along the line of plunge of known ore and the three northerly holes in this area will prospect for new ore shoots.

Area 2: Six holes are proposed in Area 2 to prospect for new ore shoots. Area 2 is located along the strike of the Rising Star ore zone but also includes an area of strongly sheared and mineralized rock in the deep gully in the eastern part of Area 2, shown on the geologic map. No ore is known in this eastern shear zone, but strongly silicified rock occurs in Area 2. The convergence of the Rising Star ore zone and the eastern shear zone should be good prospecting ground. Some mineralized fissures occur along the south boundary of Area 2, indicating that ore solutions were traveling through the rocks in this area.

Area 3: Seven holes are proposed in Area 3 to prospect the southerly extension of the Bully Hill ore zone and to prospect along the contact of the basic dike that appears to have some control over ore localization in the Bully Hill mine. The three northerly holes of this group will prospect under ore that was located in the upper levels of the mine but which was not prospected in the lower levels. The four southerly holes will prospect the projection of the ore zone and the contact between the rhyolite and the basic dike.

Area 4: Four holes, each about 800 feet in length, are proposed in this area. The location of the holes is not shown because the topography has not been mapped in the area. The holes will explore the northward extension of the west run of ore in the Rising Star mine and should be spaced at about 200-foot intervals, crossing the main ore zone at about 400 feet below the surface.

Area 5: Nine holes are proposed in Area 5 to explore the easterly run of ore in the Rising Star mine. The five southerly holes in this group will explore under known ore in the upper levels which was not explored by lower level workings. The four northerly holes in this group will explore the extension of the ore zone which is marked by a strong shear zone on the surface. The three most northerly holes of Area 5 are shown on the map only by an "X" at the point at which the drill hole should cross the ore zone, and the elevation is marked at which the hole should cross at that point. No topography is available at present in the north end of Area 5.

Area 6: A tentative proposal is made for eight holes in Area 6. This area is proposed for drilling because known ore at the Bully Hill-Rising Star mines is overlain by a strongly silicified rhyolite, and Area 6 is a zone of very strong silicification at the surface. No ore is known at the surface in Area 6, but there are two prospect shafts in the northern part of the area. The hole locations are not given in Area 6 because no topography is available at present. It is suggested that four rather widely spaced drill setups be made, and two holes drilled from each set-up. The upper hole should explore the silicified zone at a depth of about 400 feet below the surface and the lower hole explore the zone at a depth of about 600 or 800 feet below thesurface.

We recommend that drilling be started in Area 1, followed by drilling in Area 3, followed by drilling in the south half of Area 5, followed by drilling in Area 2. This would require 17,000 feet of drill hole as the holes are now laid out. At the completion of this stage of the program the drilling results should be reviewed to see if the more speculative drilling in Areas 4 and 6, and the north end of Area 5 are justified. The holes in the northern part of Area 1 and the southern part of Area 3 should give some indication of the advisability of prospecting extensions of known ore zones. If the results are favorable, or if additional mapping in parts of Areas 4, 5 and 6 that are now unmapped show ore indications, then the remainder of the drilling could be done. The total amount of drilling proposed amounts to 32,700 feet.

FILE COPY
SURNAME:

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

July 25, 1951

Mr. Clinton M. Kolb
Senior Vice President
The Glidden Company
Cleveland 14, Ohio

Subject: DMA 1219X - Exploration Loan
Bully Hill

My dear Mr. Kolb:

Your letter of July 10, 1951 has just come to my attention and I hasten to let you know that the supplement to your application is being taken care of along with your previous application.

Mr. Thomas Billings is now the Chief of the Lead-Zinc Branch of the Supply Division of the Defense Minerals Administration, having taken over the duties formerly carried on by Mr. Otto Herres. I am sorry that my acknowledgment of additional information did not make this clear.

Very truly yours,

LANDON F. STROBEL

Landon F. Strobel
Executive Secretary

LFStrobel:cmb

Copies to: Administrator's Reading File
Landon F. Strobel
Records & Reports Unit
Thomas Billings
Files

McKwight
O'Leary (Frankhouse)
6/5/51

Defense Minerals Administration 7-24-51

Review of Application for Exploration Assistance

Docket No. 1219X

To: Production-Expansion Division

Commodity Zinc, Copper

From: Director, Supply Division

Total Amount $228,900

Govt. Participation $114,450

1. Name and Address of Applicant The Glidden Company

1396 Union Commerce Building, Cleveland, Ohio

2. Location of Property Pittsburgh Mining District, Shasta County, California

Secs. 16 and 21, T. 34 N. R 3 W.

3. Mineral or metal ~~lead,~~ zinc, copper Is it listed in Section 9 of MO-5? Yes

If not, application will be rejected.

4. Geologic probability of discovery—based on data in application (question #16, 17, 18, 20 and 22)*

Mines or Survey reports, etc., do you rate chances:

a) Good X

b) Poor

c) None

d) Don't know—needs field examination

e) Is there an alternative and favorable project?
(If so, attach an explanation)

5. Is the applicant's right to the property clearly stated? Yes
(question 5, 6, 7)*

6. If applicant is a lessee, is a copy of the lease attached?

Does the lease have sufficient time to run to cover a future

productive period?

*question numbers are those of MF-103

7. Are subordination agreements necessary? No

a) MF-201? _____

b) MF-202 _____

8. From the data presented, does the proposed project appear feasible from the point of view of:

a) Available manpower Yes

b) Equipment and supplies Yes
(Question 14 plus general knowledge of availability)*

c) Accessibility (question 12)* Yes

d) Water (question 13)* Yes

e) Power (question 13)* Yes

Is a field check needed on any of these points? No

9. Does the experience of the applicant appear to be adequate to assure that he can properly conduct the proposed project? (question 4)* Yes

_____

Is a field check needed on this point? No

10. Exhibit A. (questions 21 and 22)*

a) Is the project adequately described? Yes, see company's application and field team's report.

If not, are there sufficient data given so that you can describe the project? Yes If so, attach a draft. See field team's report

b) Is there an adequate map or sketch of the proposed work? Yes

_____

c) Is the proposed work "exploration" under the definition of Section 8, MO-5? Yes

If not, what part of it is? _____

_____

_____

_____

Is this part a worthwhile exploration project? _____

d) Are the cost estimates detailed? Yes

Can they be summarized, as on page 2 of Procedural Instruction 5-A, from the available data? Yes If so, attach a draft. See attached draft 10 (d)

e) Are the cost estimates reasonable? Yes

f) Should more information be requested from applicant? No

g) Is a field examination necessary to complete Exhibit A? Already made

11. Exhibit B (question 23-d)*

a) Is it applicable? None needed

b) If so, are sufficient data furnished? _____ If so, attach a draft.

c) Is a field check needed? No

12. Exhibit C (question 23-e, f and g)*

a) Is it applicable? Not applicable. Work to be by contract.

b) Sufficient data? Yes If so, attach a draft.

c) Are rents and charges reasonable? Not applicable

d) Is a field check needed? No

13. Exhibit D (question 23-a, b)*

a) Are there sufficient data? Yes

b) Is the schedule adequate for the work proposed? Yes - See attached schedule

c) Is the schedule excessive for the work proposed? No

d) Are the proposed wages and salaries reasonable? _____

e) Is a field check needed? No

EXHIBIT "A"

10. (d) Contract diamond drilling:

32,700 feet at $7.00 per foot = $ 228,900.00

EXHIBIT "D"

13. 2 Drill rigs operating 16 hours per day = 240 feet

32,700 to be drilled ÷ 240' per day = 136 days to accomplish work.

14. Exhibit E (question 23-c)*

a) Is it applicable? No

b) Sufficient data?

c) Reasonable?

d) Field check needed?

15. In your judgment, can the proposed work be done in the proposed time? Yes. Two drills 16 hrs per day as proposed by company can accomplish work within time limit.

(All exploration must be completed within two years)

16. If field examination is not needed, attach your recommendation.
Lead-Zinc Branch concurs with field examiners recommendations as outlined on page 4 of field examiners report and as qualified on page 18 of same report.

17. If field examination is needed, do you have any special instructions for the field team not indicated by your answers to the foregoing question?

