DMEA Form 9

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE

DMEA NO. 4687

1111

22 JUL 1957

Application (Denied
(Withdrawn
(After disposition, delete items not applicable)

Contract (Terminated - not Certified
(Cancelled
(Terminated - Certified
(Royalty Agreement

This is the official contract file containing all official records of the project. The records contained in the files are checked and are arranged in this order:

Left Side

Interim Royalty Audits
Reports of Royalty Review
Certification of Discovery
Certificate of Audit (Final)
Interim Audit(s)
Report of Review
Termination Notice or Agreement
Recision Notice
Assignment of Contract
Contract Amendments (latest on top)
Contract with all exhibits and annexes
Owner's Consent to Lien
Subordination Agreement
Leases and assignments of leases
Application and attachments of DMEA D 4220
(3) Envelope for maps

Right Side

Project summary
Work completed analysis
All other material is filed in chronological order with correspondence including the following reports as checked:

Final Field Team Report (Tab)
Operator's Final Report
(2R) Interim Reports
(2R) Operator's monthly reports and all attachments (latest on top)
On-site Exam Report(s) (Tab)
(4) Settlement Sheets

When the volume of records is expected to warrant additional folders, or when convenience of reference warrants separate folders for certain records, they should be set up in this order:

Left Side

Folder No. 2: (In chron. order)
Interim Summary Reports by W. O. Engineers

Right Side

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

Folder No. 3: Maps (Use pocket folder or envelope. Fold maps with title block out and show reference to related document or correspondence.)

Folder No. 4: Settlement Sheets

Folder No. 5: Drill Logs

9775

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
10-22	Klugescheid	500
	Adams	500
10-23	Chambers	800
10/23	Selfridge	190
		~~130~~
		~~130~~
		110
10/23	C	225
		500

OCT 23 1958

Howe Sound Company
238 North 21st Street West
Salt Lake City, Utah

Re: Docket No. DMEA-4687 (Copper)
Howe Sound Company
Calumet Claims
Snohomish County, Washington
Contract No. Idm-E1111

Gentlemen:

Reference is made to your completed exploration contract with the Government.

We sincerely regret that the work performed did not result in a certification of discovery or development under the provisions of the contract. In the absence of such certification, the Government retains no claim or lien against the property subject to the contract or any future production therefrom. We, therefore, are closing our books and records on this project. Your attention, however, is called to the provisions of the contract which require the operator to keep and preserve certain records for the period indicated.

We appreciate your interest and participation in the Defense Minerals Exploration Administration exploration program which has now been succeeded by the Office of Minerals Exploration program.

Sincerely yours,

FRANK E. JOHNSON
ACTING Director

WPKlugescheid/er 10-22-58
Copies to: Docket
Director
Dir. Read. File
Op. Committee
Mr. McMahon, USBM
Mr. Miilsgaard, USGS
Region I (2)
Mr. Robert T. Curtiss, Vice Pres.
Mr. Robert T. Curtiss
Chron.
Mr. Jay Chambers,

8623

DEFENSE MINERALS EXPLORATION ADMINISTRATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

RECEIVED 21
DATE CODE
4/25 [illegible] 5-20

REPORT OF REVIEW

I have reviewed the Monthly Reports of:

Howe Sound Company
238 North 21st Street West
Salt Lake City, Utah

pertaining to Exploration Project Contract No. Idm-E1111, Docket No. DMEA-4687, dated July 22, 1957, without Amendments, for the months of July and August 1957, inclusive, covering a project for the exploration of copper on property known as the Calumet Claims, located in Snohomish County, State of Washington.

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 Government representative who visited and examined 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 reason:

all of the costs incurred were under a contract provision for payment by the Government on the basis of fixed unit costs of work actually performed.

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

Total cost claimed by Operator	$12,202.00
Exceptions	None
Total accepted cost claimed	$12,202.00

The contract calls for a 50 percent participation of accepted costs. Therefore, payments as follows are valid and proper:

Amount payable on audited claim	$ 6,101.00
Amount reimbursed	5,601.00
Balance due Operator	$ 500.00

C. A. Turner, Auditor

April 16, 1958

Schedule of Work Completed

Howe Sound Company DMEA-4687 Idm-E1111

Fixed Unit Costs

Diamond drilling - AX	1,226 feet @ $9.50	$11,647.00
Samples assayed	75 each @ 4.00	300.00
Core boxes	85 each @ 3.00	255.00
Total Accepted Costs		$12,202.00

C. A. Turner, Auditor

April 16, 1958

Government's copy

RECEIVED
AUG 22 1957
D.M.E.A.

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
EXPLORATION PROJECT CONTRACT
(Short Form)

DMEA No.	*Commodity*	*Contract No. Idm–E*	*County*	*State*
4687	Copper	1121	Snohomish	Washington

It is agreed 22 JUL 1957, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and HOWE SOUND COMPANY, a corporation duly organized and existing under the laws of the State of Maine

whose mailing address is 730 Fifth Avenue
New York 19, New York
hereinafter called the "Operator," as follows:

ARTICLE 1. *Authority and project.*—(a) This contract is entered into under the authority of the Defense Production Act of 1950, as amended. It consists of this form (MF–200A), the attached Annex I (land description), Exhibit A (work and costs), and the maps and documents listed therein. The project work is a search for indicated or undeveloped deposits of the commodity designated above. The Operator shall begin the work on or before one month after date of contract, and, subject to the provisions of Article 7 and Exhibit A, shall complete the work within six months from the date of the contract.

(b) The description of the work and the fixed cost for each unit of work to be performed (per foot of drilling, per foot of drifting, per hour of operations, etc.) are hereby agreed upon as specified in Exhibit A. The estimated total cost of the project work is $23,560.00. The Government will contribute 50 percent of the fixed unit cost of the work performed, not exceeding $11,780.00, in accordance with the provisions of Articles 4 and 5.

(c) The Operator shall not transfer or assign this contract or any right or obligation thereunder without the written consent of the Government.

ARTICLE 2. *Operator's property rights.*—(a) The Operator represents and undertakes that Annex I correctly describes the land which is the subject of this contract and the nature of the Operator's rights of property and possession therein (whether as owner, lessee, or otherwise), and that such right, title, or interest is subject only to the following claims, liens, or encumbrances: Interests of landowners (see Annex I).

(b) The Subordination Agreement of the holder of any claim, lien, or encumbrance listed above and (if the Operator does not hold the legal title) the Consent to Lien of any holder of the legal title of the land (lessor, seller, optionor, etc.) are attached, as follows: Consent to Lien and Subordination Agreements of Robert T. Curtiss and Sultan Basin Mining Company.

(c) The Operator shall preserve and maintain his right, title, and interest in the land and his right to the possession thereof for the purposes of this contract, and shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of this contract. The Operator shall neither transfer, convey, nor surrender the land nor any right, title, or interest therein, nor permit nor suffer any claim, lien, or encumbrance thereon, without expressly referring to and providing

in the instrument of conveyance, lien, or encumbrance for the preservation of the Government's right to a percentage royalty on production and lien for the payment thereof. Two copies of such instrument shall be furnished to the Government. If the Government's rights to royalty as provided in Article 6 have been terminated, the provisions of this paragraph (c) shall become inapplicable.

ARTICLE 3. *Performance of the work.*—(a) Operator's responsibility.—The work shall be performed diligently, efficiently, expertly, in a workmanlike manner, and in accordance with good mining standards and State regulations governing health, safety, and liability insurance covering employment. The Operator shall provide suitable and adequate equipment, facilities, materials, supplies, and labor to complete the work, as specified in Article 1 (a).

(b) *Government may inspect.*—The Operator shall consult with and inform the Government on all phases of the work as it progresses. The Government may enter at all reasonable times to inspect the work under the contract, and also after certification of discovery or development, to inspect production operations and underground workings. The Operator shall provide the Government with all reasonable means of access for such inspections.

ARTICLE 4. *Contribution by the Government.*—The Government will make its contribution on the basis of the monthly vouchers referred to in Article 5 (b); but all payments by the Government are provisional only, subject to audit, and until the account between the Operator and the Government is finally audited and settled and the Operator's final report has been rendered, the Government may withhold such sums as it sees fit but not in excess of 10 percent of the estimated total cost of the work. To the extent that excesses over fixed unit costs or any excess over the estimated total cost may be necessary for the performance of the work, the Operator shall incur and pay such excesses for his own account without contribution by the Government. The Government will not contribute to the cost of any work performed prior to the date of this contract. The Government may make payments for the account of the Operator directly to independent contractors and suppliers rather than to the Operator.

ARTICLE 5. *Reports, accounts, audits.*—(a) Operator's records.—The Operator shall keep suitable records and accounts of the units of work performed and of any production in which the Government may have an interest; and shall preserve those with respect to work performed for at least three years after final payment by the Government, and those with respect to production for at least three years after any obligation to pay royalties to the Government has terminated. The Government may inspect and audit said records and accounts at any time, either by itself or by a certified public accountant. The Comptroller General of the United States or his representative, until the expiration of said three-year periods, shall have access to and the right to examine all pertinent books, documents, papers, and records of the Operator.

(b) *Progress reports and vouchers.*—The Operator shall provide the Government with five copies of monthly progress reports in three sections as follows: (1) Operator's Monthly Report and Voucher showing a detailed statement of units of work performed during the reporting period; (2) Operator's Unit Cost and Progress Report showing the various types of work performed during the reporting period and the fixed unit costs incurred for each type of work; and (3) a Narrative Report of the work performed during the reporting period including adequate engineering-geological maps or sketches, drill hole logs and locations, and assay reports on samples taken concurrently with advance in mineralized ground. (Forms for reporting under (1) and (2) above will be provided by the Government.)

(c) *Final report.*—Upon completion of the work or termination of the Government's obligation to contribute to costs, the Operator shall furnish the Government with five copies of a final report (in addition to the final progress report and voucher). This final report shall include a geological and engineering evaluation of the results of the work performed under the contract with an estimate of the ore reserves resulting from such work, complete assay data, adequate geological and engineering maps or sketches, and a summary of the work performed and the unit costs thereof.

(d) *Report of sales.*—The Operator shall provide the Government with suitable accounting and documentary evidence covering all production to which the Government's percentage royalty relates, such as copies of smelter or concentrator settlement sheets, and certified accounts of production and sale or other disposition of production.

(e) *Compliance with requirements.*—If in the opinion of the Government any of the Operator's reports, records, or accounts are insufficient or incomplete, or if the Operator fails to make them, the Government may procure the making or completion of such with suitable attachments as an expense of the work to which the Operator shall contribute. The Government may withhold approval and payment of any vouchers relating to insufficient or incomplete reports, records, or accounts.

ARTICLE 6. *Repayment by Operator.*—(a) *Certification.*—If the Government considers that a discovery or development from which production may be made has resulted from the work, the Government, at any time not later than six months after the Operator has rendered a sufficient final report (see Article 5), may so certify in writing to the Operator. Such certification shall describe broadly or indicate the nature of the discovery or development.

(b) *Royalty on production.*—The Operator, as principal if the Operator is the producer or as surety if the Operator is not the producer (for example, if the Operator either transfers or fails to retain his interest in the land), shall pay to the Government a royalty on all minerals mined or produced from the land, as follows: (1) regardless of any certification of discovery or development, from the date of the contract until the lapse of the time within which the Government may make such certification or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first; or (2) if the Government makes a certification of discovery or development, for a period of ten years from the date of the contract or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first.

(c) *Basis for computation.*—The Government's royalty shall be a percentage of the gross proceeds (including any bonuses, premiums, allowances, or other benefits) from the production sold, in the form sold (ore, concentrates, metal, or equivalent), at the point of delivery (the f. o. b. point); *except,* that charges of *the buyer* arising in the regular course of business, and shown as deductions on the buyer's settlement sheets, on account of the cost of treatment processes performed by *the buyer,* sampling and assaying to determine the value of the production sold, and freight paid by *the buyer* to a carrier (not the Operator), shall be allowed as deductions in arriving at the "gross proceeds" as that term is used herein. Any costs of treatment processes, sampling, assaying, or transportation performed or paid by the Operator or by anyone other than the buyer are not deductible in arriving at the "gross proceeds" as that term is here used. The term "treatment processes," as here used, means those processes (such as milling, concentrating, smelting, refining, or equivalent, but excluding fabricating or manufacturing) applied to the crude ore or other production after it is extracted from the ground to put it into a commercially marketable form.

(d) *Unsold production.*—If any production (ore, concentrates, metal, or equivalent) after the lapse of six months from the date the ore was extracted from the ground remains neither sold nor used by the Operator in integrated manufacturing or fabricating operations (for instance, if it is stockpiled), the Government, at its option, as long as it so remains, may require the computation and payment of its royalty on the value of such production in the form (ore, concentrates, metal, or equivalent) it is in when the Government elects to require computation and payment. If any production is used by the Operator in integrated manufacturing or fabricating operations before the Government makes its election, the Government's royalty on such production shall be computed on the value thereof in the form in which and at the time it is so used. "Value" as here used means what is or would be gross income from mining operations for percentage depletion purposes in Federal income tax determination, or the market value, whichever is greater.

(e) *Percentages of royalty.*—The percentages of the Government's royalty shall be as follows:

One and one-half (1½) percent of amounts ("gross proceeds" or "value") not in excess of eight dollars ($8.00) per ton of production in the form in which sold, held, or used, plus one-half (½) percent for each additional full fifty cents ($0.50) by which such amounts exceed eight dollars ($8.00) per ton, but not in excess of five (5) percent of such amounts.

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

(f) *Time for computation and payment.*—The Government's royalty shall be computed and paid currently upon each lot sold, held, or used in integrated operations, as the case may be, as above provided in this Article.

(g) *Lien for payment.*—To secure the payment of its percentage royalty, there is hereby granted to the Government a lien upon the land or the Operator's interest in the land and upon any production of minerals therefrom until the royalty claim is extinguished by lapse of time or is fully paid.

(h) *Notice to purchasers.*—The Operator shall give notice of the Government's claim for royalty to any purchaser of the production, and shall authorize and direct such purchaser to pay the royalty directly to the Government and to furnish the Government with copies of the settlement sheets. If the records of any production and sales or other disposition of production, whether the production is by the Operator or by others, are not made available to the Government, the amount of the royalty may be estimated by the Administrator, Defense Minerals Exploration Administration, or his successor, and his estimate thereof shall be final and binding upon the Operator.

(i) *No obligation to produce.*—Nothing in this contract is to be construed as imposing any obligation on the Operator or the Operator's successor in interest to engage in any production operations.

(j) *Government not obligated to buy.*—Nothing in this contract shall be construed as imposing any obligation on the Government to purchase any minerals mined or produced from the land.

ARTICLE 7. *Termination of the Government's obligations.*—(a) If in the opinion of the Government operations at any time have failed to achieve anticipated results that indicate the probability of making a worthwhile discovery and in the opinion of the Government further operations are not justified, the Government may give the Operator written notice thereof, and thereupon the Government shall be free of all obligation to pay on account of units of work not then performed, and the Operator shall be free of all further obligation to prosecute the work other than such as may be necessary and incidental to winding up, reporting, and accounting.

(b) If in the opinion of the Government the Operator is in any manner in default under the terms of the contract, the Government may give the Operator written notice of such default with a specification of reasonable time within which the default must be cured; and if the Operator fails to cure such default as required, thereupon the Government shall be relieved of all obligation to pay on account of units of work not performed when the notice was given, and the Operator shall be free of all obligation to prosecute the work other than such as may be necessary and incidental to winding up, reporting, and accounting. The Government may also avail itself of any other remedy the law may provide for breach of contract, including the right to rescind the contract and to demand repayment of all moneys contributed by the Government under the contract.

(c) The giving of any notice by the Government under the provisions of this Article 7 shall not affect the Government's rights as provided for in the contract with respect to a percentage royalty, and liens to secure the payment thereof, and such rights shall be fully preserved.

ARTICLE 8. *Notices to be given by the Government* may be delivered to the Operator or may be sent by registered mail addressed to the Operator at the mailing address stated in this contract. If mailed, notices are deemed to have been delivered five days after the date of mailing.

ARTICLE 9. *Officials not to benefit.*—No member of or delegate to Congress or resident commissioner shall be admitted to any share or part of this contract or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

ARTICLE 10. *Changes and added provisions.*—

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Long
Hoflund
"Appd. Sol. Off."
Klugerchird
Chambers
Martin
Johnson

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By _____
Administrator, Defense Minerals
Exploration Administration

HOWE SOUND COMPANY
(Operator)

By _____

Title _____

I, William T. Holmes, certify that I am the _____ secretary of the corporation named as Operator herein; that Vinton H. Clarke, who signed this contract on behalf of the Operator, was then Vice President 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.

_____

[CORPORATE SEAL]

U. S. GOVERNMENT PRINTING OFFICE: 1956—O-383069

EXPLORATION PROJECT CONTRACT
HOWE SOUND COMPANY
DOCKET NO. DMEA-4687

ANNEX I

The land referred to in Article 2 of the contract consists of three unpatented mining claims all located in Section 27, Township 29 North, Range 10 E. W.M., Snohomish County, Washington. The Operator is in possession by virtue of an Option Agreement, executed October 31, 1956, with Robert T. Curtiss and the Sultan Basin Mining Company. The option is a continuing option which shall remain in force as long as the Optionee, its successors and assigns, shall perform the terms and conditions thereof. The claims are shown, outlined in blue color, on the attached map entitled "Figure 1--Calumet Claims in the Iowa Group." Copies of the Option Agreement are contained in Docket No. DMEA-4687, and the land descriptions therein are incorporated herein by reference.

The claims are recorded under Mining Locations in the office of the Auditor of Snohomish County, Washington, as follows:

Name	Volume	Page
Calumet Lode Claim	40	27
Calumet Extension	42	604
Calumet Fraction	42	604

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

For Government's Use Only
EXPLORATION PROJECT CONTRACT
Operator HOWE SOUND COMPANY
Docket No. DMEA- 4687
Contract No. Idm-E 1111
Contract Date 22 JUL 1957

CONSENT TO LIEN
and
SUBORDINATION AGREEMENT 1/

To the United States of America:

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

Calumet Lode Claim, Calumet Extension, and Calumet Fraction, all located in Section 27, Township 29 North, Range 10, E.W.M.

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

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

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

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

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

None

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

2/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease [or contract, deed, or other document] dated _____, and recorded in Book _____, Page _____, official records of said county." If (b) is used, the book and page of recordation cannot be dispensed with. If the space provided is insufficient, use an Annex, and refer to the Annex in the space.

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

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

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

Dated this 31 day of July, 1957.

Robert T Curtiss Robert T. Curtiss	[Seal]	Monroe, Wash.	[Address]
	[Seal]		[Address]
SULTAN BASIN MINING COMPANY	[Seal]		[Address]
By Robert T Curtiss	[Seal]	Monroe, Wash.	[Address]
Title Vice President	[Seal]		[Address]
	[Seal]		[Address]

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

W P Sebbor Secretary

[Corporate Seal]

EXPLORATION PROJECT CONTRACT
HOWE SOUND COMPANY
DOCKET NO. DMEA-4687

EXHIBIT A

Description of the Work

The purpose of the project is to explore for ores of copper by diamond drilling, and such churn drilling as is necessary in loose and unconsolidated material in the upper portion of the holes. The Calumet vein is a strong, wide, nearly vertical structure which is exposed for a distance of about 900 feet.

It is estimated that approximately 14 drill holes will be required, varying in depth from 140 to 200 feet with an average depth of approximately 170 feet. Not more than 2,400 feet of drilling shall be performed.

The locations of the initial holes are tentatively shown, in red, on the attached map entitled "Plate 2--Applicant's Proposed Drilling, Calumet Vein, Iowa Group." Two holes, on inclinations of minus 30° and minus 50°, are to be drilled from each drill site. The actual locations, directions, inclinations, and depths of all drill holes are subject to prior Government approval.

All diamond drilling shall be done with AX, or larger, size coring bits, except that when necessary to complete a hole, an EX size bit may be used. Drill holes shall be reamed and cased or cemented and redrilled as necessary.

All drill holes shall be logged and all drill core shall be made available to the Government for examination. All significantly mineralized core, in lengths not to exceed five feet, shall be split and one half thereof shall be properly sampled and assayed for copper, gold, and silver.

Sludges corresponding to the cores shall be retained (if possible) when drilling is being done in significantly mineralized ground and, in the event that core recovery does not exceed seventy per cent, both core and sludge samples shall be taken, at intervals not to exceed five feet. Both the core and sludge shall be split, and one half thereof properly sampled and assayed.

The remaining half of all significantly mineralized core samples, and sludge samples when taken, shall be furnished to the Government upon request.

All assays shall be reported monthly to the Government, together with drill logs and proper plan maps and sections, showing the progress of the work and sample locations.

All work of drilling and sample preparation shall be properly supervised by competent engineers and geologists.

Estimated Costs of the Project

Fixed Unit Costs

2,400 feet of churn drilling and diamond drilling @ $9.50/ft. 1/	$22,800.00	
100 samples assayed @ $4.00/each sample	400.00	
120 core boxes @ $3.00/each (wooden)	360.00	
Estimated Total Cost of the Project		$23,560.00
Government's Participation @ 50%		$11,780.00

1/ Any drilling with EX size bit will be at a maximum rate of $9.30/ft.