Tom Lyon

Reviewed by: A. L. Brokaw GS

R. Bilsing

John R. O'Rourke

Date 7-24-51

INT.-DUP. SEC., WASH., D.C. 99009

~~Mr. Strobel~~

THE GLIDDEN COMPANY

1396 UNION COMMERCE BUILDING

CLIFTON M. KOLB
SENIOR VICE PRESIDENT

CLEVELAND 14, OHIO

July 23, 1951

ans. 7/25/51
LS Strobel/cmb

Mr. Landon F. Strobel, Executive Secretary
U.S. Department of the Interior
Defense Minerals Administration
Washington 25, D.C.

Subject: DMA-1219X
Re: Exploration Loan - Bully Hill

Dear Sir:

I have your letter of July 20, 1951 regarding the above subject. In my letter to Mr. Otto Herres, dated July 12, 1951, I pointed out that the application and attachments that I was sending in were a Supplement to Application DMA-1219X previously filed. Your letter of July 20 does not refer to the Application as a Supplement and states that it was assigned to Mr. Thomas Billings, Chief, Lead-Zinc Branch on July 17, 1951.

We were previously advised that the original Application had been assigned to Mr. Otto Herres for attention. We are interested in having the original Application and the Supplement considered together and are somewhat worried to note from your letter that the original Application is in the hands of Mr. Herres and our Supplemental Application has been referred to Mr. Thomas Billings. We would like to know if the original Application and the Supplement will be considered together and if our correspondence regarding the original Application is now to be directed to Mr. Thomas Billings instead of Mr. Herres. Please let us know at your early convenience.

Thanking you for your cooperation,

Very truly yours

Clifton M. Kolb

Clifton M. Kolb
Senior Vice President

CMK:LS

QUALITY Glidden PRODUCTS

FILE COPY
SURNAME:

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

July 20, 1951

Mr. Clifton M. Kolb
Senior Vice President & Secretary
The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Subject: DMA-1219X
Re: Exploration Loan -
Bully Hill

My dear Mr. Kolb:

Receipt is acknowledged of your application and attachments of July 12, 1951 for an exploration loan under the Defense Production Act of 1950.

The application was assigned Docket Number DMA-1219X and referred to Mr. Thomas Billings, Chief, Lead-Zinc Branch on July 17, 1951.

In any future correspondence relating to your application, kindly refer to DMA-1219X.

Sincerely yours,

SIGNED 7/20

Landon F. Strobel
Executive Secretary

L. F. Strobel:jc
cc: Strobel
✓ File
Billings
Lyon

THE GLIDDEN COMPANY
1396 UNION COMMERCE BUILDING

CLIFTON M. KOLB
SENIOR VICE PRESIDENT

CLEVELAND 14, OHIO

July 12, 1951

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 16 1951
LANDON F. STROBEL
Executive Secretary

Mr. Otto Herres, Chief
Lead-Zinc Branch
United States Department of the Interior
Defense Minerals Administration
Washington 25, D.C.

Subject: DMA-1219X
Re: Exploration Loan - Bully Hill

Dear Mr. Herres:

Our Mr. E. L. Ralston has supplied me with the information relative to the work to be done in connection with the diamond drilling at our Rising Star and Bully Hill mines in Shasta County, California.

I have prepared and am submitting herewith in quadruplicate a Supplement to our Application DMA-1219X dated May 4, 1951, giving this information. I understand that this will give you all the information you desire to act upon our application. If you need any additional information please let me know promptly because we would like to get started on this work as soon as possible.

Very truly yours,

Clifton M. Kolb

CMK-G

Senior Vice President.

JUL 17 1951
1

QUALITY Glidden PRODUCTS

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

102 Old Mint Building
San Francisco 3, California

July 12, 1951

Registered

12194

Subject: DMA (No docket number)
Bully Hill and Rising Star
copper-zinc mines, Shasta
County, California

Mr. E. T. McKnight
Mineral Deposits Branch
U. S. Geological Survey
Washington 25, D. C.

Dear Mac:

Enclosed is a report by Kinkel and Albers on the proposed exploration program at the Bully Hill and Rising Star copper-zinc mines, Shasta County, California. The maps that are to accompany the report are being sent in a separate container.

I had hoped to review the report and have the maps redrafted prior to transmittal; however, following your phoned instructions everything is being sent to you as is. The cross sections admittedly do not agree exactly with the maps, but with the short time available for the compilation the geologists were unable to make adjustments. Art has requested that the tracings be returned to him as they are his only copies, but there is no rush on this.

Sincerely yours,

Edgar

Edgar H. Bailey

Enclosure (1)

THE GLIDDEN COMPANY
1396 UNION COMMERCE BUILDING

ADRIAN D. JOYCE
CHAIRMAN OF THE BOARD

CLEVELAND 14, OHIO

July 6, 1951

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 9 - 1951
LANDON F. STROBEL
Executive Secretary

Mr. Otto Herres, Chief
Lead-Zinc Branch
United States Department of the Interior
Defense Minerals Administration
Washington 25, D.C.

Subject: DMA-1219X
re: Exploration Loan - Bully Hill

Dear Mr. Herres:

You will be pleased to know that I have talked to our Mr. E. L. Ralston, who is at Redding, California, today and he informed me that he has met with the Government Geologist and Mr. Art Kinkel and that they have come to an agreement as to the diamond drilling operations and that Mr. Kinkel will write you fully. Mr. Ralston will send to me a map that they have agreed upon and as soon as this reaches me I will have our Mr. Kolb promptly forward it to you as a supplement to our loan application.

I hope that this will let us expedite this matter because the summer is passing and I am extremely anxious to get this diamond drilling under way.

Thanking you for your courteous cooperation, I am

Yours truly,

Adrian D. Joyce

ADJ-G

Chairman of the Board.

JUL 9 1951

attach to docket

THE GLIDDEN COMPANY

1396 UNION COMMERCE BUILDING

ADRIAN D. JOYCE
CHAIRMAN OF THE BOARD

CLEVELAND 14, OHIO

June 26, 1951

Mr. Otto Herres, Chief
Lead-Zinc Branch
United States Department of the Interior
Defense Minerals Administration
Washington 25, D.C.

Subject: DMA-1219X
Re: Exploration Loan - Bully Hill

Dear Mr. Herres:

The attached letter is self explanatory. I cannot understand how the office of Mr. Strobel made this mistake but I am very glad now to have the record of the Docket Number so that I will know to what number to refer in future correspondence.

I very much appreciated the opportunity of talking to you by telephone a few days ago and I sincerely hope that you will be able to expedite the matter of the exploration loan.

Thanking you for your courtesy, I am

Yours truly,

Adrian D. Joyce

Chairman of the Board.

ADJ-G

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 27 1951
LANDON F. STROBEL
Executive Secretary

GLIDDEN
Everywhere on Everything

JUN 28 1951

June 26,1951

Mr. Landon F.Strebel, Executive Secretary
United States Department of the Interior
Defense Minerals Administration
Washington 25, D.C.

Subject: DMA-1219X
Re: Exploration Loan - Bully Hill

Dear Mr. Strebel:

Your letter of June 14th concerning our application and attachments of May 4, 1951 for an exploration loan under the Defense Production Act of 1950 has just been received. I wish to call your attention to the fact that your letter was dated June 14 but it was postmarked June 22, as you will note from the attached envelope. The letter was addressed to Mr. V. N. Burnhart, Manager, The Glidden Company, % East Side Branch, 135-38 Euclid, Cleveland, Ohio. I will call your attention to the fact that we have no man of this name in our employ and no East Side branch at this address. Our application was signed by The Glidden Company, Clifton M. Kelb, Senior Vice President and Secretary, and our address was given as 1396 Union Commerce Building, Cleveland 14, Ohio. I am calling this to your attention so that you can investigate this carelessness among the employees of your office.

I am pleased to learn that our application has been assigned Docket Number DMA-1219X and referred to Mr. Otto Herres, Chief, Lead-Zinc Branch on May 23,1951. Fortunately I have had some telephone conversations with Mr. Herres and he has promised to give this matter his very prompt attention. I am sure you realize that it is important if we are to proceed with this exploration that the work be done during the summer when men can work. There has already been a very long delay in acting on this application but Mr. Herres has assured me that he is going to expedite the application as soon as possible.

Yours truly,

ADJ-G

Chairman of the Board.

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

C O P Y

June 14,1951

Mr. V.N.Burnhart, Manager
The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Subject: DMA-1219X
Re: Exploration Loan -
Bully Hill

My dear Mr. Burnhart:

Receipt is acknowledged of your application and attachments of May 4, 1951 for an exploration loan under the Defense Production Act of 1950.

The application was assigned Docket Number DMA-1219X and referred to Mr. Otto Herres, Chief, Lead-Zinc Branch on May 23,1951.

In any future correspondence relating to your application, kindly refer to DMA-1219X.

Sincerely yours,

Landon F.Strobel (Signed)

Landon F.Strobel
Executive Secretary

A.E.C.

THE GLIDDEN COMPANY

1396 UNION COMMERCE BUILDING

ADRIAN D. JOYCE
CHAIRMAN OF THE BOARD

CLEVELAND 14, OHIO

June 26,1951

Mr. Landon F.Strobel, Executive Secretary
United States Department of the Interior
Defense Minerals Administration
Washington 25, D.C.

Subject: DMA-1219X
Re: Exploration Loan - Bully Hill

Dear Mr. Strobel:

Your letter of June 14th concerning our application and attachments of May 4, 1951 for an exploration loan under the Defense Production Act of 1950 has just been received. I wish to call your attention to the fact that your letter was dated June 14 but it was postmarked June 22, as you will note from the attached envelope. The letter was addressed to Mr. V. N. Burnhart, Manager, The Glidden Company, % East Side Branch, 135-38 Euclid, Cleveland, Ohio. I will call your attention to the fact that we have no man of this name in our employ and no East Side branch at this address. Our application was signed by The Glidden Company, Clifton M. Kolb, Senior Vice President and Secretary, and our address was given as 1396 Union Commerce Building, Cleveland 14, Ohio. I am calling this to your attention so that you can investigate this carelessness among the employees of your office.

I am pleased to learn that our application has been assigned Docket Number DMA-1219X and referred to Mr. Otto Herres, Chief, Lead-Zinc Branch on May 23,1951. Fortunately I have had some telephone conversations with Mr. Herres and he has promised to give this matter his very prompt attention. I am sure you realize that it is important if we are to proceed with this exploration that the work be done during the summer when men can work. There has already been a very long delay in acting on this application but Mr. Herres has assured me that he is going to expedite the application as soon as possible.

Yours truly,

Adrian D. Joyce

Chairman of the Board.

ADJ-G

GLIDDEN
Everywhere on Everything

FILE COPY
SURNAME:

Herres
Protocol
for McKnight

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

June 21, 1951

Subject: DMA 1219

Mr. Clifton M. Kelb
The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Dear Mr. Kelb:

With reference to your letter of June 18, 1951, I discussed your application for exploration assistance on the Shasta County, California zinc property with Mr. A. B. Joyce by telephone this afternoon.

It was arranged for your engineer to confer with Art Kinkel, Chief of Party, U. S. Geological Survey at Redding, California, in the next few days to decide on the recommended procedure for the proposed exploration work. When this information is received in Washington, we shall endeavor to take action on your application promptly.

In case I can be of further assistance in this connection, kindly let me know.

Very truly yours,

Otto Herres

OTTO HERRES, Chief
Lead-Zinc Branch

OHerres:lm

cc: Strobel
Mote
McKnight
Herres
✓Files

DMA 1219

Herres

THE GLIDDEN COMPANY

1396 UNION COMMERCE BUILDING

CLIFTON M. KOLB
SENIOR VICE PRESIDENT

CLEVELAND 14, OHIO

June 18, 1951

Ans - 6-21-51
Mr a. B Joyce
phoned 6/20/51
He will have engineer
confer with Carl Kimball,
Chief of Party, U.S.G.S. at
Redding, California.

Mr. Otto Herres
United States Department of the Interior
Defense Minerals Administration
Washington, D.C.

Dear Mr. Herres: File #1219

Our records show that on May 21, 1951 the Department of Interior received our application in connection with the diamond drilling of our properties in Shasta County, California. We attached to this proposed contract with E. J. Longyear Company to do this work. We, of course, have not been able to accept the Longyear proposal because we do not want to do this unless the application is approved so that the Government will stand one-half of the expense.

We have not received any word from the Department since we sent in the application by way of acknowledgment or any other information. I understand that this has been referred to you for attention and it would be very helpful to us if you will let us know when we may expect action on this application and if there is anything else that we can do to facilitate the processing thereof.

Thanking you for your cooperation, I am

Very truly yours,

Clifton M. Kolb

Senior Vice President.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 20 1951
LANDON F. STROBEL
Executive Secretary

CMK-G

QUALITY Glidden PRODUCTS

FILE COPY
SURNAME:

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

June 14, 1951

Mr. V. N. Burnhart, Manager
The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Subject: DMA-1219X
Re: Exploration Loan -
Bully Hill

My dear Mr. Burnhart:

Receipt is acknowledged of your application and attachments of May 4, 1951 for an exploration loan under the Defense Production Act of 1950.

The application was assigned Docket Number DMA-1219X and referred to Mr. Otto Herres, Chief, Lead-Zinc Branch on May 23, 1951.

In any future correspondence relating to your application, kindly refer to DMA- 1219X.

Sincerely yours,

LANDON F. STROBEL
jc

Landon F. Strobel
Executive Secretary

L. F. Strobel:jc
cc: Strobel
✓File
Herres
Lyon

May 8, 1951

Mr. R. D. Horner
Assistant Secretary
The Glidden Company
1395 Union Commerce Building
Cleveland 14, Ohio

Dear Mr. Horner:

Complying with the request contained in your recent letter, there are enclosed three copies of Regulation MO-5 and fifteen copies of Form MF-101. Applications should be submitted in accordance with the instructions set forth in Section 3 of MO-5; one copy may be retained for filing.

A sample copy of the contract Form MF-200 is enclosed. It is not necessary to fill this form out until after an exploration contract has been approved.

Should you have further questions in connection with this program, please feel free to contact this office.

Sincerely yours,

LANDON F. STROBEL

Landon F. Strobel
Executive Secretary

Enclosures: 19

LFStrobel:cmb

Copy to: Administrator's Reading File
L.F. Strobel
Files

C
O
P
Y

E. J. LONGYEAR COMPANY

MINING ENGINEERS

Minneapolis 2, Minnesota

AIR MAIL

May 3, 1951

Mr. Adrian D. Joyce, Chairman of the Board
The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio

Dear Mr. Joyce:

Bully Hill Mine Exploration, Shasta Co., California

Referring to Mr. V. N. Burnhart's letter and proposal to you of April 27, I am pleased to offer the services of a senior geological engineer who is fully qualified to supervise all phases of the exploration at the Bully Hill Mine, Shasta County, California.

Specifically, his experience fits him for the responsibility of putting together a geological map with pertinent cross sections which would provide the basis for intelligent exploration. He would locate drill holes, expedite the drilling progress through his knowledge of drilling techniques, log the core, keep careful records of both core and sludge, and perform all operations desirable and necessary for accurate sampling. He could arrange, as well, for the assaying and keeping of systematic assay records, and would prepare both topographic surveys as well as supervise the bore hole survey. Geological and assay cross sections of the bore holes would be kept up to date by him, and as the exploration progressed he would compute tonnages and grade of the ore encountered.

Periodic reports would be made by him and reviewed in this office, and these would include a summary of progress as to the drilling, geological information adduced, sampling, assaying, and the significance generally of what the exploration is revealing.

Should it appear, as a result of this work, that a profitable ore body is developed, then a formal report would be in order which would include a final tonnage and grade estimate, and, if you so desire, recommendations as to the most economical method of mining and exploitation together with suitable mine plant and equipment. If such a report were deemed desirable, there would be a somewhat additional fee over our regular charges covering the contemplated field work, which follow.

For the services of the senior geological engineer in the field, our charges are $2,000 per month (pro rated for fractions thereof), plus transportation

to and from Minneapolis plus all living and incidental expenses while in residence on the property. If motor transportation is required, this can be furnished and the charge would be $100 per month rental plus running expenses. If a junior engineer is required as the work develops, he can be provided on the basis of $35 per diem and expenses. If the work progresses to a point where unskilled help is needed, you may wish to provide suitable men. If not, we can undertake to do so, and our charge would be their base rate plus insurance, pensions, Social Security, and Workmen's Compensation, etc. plus 15% of the base rate to cover our overhead.