DOCKET No. DMEA 4687

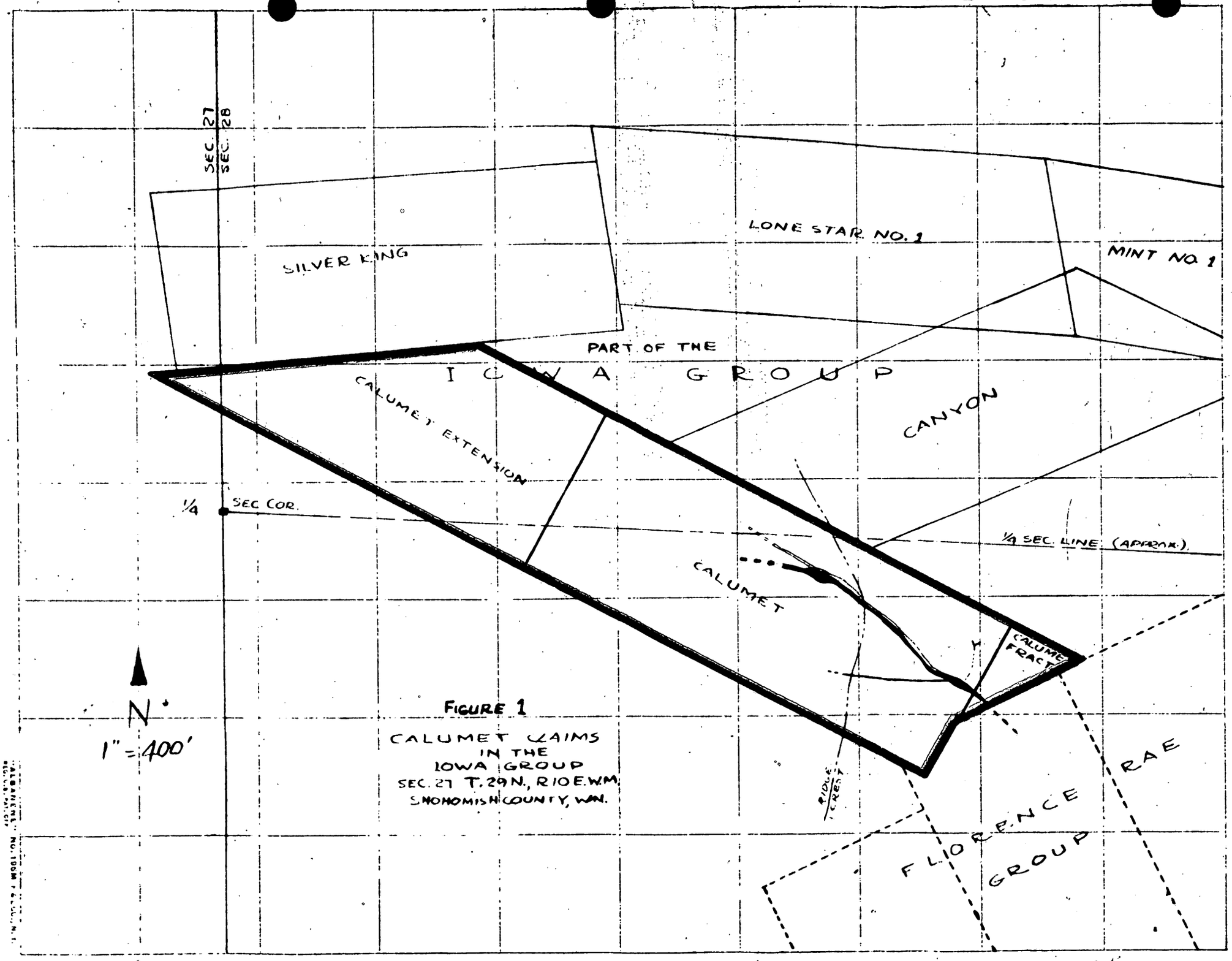

FIGURE 1

CALUMET CLAIMS
IN THE
IOWA GROUP
SEC. 27 T. 29 N., R 10 E. W.M.
SNOHOMISH COUNTY, WAN.

DMEA

(4)

BRITANNIA MINING AND SMELTING CO., LIMITED

June 4th, 1957.

HOWE SOUND COMPANY
NEW YORK CITY

SUBSIDIARIES:

BRITANNIA MINING AND SMELTING CO., LIMITED:

- ☐ HEAD OFFICE BRITANNIA BEACH, B.C.
- ☐ (BRITANNIA DIVISION) BRITANNIA BEACH, B.C.
- ☐ (SNOW LAKE DIVISION) SNOW LAKE, MANITOBA
- ☐ (EXPLORATION DIVISION) 405 ROYAL BANK BUILDING TORONTO 1, ONTARIO
- ☒ (EXPLORATION DIVISION) 313 ROYAL BANK BUILDING VANCOUVER 2, B.C.

HOWE SOUND COMPANY (CHELAN DIVISION) HOLDEN, WASH.

CALERA MINING COMPANY COBALT, IDAHO

REFINERY GARFIELD, UTAH

EL POTOSI MINING COMPANY CHIHUAHUA, MEXICO

CIA INDUSTRIAL "EL POTOSI" S.A. CHIHUAHUA, MEXICO

Mr. A. E. Weissenborn,
Executive Officer DMEA,
So. 157 Howard Street,
Spokane 4, Washington.

Dear Mr. Weissenborn:

Re: Docket No DMEA 4687 (Copper)
Howe Sound Company
Calumet Claims
Snohomish County

In answer to your letter I have enclosed copies of bids from two diamond drill contractors. A third firm, Boyles Bros. made a verbal bid of $7.00 per foot. At the time of the bids in the early Spring, the property being at 5000 ft. elevation was inaccessible and the bids were made on our detailed description of the property to the contractors. It is only now becoming accessible and we hope to begin operations within a few weeks.

Our estimate for core boxes, holding 20 ft. of AX core, required for 2400 ft. of drilling is about 120. At a price of $3.00 per box this would amount to $360.00.

Trusting that this information will suffice I remain,

Yours truly,

John Lamb

John Lamb,
Geologist.

JL/g

encl.

OFFICIAL FILE COPY
DMEA
RECEIVED JUN 10 1957

DATE	INITIALS	CODE

RECEIVED
JUN 6 1957
U. S. G. S.
SPOKANE, WASH.

FORM 20 4M-1-56 G.A.R. LTD.

BRITANNIA MINING AND SMELTING CO. LIMITED

EXPLORATION DIVISION

313 ROYAL BANK BUILDING
VANCOUVER 2, B.C.

OFFICIAL FILE COPY
DMEA
RECEIVED JUN 10 1957

DATE	REMARKS	CODE
	March 11,	1957

Diamond Drilling Contractor
Nichols & Thompson
Core Drilling Co., Inc.
Phone 4-1464

Mr. Al Killin,
Britannia Mining & Smelting Co., Ltd.
Room 313, Royal Bank Bldg
675 W Hastings St.,
Vancouver, B.C.

Dear Mr. Killin:

In reply to your letter of March 6, please be advised we would be very happy to do the drilling under either of the following proposals:

COPY

#1. A. Mobilization and demobilization, Lump Sum $500.00

B. Moving drill from site to site, setting up drill, casing hole, drilling, fishing for lost equipment, reaming, cementing and tearing down, at $13.00 per hour or $104.00 per eight hour shift per drill rig, plus the following footage price for drilling:

0	to 100'	$1.50 per linear foot
100	to 200'	2.25 per linear foot

C. You will reimburse us at our cost for any casing or rods unavoidably left in drill hole.

D. Cost of any one break-down in excess of two (2) hours will be borne by us.

#2. A. Mobilization and demobilization, $500.00

B. Moving drill from site to site, setting up drill, plus waterpump installation at $104.00 per eight (8) hour shift or $13.00 per hour.

C. Drilling:

1.	AX	0 to 100'	$6.00	100 - 200'	$7.00 per lin.ft.
2.	BX	0 to 100'	6.50	100 - 200'	7.50 per lin.ft.

D. Reaming: $2.65 per foot

E. Cementing and drilling cement and waiting for cement to set at $13.00 per hour.

RECEIVED
JUN 6 1957
U. S. G. S.
SPOKANE, WASH.

FORM 20 4M-1-56 G.A.R. LTD.

BRITANNIA MINING AND SMELTING COMPANY LIMITED
EXPLORATION DIVISION
313 ROYAL BANK BUILDING
VANCOUVER 2, B.C.

We feel that it would be essential to have a two-way radio set on the job and yet we have been unable to get a definite cost for the rental of a two-way radio, but feel sure under the above proposals that you would reimburse us for the rental of the radios. Of course the radios would be for both parties use and would be very important in case of accident or break-down.

We are estimating that the total weight of the equipment plus the necessary gasoline, supplies and camp equipment would be approximately eight (8) tons. We are figuring this on a maximum rather than minimum basis.

We wish to thank you for this opportunity to be of service to you and we shall be looking forward to hearing from your.

Yours very truly,

NICHOLS & THOMPSON CORE DRILLING COMPANY, INC.

By Donald F. Nichols

Donald F Nichols, Assistant General Manager

COPY

DFN:pep
Airmail.

FORM 20 4M-1-56 G.A.R. LTD.

BRITANNIA MINING AND SMELTING CO. LIMITED

EXPLORATION DIVISION

313 ROYAL BANK BUILDING
VANCOUVER 2, B.C.

LYNCH BROS.
DIAMOND DRILL CONTRACTORS
3425 Stone Way - Telephone Melrose 5052
Seattle 3, Washington

April 23, 1957.

Britannia Mining and Smelting Co. Ltd.
313 Royal Bank Building
Vancouver, B.C.

Att. Mr. Lamb.

COPY

Dear Sir:

We submit the following proposal for the diamond drilling on your properties in the Sultan Basin, State of Washington.

The following prices are based on approximately 2400 ft. of drilling, the holes to average 175 to 200 ft. in depth and two holes to be drilled from each set up, all holes starting in rock.

You are to move all supplies and equipment from road end in Sultan Basin, to drill site and return equipment to road end at completion of job. You will operate a camp near drill site and supply board and lodging to our men at a cost of $1.50 per day per man.

Drilling A.X. size holes: $5.25 per lin. ft.

Reaming, cementing and placing casing will be done at a price of $10.00 per hr. Cement to be furnished by you.

Approximate weight of our equipment, including drill, two pumps, casing, plastic water pipe, tools and supplies will be 2,350 lbs. The gasoline and oils are not included in these weights. We would like to operate two eight hour shifts per day and our guess would be that we would use about eight to ten gallons of gasoline per shift.

Very truly yours,

Lynch Bros.

by Chas. D. Sellers

CS/d

OFFICIAL FILE COPY
DMEA
RECEIVED JUN 10 1957

RECEIVED
JUN 6 1957
U. S. G. S.
SPOKANE, WASH.

COPY

COPY

xxxxxxxxxxxxxxxxxxxxxxx
South 157 Howard Street
Spokane 4, Washington

February 7, 1957.

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Re: Docket No. DMEA-2435 (Copper)
Robert T. Curtiss
Mint Claims
Snohomish County, Washington
Contract No. Idm-E417

Dear Mr. Selfridge:

In accordance with your letter of January 8, 1957, we are enclosing two copies of an Option and Option Agreement on Sultan Basin Group Mining Claims.

Paragraph 7 on page 5 of the Option Agreement authorizes Sultan Basin Mining Company, lessor of the Mint Claims to Mr. Curtiss, to continue working on the claim until November 1, 1958 under certain conditions, but we are not certain that this guarantee is sufficient to justify granting Mr. Curtiss' request for additional work.

The second copy of the Option and Option Agreement are for the pending request of the Howe Sound to take over Mr. Curtiss' application for assistance to explore on the Calumet Claims (present Docket No. DMEA-4220.

By Field Team, Region I, NW Dist.

A. E. Weissenborn, Exec. Officer
U. S. Geological Survey

Wing G. Agnew, Member
U. S. Bureau of Mines

Enclosures
cc: USBM (2)
USBM (AD)
Kellum

OPTION AGREEMENT ON SULTAN BASIN GROUP MINING CLAIMS

THIS OPTION AGREEMENT made and entered into on the _____ day of October, 19__, by and between ROBERT T. CURTISS of Monroe, Washington and SULTAN BASIN MINING COMPANY, a corporation of Seattle, Washington, herein called the "Optionors," and NOWE SOUND COMPANY, a corporation of New York City, New York, herein called the "Optionee,"

W I T N E S S E T H :

a. WHEREAS, the Optionors are the owners of certain mining properties located in the State of Washington and more particularly described in Schedule 1 attached hereto and by this reference made a part hereof; and

b. WHEREAS, the Optionee desires to acquire an option to purchase the aforesaid mining properties;

NOW, THEREFORE, in consideration of the payment to the Optionors of Ten Dollars ($10.00), the receipt and sufficiency of which is hereby acknowledged, the Optionors do hereby grant unto the Optionee an option to purchase the properties described in Schedule 1 attached hereto, upon the following terms and conditions:

1. The Optionors represent and warrant as follows:

a. That they are the owners of the properties described in Schedule 1, free and clear of all encumbrances other than as particularly noted in Schedule 1.

b. That the Optionors have made no agreements or conveyances which remain outstanding as of the date of execution of this instrument whereby any interest of the Optionors in said properties has been granted or encumbered to any third party in any manner whatsoever, and that the Optionors have the necessary authority to execute and carry out this option.

c. That the Optionors shall not during the existence of this option in any manner encumber or otherwise establish or suffer to be established any defect in the title to the properties covered by this option.

2. This option shall be a continuing option and shall remain in full force and effect as long as Optionee, its successors or assigns, shall perform the terms and conditions hereof, which shall include cash payments to Optionors as follows:

On or before Nov. 1, 1956, Two Hundred Dollars ($200.00)
On or before Dec. 1, 1956, Two Hundred Dollars ($200.00)
On or before Jan. 1, 1957, Two Hundred Dollars ($200.00)
On or before Feb. 1, 1957, Two Hundred Dollars ($200.00)
On or before Mar. 1, 1957, Two Hundred Dollars ($200.00)
On or before Apr. 1, 1957, Two Hundred Dollars ($200.00)
On or before May 1, 1957, Two Hundred Dollars ($200.00)
On or before June 1, 1957, Two Hundred Dollars ($200.00)
On or before July 1, 1957, Two Hundred Dollars ($200.00)
On or before Aug. 1, 1957, Two Hundred Dollars ($200.00)
On or before Sep. 1, 1957, Two Hundred Dollars ($200.00)
On or before Oct. 1, 1957, Two Hundred Dollars ($200.00)
On or before Nov. 1, 1957, Five Thousand Dollars ($5,000.00)
On or before Nov. 1, 1958, Ten Thousand Dollars ($10,000.00)
On or before Nov. 1, 1959, Twenty Thousand Dollars ($20,000.00)
On or before Nov. 1, 1960, Fifty Thousand Dollars ($50,000.00)
On or before Nov. 1, 1961, Sixty-Two Thousand Six Hundred Dollars ($62,600.00)

3. The total purchase price for the properties subject to this option shall be the sum of One Hundred Fifty Thousand Dollars ($150,000.00). The option herein granted shall be deemed to have been exercised whenever the Optionee

shall have paid to the Optionors, as provided in Paragraph 2 hereinabove, an amount totalling the aforesaid purchase price. (In other words, all payments made to the Optionors to keep this option open shall be applied, at the time this option shall be exercised, as a credit against the aforesaid total purchase price.)

4. a. Upon execution of this option, the Optionors shall immediately make available to the Optionee all information, documents, opinions of counsel, if any, and other data available to the Optionors and pertaining to the title of the Optionors to the subject properties. The Optionors also agree to supply to the Optionee an up-to-date title abstract covering the subject properties as soon as it can be procured from a title company. In the event such title abstract shall not be made available to the Optionee by December 1, 1956, then the Optionee shall not be required to make any further payments to keep this option open, as provided in Paragraph 2 hereof, until after the end of a 15-day period following the date when such title abstract shall have been made available to Optionee.

b. On or before December 1, 1956, the Optionors shall deliver into escrow with the First National Bank of Everett (Monroe Branch), at Monroe, Washington, all instruments of conveyance required to transfer good and merchantable title, free and clear of all liens and encumbrances, other than as specifically noted in Schedule 1 attached hereto, to the Optionee, with appropriate escrow instructions for the release of the said instruments to the Optionee consistent with the terms and provisions of this agreement.

c. If and when the Optionee shall have exercised this option by paying to the Optionors the total purchase price as provided herein, then the aforesaid instruments of conveyance shall be released to the Optionee, and the Optionors covenant and agree that good title to the subject properties shall at that time be conveyed to the Optionee.

d. If when a payment is required to be made to keep this option open, in accordance with the schedule of payments herein provided, it shall then appear that the Optionors are unable to convey a good and merchantable title, then the time for any such payment shall be extended until the title defect has been removed and the Optionee has been notified thereof, or for a period of one year, whichever limits it shall have first occurred; provided, however, that the Optionee may, if it so elects, waive any such title defect.

e. During the continuation of this option, Optionee shall be obligated:

a. To pay all bills for labor, supplies and materials, used upon or in connection with said mining properties, and will not suffer [illegible] to be created any just liens or encumbrances for or on account of any such labor, materials or supplies to be [illegible] said mining properties.

b. To pay all taxes which shall become due and owing during the existence of this option by reason of assessments against the said mining properties, to do all assessment work which shall be required to keep the unpatented mining claims in good standing during the continuance of this option; provided, however, that Optionee shall be relieved of the obligations stated in this subparagraph if and when

it shall, before any such [illegible] shall [illegible] accrue, notify the optionors that any part or portion of the properties to which this option shall [illegible] applicable [illegible] released from this option.

. During the continuation of this option, the optionors shall be permitted, by their authorized representatives, to have free access to the [illegible] premises at their own risk, at all reasonable times, and the optionors shall [illegible] have the right at reasonable times to [illegible] access to [illegible] reports on all minerals which may be taken from said properties, and to all other factual geological data and information relating to the properties.

. With respect to the [illegible] claim [illegible] as the "Mint," it is understood and agreed that [illegible] Mining Company will be allowed [illegible] within the [illegible] and possible extension [illegible] for a period of time expiring [illegible] 1, 19[illegible], [illegible] shall be employed in said [illegible] operations, and [illegible] further that it is understood that the [illegible] operation shall be conducted in such a manner as to not interfere with the operations of the optionee at the properties [illegible] the same period. The optionors covenant and agree that all [illegible] for labor, supplies and materials which shall develop in connection with any operations of [illegible] in [illegible] as provided for in this agreement shall be paid by the latter company promptly when due and owing.

. The optionors agree that, in the event it should be possible to obtain a patent, [illegible] patent from the United States government for further [illegible] of the properties which are the subject of this option, that Optionors will consent thereto and will execute any and all instruments which may be required by the government as a condition precedent to the issuance of a patent.

9. During the continuance of this option, Optionee shall have a right to the possession of all of the subject properties and full and complete control of the premises, including, without limiting the foregoing general statement, the right to explore, mine and operate the same in all respects and to the same extent as to an Optionee were the full, complete and absolute owner of said properties, and it is specifically understood that the aforesaid rights shall include the right to extract and dispose of all minerals found therein for the sole and [illegible] of optionee.

10. [illegible] shall be terminated as follows:

[illegible] part of Optionee to make a [illegible] in accordance with the schedule [illegible].

[illegible] Optionors in writing [illegible] this agreement terminated as of a specified date, not less than 60 days after the date of [illegible].

[illegible] the part of Optionee with a [illegible] of this option agreement, provided, however, that before such termination shall become effective [illegible] failure of Optionee to comply with any terms [illegible] of this option agreement other than the payment [illegible] Paragraphs hereinabove, no such termination shall be operative unless and until Optionors shall have given notification in writing from Optionors specifying each claimed delinquency; whereupon, and after receipt thereof, Optionee shall be allowed a period of sixty days within which to cure any such delinquency.

d. Upon termination of this option agreement, all further obligations of any party thereto shall be at an end, except that neither party shall be discharged as to any obligations which shall have theretofore accrued in favor of the other party prior to such termination shall be effective. Optionee shall have a period of ninety days after any termination within which to remove any equipment or improvements which it may have placed upon the subject properties.

e. In the event any termination of this option agreement shall be or become effective between dates of April 1 and June 30 in any calendar year, [illegible] shall, notwithstanding any such termination, be required to perform any assessment work required to be performed on or before July 1 of said calendar year [illegible] stated mining claims which were [illegible] April 1 of said year in good standing throughout the said calendar year.

11. The parties do hereby agree that the area lying within a distance of one mile from the properties subject to this option shall be recognized as a zone of mutual interest. In the event that any of the parties shall at any time during the continuance of this option agreement, become the owner or acquire any interest in any mining properties within said zone of interest, the interest thus acquired shall, at the option of Optionee, be made subject to this option agreement in the same manner as though it were specifically designated herein. Any mining properties acquired by Optionee, during the existence of this option, within said zone of interest shall be subject to this option, and upon any termination thereof other than [illegible], the mining properties so acquired shall be [illegible] Optioners.

14. [illegible] have [illegible] harmless from any and all claims [illegible] accident or injury [illegible] licences or servants [illegible] visitors [illegible] erty upon the subject premises, [illegible] their agents and persons [illegible] further.

15. a. All notices required or permitted to be delivered under the terms [illegible] shall be sent by registered mail to the [illegible] as follows:

To Optioners: c/o [illegible]
[illegible]

To Optionee: [illegible]
[illegible]
New York, [illegible]

unless [illegible]. All notices [illegible] by registered mail [illegible] shall [illegible] deposit [illegible].

[illegible] their [illegible] the terms of this agreement. [illegible] said agent [illegible] Optioners [illegible] the said [illegible] filing [illegible] with [illegible] Optioners [illegible] Optionee [illegible] First [illegible] Washington, [illegible] ors, [illegible] severe [illegible] paid. [illegible] or inequitable [illegible] by reason [illegible]

optio[illegible] notice of such distribution or of changes of the interest [illegible] options.

[illegible]. This agreement shall be binding upon and inure [illegible] benefit of the [illegible], successors and assigns of [illegible] parties hereto; and [illegible] such assignment may be made by a[illegible] without [illegible] obtaining the consent of any [illegible] party.

[illegible]. [illegible] parties [illegible] such [illegible] necessary [illegible] rights of this agreement.

[illegible] parties have executed this [illegible] first above [illegible].

[illegible] Secretary

[illegible] President

[illegible] Secretary

[illegible] Executive Vice President

[illegible]

STATE OF [illegible]

COUNTY OF [illegible]

[illegible] ROBERT T. [illegible] and [illegible]

voluntary act and deed, [illegible] therein mentioned.

Given under my hand and official seal this [illegible]st day of [illegible]ober, 195[illegible].

[illegible] E. [illegible]
Notary Public in and for the State of Washington, residing at Seattle

STATE OF WASHINGTON }
COUNTY OF KING } s.

On this 31st day [illegible] the undersigned, a Notary Public [illegible] Washington, duly commissioned and sworn, [illegible] CURTISS and W. L. GIBSON, [illegible] Vice-President and Secretary, [illegible] Company, the corporation that [illegible] instrument, and acknowledged [illegible] the free and voluntary act and [illegible] the uses and purposes therein [illegible], and [illegible] that they were authorized to [illegible] the seal affixed thereto is the [illegible] seal [illegible] said corporation.

IN WITNESS WHEREOF, I [illegible] and my official seal the [illegible]

[illegible]
Notary Public in and for the State of Washington, residing at Seattle.

[illegible] entitled [illegible] the "Delta [illegible] Group", consi[illegible] the following.

[illegible] located [illegible] and 26, [illegible] Unit L ca-[illegible] as follows:

[illegible]	[illegible]	[illegible]
[illegible]		[illegible]
[illegible]		[illegible]
[illegible]		[illegible]
[illegible]		[illegible]
[illegible]		[illegible]
[illegible]		[illegible]
[illegible]		[illegible]
[illegible]		[illegible]
[illegible] Pratt		[illegible]
[illegible] Pratt		[illegible]
[illegible]		[illegible]
[illegible]	40	[illegible]
[illegible]		[illegible]
[illegible]		[illegible]

[illegible] approximately [illegible] acre mill site located on the [illegible] of the above described mill [illegible].

[illegible] claims, [illegible] Mint, [illegible] were the subject of a [illegible] contract dated [illegible], 1952, [illegible] to a lien in favor of the [illegible] provided in said contract.

VOL 51 PAGE 349

OPTION OF SULTAN BASIN GROUP MINING CLAIMS

121411

For Ten Dollars ($10.00) and other valuable considerations, the receipt of which is hereby acknowledged, ROBERT T. CURTISS of Monroe, Washington, and SULTAN BASIN MINING COMPANY, a corporation of Seattle, Washington, hereinafter called the "Optionors," do hereby give and grant unto PUGET SOUND COMPANY, a corporation of New York City, New York, an option to purchase certain properties located in Snohomish County, State of Washington, more particularly described as follows:

The properties known as the "Sultan Basin Group", consisting of the following:

Unpatented mining claims located in Snohomish County, State of Washington, in Sections 22, 26, 27 and 28, Township 28 Range 10, E.W.M. and recorded under Mining Locations in the Office of the Snohomish County Auditor as follows:

Name	Volume	Page
Mint	40	108
Mint #1	40	109
Mint #2	40	109
Mint #3	40	109
Lone Star #1	40	158
Lone Star #2	40	159
Lone Star #3	40	159
Calumet	40	27
Calumet Fraction	42	604
Calumet Extension	42	604
Canyon	40	268
Polar	40	397
Silver King	40	397
Canyon Extension	42	603

EXTRA COPY
DMEA
RECEIVED FEB 11 1957
DATE | INITIALS | CODE

Together with an approximate five acre mill site located on the Sultan River and in the vicinity of the above described mining claims.

Four of the above mining claims, to-wit: Mint, Mint #1, Loan Star #1 and Silver King were the subject of a D.M.E.A. Exploration Project Contract dated

NO SALES TAX REQUIRED
NOV 1 1956

October 7, 1952, and said claims may become subject to a lien in favor of the Government as provided in said Contract;

at the price and upon the terms and conditions and to endure for the time mentioned in a separate instrument executed by and between the parties above mentioned as of October 31, 1956. The consideration expressed in the aforesaid separate instrument is hereby agreed to be a sufficient consideration to support this instrument.

IN WITNESS WHEREOF the Optioners have caused this instrument to be executed this 31st day of October, 1956.

Robert T. Curtiss
(Robert T. Curtiss)

SULTAN BASIN MINING COMPANY

By Robert T. Curtiss
President

Attest [illegible]
Secretary

STATE OF WASHINGTON }
COUNTY OF KING } ss

On this day personally appeared before me ROBERT T. CURTISS, to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that he signed the same as his free and voluntary act and deed, for the uses and purposes therein mentioned.

Given under my hand and official seal this 31st day of October, 1956.

Gerald R. [illegible]
Notary Public in and for the State of Washington, residing at Seattle

STATE OF WASHINGTON }
COUNTY OF KING } ss

On this 31st day of October, 1956, before me the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared ~~KENNETH STARTUP~~ ROBERT T. CURTISS, to me known to be the President/Vice-

[illegible] SULTAN BASIN MINING COMPANY, the corporation that [illegible] the within and foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that he was authorized to execute said instrument and that the seal affixed thereto is the corporate seal of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and my official seal the day and year first above written.

[illegible]
Notary Public in and for the State of Washington, residing at Seattle

STATE OF WASHINGTON }
COUNTY OF KING } ss

On this [illegible] day of October, 1956, before me the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared W. L. GIBSON, to me known to be the Secretary of the SULTAN BASIN MINING COMPANY, the corporation that executed the within and foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that he was authorized to execute said instrument and that the seal affixed thereto is the corporate seal of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and my official seal the day and year first above written.

[illegible]
Notary Public in and for the State of Washington, residing at Seattle.

VOL OF
PAGE
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1956 NOV 13 AM 9 22
GEO. P. COB[illegible], AUDITOR
SNOHOMISH COUNTY, WASH.
DEPUTY

1214621

BUREAU OF MINES
MAR 7 1956
SPOKANE, WASH.

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

RECEIVED
MAR 19 1956

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

Not to be filled in by applicant

Docket No. 4220 silver
Metal or Mineral Lead-zinc copper
Date Received 3-19-56
Estimated Cost 27,010.62
Participation (Government %) 50

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address:

Robert Truman Curtiss, RFD #1, Box 156,
Monroe, Snohomish County, Washington

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

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

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

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

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

See Attached Statements

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

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

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

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

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

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

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

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

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

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

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

.....

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated ....., 195...

Robert T. Curtis
(Applicant)

By.....

.....

.....

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

U. S. GOVERNMENT PRINTING OFFICE 16—66551-1

1. Robert T. Curtiss, RFD #1, Box 156, Monroe, Wash.

2.

RECEIVED
MAR 19 1953

3. (a) Calumet Lode Claim
Calumet Extension Lode Claim
Calumet Fraction Lode Claim

All located in Section 27, Township 29 North, Range 10 E.W.M., Snohomish County, State of Washington

(b) Iowa group of claims of Sultan Basin Mining Co. a corporation of Sultan, Washington.

(c) Lessee, with option to purchase. Copy of Lease attached.

(d) Copy of Lease attached.

(e)

(f) Claims recorded in Snohomish County records, Everett, Washington as follows:

Calumet Lode Claim	Volume	40,	page	27
Calumet Extension	"	42,	"	604
Calumet Fraction	"	42,	"	604

4. (a) Physical description-

The Calumet Lode has been developed by a tunnel which was driven southward 110 feet as a crosscut through a quartz diorite dike, then 45 feet through the old metamorphic rock, then 15 feet of crushed siliceous material highly oxidized. Tunnel was then carried as a drift north 57° west for 50 feet. South wall of drift exposed massive quartz carrying irregular masses of chalcopyrite. Tunnel was then carried northeast 10 feet into crushed siliceous material and southwest for 30 feet as a crosscut. About 150 feet southwest of adit and 100 feet higher in elevation is first open cut, shown on attached photo, situated close to southeast end line of Calumet Claim, and is one of a series of eleven open cuts spaced at irregular intervals on the fracture zone and covering a total length of 1000 feet in a northwesterly direction. Attached maps will show these cuts, their position on the ground and widths of cuts.

Property is usually free of snow from June until November. During this season all working surfaces and underground workings are open for examination.

(b) -

Robert T. Curtiss, RFD #1, Box 156, Monroe, Wash.

4. (c) The deposit is a remarkably persistant shear zone contained in the old sediments, metamorphic series and serpentine rocks. The shear zone is in close contact with a quartz diorite dike on the north and west side for a considerable distance.

A short distance southeast of the shear a large mass of ultra basic rock, probably a periodatite is in outcrop.

Silicification of the country rock adjacent to the shear zone is prominent.

Mineralization. Oxidation is from partial to complete, certain areas showing a cellular sponge quartz gosson with no visible sulphides showing. Where sulphides exist they show arsenopyrites, chalcopyrite, pyrrhotite marcosite and in places sphalerite. Record of some assays taken and their position are shown on the attched map.

The mineralization occurs both as a stringer system containing small lens of sulphides and in form of a desemination.

Width of shear is not fully determined as the surface cuts have not determined the mineralization, however, widths as shown by surface work are from 10 feet to 30 feet. The zone of shearing has constantly strengthened in the northwesterly direction and no geologic reason is in evidence that would prevent the continuance of the shear for some unknown distance under the overburden. Exploration northwesterly is clearly indicated. Surface conditions of the shear zone such as the extensive oxidation and leaching limits the surface work to being only indicative of what might be expected in values, and has been important mostly in showing the continuity of the mineralization and indicates that the widths are sufficent to produce important tonnage factor. Due to the lengths and widths of the deposit, underground exploration would require several hundred feet of drift and crosscuts, with a great increase in costs and time and would be impossible for the ordinary individual such as the applicant.

Robert T. Curtiss, RFD #1, Box 156, Monroe, Wash.

4. (c) During recent years the applicant has made attempts to get attention from established mining companies to undertake some exploration. Attached will be copies of letters, originals which I have in my possession, showing that Mr. J. H. Parliament, Chief Engineer of the Granby Consolidated Mining & Smelting Co., as late as the fall of 1955 did recommend that his company drill this property, and also a letter from Mr. Joseph W. Mills, Professor of Geology at Washington State College, who at the time represented A.S.R., di recommend his company to take action; however, up to this date no definite action has been taken. As no full engineering reports are available, these letters will show the final conclusion arrived at by these two engineers. The applicant feels that a modified drill program, although not a complete one, would, if the results were favorable, induce one xxxx of the established companies to undertake the major exploration and development required to bring in perhaps one of Washington State's major producers. Sufficent capital is now available to the applicant, with government help, to complete such a program as outlined in this application.

(d) The Calumet Claims are located 26 miles north and east of Sultan, Washington. Sultan is located on the main line of the Great Northern Railway, and on Stevens Pass US Highway 2, and is 74 miles from the Tacoma Smelter. A fair to excellant gravel road runs from Sultan to the property at valley level of 2100 feet elevation above sea level. The Calumet outcropping and drill site is 2400 feet above the valley floor and is contained in one-half of section 27. The attached photo will show the slope angles and steep topography. However, ample flat ground for loading drilling supplies, and ample space at the valley floor for helicopton operation.

(e) Ample man power is available, and water is available at drill site for all drilling operations.

Robert T. Curtiss, RFD #1, Box 156, Monroe, Wash.

5. (a) The minerals are Copper, Silver, Gold and Zinc.

(b) As shown on the attached map, the surface work and natural exposures have strongly indicated a continuous mineralization, or nearly so, over a distance of 1000 feet and of undetermined widths. The 300 feet on southeast end of the shearing is in very rough topography, making for difficult drilling setups, so no drilling has been planned for this area. Starting at a point 100 feet southeast of Δ on map, it is intended to place a series of nine drill holes at 30° a hundred feet apart along the shear and extending 300 feet northwest into unexplored ground, as the structure is very strong in last surface work in a northwest direction. These drill holes are to be kept close to the ore and depths of the holes would not exceed 100 feet, after which it is proposed to place a series of seven 30° drill holes 125 feet apart, plotted so as to crosscut complete width of mineral zone at maximum depth, starting approximately 100 feet southwest of Δ on map and going northwesterly along the zone of shearing.

(c) The work will start within _____days and be completed_____ months from the date of such exploration contract.

(d) Applicants background consists of forty years experience including the following kinds of work.

Several years as miner and timberman, including shaft work in producing mines. Several years in underground and surface exploration, including work as helper in geophysical work, including grid surveys, contour maping, etc., and as a driller helper in diamond drilling. Also considerable work as helper in examination of properties by several extablished companies. Supervision of proposed work will be by a graduate geologist of the University of Washington, with experience in diamond drill work, loging and handling cores.

E. J. Longyear Company,
1177 So. 2nd West,
Salt Lake City, Utah.

Proposal Price Effective 8/15/55.

The E. J. Longyear Company of Minneapolis, Minn, seller, proposes to furnish the following, subject to terma and general condidtions as elsewhere state in this proposal.

Prices FOB factory & S.L.C.

Item No.	Quantity	Decription of items & Part N.		Unit price	Amount
1	1	LONGYEAR PROSPECTOR DIAMOND CORE DRILL, powered by a Wisconsin Model AEN gasoline engine, through clutch, three speed transmission and equipped with an "E" 20" screw feed swivel head (200,300,400,600 feed gears, medium 15/29 bevel gears) spool hoist, wrenches and grease gun, FOB Minneapolis, Minnesota			$2200.00
2	1	Longyear Pumping Unit, 50 p.s.i.			500.00
3	1	1" x 25" Swivel Hose	A14566S		32.85
4	1	1¼" x 15' Suction Hose	A14569S		45.35
5	1	E Ball bearing water swivel, short type	A7422S		52.90
6	1	E Lifting Bail for short type swivel	D7541S		20.00
7	1pc.	E 5' Drill rod with coupling	B12789S		9.85
8	30"	E 10' Drill Rods with "	B12781S	15.25	457.50
9	1	EXL 10' Swivel D.T.Core barrel with water shut-off	X12382S		90.65
10	6	EXL Split Ring Core Lifter	A12227S	2.40	14.40
11	1	EXL D.T. Diamond Reaming Shell 36.00 per carat	Type C		46.85
12	1	EXL Diamond Core Bit 7. per carat "			63.00
13	1	Cross chopping bit	B7273S		15.10
14	1 set	EXL Parmalee Wrenches	A15781S		38.95
15	1	Hawthorne Type Assy. w/A Sub			30.50
16	3 sets	AX Bit Blades		8.50	25.50
17	3 sets	BX Bit Blades		8.75	26.25
18	1	AX 1½' Starting Barrel, with double tube shell connection	B12149S		18.40
19	2	Core Lifters	A7896S	2.55	5.10
20	1	AX B.W. Diamond Core bit. $6.00 per carat	Type C		78.00
21	1	E Box to A Pin	A7321S		6.50
22	1	E Box to EX Casing Pin	A7139S		8.95
23	2	18" Pipe Wrenches	A14942S	6.55	13.10
24	1	E Ball bearing hoisting plug	B6874S		27.55
25	1	E Safety clamp with E Jaws	D7526		90.00
26	1pc.	EX 10' Flush Joint casing	B7794S		14.70
27	1pc.	EX 5' Flush Joint Casing	B12924S		8.80
28	1pc.	EX 3' Flush Joint Casing	B12925S		7.70
29	1pc.	EX 2' Flush Joint Casing	B12926S		7.25
30	1pc.	EX 1' Flush Joint Casing	B12927S		7.00
31	1	EX Casing shoe	A7726S		17.05
32	1	E Rod Tap	B7682S		19.10
33	1	E Coupling tap	B7686S		14.55
34	1	EX Bit and shell tap	B7683S		23.70
35	1	E Rod spear	B7685S		14.55
		Total F.O.B. Salt Lake City			1351.65
		Total			$4051.65

Robert T. Curtiss, RFD #1, Box 156, Monroe, Wash.

6. (a) None

(b) Cost of Labor. Proposed 3000 ft. of drill holes.

Estimated at 150 eight hour shifts at 20 feet per shift.

Account of transportation, work will be on 48 hours work week of 8 hours per day, overtime for over 40 hours per week.

1 Driller	40 hours	per week @	3.25	130.00
	8 "		4.875	39.00
1 " helper	40 "	per week @	2.75	110.00
	8 "		4.125	33.00
1 General worker	40 "	per week	2.125	85.00
	8 "		3.1875	25.50
	Total for six shifts.....			422.50
	Total for one shift			70.42

Total labor for 150 shifts @ 70.42	10563.00	
Engineer to compile maps, plot drill holes, plot geology and supervise cores. 6 months @ $500.00 per month	3000.00	
Total cost of labor.....		$13563.00
(c) Gasoline, estimated 750 gal. @ 30¢	225.00	
Oil and Grease	25.00	
2 shovels, pickaxes and wrenches	25.00	
Diamond drill bits, estimated at 50¢ per drill hole foot	1500.00	
2 tents, stoves and cooking utensils	250.00	
Core Boxes	200.00	2475.00
(d) Prospector Model Diamond Drill with rods for 300 feet and complimentery tools, water pump for drill water. To be purchased, as per proposed items by E. J. Longyear Co., which list is attached hereto.	4051.65	
Plus estimated frekght	100.00	4151.65

(e) None
(f) None

Robert T.Curtiss, RFD #1 Box 156, Monroe, Wash.

6. (g)	Payroll Taxes-		
	State Workmens Compensation 4800 hrs @ 22¢	1056.00	
	State Medical Aid 4800 " .015	72.00	
	State Unemployment Tax 13563.00 @ 2.7%	366.20	
	U. S. Soc. Sec. Tax 13563.00 2%	271.26	
		1765.46	
	Accounting	300.00	
	Asaying- estimated	500.00	2565.46
(h)	Transportation of equipment and supplies to drill site- estimated	1000.00	
	Transportation of same from drill site at completion of work	800.00	1800.00
			$24555.11
	Miscellaneous contingencies 10%		2455.51
	Total cost of proposed work.....		27010.62

The State College of Washington Pullman, Washington.
College of Sciences and Arts
Department of Geology

Sept. 21, 1951.

Dar Bob:

This is the first day of lectures at W.S.C. and I have time for a breather after two hectic days of registering students. I thought I would drop you a line or two to keep you posted on how I hve kept out of mischief for the past month. Nering was in a couple of days ago and said he had dropped in to your house and talked with Mrs. Curtiss bu that you were out on a prospecting trip.

I spent one day in Wallace, Idaho, after working a week here in Pullman on the summer reports. I gathered from talking to Bill Cox that he was not very excited about your assay returns. I have recommended that the company take action on the property and from here on there is nothing I can do. I have no idea if, as or when the company will act and so can not be of any help to you that way. I certainly hope they will give it a try anyway.

I spent a very enjoyable week at Hayden Lake with my family, boating, fishing, swimming and just plain bumming. It was very quiet and we just about had the lake to ourselves. The weather was grand. Since returning to Pullman I have beem exceptionally busy as we have had amuch larger geology enrollment this year than ever before. We have 20 graduate students taking advanced degrees in geology, whereas we had only 11 last year.

Our daughter Andrea has started to school and it seems strange not have her around at lunch time. We are all very well and enjoying life as usual. I hope this finds you and Mrs. Curtiss in the best of health. I hope you can make it over here this fall to visit us and then I can show you them, as well as a bit of Palouse.

With best regards,

Sincerely,

Joe.

Copy

The Granby Consolidated Mining, Smelting
and Power Company, Limited.

P. O. Box 269 Grand Forks, B.C.
Jan 4, 1956.

Dear Bob:

Thanks for your letter. I was pleased to hear from you and learn about your plans. I think drilling the Calumet is a good idea, as you know I recommended that to my company. However, if you can manage it, you would be a lot better to drill 'A' or 'EX' size core than X-ray. We do not use X-ray at all, as we feel that the larger, more accurate sample is worth the extra cost. I am not sure how long your holes would need to be, but you are definitely limited to 150 feet or less with the small drills. Also, as I remember it, the ground is fairly broken and would likely give you poor core recovery.