There are insufficient data at hand to predict how much the engineering charges will run to, but inasmuch as this job is reminiscent of the Lenoir, North Carolina titanium appraisal, I believe you will have a fair yardstick to go on if you will recall from that work what the proportion was of engineering fees to drilling.

We shall be pleased, indeed, to undertake the geological engineering of this exploration for you, and, if these terms prove acceptable, will you kindly sign in the indicated place and return one copy of this letter to us.

Yours faithfully,

/s/ D. M. Davidson

D. M. Davidson
Vice President

DMD:V
cc—Mr. Edward L. Ralston
ACCEPTED:

THE GLIDDEN COMPANY

/s/ Adrian D. Joyce
Chairman

C
O
P
Y

January 22, 1951

Mr. J. B. Johnson
Priorities Division
The Glidden Company
1396 Union Commerce Building
Cleveland, Ohio

Dear Mr. Johnson:

Complying with the request contained in your letter of January 11 we are attaching three copies of MO-1.

We regret that we cannot send the number of copies you requested but our supply of this order is exhausted.

Sincerely yours,

LANDON F. STROBEL
Executive Secretary

Enclosures 3

LFSTROBEL:mec
Copy to: Mr. Wing G. Agnew
L. F. Strobel
Files

LANDON F. STROBEL

THE GLIDDEN COMPANY

TIME-TESTED

GENERAL PURCHASING DEPARTMENT
1396 UNION COMMERCE BLDG.

CLEVELAND 14, OHIO

January 11, 1951

Defense Minerals Administration
C Street between 18th and 19th Streets, N.W.
Washington 25, D. C.

Gentlemen:

Please ship immediately via regular mail 150 copies of MO-1, Designation of Scarce Materials dated December 29, 1950 to the following address:

Mr. J. B. Johnson
The Glidden Company
1396 Union Commerce Building
Cleveland 14, Ohio.

Very truly yours,

J. B. Johnson

J. B. JOHNSON
Priorities Division

JBJ:sr

GLIDDEN

96,000
5.5
480000
480000
528000.0

Certification Recommended.

Lens "A"

Measured Ore 8,000 tons ✓
Indicated Ore 28,000 " ✓
Inferred Ore 60,000 " ✓
Total Ore 96,000 tons @ 2% Cu, ~~3.10%~~ 10.1 Zn, 5.5 oz Ag per ton and ~~0.1~~ 0.16 oz Au/ton.

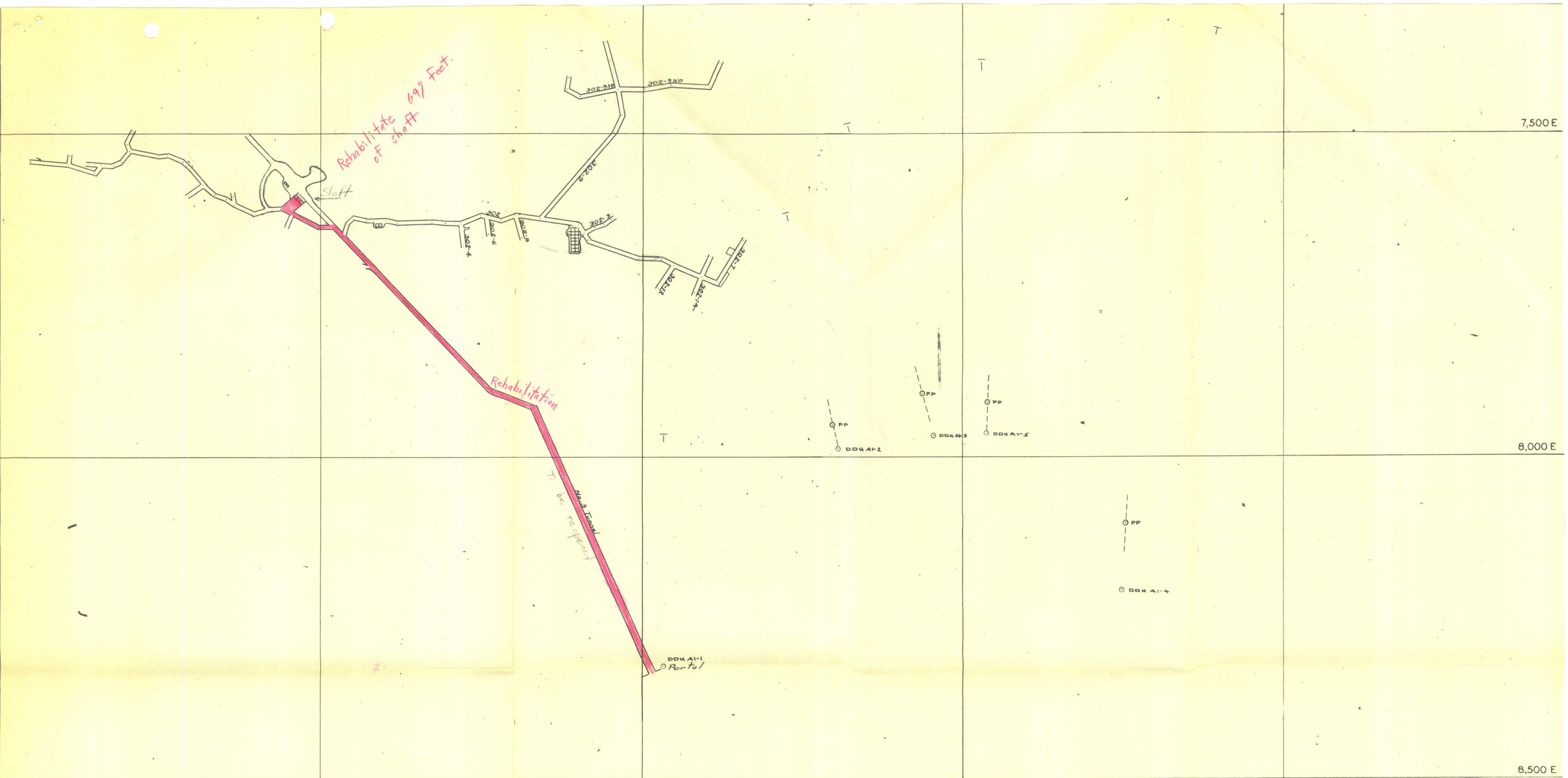
Lens "B"

Measured Ore 1,000 tons ✓
Indicated Ore 2,000 " ✓
Inferred Ore 6,000 " ✓
Total Ore 9,000 tons @ ~~2~~ 1.9% Cu, ~~3.10%~~ 3.1 Zn, 3.1 oz Ag per ton and ~~0.1 oz.~~ 0.08 Au per ton.

Two lenses of copper-zinc ore in a shear zone (on the north end) in Rhyolitic rocks. Replacement deposits by drifting and crosscutting and D.D. from 870 level of surface on the north end of the 870 level.

96,000	2.0 Cu	192,000	10.1 Zn	969,600.00	5.5 oz Ag.	528,000.00	0.16 Au	15,360
9,000	1.9 Cu	17,100	3.1 Zn	27,900.00	3.1 oz Ag.	27,900.	0.08 Au	720
105,000		209,100		997,500		555,900		16,080

1.99% Cu 9.50% Zn 5.29 oz Ag/ton 0.15 oz Au/ton



Map No. 1.
4-9-53

GEOLOGIC MAP

300 LEVEL

BULLY HILL MINE, SHASTA COUNTY, CALIFORNIA

THE GLIDDEN COMPANY

SCALE: 1"=100'