I realize what you are up against, with limited finances and difficult transportation, but I still would prefer large core. Also, if you are trying to sell the results to a large company your results with small core might be questioned, especially if the recovery was not good. Are you planning to do the drilling yourself or would you contract it? I guess from what you saw last summer you know that you will need quite a lot of equipment besides a drill.

Your idea of hiring a young engineer to look after the job is avery good one. It would certainly add to the reliability of the results. I think Gordon would be O. K. for this. He is careful and reliable. However, he has had rather limited experience around drills and would need help in organizing and moving the equipment in. Also, I would suggest having someone like Ike Hagill or C.V.B. check your proposed layout of where you are going to drill. How about doing the drilling on a D.M.E.A. loan? Then you would get the technical help you need pluss half the costs.

We have been very busy here with drill rigs on both properties. Drilling under winter conditions is not as nice as in summer or even if mosquitoes are fewer. Well Bob, best of luck in your venture. If there is anything I can do to help you, drop me a line

LEASE AND OPTION TO PURCHASE.

This Agreement is by and between SULTAN BASIN MINING COMPANY, a Washington corporation, hereinafter designated as Lessor, and ROBERT T. CURTISS and JOHN C. ROGERS, hereinafter designated as the Lessees.

WITNESSETH; In consideration of Ten ($10.00) Dollars and other valuable consideration the lessor does hereby grant to the lessees, their associates, successors and heirs, the exclusive right and option, for a period beginning on the 5th day of April, 1950 and extending until the first day of April, 1960, to purchase all right, title and interest of said lessor in the following described unpatented mining claims situated in the Sultan Basin Mining area of Snohomish County, State of Washington, to-wit:

Mint, Mint #1, Mint #2, Mint #3, Lonestar #1, Lonestar #2, Lonestar #3, Calumet, Calumet Fraction, Calumet Extension, Canyon, Canyon Extension, Polar and Silver King; located in Sec 27 TWP 29 R 10 EWM

TOGETHER with all equipment now located on said property.

The purchase price for all the foregoing property and the appurtenances unto it belonging, shall be Fifty Thousand ($50,000.00) Dollars.

During the life of this option the lessees, or their assignees shall have the exclusive right to take immediate possession of the foregoing described property and continue in possession during the term of this lease and option and shall have exclusive right to mine and extract minerals from said property, providing the following terms of the lease have been complied with; to-wit:

1. The assessment work of Fourteen ($1,400.00) Hundred Dollars per year on the fourteen claims included in the property and the assessment work of One Hundred ($100.00) Dollars per year on any contiguous claims that may be located by the lessees or their associates during the life of this lease shall be performed each year and proof of labor shall be filed by the lessees on or before June 1 of each year, and satisfactory evidence of such filing shall be furnished to the lessor at Sultan, Washington.

2. The lessees shall pay to the lessor ten percent (10%) of the net smelter returns from any ores shipped from the property during the life of this lease and option.

3. Such smelter returns, if any, shall be credited by lessor upon the sales price.

4. Title to the personal property and equipment located on the property shall remain in the lessor until Ten Thousand ($10,000.00) Dollars has been paid on the purchase price, at which time the lessor agrees to convey, by bill of sale, such equipment to the lessees.

5. The lessees shall file on contiguous or adjacent property sufficient land for a mill site and shall assign such right to such mill site to the lessor for the term of this lease and option.

6. The lessees shall maintain this mining operation in a state of continuous operation consistant with weather and prevailing mining conditions in the Sultan Basin area.

7. The lessees shall not lease the property herein described, or any part thereof, without the written consent of the lessor.

8. The lessor shall have right of inspection and examination of the operation and development of the property at all times. The lessees agree to keep safely and furnish copies of all records of work done, drill cores, copies of assays, and records of surveys.

9. During the life of this option, the purchaser shall pay all personal property taxes, all bills and expenses incurred by it, or him, promptly, and by such prompt payment shall prevent the filing of any and all liens or mechanics, miners and materialmen, and any and all other obligation which may become a lien or charge against said property, including payment of Industrial Insurance, Social Security, Occupational Tax, and all like charges. For these purposes, the lessor shall be afforded an opportunity to examine the books of the lessees at reasonable times and places.

10. The lessees shall comply with all the rules and regulations, prescribed by the State of Washington or the United States, for the safety of employees on the property, and does assume all responsibility in case of accident to employees or persons in or about said property and does agree to indemnify and save harmless the lessor from all claims which may be asserted by person or property injured in or about the premises.

11. The lessees agree to carry on its development, examination and inspection of the property in a workmanlike manner, with due regard to the development and preservation of the mining premises as a workable mining property.

12. The lessees shall save the lessor harmless from any liability for damages or liens of every kind, nature and description.

It is further agreed between the parties that any violation of any covenant or condition herein contained in this lease and option shall entitle the lessor to declare a cancellation of this lease and option by ten days notice in writing to the lessees and thereupon all rights of the lessees shall terminate and be forfeited. In case of breach or violation of any covenant or condition in this agreement the lessor shall retain as liquidated damages all sums of money paid upon purchase price together with all machinery, equipment, tools and improvements placed on the property by the lessees during their operations under this lease and option. A waiver by the lessor of any breach or violation of any covenant or condtion shall not constitute a waiver of its right of cancellation for any other breach or violation of a covenant or condition.

If the lessees exercise their option and complete the payment of the purchase price the lessor shall convey by proper conveyances all its right, title and interest in and to said property. If the lessees fail to exercise their option, at the expiration of such lease they shall surrender the property peaceably within forty-eight hours after the expiration of the lease.

In case of suit is instituted by the lessor to enforce cancellation of the lease and option, or to recover possession of the premises, the lessees shall pay, in addition to costs, a reasonable attorney fee.

IN WITNESS WHEREOF, the lessor has hereunto set its hand and corporate seal by its President and Secretary, duly authorized, and the lessees, for each, subscribed his name on behalf of himself, his associates and assigns, this 5th day of April, 1950.

SULTAN BASIN MINING CO., a corporation

By Kenneth S. Startup, President

By George Heald, Secretary

Robert T. Curtiss, Lessee

John C. Rogers, Lessee.

STATE OF WASHINGTON)
(ss
County of Snohomish)

Personally appeared before me, the undersigned, a Notary Public, K. S. Startup and George Heald, known to me to by the President and Secretary respectively of the Sultan Basin Mining Co., a Washington corporation, who acknowledged to me the they signed and sealed the within and foregoing instrument, for and on behalf of said corporation, as its free and coluntary act and deed, for the uses and purposes therein mentioned; that they were so authorized to do; and that the seal affised is the seal of said corporation.

WITNESS my hand and offical seal this 8th day of April, 1950.

Sophia Jenft
Notary Public in and for the State of Washington, residing at Sultan.

STATE OF WASHINGTON)
(ss
County of Snohomish)

Personally appeared before me, the undersigned, a Notary Public, Robert T. Curtiss and John C. Rogers, known to me to be the individuals described as the lessees in the foregoing instrument who acknowledged to me that they signed the same as their free and voluntary act and deed, for the uses and purposes herein mentioned.

WITNESS my hand and official seal this 8th day of April, 1950.

Sophia Jenft
Notary Public in and for the State of Washington, residing at Sultan.

A. L. GLOVER, INC.
Established 1916.
ASSAYRS :: URGISTS:: ANALYSTS.
819 third avenue
Seattle.Washington. U.S.A.

RECEIVED
MAR 19 1956

CERTIFICATE OF ASSAY

NO. 27814- 6 DATE, JULY 30. 1934.

The Sample of ORE

FROM Francis Cameron Chief Geologist ,Anconda Copper CO.

MARKED As below; and submitted to us for analysis,contains.

#1.
Gold Trace 12' Wide
Silver 1.20 oz.
Copper 1.52 %
tr no 9
West end cut of Calumet.

#2.
Gold 1.03 oz. 8' Wide
Silver 5.33 "
Copper 0.48 %
Tr. no 5
Center cut of Calumet.

#3.
Gold 0.39 oz 10' Wide
Silver 1.21 "
Copper 2.00 %
East end cut of Calumet.

Respectfully Submitted.

A.L.Glover, INC.

By A.L.Glover.

BY.
Sulton Basin Mining Co.
Snohomish County:State of Washington.
Owner.
Robert T.Curtiss.
Route #1.Box-156
Monroe. Washington.

BRITANNIA MINING AND SMELTING CO.. LTD.

RECEIVED
MAR 19 1956

CERTIFICATR OF ASSAY.

October 11th. 1940.

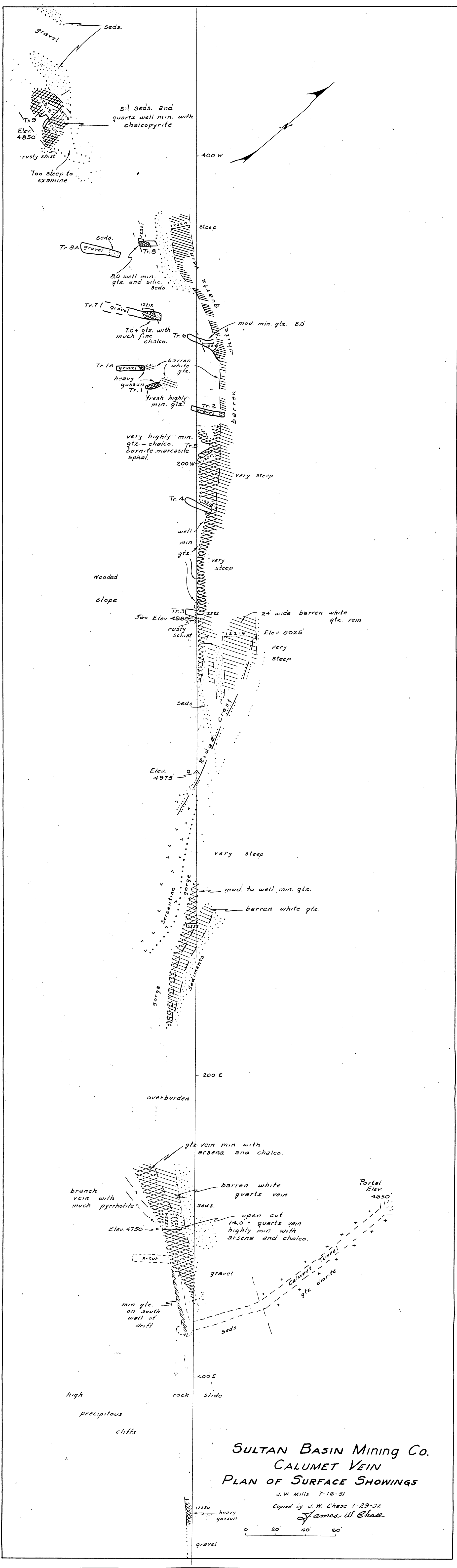
D.A.Duryee. 2715 Colby Ave. Everett. Washington.

sample no.	description	ozs. per ton. Gold	Silver	Copper	Zinc	
#1.	40' E.of center cuton Calumet representing higrade ore 16" wide,No. wall exposed	015	2.25	3.02	10	Tr. no4
#2.	40' E.of Calumet center cut representing 2' of south side of ore exposed.	01	1.25	1.80		Tr. no4
#3.	100'East of center cut on Calumet from hole drilled in face of qtz.	08	60	nil		Tr. no3
#4.	From crest of hill 200' east of center cut of Calumet surface exposure.	08	63	.25		
#5.	North side of cut 45' east of center cut representing 16"	03	4.10	4.80	3.40	Tr no4

L.C.R. assayer

By.
Sultan Basin Mining Co.
Snohomish County:State of Washington.

Owner.
Robert T.Curtiss.
Route #1.Box-156.
Monroe. Washington.

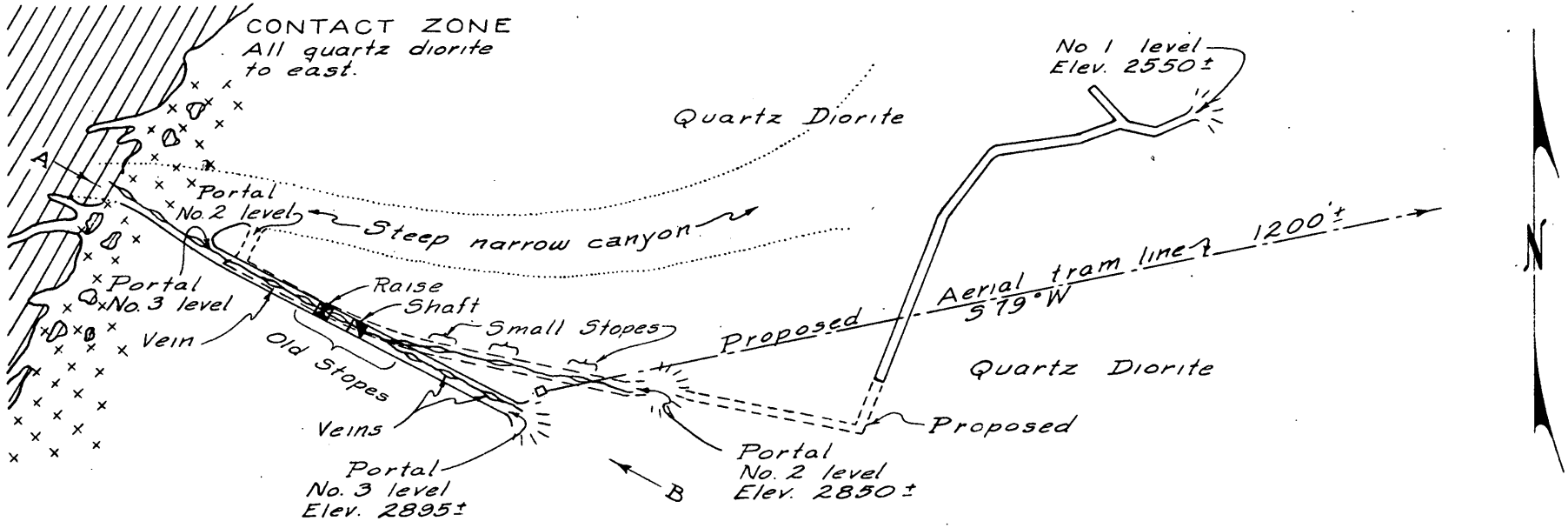


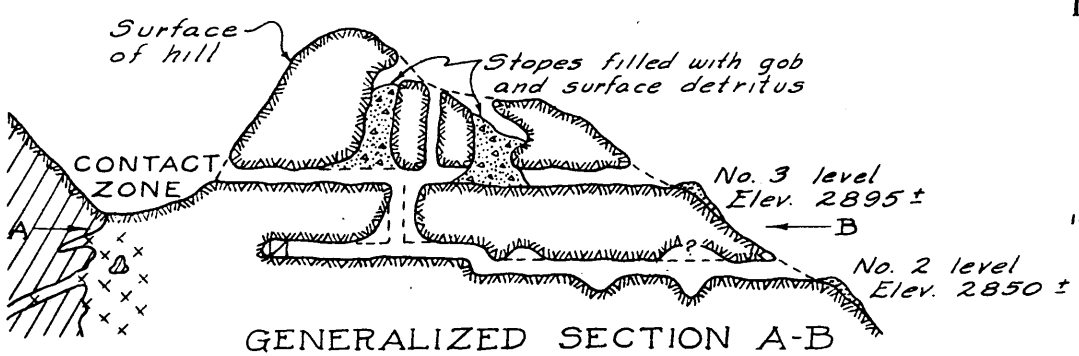
SULTAN BASIN Mining Co.
CALUMET VEIN
PLAN OF SURFACE SHOWINGS

J. W. Mills 7-16-51

Copied by J. W. Chase 1-29-52
James W. Chase

DMEA-2435





GENERALIZED SECTION A-B

Drawn by James W. Chase

PLAN & SECTION OF MINT & MINT NO. 1 CLAIMS

CURTISS & ROGERS

Sec. 27 T29N R10E W.M.

SNOHOMISH, CO., WN.

Scale: 1" = 100'

100 0 100 200

Metamorphic rocks

Quartz Diorite

Vein

Copied from Fig. 12. Bull. #36

MERCURY URANIUM AND OIL COMPANY
SAN PEDRO MINE DIVISION
112 Eighth St., N.W.
Albuquerque, New Mexico

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code

PROJECT SUMMARY REPORT

By: J. W. Alt

November 4, 1958

1. Docket No. DMEA-4687 (Copper)
Contract No. Idm-E1111
Property: Calumet Claims
Snohomish County, Washington

Operator: Howe Sound Company
730 5th Avenue
New York 19, New York

Operator's Property Rights: Lessee
Option Agreement dated October 31, 1956.
Consent to Lien & Subordination
Agreement dated July 31, 1957.

2. Contract dated July 22, 1957. To complete 6 months.

Work Authorized

It is estimated that approximately 14 drill holes will be required, varying in depth from 140 to 200 feet with an average depth of approximately 170 feet. Not more than 2,400 feet of drilling shall be performed.

Estimated Costs of the Project - Fixed Unit Costs

2,400 feet of churn drilling and diamond drilling @ $9.50/ft. 1/	$22,800.00
100 samples @ $4.00/each sample	400.00
120 core boxes @ $3.00/each (wooden)	360.00
Estimated Total Cost of the Project	$23,560.00
Government's participation @ 50%	$11,780.00

1/ Any drilling with EX size bit will be at maximum rate of $9.30/ft.

8623

Amendments

None

Work Completed

1,226 feet of diamond drilling @ $9.50/ft.	$11,647.00
75 Samples assayed @ $4.00/each	300.00
85 Core boxes @ $3.00/each	255.00
Total Cost of the Project	$12,202.00
Government's participation at 50%	$ 6,101.00

Work on the project was started July 22, 1957 and was completed on September 3, 1957.

3. Report of Review dated April 16, 1958.

Total Cost claimed by Operator	$12,202.00
Exceptions - None	
Total	
Total accepted costs	$12,202.00
Government's participation @ 50%	$ 6,101.00

Operator's final report - February 14, 1958
Field Team final report - September 3, 1958

4. Certification of discovery or development.

No certification made as there was no discovery of ore. Field Team did not recommend certification.

5. Comments

The Operator was competent and carried out the work in an efficient manner. The only criticism that can be made of the drilling was the rather poor core recovery experienced in the ore zones and the lack of sludges to take the place of core. However, it is doubtful that this better core or sludge recovery would have changed the over-all picture in the area which was explored by the drilling.

The purpose of the exploration project was to determine the grade and extent of the copper mineralization in the Calumet shear zone. Five diamond drill holes with a total footage of 1,226 feet were drilled. These holes prospected the Calumet shear zone over a strike length of 450 feet and a depth of approximately 200 feet below the outcrops. The holes intersected the mineralized zone, but the mineralization in the area proposected was not sufficient grade to be of economic value at the present time.

The possibility that the Calumet shear zone might contain commercial ore cannot be completely discounted as the work only explored a strike lenght of about 400 feet and to a depth up to 200 feet. The shear can be traced on the surface for 1,200 feet and undoubtedly continues farther.

Further exploration is not warranted in the area covered by the drill holes; however, the Calumet shear is a strong structure and exploration at other points or at greater depth might be warranted.

J. W. Alt

J. W. Alt

JWAlt/er
Copy to: Docket
Dir. Read. File
Chron.

DMEA Form 17
Feb. 58

DEFENSE MINERALS EXPLORATION ADMINISTRATION

WORK COMPLETED ANALYSIS

After final audit or review report is received, prepare original only and file in official docket

Operator	HOWE SOUND COMPANY	Actual Cost	
State	WASHINGTON	Agreed Unit Cost	X
Final Report of Audit		Commodity	Docket No. DMEA#4687
Final Report of Review	X	COPPER	Contract No. Idm-E1,111

Operation	Authorized by Contract and Amendments		Completed		Net cost after sale of Government Property
	Units	Cost	Units	Cost	
Drifting & Crosscutting					
Raising					
Shafts					
Winzes					
Drilling (Specify) Diamond (AX)	2,400' @ $9.50/ft.	$22,800.00	1,226'	$11,647.00	$11,647.00
Surface Excavation					
Underground Excavation					
Roads and Trails					
Operating Equipment Purchased					
Surface Rehabilitation & Repairs					
120 core boxes(wooden) @ $3.00 ea.		360.00	85	255.00	255.00
New Building, Improvements, etc.					
100 samples assayed @ $4.00 per sample		400.00	75	300.00	300.00
Other (Specify)					
Totals		$ 23,560.00		$ 12,202.00*	$ 12,202.00

* Net cost total must agree with final report of audit or review.

Prepared by W. P. Klugescheid Date 10/4/58.

31398

Fixed Unit Costs.

2,400' D.D (AX) @ $9.50/ft.	$22,800.00
100 Samples assayed @ $4.00/ea.	400.00
120 Core boxes @ $3.00/ea (Wooden)	360.00
	$23,560.00

Spent.

orm 7
56)

OFFICIAL FILE COPY

Date	Surname	Code
10-22	Klugescheid	500
	Hranac	500
10-23	Chambers	800
10/23	Selfridge	190
		~~130~~
		~~130~~
		110
		225
		500

OCT 23 1958

Mr. Robert T. Curtiss, Vice President
Sultan Basin Mining Company
Route 1, Box 156
Monroe, Washington

Re: Docket No. DMEA-4687 (Copper)
News Sound Company
Calumet Claims
Snohomish County, Washington
Contract No. Idm-E1111

Dear Mr. Curtiss:

Enclosed are copies of a self-explanatory letter of today to the Operator under the above-cited contract.