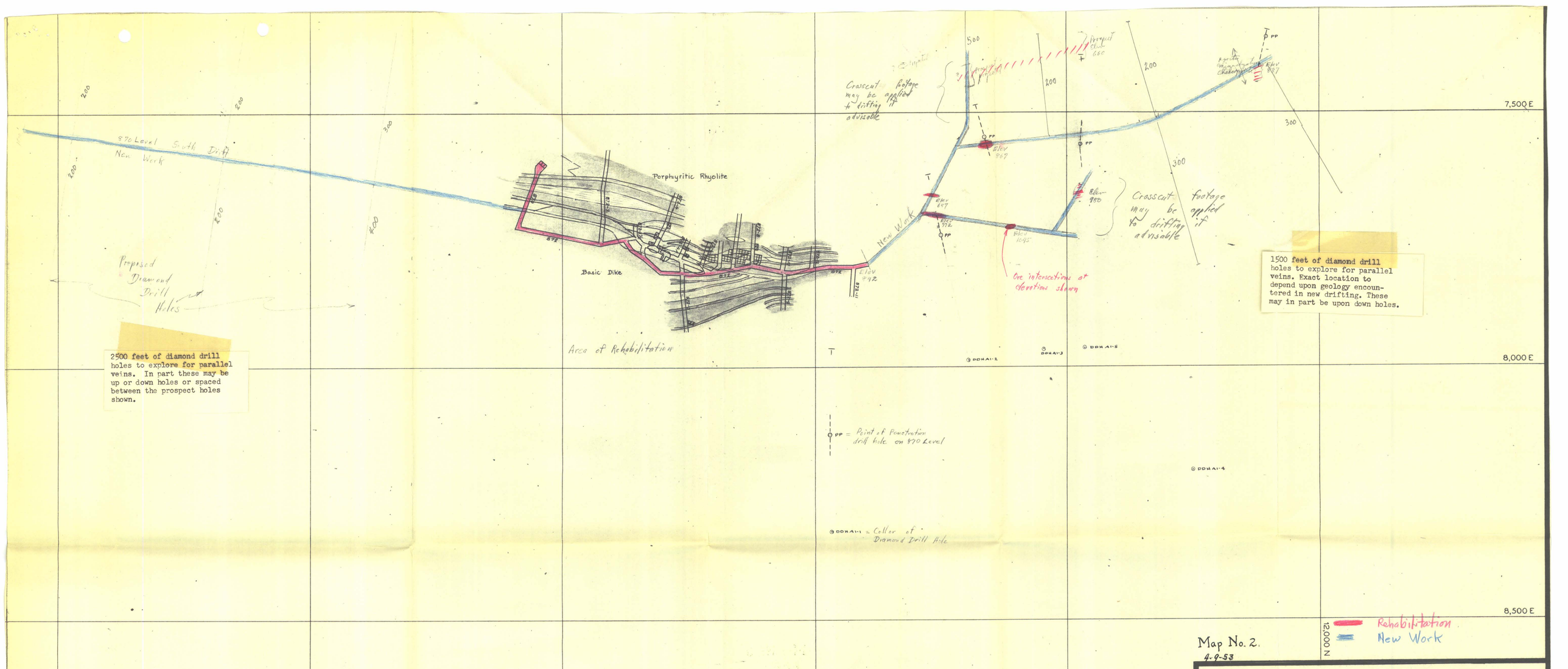
DATE: January 1953.

APPROVED: M.G.H.

ELEVATION:

E.J. LONGYEAR COMPANY

MINING ENGINEERS



Map No. 2.
4-9-53

GEOLOGIC MAP

870 LEVEL

BULLY HILL MINE, SHASTA COUNTY, CALIFORNIA

THE GLIDDEN COMPANY

SCALE: 1" = 100'

ELEVATION: 842 feet

DATE: January 1953.

APPROVED: M. G. H.

E. J. LONGYEAR COMPANY
MINING ENGINEERS

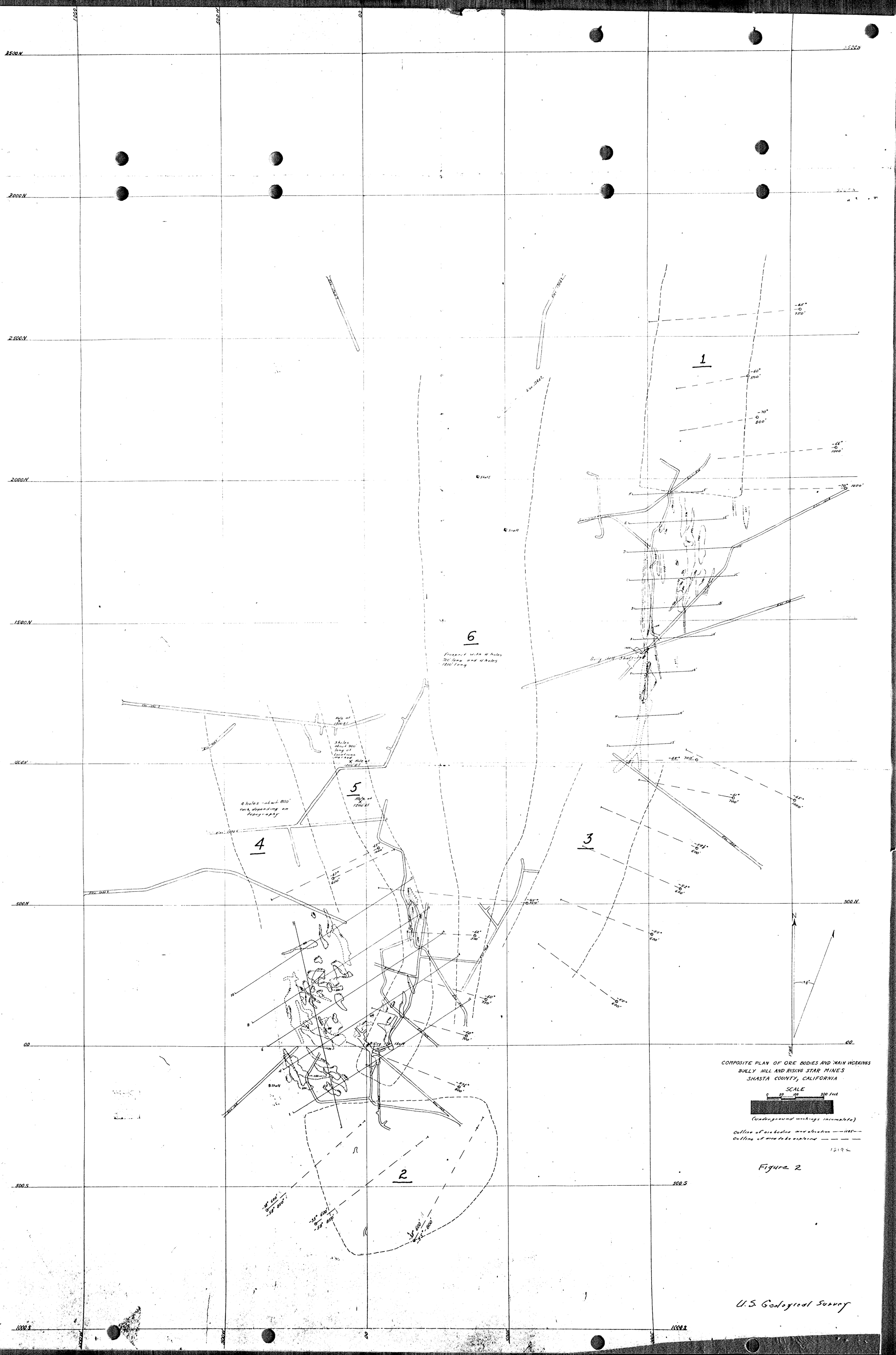


Figure 2

U.S. Geological Survey

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DMEA-1219
Idm-E187

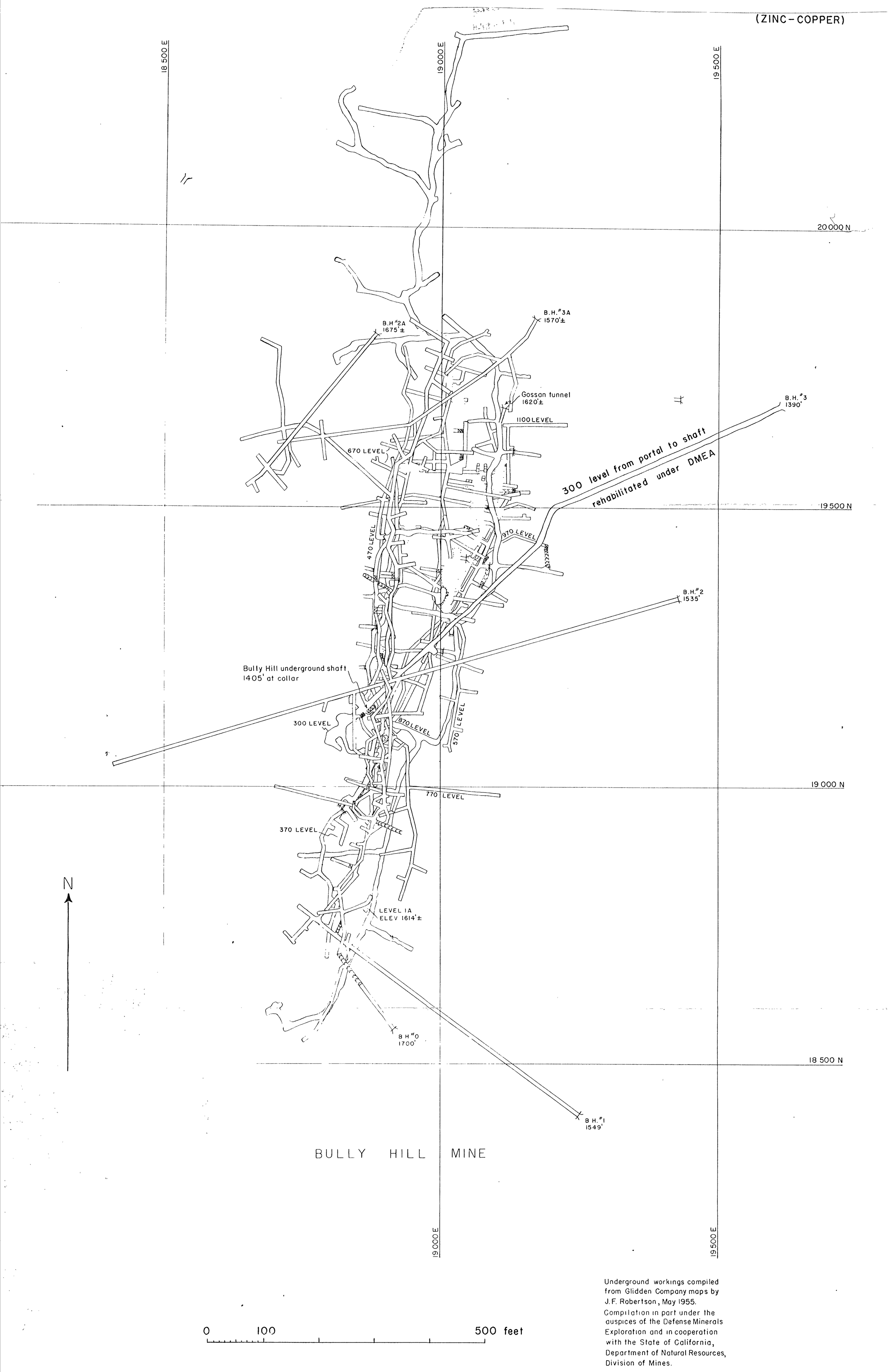
Topographic base from the Glidden Company;
Modified by J. P. Albers & J. F. Robertson

Geology by J. P. Albers & J. F. Robertson, 1955;
with additions by M.G. Hansen & A. L. Lutenko, Longyear Co.

FIGURE 2. GEOLOGIC MAP OF THE BULLY HILL MINE
SHASTA COUNTY, CALIFORNIA

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

(ZINC-COPPER)



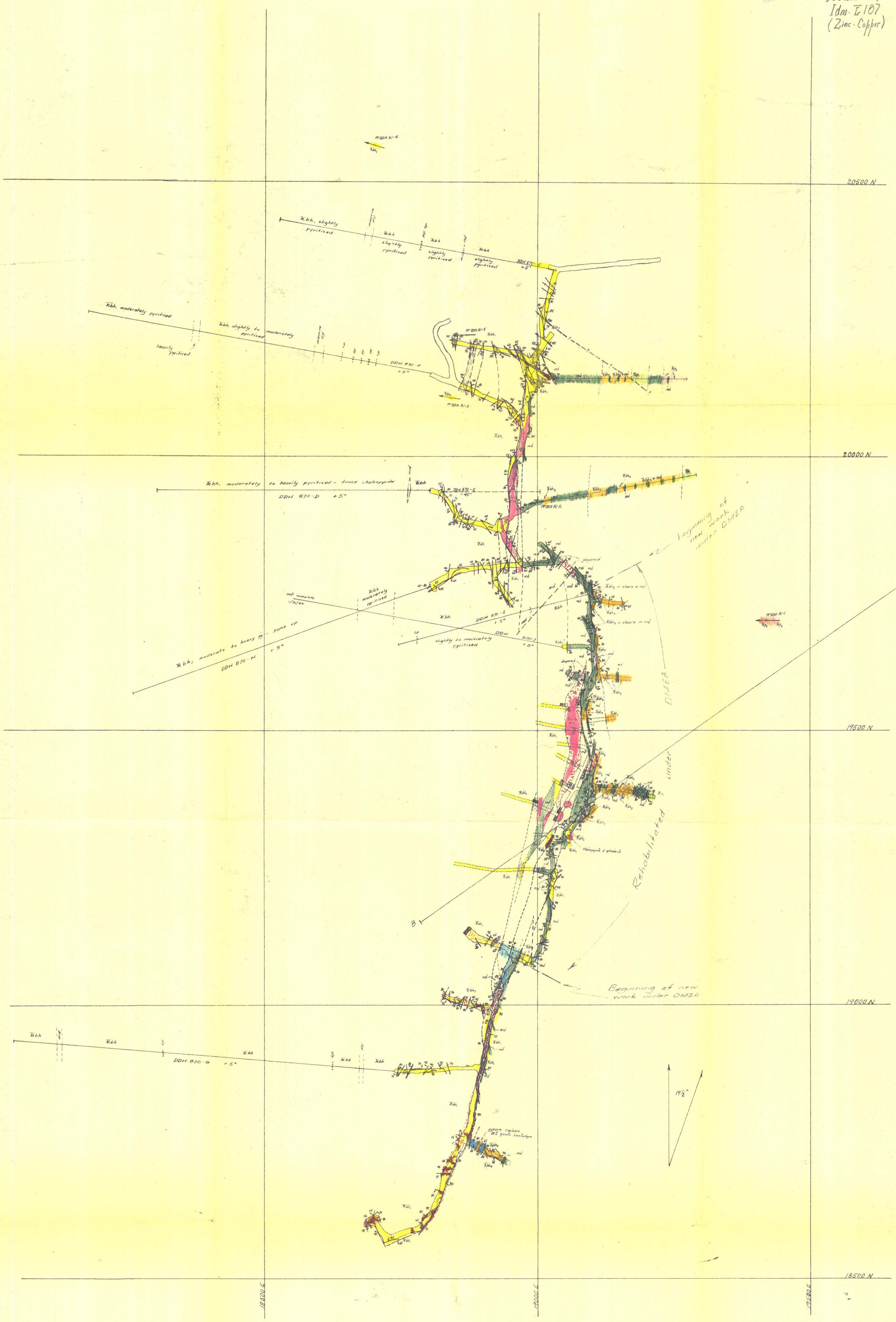
Underground workings compiled from Glidden Company maps by J. F. Robertson, May 1955.
Compilation in part under the auspices of the Defense Minerals Exploration and in cooperation with the State of California, Department of Natural Resources, Division of Mines.

Located in Secs. 16 and 21, T. 34 N., R. 3 W., M.D. B. and M.
Mined for copper and zinc.

FIG 3. COMPOSITE LEVEL MAP OF BULLY HILL MINE, SHASTA COUNTY, CALIFORNIA

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DMEA-1219
Idm-I-107
(Zinc-Copper)



Map of workings and coordinates furnished by the Glidden Co. Geology by J.F. Robertson, 1955, except geology in inaccessible workings adapted from company maps. Mapping done under the auspices of the Defense Minerals Exploration Administration. Diamond drilling done under DMEA contract