This correspondence relates to the Consent to Lien and Subordination Agreement signed on July 31, 1957, by you as an individual and as Vice President of the Sultan Basin Mining Company. The Defense Minerals Exploration Administration program has now been succeeded by the Office of Minerals Exploration program.

Sincerely yours,

FRANK E. JOHNSON (B.J.K.)

ACTING Director
WPKlugescheid/er 10-22-58
Copy to: Docket
Dir. Read. File
Op. Committee
Mr. McMahon, USBM
Mr. Kiilsgaard, USGS
Mr. Chambers
Region I (2)
Chron.

Enclosures

8623

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

OFFICIAL FILE COPY O. M. E. RECEIVED OCT 8 1958		
DATE	INITIALS	CODE
10/8	C	220
10/9	[illegible]	500

October 7, 1958

Memorandum

To: W. R. Griswold, Office of Minerals Exploration

From: Commodity Specialist, Branch of Base Metals

Subject: Review of Field Team Final Report, Docket No. DMEA 4687 (copper), Howe Sound Co., Calumet Claims, Snohomish County, Washington, Contract No. Idm-E1111, $23,560

The contract authorized 2,400 feet of diamond drilling in twelve holes, two each from six drill sites to test a portion of the Calumet shear zone. Five holes were drilled for a total of 1,226 feet from two sites; two holes cut the structure about 200 feet below the best surface showings then drilling was suspended because of poor results.

The Examiners' report that no significant mineralization was encountered and recommend that a Certification of Discovery and Development not be issued. I concur in that recommendation.

A. D. McMahon

A. D. McMahon

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
So. 157 Howard Street
Spokane 4, Washington
September 26, 1958

DMEA
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10/9		500

Mr. George C. Selfridge, Chairman
Operating Committee, OME
Department of the Interior
Washington 25, D. C.

Re: Docket No. DMEA-4687 (Copper)
Howe Sound Company
Calumet Claims
Snohomish County, Washington
Contract No. Idm-E1111

Dear Mr. Selfridge:

Enclosed are three copies of a Field Team final report on this project prepared by E. A. Magill, Mining Engineer, Bureau of Mines, and H. F. Albee, Geologist, Geological Survey.

The purpose of the exploration project was to determine the grade and extent of the copper mineralization in the Calumet shear zone. Work started on July 22, 1957, and was completed on September 3, 1957. Five drill holes with a total footage of 1,226 feet were drilled at a total cost of $12,202 to which the Government contributed 50 percent or $6,101.

No significant mineralization was encountered in the drilling and a Certification of Discovery or Development is not recommended. Howe Sound Company has relinquished its option on the property.

By Field Team, Region I

A E Weissenborn
A. E. Weissenborn, Exec. Officer
U. S. Geological Survey

Thomas E Howard
for: Wing G. Agnew, Member
U. S. Bureau of Mines

Enclosures
cc: USBM(2)
USGS(SRO)
Albee

Reviewed by
OME OPERATING COMMITTEE
10-7-58
(date)

OFFICIAL FILE COPY
DMEA
RECEIVED OCT 21 1958

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10/7	263	120
		220

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DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

FIELD TEAM, REGION I

FINAL REPORT

Contract Dm-F1111

by

E. A. Mogill
Mining Engineer
U. S. Bureau of Mines

H. F. Albee
Geologist
U. S. Geological Survey

MONT SOUND COMPANY
238 North 21st, West
Salt Lake City, Utah

Docket No.:	DMEA-4687
Commodity:	Copper
Contract date:	July 22, 1957
Completion date:	September 3, 1957

CALUMET CLAIM
Sulton Basin Mining District
Snohomish County, Washington

Reviewed by
OME OPERATING COMMITTEE
10-7-58
(date)

Spokane, Washington

September 1958

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Summary	1
Recommendations	1
LOCATION AND ACCESSIBILITY	2
PROPERTY	2
GEOLOGY	3
Local Geology	4
THE PROJECT	4
Summary of Factual Data	6
Conclusions	7
APPENDIX I	After p. 7

ILLUSTRATIONS

Fig.		Map in pocket
1	Location Map	
2	Calumet Claims	
Plate		
1	Topographic and Geologic Map (Feb. 1958)	
2	Assay Map (Feb. 1958)	

FINAL REPORT

HOWE SOUND COMPANY
Calumet Claims
Sultan Basin Mining District
Snohomish County, Washington

Contract Idm-E1111

* * * * * * * * *

INTRODUCTION

This report describes an exploration project conducted jointly by the Defense Minerals Exploration Administration and Howe Sound Company to explore for copper on the Calumet claims in Snohomish County, Washington.

Summary

The purpose of the exploration project was to determine the grade and extent of the copper mineralization in the Calumet shear zone. Five diamond drill holes with a total footage of 1,226 feet were drilled. These holes prospected the Calumet shear zone over a strike length of 450 feet and to a depth of approximately 200 feet below the outcrops. The holes intersected the mineralized zone, but the mineralization in the area prospected was not of sufficient grade to be of economic value at the present time. The cost of the exploration was $12,202 and the Government's participating share was 50 percent or $6,101. Howe Sound Company relinquished its option on the property shortly after completing the drilling program.

Recommendations

No significant mineralization was encountered in the drilling and a Certification of Discovery or Development is not recommended.

Further exploration is not warranted in the area covered by the drill holes; however, the Calumet shear is a strong structure and exploration at other points or at greater depth might be warranted.

LOCATION AND ACCESSIBILITY

The Calumet claims are in secs. 27 and 28, T. 29 N., R. 10 E. Willamette meridian, Snohomish County, Washington (fig. 1). The property is reached from Sultan, which is on U. S. Highway 2 and the Great Northern Railroad, by 27 miles of graveled road and 2½ miles of steep trail.

Because of the steepness and condition of the 2½ miles of trail personnel, equipment, and supplies were moved onto the property by helicopter.

The terrain in the vicinity of the claims is extremely precipitous. The portion of the Calumet claim which was explored under the contract is at an altitude of about 4,800 feet. Snow covers the ground from late October to July.

PROPERTY

The claims subject to the contract are recorded in the office of the County Recorder at Snohomish, Washington, as follows:

Name	Volume	Page
Calumet Lode Claim	40	27
Calumet Extension	42	604
Calumet Fraction	42	604

The three claims (fig. 2) are part of a group of 14 unpatented lode claims known as the Iowa group owned by the Sultan Basin Mining Company. These are held under option by Robert Curtiss of Monroe, Washington, who in turn optioned them to the Howe Sound Company on October 31, 1936.

The Calumet vein was discovered early in the century. Exploration work consisted of only shallow open cuts until the Calumet adit was driven in 1937 by Robert Curtiss. The property lay idle except for annual assessment work until the present exploration. There has been no production from the property.

Mine workings consist of 11 open cuts and the Calumet adit. The adit is a 170-foot crosscut with an additional 80 feet of drift at an altitude of 4,653 feet.

The underground workings stand well without timber, but any extensive workings within the shear zone itself would require support. Drainage is no problem because of the precipitous terrain.

There are no mine facilities on the property.

GEOLOGY

The Sultan basin is on the western edge of the Northern Cascade Range and exhibits the bold, rugged features of this region. Altitudes range from 1,200 feet on the Sultan River in the lower part of the basin to more than 5,200 feet on many of the peaks and ridges. Many of the peaks are spectacular pinnacles connected by sharp, narrow ridges which descend abruptly to the valley floors.

The oldest formation recognized in Sultan Basin is an extensive and complex series of metamorphosed rocks considered to be of Paleozoic age. This formation is overlain by a younger series of continental conglomerate, sandstone, and argillite beds and is intruded by peridotite which is almost completely serpentinized. These formations are intruded by a batholith of quartz diorite which crops out over a large part of the basin. Unconsolidated morainal material and thin deposits of lacustrine clay occur on the valley floors as a result of Pleistocene glaciation.

Four types of mineral deposits are known in Sultan Basin: lode deposits, replacement deposits, magmatic segregations, and placers. Lode deposits, principally fissure veins, are the most important known deposits in the basin. The other types of deposits have little, if any, apparent economic importance.

The veins rarely fill simple fissures, instead, they are contained within complex shear zones, sometimes with many diverging offshoots. The mineralization of these zones was controlled apparently not only by the structure, but also by temperature and pressure conditions and chemical composition of the wall rocks and ore solutions. Within the intruded rocks, the ore-bearing structures are complex shear zones which may be silicified in part, whereas in the quartz diorite they may be either quartz veins or fracture zones.

Because of the extreme ruggedness of the Sultan Basin area, most of the prospects are relatively inaccessible and the small amount of production has been closely associated with the building of access roads to properties on which ore was exposed at or very near the surface. The ruggedness of the area has been a major factor in discouraging more vigorous exploration. The geologic setting, however, is similar to that of the adjacent Monte Cristo and Index districts where several properties have had good production records.

Local Geology

The Calumet claims (Fig. 2) lie across the summit of a high ridge at altitudes of 4,000-5,000 feet above sea level. Here, a shear zone in rocks of the metamorphic series and serpentine extends across the summit of the ridge (pl. 1). This shear zone has been explored by underground and surface workings as well as by the diamond drilling done under the DMEA contract.

The underground workings consist of a tunnel driven southward as a crosscut for 110 feet through quartz diorite then 60 feet through metasedimentary rocks to the shear, then as a drift N. 57° W. for 50 feet, then southwest for 30 feet. The shear, as exposed in the drift, is a highly fractured zone and locally contains quartz lenses from 6 to 24 inches in thickness, containing irregular masses of chalcopyrite. Where the shear structure is exposed on the surface above the drift the zone of fracturing is about 12 feet wide and contains lenses and veinlets of quartz with chalcopyrite, pyrrhotite, arsenopyrite, and marcasite. The structure trends about N. 45° W., dips almost vertically, and continues up to and over the summit of the ridge. Above the adit the structure splits and branches of the southern split trend westward over the summit of the ridge. The main structure is exposed again west of the summit in several open cuts that disclose mineralized material over a total length of at least 350 feet.

The mineralized material consists largely of chalcopyrite, pyrite, pyrrhotite, arsenopyrite, sphalerite, galena, and marcasite in silicified metasediments. In places the minerals are considerably oxidized and leached, but very little secondary enrichment is present as the rapid erosion in the rough terrain has equaled or exceeded the gradual alteration of the minerals.

THE PROJECT

The project was undertaken to explore a portion of the Calumet shear zone by diamond drilling. The shear can be traced for over 1,200 feet on the surface. Copper and zinc mineralization was exposed in eleven open pits and a crosscut and drift. Although assays from the outcrops showed an erratic distribution of the ore minerals, the vein structure is wide and strong and was sufficiently mineralized to warrant exploration by drilling.

The program as originally proposed was to consist of 2,400 feet of diamond drilling with two holes each being drilled from six different drill sites. Because of the difficult terrain it was necessary to modify this plan. Five holes from two sites were drilled, two of which cut the structure at about 200 feet below the best surface showings. From the west site two holes were drilled. Hole 1 was at a bearing of N. 17° E., inclined at -38°,

and bottomed at 260 feet. This hole was drilled to test the vein structure beneath the well-mineralized material in pit 11, plate 1. Only one small showing of chalcopyrite was found. Hole 2 was drilled at a bearing of N. 16° W., inclined at -39½° and bottomed at 260 feet. It was drilled to test for a western extension of the vein structure beyond the westernmost outcrop. Only a weak unmineralized structure was found.

Three holes were drilled from the east drill site. Hole 3 was drilled at a bearing of N. 24° E., inclined at -35°, and bottomed at 272 feet. The hole was drilled to penetrate the vein structure below the well-mineralized outcrop at pit 3. The core showed only scattered specks of chalcopyrite and sphalerite. Holes 4 and 5 were fanned left and right, respectively, from Hole 3. Hole 4 was drilled on a bearing of N. 7° W., inclined at -36°, and bottomed at 224 feet. Hole 5 was drilled on a bearing of N. 59° E., inclined at -34°, and bottomed at 210 feet. Rock penetrated in Hole 4 was barren and in Hole 5 only light scattered mineralization was found. Drilling was suspended when approximately half the proposed footage had been used because of the poor results.

Work on the project started on July 22, 1957 (the effective date of the contract) and was completed on September 3, 1957.

Locations of the drill holes with respect to geological features are shown on plate 1. Assay results from the drill holes and the open pits are shown on plate 2.

Summary of Factual Data

Work completed under the contract consisted of:

Work item	Authorized	Completed	Unit cost	Total cost
Diamond drilling	2,400 ft.	1,226 ft.	$9.50	$11,647.00
Samples assayed	100	75	4.00	300.00
Core boxes	120	85	3.00	255.00
Total cost of project				$12,202.00

Total amount of contract	$23,560.00
Government participation at 50 percent	11,780.00
Total amount expended	$12,202.00
Government's participation	6,101.00
Total amount unexpended	$11,358.00
Government's share unexpended	5,679.00
Royalty received	none

There was no production from the property during the project period.

The Government has no equity in supplies and equipment used on the project.

All supplies and equipment were flown in and out from the property by helicopter. Air drops of food and repair parts were made by small fixed wing aircraft. This method proved to be more economical under the difficult access conditions than using a pack train. If a pack train had been used, it would have been necessary to carry out extensive rebuilding of the trail and possibly to delay the drilling another season.

It took 2 days to move the equipment on the property and 1 day to move it off. The maximum pay load that the helicopter was able to deliver was a 55-gallon drum of gasoline weighing approximately 480 pounds. At times it was possible to deliver equipment

and supplies to the drill site at the rate of 1 ton per hour. This involved a vertical lift of approximately 2,800 feet and about 1 mile horizontal movement.

Portable radio transmitters were used for communication between the project and personnel stationed at the end of the road.

Conclusions

There were no unusual operating difficulties encountered in carrying out the exploration work. Moving the equipment onto and off the property went smoothly.

The Operator was competent and carried out the job in an efficient manner. The only criticism that can be made of the drilling was the rather poor core recovery experienced in the ore zones and the lack of sludges to take the place of core. However, it is doubtful that this better core or sludge recovery would have changed the over-all picture in the area which was explored by the drilling.

The possibility that the Calumet shear zone might contain commercial ore cannot be completely discounted as the work only explored a strike length of about 400 feet and a depth up to 200 feet. The shear can be traced on the surface for 1,200 feet and undoubtedly continues farther. There remains the possibility that additional work along the strike or at a greater depth might disclose commercial ore.

Enclosures
Distribution:
DMEA(3)
USBM(5)
USGS(SRO)
Docket
Albee

APPENDIX I

Check assays run on sample pulps

Sample No.	% Copper	% Zinc	Gold Oz/ton	Silver Oz/ton	Assayer	Assayed for
47513	0.08	0.32	0.01	0.02	Laucks	DMEA
	Tr		0.04	0.6	Peter Mack	Operator
47523	0.21	--	ND	ND	Laucks	DMEA
	0.18		0.02	0.7	Peter Mack	Operator
47551	ND	--	0.01	0.1	Laucks	DMEA
	Tr		Tr	Tr	Peter Mack	Operator
47557	ND	0.79	Tr	ND	Laucks	DMEA
	Tr	0.0	0.01	0.2	Peter Mack	Operator
47569	0.45	0.32	0.02	0.2	Laucks	DMEA
	0.36	0.0	0.02	0.5	Peter Mack	Operator
47503	2.21	2.83	ND	1.70	Met Lab	DMEA
	2.26	2.4	0.02	0.80	Peter Mack	Operator
47504	0.03	--	ND	0.48	Met Lab	DMEA
	0.04		Tr	0.1	Peter Mack	Operator
47505	1.58	--	ND	1.72	Met Lab	DMEA
	1.6	--	Tr	1.2	Peter Mack	Operator
47511	0.22	--	ND	0.44	Met Lab	DMEA
	0.24	--	0.02	Tr	Peter Mack	Operator
47527	0.11	0.63	Tr	1.26	Met Lab	DMEA
	1.08	Tr	Tr	0.8	Peter Mack	Operator
47535	2.89	0.84	ND	1.02	Met Lab	DMEA
	2.92	0.25	0.09	0.9	Peter Mack	Operator

Appendix I (cont'd.)

Sample No.	Copper	% Zinc	Gold Oz/ton	Silver Oz/ton	Assayer	Assayed for
47554	0.46	--	0.64	6.36	Met Lab	DMEA
	0.44	--	0.42	5.0	Peter Mack	Operator
47564	ND	0.31	ND	1.64	Met Lab	DMEA
	Tr	0.0	0.03	0.3	Peter Mack	Operator
47573	0.40	1.14	ND	0.88	Met Lab	DMEA
	0.32	0.65	Tr	0.2	Peter Mack	Operator

Laucks — Laucks Testing Laboratories, Seattle, Wash.

Peter Mack - Peter Mack, Wallace, Idaho

Met Lab - Metallurgical Laboratory, Seattle, Wash.

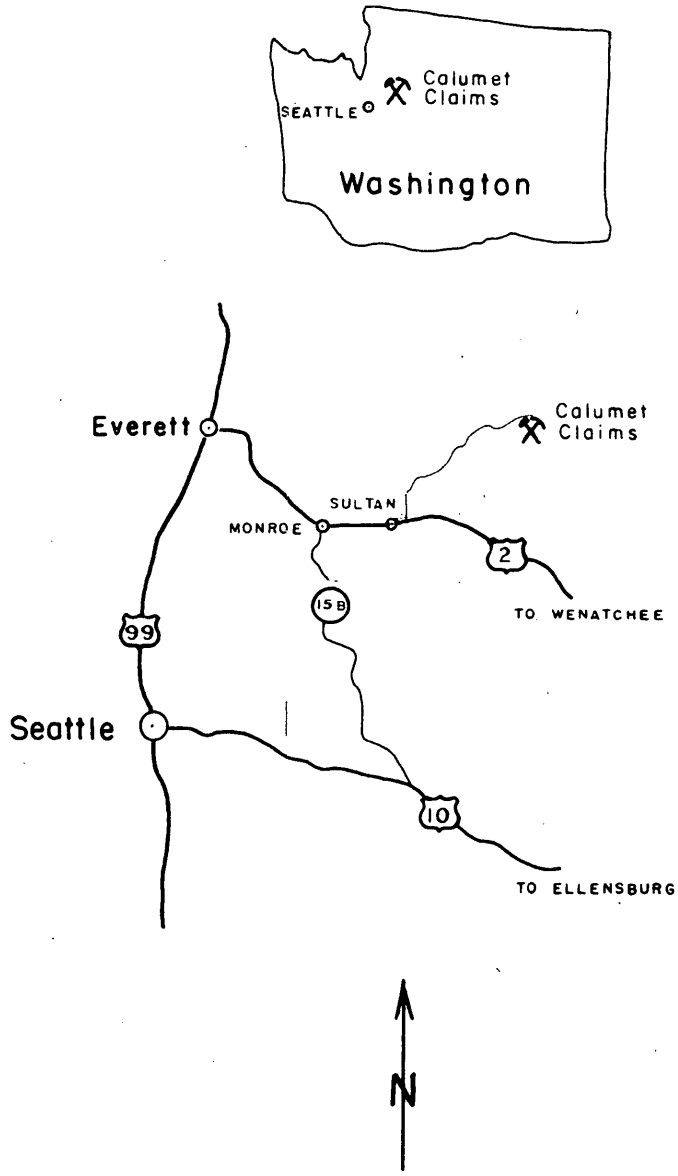

Fig. 1 LOCATION MAP
Calumet Claims

HOWE SOUND COMPANY
Snohomish County, Washington

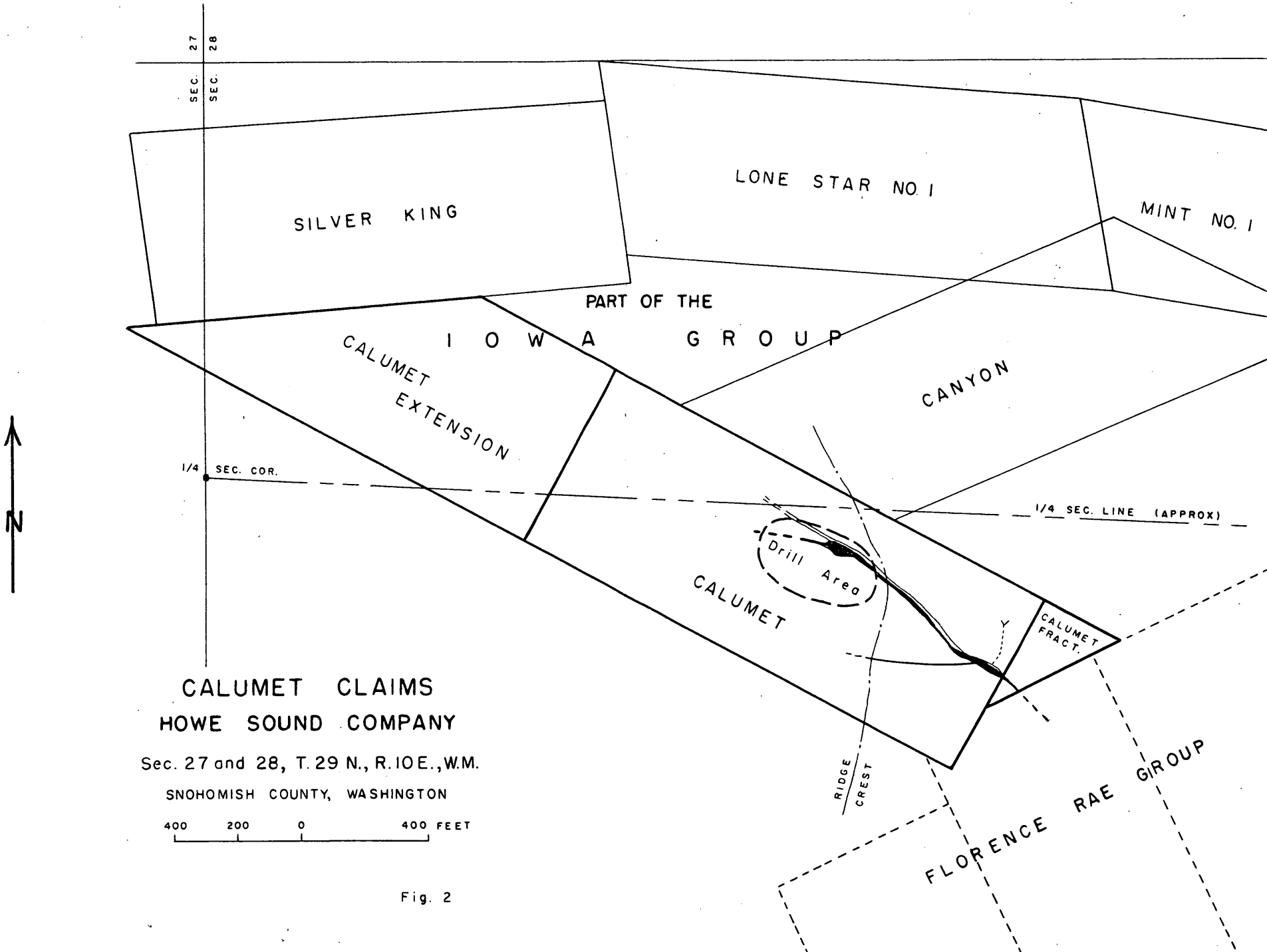
SEC. 27
SEC. 28
SILVER KING
LONE STAR NO. 1
MINT NO. 1
PART OF THE
IOWA GROUP
CALUMET EXTENSION
CANYON
1/4 SEC. COR.
1/4 SEC. LINE (APPROX)
Drill Area
CALUMET
CALUMET FRACT.
RIDGE CREST
FLORENCE RAE GROUP
N
CALUMET CLAIMS
HOWE SOUND COMPANY
Sec. 27 and 28, T. 29 N., R. 10 E., W.M.
SNOHOMISH COUNTY, WASHINGTON
400 200 0 400 FEET

Fig. 2

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DMEA
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5/6 | [illegible] | 566

So. 157 Howard Street
Spokane 4, Washington

May 2, 1958

Howe Sound Company
238 North 21st Street West
Salt Lake City, Utah

Re: Docket No. DMEA-4607 (Copper)
Calumet claims
Snohomish County, Washington
Contract No. Idm-E1111

Gentlemen:

Enclosed for your information and files is a copy of Report of Review dated April 16, 1958, by C. A. Turner, DMEA Auditor. This Report of Review covers the period of July and August 1957, inclusive.

This report shows a balance due Howe Sound Company as $500. This money has been scheduled for release and you should be receiving payment shortly.

Sincerely yours,

A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region I

Enclosure

cc: DMEA (3)
USBM (2)
USBM (AD)
Turner

OFFICIAL FILE COPY
DMEA
RECEIVED MAY 2 1958
DATE | INITIAL | CODE
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1201 N. Division St.
Spokane 2, Washington

April 29, 1958

Mrs. Dorothy Long, Certifying Officer
DMEA Field Team, Region I
1201 N. Division Street
Spokane 2, Washington

Re: Docket No. DMEA-4687 (Copper)
Howe Sound Company
Calumet Claims
Snohomish County, Washington
Contract No. Idm-E1111

Dear Mrs. Long:

The project work under the referenced contract was completed by September 3, 1957. All the work performed was done to the satisfaction of the Government. A final report evaluating the results of the exploration program has been presented by the Operator and accepted by the Executive Officer.

The Government has no equity in equipment, materials or supplies used at the project.

A certification of discovery or development will not be recommended by the Field Team.

A final Report of Review dated April 16, 1958 by DMEA Auditor C. A. Turner has been received.

As all contract requirements have been met, it is requested that final settlement of our account with the Operator be made.

Sincerely yours,

A. E. Weissenborn, Exec. Officer
DMEA Field Team, Region I

cc: DMEA (2)
USGS (2)

Form No. 1034—Revised
Form prescribed by
Comptroller General, U. S.
September 7, 1950
(Gen. Reg. No. 51, Supp. No. 11)

PUBLIC VOUCHER FOR PURCHASES AND SERVICES OTHER THAN PERSONAL

D. O. Vou. No. .....

Bu. Vou. No. 2152

U. S. .....
(Department, bureau, or establishment)

Voucher prepared at Spokane, Washington 5/1/58
(Give place and date)

THE UNITED STATES, Dr., Payee's Account No. Idm-E1111

To Hove Sound Company -4687
(Payee)

238 North 21st West Salt Lake City 16, Utah
(Address) (City) (State)

PAID BY

(For use of Paying Office)

No. and Date of Order	Date of Delivery or Service	ARTICLES OR SERVICES (Enter description, item number of contract or Federal supply schedule, and other information deemed necessary) Discount Terms	QUANTITY	UNIT PRICE Cost	UNIT PRICE Per	AMOUNT Dollars	AMOUNT Cts.
	July and August 1957	Balance withheld under Voucher No. 2053, dated October 9, 1957				500	00
PAYMENT: Complete ☐ Partial ☐ Final ☐		FINAL PAYMENT					
		Use continuation sheet(s) if necessary					
Shipped from	to	Weight	Government B/L No.		Total	500	00

I certify that the above bill is correct and just and that payment therefor has not been received.

(Sign original only)

Date ..... *Payee .....
(This certificate not required when a like certificate is made by payee on attached bill or bills)

Per ..... Title .....

(Payee must NOT use this space)

Differences .....

Account verified; correct for 500 00

(Signature or initials) .....

Contract No.	Date	Req. No.	Date	Invoice Rec'd.

Pursuant to authority vested in me, I certify that this account is correct and proper for payment.

† Approved for $ 500.00

By .....

Title .....

SIGN ORIGINAL ONLY

† .....
(Authorized Certifying Officer)

Title .....

Date .....

THE REVERSE OF THIS FORM MUST BE EXECUTED WHEN PURCHASES ARE MADE OR SERVICES SECURED WITHOUT WRITTEN AGREEMENT IN ANY FORM

ACCOUNTING CLASSIFICATION (For completion by Administrative Office)

Appropriation, limitation, or project symbol	Appropriation title	Limit'n. or Proj't. Amount	Appropriation Amount

Allotment symbol	Amount	Obligations liquidated	COST ACCOUNT Symbol	COST ACCOUNT Amount	OBJECTIVE CLASSIFICATION Symbol	OBJECTIVE CLASSIFICATION Amount

Paid by { Check No. ..... dated ....., 19....., for $..... } on Treasurer of the United States in favor of payee named above.
{ Cash, $....., on ....., 19..... Payee .....
(Sign original only)

Per .....

Title .....

* When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: John Doe Company, per John Smith, Secretary", or "Treasurer", as the case may be.
If the ability to certify and authority to approve are combined in one person, one signature only is necessary; otherwise the approving officer will sign on the line below "Approved for $.....", and under his official title.

16—22900-3

METHOD OF OR ABSENCE OF ADVERTISING

METHOD OF ADVERTISING

1. Advertising in newspapers Yes ☐ No ☐
2. (*a*) Advertising by circular letters sent to ..... dealers.
   (*b*) And by notices posted in public places Yes ☐ No ☐.

   (If notices were not posted in addition to advertising by circular letters sent to dealers, explanation of such omission must be made below.)

ABSENCE OF ADVERTISING

3. Without advertising, under an exigency of the service which existed prior to the order and would not admit of the delay incident to advertising.
4. Without advertising in accordance with .....
5. Without advertising, it being impracticable to secure competition because of .....

.....

.....

.....

.....

(Here state in detail the nature of the exigency or circumstances under which the securing of competition was impracticable under 3 and 4)

NOTE.—The above form "Method of or Absence of Advertising" is to be used when purchases are made or services secured under proper authority without written agreement in any form. In case of a written agreement (formal contract, proposal, and acceptance, or less formal agreement) Standard Form No. 1036—Revised should be used for abstracting the method of or absence of advertising and award of contract. (See General Regulations No. 51, as amended.)

16—22900-2 ☆ U. S. GOVERNMENT PRINTING OFFICE : 1950—O-75806

DMEA Form 7
(12-56)

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Date	Surname	Code
4/21	Alley	800
4/22	Talbut	800
4/22	C	220
4/22	Wells.	500

APR 22 1958

Mr. Charles A. Turner
DMEA Auditor
1201 North Division Street
Spokane 2, Washington

Re: Idm-F1111, DMEA-4687
Howe Sound Company (Copper)

Dear Mr. Turner:

Your Report of Review covering the above-referenced project is acceptable and normal distribution is authorized.

Sincerely yours,

(Signed) J. L. Chambers

Jay L. Chambers, Director
Contract Administration
and Audit Division

AMAlley/ama
April 21, 1958

Copy to: Docket
Admr. Reading File
Mr. Chambers

8623

RECEIVED MAR 31 1958

		CODE
3/31		220
~~3/31~~	~~Reg~~	~~Sec~~

1201 N. Division St.
Spokane 2, Washington

March 25, 1958

Mr. C. A. Turner
DMEA Auditor, Region I
1201 North Division St.
Spokane 2, Washington

Re: Docket No. DMEA-4687 (Copper)
News Bound Company
Calumet Claims
Snohomish County, Washington
Contract No. Idm-81111

Dear Mr. Turner:

The project work under the referenced contract was completed by September 3, 1957. All the work performed was done to the satisfaction of the Government.

A final inspection report on the completed work was submitted by E. A. Magill on January 8, 1958.

The Operator's final engineering and geological report was received on March 3, 1958. It is considered as having met the requirements of Article 5(c) of the contract.

The Government has no equity in equipment, materials or supplies used at the project.

A certification of discovery or development will not be recommended in the Field Team final report.

Work units completed within the terms of the contract are:

	Authorized	Completed
Diamond drilling (AX)	2,400 ft.	1,226 ft.
Sample assays	100 ea.	75 ea.
Core boxes	120 ea.	85 ea.

It is now in order for you to issue your Report or Review.

By Field Team, Region I

Wing G. Agnew, Member
U. S. Bureau of Mines

A. E. Weissenborn, Exec. Officer
U. S. Geological Survey

cc: DMEA (3)
USGS (2)
USBM (2)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
So. 157 Howard Street
Spokane 4, Washington

March 17, 1958

3/20 C 220
3/21 800
3/21 500

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Re: Docket No. DMEA-4687 (Copper)
Howe Sound Company
Calumet Claims
Snohomish County, Washington
Contract No. Idm-E1111

Dear Mr. Selfridge:

Enclosed are the original and one copy of a final report with two maps received on March 3, 1958, from Mr. J. S. Roper, Acting Manager of Britannia Mining and Smelting Co., Limited. This report is acceptable to the Field Team.

The Field Team final report will not recommend a Certification of Discovery or Development.

By Field Team, Region I

A. E. Weissenborn

A. E. Weissenborn, Exec. Officer
U. S. Geological Survey

Wing G. Agnew

Wing G. Agnew, Member
U. S. Bureau of Mines

Enclosures
cc: USBM(2)
USBM(AD)
CPF
Albee

BRITANNIA MINING AND SMELTING CO., LIMITED

BRITANNIA BEACH, B.C.

DOCKET NO. DMEA-4687 (COPPER)
CALUMET CLAIMS
SNOHOMISH COUNTY, WASHINGTON
CONTRACT NO. Idm-E1111

February 25th, 1958.

Mr. A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region 1
Department of the Interior
So. 157 Howard Street
SPOKANE 4, WASHINGTON.

Dear Mr. Weissenborn:

We are in receipt of a copy of your letter dated February 11th to the Howe Sound Company, Salt Lake City, regarding the final report on the above-noted project.

We wish to advise that Mr. John Lamb has completed the narrative report and is presently working on the required maps. We hope to forward the completed report at an early date.

Sincerely yours,

J. S. Roper, Acting Manager.

cc-ECR

Operator's Final Rpt.

HOWE SOUND COMPANY

Exploration Department

Britannia Beach, B. C.

February 14th, 1958.

Mr. A. E. Weissenborn, Executive Officer
Defense Minerals Exploration Administration
Field Team, Region 1
South 157 Howard Street
SPOKANE 4, WASHINGTON.

Dear Mr. Weissenborn:

Re: Docket No. DMEA 4687 (Copper)
Howe Sound Company
Calumet Claims
Snohomish County, Washington.

Enclosed are five copies of the Operator's Final Report on the above-noted project.

Yours truly,

John Lamb

John Lamb, Geologist.

Enclosures

cc-ECRoper

RECEIVED
MAR 3 1958
U. S. G. S.
SPOKANE, WASH

RECEIVED
MAR 3 1958
U. S. G. S.
SPOKANE, WASH

DMEA 4687 (Copper)
Contract No. 1111
FINAL REPORT

DIAMOND DRILLING PROJECT ON CALUMET VEIN

SULTAN BASIN MINING COMPANY

SNOHOMISH COUNTY, WASHINGTON

INTRODUCTION

In the summer of 1957, Howe Sound Company carried out a program of diamond drilling and geological investigation on the Calumet Vein of the Sultan Basin Mining Company. The holdings of this Company were taken under option by Howe Sound Company in October, 1956.

This property is in Snohomish County, Washington, near the head of the north fork of the Sultan River. A twenty-six mile gravelled road leads into the area from Sultan, a town on U.S. Highway No.2, twenty-five miles east of Everett. The main line of the Great Northern Railway passes through the town.

The immediate vicinity of the property is a particularly rugged section of the western slopes of the Cascade Mountains. Elevations range from 2000 to 6600 feet, with slopes varying from steep to precipitous. In common with other mineral properties in this part of Washington, the Sultan Basin Group was discovered late in the nineteenth century. Considerable surface and underground development was done by various owners but their efforts were seriously hampered by a lack of adequate transportation routes. From the workings on the "Mint" and "Iowa" claims of the Sultan Basin Group, a small amount of high-grade copper ore was shipped to smelters. The Calumet Vein, crossing a claim of the same name, is high on a rugged ridge at the south end of the Group. Numerous open-pits have been dug near the west end of the Vein and one adit, the Calumet, was driven (in 1937) below a good showing at the east end. This adit (see Map 2) intersected the Vein but failed to find commercial mineralization at that point.

PLANNING AND ORGANIZATION

Weather

Climate and topography were the controlling factors in the execution of the project. Average annual precipitation is in excess of 90 inches, most of it falling as snow between October and April. At the higher elevations, this snow accumulates to a great depth, often lasting well into summer. On June 17th, 1957, about three feet of snow still lay in the Calumet Basin. Inclement weather in July further delayed preparations; consequently, the first drill hole was not collared until the 22nd of that month.

Diamond Drilling

Two firms - Nichols & Thompson, of Boise, and Lynch Brothers, of Seattle - submitted bids for diamond drilling the Calumet Vein, that of the latter being accepted under the following terms:

"Prices are based on approximately 2400 feet of drilling, the holes to average 175 to 200 feet in depth and two holes to be drilled from each set-up, all holes starting in rock. You are to move all supplies and equipment from road-end in Sultan Basin to the drill site and return equipment to road-end at completion of job. You will operate a camp near drill site and supply board and lodging to our men at a cost of $1.50 per day per man. Drilling AX size holes: $5.25 per lineal foot. Reaming, cementing, surveying and placing casing will be done at a price of $10 per hour; cement to be furnished by you."

Transportation

The drill site at the Calumet Vein, elevation 4800 feet, is accessible from the Sultan Basin Road by a very steep trail, 2½ miles long. This trail, in poor repair, leads up the east face of Calumet Ridge, across the summit at 5000 feet and a short way down the west side. Such conditions led to an investigation of the feasibility of helicopter transportation. As a result, Aero Copters Inc., of Seattle, was engaged for approximately three days on the move-

in and for one day on the move-out.

DMEA Contract

An application for assistance to the Defense Minerals Exploration Administration was accepted and a short-term contract granted as follows: "The Government will contribute 50% of the fixed unit cost of work performed, not exceeding $11,780.00:-

Fixed Unit Costs

2400 ft. of diamond drilling (AX Size) @ $9.50 per foot	$ 22,800.00
100 samples assayed @ $4.00 per sample	400.00
120 core boxes (wooden) @ $3.00 per box	360.00
	$ 23,560.00
Government's Participation @ 50%	$ 11,780.00

DIAMOND DRILLING

The drilling plan is illustrated on Map 1.

A heavy tree-covered talus slope immediately below the outcrops of the Calumet Vein necessitated a change in the drill plan from that proposed in the DMEA contract. As a result, two drill sites were chosen where bedrock could be reached by digging. From these sites lateral, instead of vertical fans of holes were drilled, covering a segment of the Vein 450 feet long to a depth of approximately 200 feet below the outcrops. A tabulation of the holes drilled follows:-

No.	Length	Inclination	Bearing	El. Collar	El. Bottom	Remarks
First Set-Up						
1	260	-38°	N17E	4780	4620	No ore
2	260	-40	N20W	4780	4614	No ore
Second Set-Up						
3	272	-35	N24E	4851	4695	Some Mineralization
4	224	-36	N07W	4851	4720	No ore
5	210	-34	N59E	4851	4734	Sparse Mineralization

A Tro-Pari compass was used to survey the first two holes only. No.1 Hole showed little change in either inclination or bearing, but No.2 showed a 9° deviation in bearing.

Hole No.1 - Drilled to intersect the strongest showing on the property in Pit 1 at a depth of 200 feet. This hole yielded negative results. The zone of shearing was intersected but copper mineralization was almost absent.

Hole No.2 - Laid out on a bearing 37° farther west than that of No.1, this hole was drilled to test both the possibility of rake of the ore shoot in Pit 1 and the westerly extension of the shear under overburden. Although it intersected part of the shear zone, no mineralization was encountered.

Hole No.3 - This hole, the first from the second set-up, intersected the Calumet Vein beneath Pits No.7 and No.8, both of which have fair showings of copper mineralization in heavy gossan. Narrow streaks of massive sulphide were cut between 125 and 204 feet, with sparsely disseminated mineralization here and there. Although short runs of core assayed well, the width of mineralization was insufficient to constitute ore. The hole penetrated hard, striped, siliceous sediments on the footwall of the Vein.

Hole No.4 - Drilled 32° to the left of Hole No.3, this hole failed to encounter significant mineralization.

Hole No.5 - Drilled 35° to the right of Hole No.3, this hole was similar to it except that mineralization was weaker and more scattered. Core and sludge assays were all low.

Because of poor results in all drill holes, drilling was stopped at 1,226 feet instead of 2,100 feet as planned.

The geologic logs of all holes were similar. They all collared in soft green serpentinized peridotite, passing out of this formation between 50 and 90 feet into intensely silicified sedimentary rocks. These rocks are highly contorted and locally much brecciated. Much of the primary structure has been obliterated by the alteration but enough remnants were left to enable their classification into interbedded quartzite and argillite with possibly some cherty or tuffaceous beds.

SURFACE SAMPLING

Most of the open pits west of Calumet Ridge were cleaned out and thoroughly re-sampled by the writer. Channel samples were cut where possible; otherwise, chip samples were taken from bottoms or sides of the open pits. Assay results (see Map 1) confirm estimates of values made at the time of sampling. Only a few of them turned out to be worthwhile. The highly oxidized vuggy gossan in Pit 7 yielded one high-grade gold assay but this is probably exceptional. In general, the writer's assay results were much lower than those taken by others. It is felt that mineralized material was given more attention than it merited.

SURVEYING AND MAPPING

The writer surveyed the greater part of the area of the Calumet Claim, Map 2 being the result of this survey. With a Brunton Compass and chain, closed traverses were run and plotted on a scale of 40 feet equals one inch. Vertical angles recorded throughout the survey, enabled elevations to be calculated for many points in the map area. From these it was possible to plot surface contours with reasonable accuracy. All traverses were balanced by the usual methods, both for elevations and co-ordinate positions. A base elevation of 4610 feet was assumed from aneroid readings for Station 1, about 100 feet west of Camp Lake and all others calculated from it. These may be up to 100 feet above true elevation.

Essential surface features, such as streams, buildings, prominent points, open pits and gulches, were tied into the survey. Geological mapping was done after field sheets were prepared from the base map.

No claim corners could be found, making it impossible to place the Calumet claim boundaries on the map.