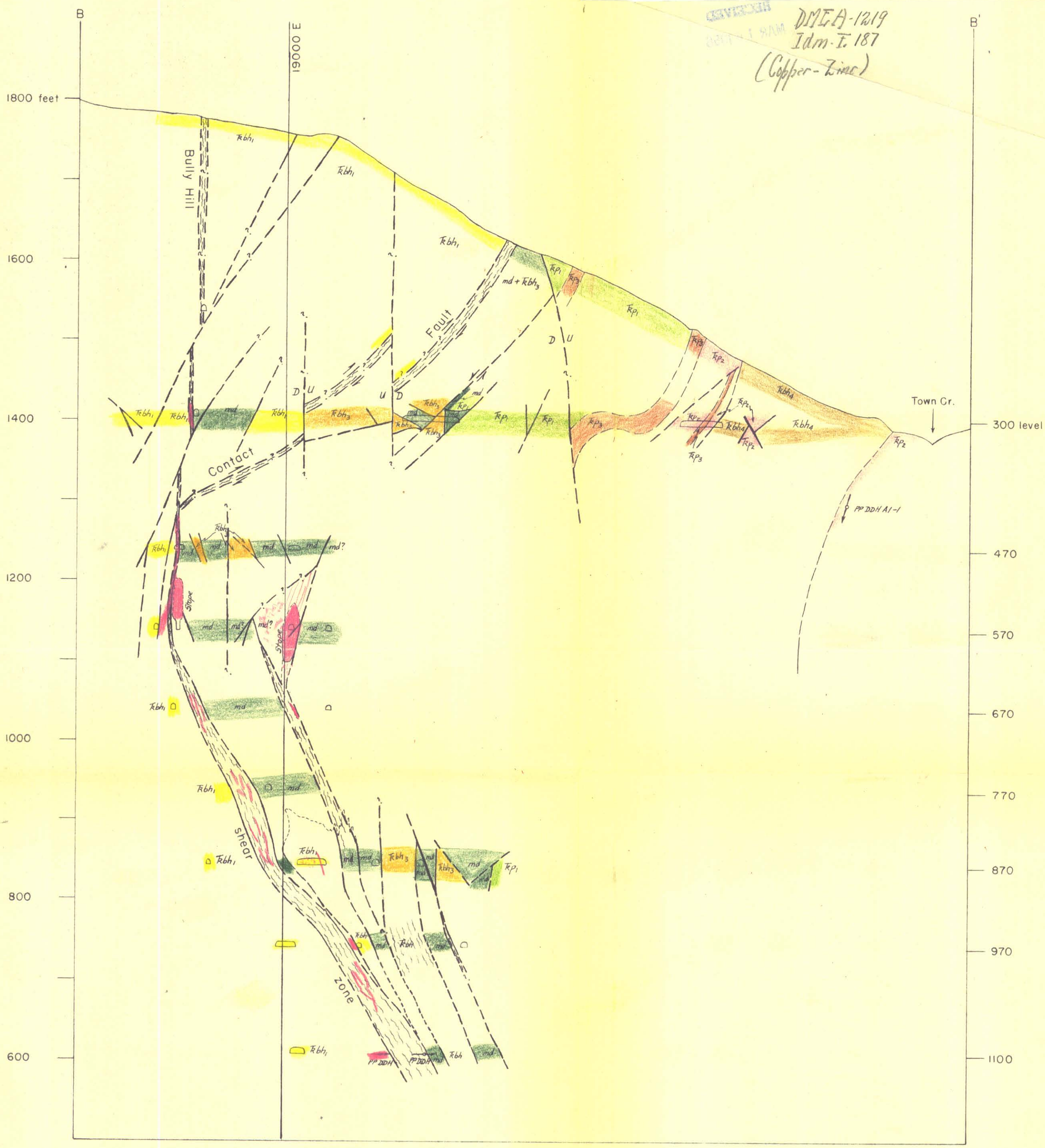
GEOLOGIC PLAN OF THE 870 LEVEL
BULLY HILL MINE, SHASTA COUNTY, CALIFORNIA

80 0 80 160 Feet

Figure 4

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DMEA-1219
Idm-I. 187
(Copper-Zinc)



100 0 100 200 300 feet

GEOLOGIC SECTION OF THE BULLY HILL MINE
SHASTA COUNTY, CALIFORNIA

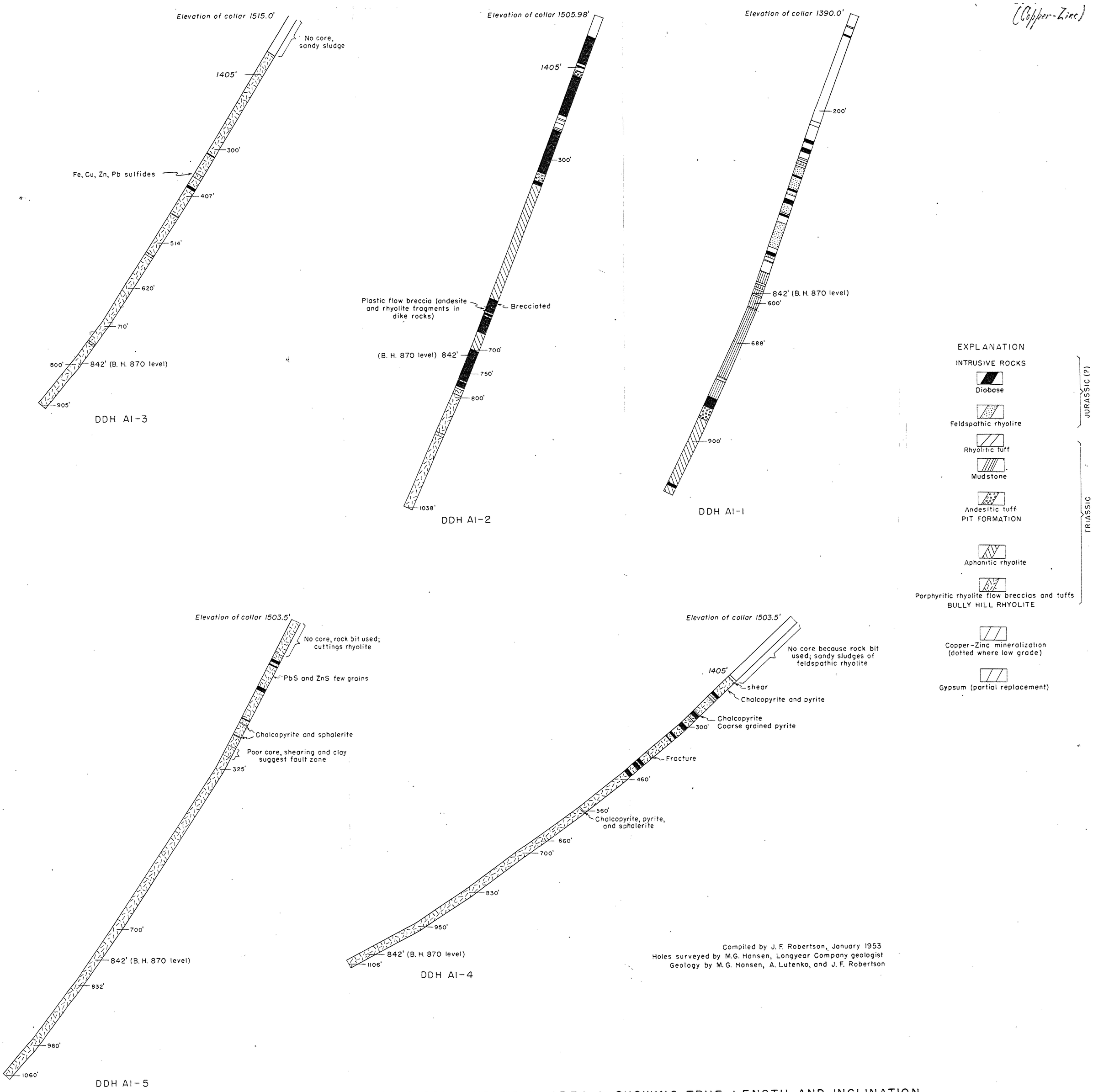
Figure 7

Compiled by J. F. Robertson
1955

Prepared in cooperation with the State of California, Department of Natural Resources, Division of Mines and in part under the auspices of the Defense Minerals Exploration Administration.