GEOLOGY

The geology of Sultan Basin area is that of an old metamorphic series of sediments, presumably late Paleozoic or Mesozoic in age, overlain by a younger series of Cretaceous continental sediments. Apparently intruding both series are extensive masses of quartz diorite similar to those around Monte Cristo and Index. Minor intrusive bodies of serpentinized peridotite cut both of the sedimentary series.

On the Calumet Claim the country rocks are highly metamorphosed, siliceous, striped and contorted sediments. They are composed of rusty weathering argillite and thin-bedded handed quartzite, chert and tuff. In Rainy Hollow, one-quarter mile west of the map area, a band of blue-gray massive limestone outcrops along a small creek.

Bedding attitudes of these Old Metamorphic rocks trend N by W and dip westerly. Anomolous dips are common, indicating tight compression and folding. Boulders of talus, which are free of moss and lichens, exhibit this contortion on their fresh surfaces.

Crossing the map area on a WNW trend is a band of serpentinized rock over 500 feet wide. According to Carithers (1) it extends southeast to Red Mountain, and northwest for several miles. He describes it as a serpentinized peridotite, intrusive into the Old Metamorphic Series. Outcrops of this rock weather to a characteristic tan or buckskin color, with a rounded pebbly surface. The fresh rock is dark green and soft, exhibiting many sheared, polished faces, with the usual greasy feel of serpentine. The prominent lineation throughout

this rock may be a schistosity, developed by later stresses. It trends northerly and dips to the west. The relatively straight course of the serpentine-sediment contacts in rough topography indicates that they are steep. Information from drill holes substantiates this idea.

Extensive outcrops of medium-grained gray quartz diorite are found in precipitous bluffs in the northeast corner of the map area (Map 2), exhibiting sharp contacts with the older sediments. This rock is part of the much larger mass of quartz diorite occupying the headwaters of Sultan River.

Felsitic and porphyritic dykes and sills are common in the map area, cutting both older sediments and peridotite. They may be genetically related to the quartz diorite.

The Calumet Vein is one of several prominent steep shear zones trending N50W to N60W across the northeast corner of Map 2, being the only one in which sulphide mineralization was seen. It is exposed by erosion in a steep gulch on the east side of the ridge and by 10 or more open pits on the west side. Total exposed length of vein is 1000 feet. To both the northwest and southeast sheared vein material is found and may represent extensions of the Calumet Vein system. The Vein is a braided and branching shear, standing almost vertical but favoring a steep southwesterly dip. It occupies a zone between 20 and 100 feet wide, consisting of well-defined shear planes separated by vein quartz, gouge or country rock. Numerous tight shears split off the main zone at sharp angles and feather out in the wall rock. Earlier reports and maps indicate a pronounced change of strike in the western segment of the Vein, but the writer believes that this is only a hangingwall split from the main shear.

Mineralization consists of a siliceous gangue, with varying amounts of chalcopyrite, sphalerite, pyrite and pyrrhotite. Other metallic minerals have been reported, but were not seen by the writer. Mineralized zones are in short lenses or shoots of ore, erratically distributed along the shear zone. A maximum of 18 feet of ore-grade material outcrops in Pit 1.

On surface much of the mineralization is represented by a well leached gossan of brown vuggy quartz. Occasional high gold values may be obtained from this gossan.

The WNW direction of the Calumet shear zone is common to other properties in the district. The amount of displacement along the shear is unknown, but evidence based on the position of the formations indicates that the north side move relatively westward. It may be a very old structural feature, but its latest movement post-dates the emplacement of quartz diorite and porphyry dykes.

Other than the fact that mineralization is confined to the shear zone, the cause of localization of ore shoots is not clear. Control of ore was probably exerted by both structural and chemical factors, the solution of which will require more detailed geological investigation. The great intensification of silicification of sediments in the immediate area may have a bearing on ore deposition.

SUMMARY AND CONCLUSIONS

The Calumet Vein, a strong shear containing interesting showings of copper mineralization, is in a difficult location for mine development. As a result, the present program was laid out to test continuity of mineralization under the best showings. Success in this phase of development would lead to a more costly program of deep drilling.

About 450 feet of vein segment west of Calumet Ridge was tested to a depth of 200 feet. In addition, all open-cuts in this area were cleaned and carefully sampled. Almost negative results indicated that continuity of mineralization, either laterally or vertically, was lacking.

IN REPLY REFER TO:

OFFICIAL FILE COPY
DMEA
RECEIVED MAY 22 1957

DATE	INITIALS	CODE
5/22	JWS	220
5/23	WPK	500

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

May 21, 1957
Re: DMEA 4687
Howe Sound Company
Calumet Claims
Snohomish County, Wash.
Appl. Est. $24,000
Rec'd Est. $24,500 - copper

~~Memorandum~~

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

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

Subject: Review of Field Team Report

Robert T. Curtiss requested assistance in exploring the vein in DMEA 4220. Before action was taken, the property was optioned by Howe Sound and a new application filed.

The Calumet vein has been traced on surface 900 feet. Of 7 samples taken at 6 places on the outcrop, 3 show ore grade material, as:-

Sample Ne	Place	Width Feet	Oz Au	Oz Ag	% Cu
743 A	Trench 9	5	Tr.	2.36	1.66
744 A	"	8½	Tr.	1.52	1.91
747 A	" 5	8	0.08	2.64	1.40

Rough country is traversed by the vein and sampling is difficult. Apparently the Calumet vein is similar to the nearby Mint vein which was explored by crosscutting and drifting under contract Idm-E417 (DMEA 2435). While not conclusive, the results of the work are not encouraging.

The examiners now recommend a work program consisting of 12 diamond drill holes totalling 2,400 feet, to test the vein in 6 places.

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

N. E. Nelson

N. E. Nelson

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
So. 157 Howard Street
Spokane 4, Washington

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DMEA
RECEIVED MAY 13 1957

DATE	INITIALS	CODE
5-13	C	220
	RA	130
5/20	[illegible]	220
5/20	WRY.	500

May 10, 1957

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Re: Docket No. DMEA-4687 (Copper)
Howe Sound Company
Calumet Claims
Snohomish County, Washington

Dear Mr. Selfridge:

Enclosed are four copies of a memorandum examination report by Donald F. Kellum, geologist of the Geological Survey, and E. A. Magill, mining engineer of the Bureau of Mines on the above-referenced property.

Kellum and Magill conclude that the limited program proposed by the applicant is warranted and they recommend that a unit cost program providing for 2,400 feet of diamond drilling at $10 per foot and assaying of 100 samples for copper, gold, and silver at $5 per sample be approved.

We concur with the conclusion and recommendations of the examiners.

By Field Team, Region I, NW Dist.

A. E. Weissenborn
A. E. Weissenborn, Exec. Officer
U. S. Geological Survey

Thomas E Howard
for: Wing G. Agnew, Member
U. S. Bureau of Mines

Enclosures

cc: USBM (2)
USGS (SRO)
Kellum

Reviewed by
DMEA OPERATING COMMITTEE
5/17/57
(date)

OFFICIAL FILE COPY
D M E A
RECEIVED MAY 13 1957

DATE	INITIALS	CODE

ON SITE REPORT

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration
So. 157 Howard Street
Spokane 4, Washington

May 1, 1957

MEMORANDUM

To: DMEA Field Team, Region I, Northwest District

From: Donald F. Kellum, Geologist, U. S. Geological Survey and E. A. Magill, Mining Engineer, U. S. Bureau of Mines

Subject: Application Report, Docket No. DMEA-4687 (Copper, Howe Sound Company, Calumet Claims, Snohomish County, Washington

INTRODUCTION

In a letter dated January 15, 1956 (1957), Brittania Mining and Smelting Co. Limited, 313 Royal Bank Building, Vancouver 2, B. C., a subsidiary of Howe Sound Company, 730 Fifth Avenue, New York 19, New York, requested DMEA assistance to explore for copper on the Calumet claims in Snohomish County, Washington.

This is the same property on which there was an application (Docket No. DMEA-4220) by Robert T. Curtiss. Because of a lease and option agreement between Mr. Curtiss and the applicant, Mr. Curtiss' application was considered as withdrawn by Washington on February 7, 1957. Howe Sound Company is requesting essentially the same program as that originally proposed by Curtiss and has submitted two reports dated January 15, 1956 (1957), and February 20, 1957, outlining and supporting this proposal. Submission of a new form MF-103 was waived by the Operating Committee.

The applicant is capable of conducting the proposed exploration. The applicant has been satisfactorily carrying out an exploration contract under their Chelan Division at Holden, Washington (Docket No. DMEA-3142).

The applicant proposes to explore by diamond drilling 2,400 feet of holes at an estimated cost of $6.25 per foot to test for copper on the downward projection of the Calumet vein. The work will be done from surface sites on the western portion of the vein. The basic price for the diamond drilling is $6.25 per foot but additional costs for supervision, labor, supplies and transportation bring the total cost for the proposed work to $24,000 or an over-all cost of $10 per foot. The cost of 100 assays for copper, gold, and silver at $5 per assay will bring the total cost of the project to $24,500, of which the Government's share will be 50 percent or $12,250.

DMEA OPERATING COMMITTEE
5/17/57
(date)

Because of a short working season and access difficulties, the helicopter transportation proposed by the applicant is the only practical means by which supplies can be transported to the working area. With its use the proposed work can probably be started by late May or early June and be completed within the 4-month period specified by the applicant.

An examination was made by Kellum on October 8, 1956; approximately five hours were spent on the property. An examination had been made by Magill under a previous docket (DMEA-2434). A map submitted by the applicant was checked and several minor additions were made. This map (pl. 1) showing the location of seven samples taken during the examination accompanies this report. The applicant's proposed exploration is indicated on plate 2.

SUMMARY

The veins in the Sultan Basin district are believed to be related genetically to a quartz diorite pluton of Tertiary age. A number of veins are known but only a few have been developed much beyond the discovery stage. On the basis of information gained from this limited development, the prevalent ore controls appear to be intersections of favorable north-northwesterly to westerly striking veins with other veins or fractures. The type of wall rock may have had a local influence on the deposition of some of the ore. The geologic setting of the Sultan Basin veins is similar to that in the adjacent Monte Cristo and Index districts where, in the past, several properties have had significant production.

The Calumet vein is a strong, nearly vertical structure striking northwesterly to west-northwesterly which is exposed for a distance of about 900 feet. It is enclosed largely by regionally metamorphosed rocks of Paleozoic (?) age and is roughly parallel to a tongue of the quartz diorite occurring near its northeast side. On an adjacent property, an eighth of a mile southeast of the Calumet outcrops, a vein which may be a strike extension of the Calumet is exposed for a distance of about 1,500 feet.

Overburden and steepness of exposures prevent examination of some significant areas along the vein and although mineralized material in portions of the vein is sparse, there are notable concentrations in two areas near intersections of the vein with other structures. These exposures suggest that the ore may occur as steeply raking shoots along structural intersections.

Although some of the vein exposures are weathered to a depth of several feet, most exposures are only surficially iron-stained and it is believed that the weathering of the vein is not extensive. Of 7 samples taken during the examination, 4 from well-exposed portions of the vein near two structural intersections

contain between 0.73 and 2.0 percent copper over intercepts of 5-10 feet. The remaining 3 samples, from poorly exposed portions of the vein elsewhere, do not exceed a grade of 0.34 percent copper. Surface sampling by other examiners indicates that although copper values are erratic, significant amounts of copper and some good values in gold and silver are present.

CONCLUSIONS AND RECOMMENDATIONS

The Calumet vein is a wide, strong structure having orientation similar to many favorably mineralized structures elsewhere in the region. Although the grade of the vein is erratic, there is an apparent localization of ore-grade material at or near junctions with other structures suggesting that the ore may occur as shoots along these junctions. Two such shoots are inferred on the property. In the vicinity of one shoot west of the ridge crest, the vein is of sufficient thickness and contains sufficient evidence of mineralization to warrant testing the downward projection of this portion of the vein.

It is recommended that the program requested by the applicant be approved and that a unit cost contract be entered into on the basis of 2,400 feet of diamond drilling at $10 per foot and 100 assays for copper, gold, and silver at $5 each; the total cost of the project to be $24,500 with Government participation at 50 percent, or $12,250.

PROPERTY RIGHTS

The property consists of the Calumet, Calumet Extension, and Calumet Fraction claims in sec. 27, T. 29 N., R. 10 E. W. M., Snohomish County, Washington (fig. 1). These three claims are part of a group of 14 unpatented claims known as the Iowa group originally held by the Sultan Basin Mining Company.

An option and lease agreement covering the Sultan Basin group of properties, which include the Iowa group, was concluded between the applicant, as optionee, and Robert T. Curtiss and Sultan Basin Mining Company, optionors, on November 13, 1956.

LOCATION AND ACCESSIBILITY

The Calumet claims are located transversely across a sharp, northerly trending spur of Red Mountain at elevations ranging from 4,000 to 5,000 feet. Slopes on the east side of this spur are steep and locally precipitous; the west side, with the exception of the ridge crest, has gentler slopes and local flat areas which are of sufficient size to permit helicopter landings. Relief in the claim area ranges from 100 to 500 feet over distances of less than 100 yards.

To reach the property it is necessary to climb approximately 3,000 feet, partly by trail. The trail starts at the end of the mine-to-market road at river level about three-quarters of a mile airline distance from the property. Start of the trail is approximately 27 miles by good roads from the town of Sultan on U. S. Highway 2.

Snow occurring from October to July and rugged terrain have in the past restricted the effective working season to about 3 months; with the use of a helicopter to minimize these difficulties, the applicant hopes to obtain about a 4-month working season.

DESCRIPTION OF THE WORKINGS

On the east side of the ridge, the Calumet vein is developed by a 170-foot crosscut to the vein and an additional 80 feet of drift and crosscut in the vein from an adit portal at an altitude of 4,650 feet (pl. 1). Above the drift at an altitude of 4,750 feet is an open cut across the vein. The northwest extension of the vein, on the west side of the ridge, is exposed in outcrops and 10 of the 11 trenches which have been cut between altitudes of 4,850 and 4,975 feet.

No other improvements and no buildings now exist on the property.

GEOLOGY

General

The geology and ore deposits of the Sultan Basin are described by Ward Carithers and A. K. Guard in Washington State Division of Mines and Geology Bulletin 36. Their report contains a summary and map of the areal geology and descriptions and generalized maps of a number of the prospects, including the Calumet. Most of the deposits described are veins which are usually closely associated with a quartz diorite pluton of Tertiary age and which are believed to be genetically related to the intrusive. The principal vein-forming minerals are quartz and various carbonates. Associated with these are pyrite, arsenopyrite, chalcopyrite, with lesser quantities of sphalerite and galena. A few veins contain moderate to large amounts of silver; the gold tenor is usually low, although in a few veins it may approach several ounces per ton locally. Scheelite occurs in small amounts.

The rocks intruded by the quartz diorite consist of folded and regionally metamorphosed marine clastics of Paleozoic (?) age, intrusive peridotite of Mesozoic (?) age, and folded but not regionally

metamorphosed continental clastics of Tertiary age. Within the intruded rocks, the ore-bearing structures are part of complex shears which may be silicified in part, whereas in the quartz diorite the ore-bearing structures may be either quartz veins or mineralized fracture zones. Structural control rather than rock type appears to be of more importance in localizing ore on a district-wide basis, westerly striking structures usually being more favorably mineralized. Within a vein, the ore minerals may tend to be localized at junctions of main and branch structures or at fracture intersections.

Because of the extreme ruggedness of the Sultan Basin area, most of the prospects are relatively inaccessible and the small amount of production from the area has been closely associated with development of accessways to properties on which ore was exposed at or very close to the surface. The ruggedness of the area has been a major factor discouraging more vigorous exploration on other properties. Although there has been no extensive production from the veins in the Sultan Basin, the applicant has pointed out that their geologic setting is quite similar to that of the adjacent Monte Cristo and Index districts where several properties have had good production records.

Local

The Calumet vein, exposed for a distance of about 900 feet, is a nearly vertical, silicified shear zone 5-50 feet thick which strikes N. 45°-70° W. near a contact between Paleozoic (?) rocks and an apophysis of the quartz diorite pluton. The southeasternmost exposure of the vein is about 465 feet southeast of the ridge crest. About 750 feet farther southeast of the ridge crest is the Copper King vein which has a similar attitude. The Copper King vein can be traced intermittently for an additional 1,500 feet to the southeast, and may be a continuation of the Calumet vein (Bull. 36, p. 66).

The Calumet vein is in metasedimentary rocks and is roughly parallel to a tongue of the quartz diorite occurring about 50-100 feet from the northeast side of the vein. On the southwest side of the vein a thick, tabular, serpentinized peridotite body having sheared and gradational contacts with the enclosing metasedimentary rocks abuts the vein at the ridge crest and is the wall rock along at least a part of the southwest side of the vein east of the ridge crest. West of the ridge crest, exposures of the wall rock south of the vein are scant. The vein can be traced northwestward in steep outcrops and trenches over a distance of about 470 feet before it becomes obscured by overburden.

There are three well-mineralized exposures along the Calumet vein. One of the exposures is in the open cut east of

the ridge crest. The other two are in Trenches 5 and 9 west of the crest. In the open cut, the vein is about 14 feet thick and consists of a silicified and surficially iron-stained zone. The quartz has in large part replaced the wall rock and only small fragments of what appears to be a dark-green dike rock and some faintly banded clastic material remain; some comb quartz is also present. Sulfides consisting largely of pyrite with some chalcopyrite occur in several bands about 18 inches thick and as lenticular bodies in the cut face. A chip sample, S-749A, cut across 10 feet of the cut face assayed trace gold and 0.52 ounce silver per ton, and 0.73 percent copper. Similar amounts of mineralized material occur up hill for about 30 feet to where the vein is covered by overburden. This occurrence may be related to a junction with a smaller vein which joins but does not cross the Calumet at the open cut. The dip of the two structures indicates that their line of intersection would rake steeply northwestward. A drift on the vein about 100 feet below and slightly southeast of the open cut did not show significant amounts of sulfides in the portion of the vein exposed. If there is a structural control of the mineralized material in the open cut as has been indicated, the downward extension of such mineralized material is likely to rake northwestward in the vein and thus lie beyond the present face of the drift. Up hill from the open cut the vein is represented by a slot in the hillside about 18-25 feet wide in which oxidized quartz float occurs. An outcrop of quartz about 100 feet below the ridge crest is iron-stained and contains small amounts of sulfides.

From the ridge crest northwesterly to Trench 5, the vein outcrop is along a hog back with nearly vertical sides and therefore very little of it could be examined; Trench 3 at the outcrop base barely penetrates the vein. A small amount of sulfides occur in the portion of the vein exposed in Trench 4. Trench 5 penetrates the vein for a greater distance at a point where the vein exposure is less steep locally, and about 9 feet of oxidized comb quartz, silicified wall rock, and sulfides are exposed. The rock is well fractured, heavily iron-stained, and has a sulfate bloom associated with some of the heavier concentrations of sulfides. The sulfides are pyrite, arsenopyrite, chalcopyrite, marcasite, and occasional crystals of sphalerite. An 8-foot chip sample, S-747A, assayed 0.08 ounce gold and 2.64 ounces silver per ton, and 1.40 percent copper. Owing to the steepness of the outcrop south of the cut and overburden to the north, the occurrence could not be traced for more than about 30 feet. Trench 9 is cut across a nearly vertical outcrop of the vein. The vein here is about 25 feet wide and has a well-defined, schistose south wall which strikes about east-west and dips southward at about 85°-88°. Indistinct bedding in the north vein wall appears to strike at about right angles to the vein and dip steeply to the east. The wall rock is apparently an impure quartzite. In the vein are irregular bodies

and elongate lenses of sulfides occurring in two zones 5-8 feet thick separated by a slice of wall rock having bedding traces of the same orientation as those exposed north of the vein. The vein exposure is surficially iron-stained and does not appear to be deeply oxidized. Two chip samples, S-743A and S-744A, taken across the cut face assayed trace gold and 2.36 ounces silver per ton, and 1.66 percent copper; and trace gold and 1.52 ounces silver per ton, and 1.91 percent copper, respectively, over respective intercepts of 5 and 8.5 feet. Again, owing to overburden and steepness of the outcrop, the mineralized area could not be traced beyond the cut.

In the area between Trenches 5 and 9 are 7 trenches which expose both barren and mineralized quartz and unmineralized rock across an area up to 50 feet wide. Unfortunately, these exposures are not sufficient to enable an estimate of the over-all quality of the mineralized material that may be present. This area and the mineralized exposures of Trenches 5 and 9 are part of a mineralized zone which merges with a barren zone of quartz near Trench 5. Both the mineralized and barren quartz zones are adjacent to each other from Trench 5 southeastward. This suggests that the mineralization is probably controlled by a structural junction.

DISCUSSION OF THE APPLICANT'S PROPOSAL

Although the northwest end of the Calumet vein west of the ridge crest appears to be the most promising portion of the vein, the applicant's proposal to explore all the vein west of the ridge crest is reasonable as there is no definite information as to what vertical changes may occur in the vein.