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

(Copper-Zinc)

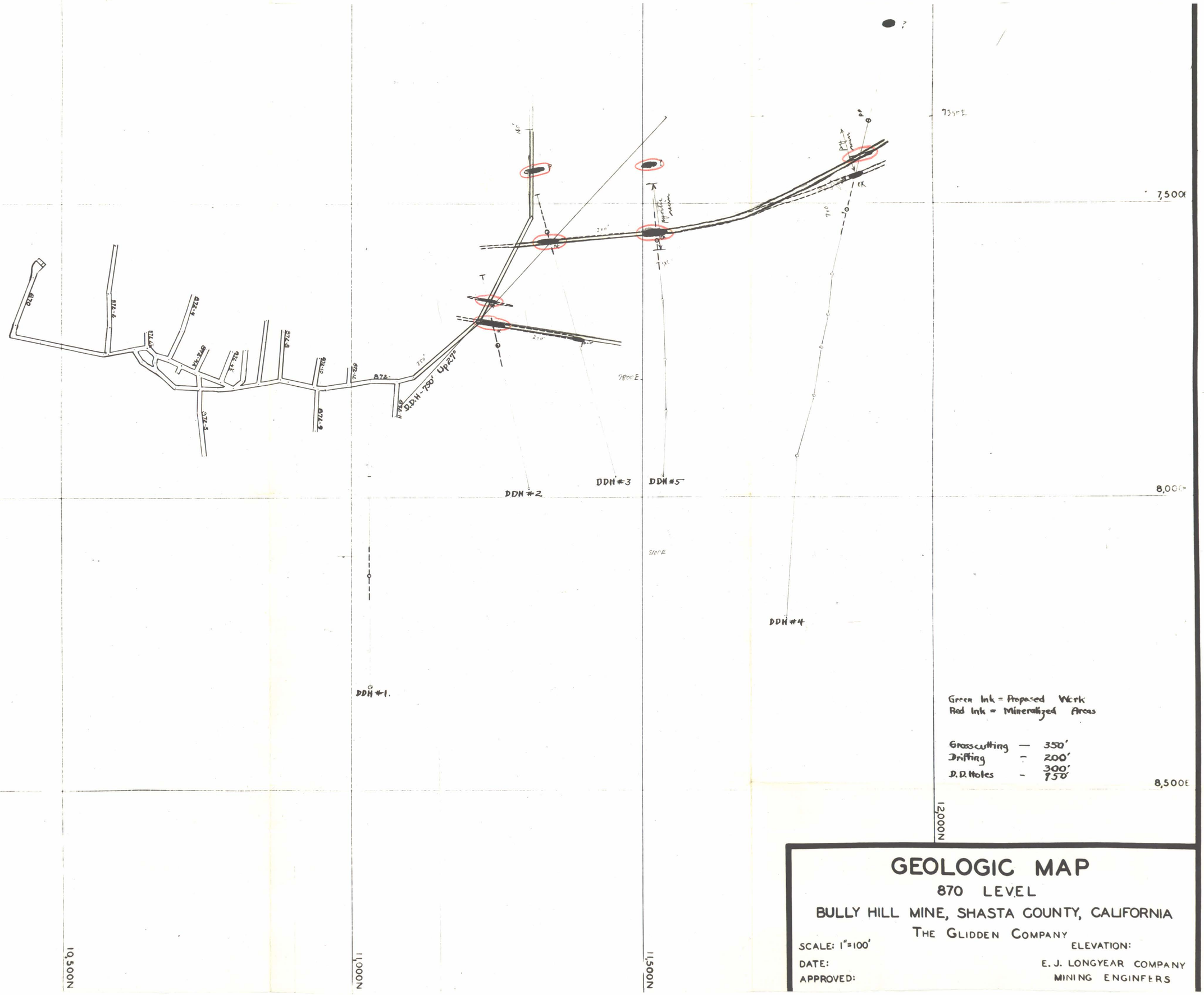


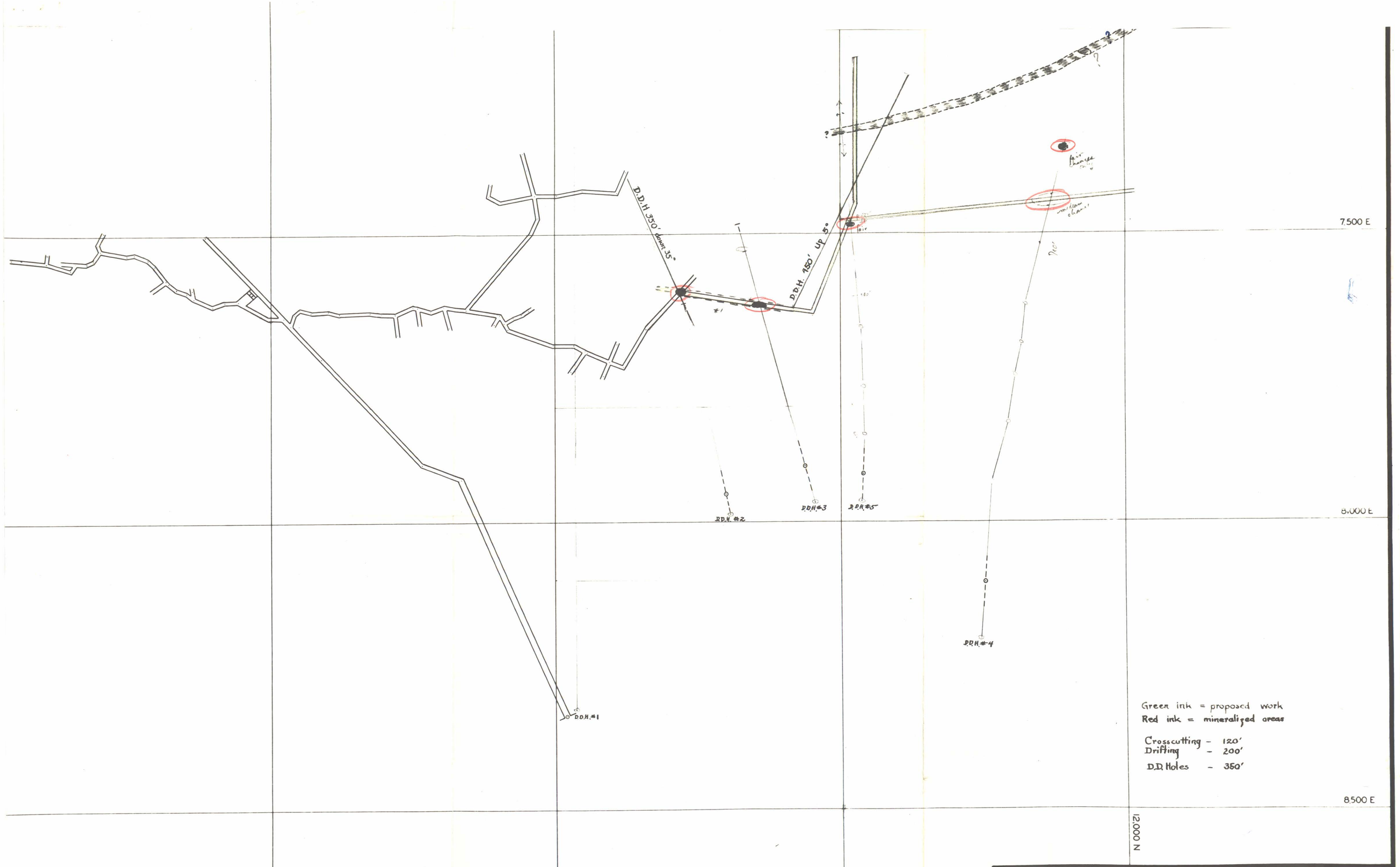
Compiled by J. F. Robertson, January 1953
Holes surveyed by M.G. Hansen, Longyear Company geologist
Geology by M.G. Hansen, A. Lutenko, and J. F. Robertson

GRAPHIC LOGS OF DIAMOND DRILL HOLES IN AREA I, SHOWING TRUE LENGTH AND INCLINATION
BULLY HILL MINE, SHASTA COUNTY, CALIFORNIA

100 0 100 200 FEET

Figure 8


7,500E
8,000E
8,500E
7350E
7800E
8150E
12,000N
11,500N
11,000N
10,500N
DDH #1
DDH #2
DDH #3
DDH #4
DDH #5
D.D.H. - 750' Up 27°
Green Ink = Proposed Work
Red Ink = Mineralized Areas
Crosscutting — 350'
Drifting — 200'
D.D. Holes — 750'
GEOLOGIC MAP
870 LEVEL
BULLY HILL MINE, SHASTA COUNTY, CALIFORNIA
THE GLIDDEN COMPANY
SCALE: 1"=100'
ELEVATION:
DATE:
E. J. LONGYEAR COMPANY
APPROVED:
MINING ENGINEERS



GEOLOGIC MAP

300 LEVEL

BULLY HILL MINE, SHASTA COUNTY, CALIFORNIA

THE GLIDDEN COMPANY

SCALE: 1"=100'

ELEVATION:

DATE:

APPROVED:

E. J LONGYEAR COMPANY
MINING ENGINEERS