The applicant's proposal as submitted in his letter and enclosures of January 16, 1956 (1957), is sound and there are no proposed changes; this proposal is summarized on plate 2. The cost estimate for the work as given by the applicant is as follows:

1.	Engineering Asst. 4 months @ $425	$ 1,700.00
	Casual labor - one man, 4 months at $350	1,400.00
	Cook - one man, 3 months @ $400	1,200.00
2.	2,400 feet of diamond drilling (AX) @ $6.25/ft. based on discussion with Lynch Bros. D. D. contractors	15,000.00
3.	Transportation of supplies and equipment to Sultan Basin	100.00
4.	Helicopter transportation	1,200.00
5.	Food and supplies for 7 men for 3 months	1,900.00 ? Changed to 700.00
6.	Sundry supplies and camping equipment and erection of shelters	1,500.00
		$24,000.00

91

Considering the remote location, a difference in elevation of 3,000 feet between the end of the road and drill sites (takes about 3 hours to hike to the property from the end of the road) and the short working season, it is believed that the applicant's over-all cost estimate of $10 per foot for drilling is low. However, he has included several items which have not previously been considered as separate costs in DMEA contracts. These items are a cook and food for the men. These are costs which have to be either borne by the company or reflected by a compensating allowance in the employee's pay. Another item which it is believed is low is the cost of transportation of supplies and equipment into the Sultan Basin. It is believed that the minimum figure would be $100 per month for the 4-month period. It is also noticed that the applicant has provided no allowance for returning the equipment from the drill sites after the project is over. It is also possible that the cost of moving the equipment in by helicopter is a little conservative. Using the figures given in an article by Charles C. Goddard entitled, "Airlift is Bear Creek Answer to Short Summer Drill Season" in the June 1956 issue of MINING WORLD, we arrive at a slightly higher cost for airlifting. This article quotes a figure of 19.1 cents per pound for flying equipment and supplies in, and 14.9 cents per pound for flying equipment out of a nearby area under similar conditions. A breakdown of equipment weights to carry out the proposed work is as follows:

Drill - Boyles Mdl. BBSIA	1,140 lbs.
500 ft. rods AX @ 3 lbs. to foot	1,500 lbs.
Miscellaneous drill equipment	500 lbs.
Core barrels	100 lbs.
Pump	250 lbs.
Gas and oil - 5 ft. per gallon equals 1.6 lbs./ft.	3,840 lbs.
Camp equipment	1,000 lbs.
Food - 7 men for 90 days	2,000 lbs.
Total	10,330 lbs.

10,330 lbs. x 19.1¢/lb. = $1,973.03 SAY $2,000.00

Equipment to move off the job would include:

Drill	1,140 lbs.
Rods	1,500 lbs.
Miscellaneous equipment	500 lbs.
Core barrels	100 lbs.
Pump	250 lbs.
Samples	500 lbs.
Total	3,990 lbs.

3,990 lbs. x 14.9¢/lb. = $594.51 SAY $600.00

Incorporating the above modifications into the applicant's cost estimates, we arrive at:

1.	Engineering Asst. 4 months @ $500 including subsistence	$ 2,000.00
	Casual labor - 2 men, 4 months @ $425/mo. including subsistence	3,400.00
2.	2,400 feet of diamond drilling @ $6.25/ft. contracted	15,000.00
3.	Transportation of supplies and equipment to Sultan Basin	400.00
4.	Helicopter transportation	2,600.00
5.	Accounting and over-all supervision, 4 months @ $100/mo.	400.00
6.	Miscellaneous supplies	200.00
		$24,000.00

To the above costs should be added an allowance for 100 assays at $5 for copper, gold, silver; this would bring the total estimated cost of the project to $24,500.

RECOMMENDED PROGRAM

Exhibit "A"

Description of the Work

The work consists of drilling an aggregate of 2,400 feet of diamond drill hole (minimum size AX) to test the Calumet vein system. The approximate locations of the holes are shown on plate 2, attached hereto and made a part hereof.

All diamond drill core shall be stored in core boxes and shall be made available to the Government for inspection. The Government, if it so elects, may also require splits of core for its own use. All holes drilled shall be logged geologically and a detailed record of such logging shall be submitted to the Government with the Operator's monthly progress report and voucher. A summary of the logging record also shall be submitted as a part of the Operator's final engineering and geologic report.

The Operator shall select representative samples for chemical analysis from drill core and cuttings and shall have these samples analyzed.

The location, inclination, direction and extent of drilling, including the quantity and method of sampling and analysis, are subject to the approval of the Government.

Estimated Cost of the Project

Fixed Unit Costs

2,400 feet diamond drilling @ $10/ft.	$24,000.00
100 assays (composite copper, gold, silver @ $5/ea.)	500.00
Estimated total cost of project	$24,500.00
Government participation @ 50 percent	$12,250.00

Attachments 3

Distribution:
DMEA (4)
USBM (5)
USGS(SRO)
Docket
Kellum

Maps for the
Operator's Final Report
dated 2-14-58.

So. 157 Howard Street
Spokane 4, Washington

February 11, 1958

DEPARTMENT OF DMEA
RECEIVED FEB 17 1958
DATE | DETAILS | AMOUNT
2/18 | C | 220
2/20 | | 800
1/20 | | 500

Howe Sound Company
238 North 21st, West
Salt Lake City 16, Utah

Re: Docket No. DMEA-4687 (Copper)
Calumet Claims
Snohomish County, Washington
Contract No. Idm-E1111

Gentlemen:

Drilling under the subject contract was completed about the end of August 1957. In our letters to you of October 9, 1957 and January 9, 1958, you were informed and reminded that we are withholding the sum of $500 otherwise due you, pending receipt of your final engineering and geological report on the completed project. Such a report is a requirement of the contract under Article 5(c).

On November 27, 1957, we received from Mr. John Lamb one copy of his completed map of the Calumet area with a letter of transmittal dated November 1, 1957. While we appreciate having this map, it does not fulfill the requirements of a final report as defined in Article 5(c).

We would appreciate receiving this report at an early date so we can release the funds due you and close our books on this account.

Sincerely yours,

A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region I

cc: DMEA (2)
USBM (2)
USBM (AB)
Albee

EXTRA COPY DMEA RECEIVED JAN 2		
DATE	INITIALS	CODE
1/20	gjf	220
1/21	WHG	500

So. 157 Howard Street
Spokane 4, Washington

January 15, 1958

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Re: Field Team Final Reports for Docket Nos. DMEA-255, DMEA-2764, DMEA-3142, DMEA-3668 and DMEA-4687

Dear Mr. Selfridge:

This is in reply to your letter of January 8, 1958, regarding the status of certain final Field Team reports.

Docket No. DMEA	Operator	Status of final report
255	Whitedelf Mining Company	75 percent completed.
2764	Bunker Hill Company	90 percent completed.
3142	Nome Sound Company	40 percent completed.
3668	Harold Hogan and Ed Pohl	While the effective date of termination was December 1, 1956 this was not determined until June 15, 1957. We have been trying to get the Operator to dewater and muck out the winze for a final measurement and have finally given him until February 10, 1958 to do so.
4687	Nome Sound Company	30 percent completed.

Due to termination during last summer and fall, we now have about 26 final reports to get out. We are pushing as hard as we can to have as many as possible completed before next field season.

By Field Team, Region I

A. E. Weissenborn, Exec. Officer
U. S. Geological Survey

Wing G. Agnew, Member
U. S. Bureau of Mines

cc: USBM (2)

DMEA
JAN 13 1958

1/13 gb 220
1/13 800
1/14 Klug 500

1201 N. Division St.
Spokane 2, Washington

January 9, 1958

Howe Sound Company
238 North 21st, West
Salt Lake City 16, Utah

Re: Docket No. DMEA-4687 (copper)
Howe Sound Company
Calumet Claims
Snohomish County, Washington
Contract No. Idm-81111

Gentlemen:

Drilling under the subject contract was completed about the end of August 1957. In our letter to you of October 9, 1957 you were informed that we were withholding the sum of $500.00 from money otherwise due you, pending receipt of your final engineering and geological report on the completed project. Such a report is a requirement under Article 5(c) of the contract.

We would appreciate receiving this report as soon as possible so that we may close our books on this account.

By Field Team, Region I

A. E. Weissenborn, Exec. Officer
U. S. Geological Survey

Wing G. Agnew, Member
U. S. Bureau of Mines

cc: Mr. John Lamb, Geologist
Britannia Mining & Smelting Co., Ltd.
313 Royal Bank Bldg.
Vancouver 2, B. C.

DMEA (2)
USGS (2)
USBM (AD)
Turner

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
	Tyamel	500
1/8	GCS	130
		110
		100
		140
1/9	gb	220
	g	500

500

JAN 8 1958

Mr. A. E. Weissenborn
Executive Officer
DMEA Field Team, Region I
South 157 Howard Street
Spokane 4, Washington

Re: Field Team Final Reports for Docket Nos. DMEA-255, DMEA-2764, DMEA-3142, DMEA-3668 and DMEA-4687

Dear Mr. Weissenborn:

The following projects have been concluded for some time. Kindly let us have the final Field Team reports as soon as convenient.

Docket No. DMEA-255	Whitedelf Mining Company
Docket No. DMEA-2764	Bunker Hill Company
Docket No. DMEA-3142	Howe Sound Company
Docket No. DMEA-3668	Harold Hogan and Ed Pohl
Docket No. DMEA-4687	Howe Sound Company

Sincerely yours,

George C. Selfridge
(esf)
Chairman, Operating Committee
WRGriswold/er 1/6/58
Copy to: Dockets (5)
Admr R File
Op. Committee
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Chron.

APPROVED:

O. M. Bishop
(esf)
Member, Bureau of Mines

Thor H. Kiilsgaard
(esf)
Member, Geological Survey

8623

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DMEA
RECEIVED OCT 14 1957

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1201 N. Division St.
Spokane 2, Washington

October 9, 1957

Howe Sound Company
730 5th Avenue
New York 19, New York

Re: Docket No. DMEA-4687
Contract No. Idm-E1111
Monthly operating report for July
and August 1957

Gentlemen:

The subject monthly operating report has been processed and forwarded to the Disbursing Officer for payment.

We are withholding an amount of $500 pending receipt of Operator's final report and final audit by a representative of the Contract Administration and Audit Division of Defense Minerals Exploration Administration. This is the customary procedure and is applicable to all contracts.

By Field Team, Region I

A. E. Weissenborn, Executive Officer
U. S. Geological Survey

Thomas E. Howard, Acting Member
U. S. Bureau of Mines

cc: DMEA (2)
USGS (2)
AD

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
So. 157 Howard Street
Spokane 4, Washington

OFFICIAL FILE COPY DMEA RECEIVED AUG 22 1957		
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August 19, 1957

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Re: Docket No. DMEA-~~4687 (Copper)~~
Howe Sound Company
Calument Claims
Snohomish County, Washington
Contract No. Idm-E1111

Dear Mr. Selfridge:

Enclosed are the Government and Audit copies of the above-referenced contract.

By copy of this letter, other copies of the contract are being distributed.

Sincerely yours,

A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region I

Enclosures

cc: Finance Office w/copy of contract
USBM(2)
Albee

HOWE SOUND COMPANY
(A CORPORATION)

730 FIFTH AVENUE

NEW YORK 19, N. Y.

W. H. CLARKE
VICE PRESIDENT

GENERAL FILE COPY
DMEA
RECEIVED AUG 22 1957

DATE	INITIALS	CODE

OFFICIAL FILE COPY DMEA RECEIVED AUG 6 1957		
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So. 157 Howard Street
Spokane 4, Washington

August 2, 1957

Mr. John Lamb, Geologist
Britannia Mining and Smelting Co., Ltd.
c/o R. T. Curtiss
460 W. Columbia Street
Monroe, Washington

Re: Docket No. DMEA-4687 (Copper)
Howe Sound Company
Calumet Claims
Snohomish County, Washington

Dear Mr. Lamb:

Enclosed are the original and four copies of a proposed short-form contract for the cited project, signed by the Administrator, for the Government. It consists of the form (MF-200A), Annex I (one page), Exhibit A (two pages), Consent to Lien and Subordination Agreement (MF-205), and two maps.

Article 1(a) of the contract provides that work is to begin on or before August 22, 1957 and shall be completed within 6 months from the date of the contract, July 22, 1957, or by February 22, 1957. Please inform us when you expect to commence work.

Your attention is called particularly to Article 6 of the contract which deals with repayment by the operator from royalty on production. Any production from the land described in the contract is subject to the royalty provisions of the contract whether or not the ore was known to exist prior to the date of the contract or it is discovered or developed by the work under the contract. This applies to all production during the period in which the Government may certify or, if the project is certified, to all production during the repayment period specified in the contract.

If the contract meets with your approval please sign all copies, retain the one marked for the Operator, and return the others to this office. If it does not meet with your approval, please return all copies of the contract, unsigned, with your comments.

Sincerely yours,

A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region I

Enclosures

cc: DMEA (2) USBM (2) USBM (AD) Albee

OFFICIAL FILE COPY
DMEA
RECEIVED JUL 30 1957

DATE	INITIALS	CODE
7/29	P.K.	220
7/29	Klug.	500

So. 157 Howard Street
Spokane 4, Washington

July 25, 1957

Mr. John Lamb, Geologist
Britannia Mining and Smelting Co., Ltd.
c/o R. T. Curtiss
460 W. Columbia Street
Monroe, Washington

Re: Docket No. DMEA-4687 (Copper)
Howe Sound Company
Calumet Claims
Snohomish County, Washington

Dear Mr. Lamb:

We received today a proposed contract from our Washington office to explore the Calumet claims. However, before we can send the contract to you for signature, a Consent to Lien and Subordination Agreement must be signed by the owners. Therefore, enclosed are the original and five copies of Form MF-205 to be dated and signed by Robert T. Curtiss and by Sultan Basin Mining Company. The original and four copies are to be returned to this office. The owners may retain the other copy.

Just as soon as we receive these signed forms, the contract will be mailed to you to be forwarded to your New York office for signature.

Incidentally the contract is dated July 22, 1957, and Article 1 (a) states that work shall begin on or before "one month after date of contract."

Sincerely yours,

A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region I

Enclosures

cc: DMEA (2)
USBM (2)
USBM (AD)
Albee

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
7/17	Klugescheid	500
	Lorimer	500
7-17	Chambers	800
7-19	Martin	130
7/22	Jenson	110
22	Mattenson	104
7/23	P.K.	221
		500

500

B

JUL 22 1957

Mr. A. E. Weissenborn
Executive Officer
DMEA Field Team, Region I
South 157 Howard Street
Spokane 4, Washington

Re: Docket No. DMEA-4687 (Copper) 7/19 Bishop (130)
Howe Sound Company
Calumet Claims
Snohomish County, Washington

Dear Mr. Weissenborn:

Enclosed are the original and four copies of a proposed short-form contract for the cited project, signed by the Administrator, Defense Minerals Exploration Administration. It consists of the form (MF-200A), Annex I (one page), Exhibit A (two pages), Consent to Lien and Subordination Agreement (MF-205), and two maps. Also are enclosed two extra copies of Annex I, Exhibit A, and the maps for the use of the Field Team.

The Consent to Lien and Subordination Agreement must be signed by the owners before submitting the contract to the Applicant for approval and signature.

If the contract meets with your approval, kindly present it to the Applicant for approval and signature and, when completed, distribute the copies in the usual manner. In the event that the contract is not satisfactory, and cannot be amended with your delegated authority, return all copies with your recommendations concerning any modification.

Sincerely yours,

W. S. Martin
ACTING Chairman, Operating Committee (JHB)

Enclosures
APPROVED:

O. M. Bishop (JHB)
Member, Bureau of Mines

Thor H. Kiilsgaard (JHB)
Member, Geological Survey

WPKlugescheid/er 7/17/57
Copy to: Docket
Admr R File
Op. Committee
Mr. McMahon, USBM
Mr. Kiilsgaard, USGS
Chron.

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7/15	Klugescheid	500
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7/15	Hopes	130
7/15	Kilsgaard	130
7/15	Johnson	110
"	Cartledge	110
7/15	[illegible]	500
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WRGriswold/er ~~Rm. 1442, Ext. 3669~~

DMEA-Division of Base Metals

14X4401(01) Revolving Fund,
Defense Production Act, Interior,
(Transfer to Office of Secy.)

TELETYPE

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Date:

To: Mr. A. E. Weissenborn, Executive Officer, DMEA Field Team, Region I, Spokane, Washington

Reurtt July 12, Docket DMEA-4687, Howe Sound Company, Calumet Claims. Draft of contract being prepared by Legal Division subject to further review. Decision expected within 12 days.

W. S. Martin

ACTING Chairman, Operating Committee

WPKlugescheid/er 7/15/57
Copy to: Docket
Admr R File
Op. Committee
Mr. McMahon, USBM
Mr. Kiilsgaard, USGS
Confirmation Copy
Chron.

8623

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DMEA
RECEIVED JUL 12 1957

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WASH - COMMUNICATIONS

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SPOKANE WASH 7-12-57 0315U

GEORGE C. TELFRIDGE

CHAIRMAN OPERATING COMMITTEE

DMEA WASHN., DC

RE DOCKET DMEA 4687, HOWE SOUND COMPANY, CALUMET CLAIMS. APPLICANT REQUESTING STATUS OF APPLICATION. PLEASE ADVISE.

A. E. WEISSENGORN

DMEA 4687

VA 0316U

OFFICIAL FILE COPY

Date	Surname	Code
7/15	Klugescheid	500
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WPKlugesdhied/er Rm 4444, Ext. 2690

TELETYPE

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

DMEA- Division of Base Metals

14X4401(01) Revolving Fund,
Defense Production Act, Interior
(Transfer to Office of Secy.)

Date:

To: Mr. A. E. Weissenborn, Executive Officer, DMEA Field Team,
Region I, Spokane, Washington

Reurtt July 12, Docket DMEA-4667, Howe Sound Company,

Calumet Claims. Draft Proposed contract being prepared by legal division
subject to ~~subsequent approval of operating committee.~~ further review. Decission expected within 12 days

Called Elna - Shrimel
typing up final
draft
& Cont.
Will try to get it
to me by 7/17/57 -
for Com. by Friday.

Chairman, Operating Committee

WRKlugescheid/er 7/15/57
Copy to: Docket
Admr R File
Op. Committee
Mr. McMahon, USBM
Mr. Kiilsgaard, USGS
Confirmation Copy
Chron.

8623

COPY COPY

c/o R. T. Curtiss
460 W. Columbia St.
Monroe, Wash.
July 9/57

OFFICIAL-COPY

~~EXTRA COPY~~
DMEA
RECEIVED JUL 18 1957

DATE	INITIALS	CODE
7/18	C	220
7/18	Mag.	500

A. E. Weissenborn
Executive Officer - U.S.G.S.
D.M.E.A.
So. 157 Howard St.
Spokane 4

Dear Mr. Weissenborn -

Re Docket No. DMEA ~~4220~~ 4687 (Copper).

As we will soon be ready to start on the above project we were wondering whether our application for assistance had been passed by Washington. At the time I spoke to you in Spokane in May you said it should be processed soon.

I am residing in the Monroe area just now doing some organizational work in connection with the job and as you will note above I am using Bob Curtiss' home as my mailing address.

Yours truly

/s/ John Lamb
Geologist for
B. M. & S. Co.

DMEA (2)

RECEIVED
JUL 11 1957
U. S. G. S.
SPOKANE, WASH

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
		50

500

July 5, 1957

Memorandum

To: Associate Solicitor, Division of Mineral Resources

From: Director, Division of Base Metals

Subject: Preparation of Contract for Docket No. DMEA-4687, Howe Sound Company, Calumet Claims, Snohomish County, Washington, Copper.

Will you please prepare a contract for the cited application. A draft of the contract, Exhibit "A", and Annex I are attached to this memorandum. Please prepare Consents to Lien and Subordination Agreements for Robert T. Curtiss and Sultan Basin Mining Company. The necessary maps are being prepared and will be available in a few days.

W. R. Griswold

W. R. Griswold

WPKlugescheid/er
Copy to: Docket
Chron

8623

July 1, 1957.

Memorandum for the Files

From: W. P. Klugescheid

Subject: Changes made in Estimate of Cost submitted by Examiners in on site report, Howe Sound Company, Calumet Claims, Docket No. DMEA-4687, Snohomish County, Washington (Copper).

All costs were used as submitted by the Examiners except the costs for food and supplies.

$1,900/630 gives a costs of $3.00 per day per man. This is considered to be excessive as neither freight nor cost of cook is included. We are assuming that $2.00/ day would be sufficient. We are allowing the [redacted] full cost of the food for their three men. The four drillers will pay $1.50 per day as stipulated in the contract of Lynch Bros.

Assume 7 men 90 days @ $2.00/day ::	$1,260.00		
Assume 4 men credit @ $1.50/day ::	540.00		
Net cost of food to Applicant		$ 720.00	say $700.00
Total cost of other items taken from report			$22,100.00
Cost of Food			700.00
Total Cost of all but two items			$22,800.00

22,800/2,400 @@ $9.50/ foot of drilling.

W.P. Klugescheid

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
So. 157 Howard Street
Spokane 4, Washington

OFFICIAL FILE COPY
DMEA
RECEIVED JUN 10 1957

DATE	INITIALS	CODE
6-10	C	220
~~6-10~~	~~WPK~~	~~500~~

June 6, 1957

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Re: Docket No. DMEA-4687 (Copper)
Howe Sound Company
Calumet Claims
Snohomish County, Washington

Dear Mr. Selfridge:

In accordance with your teletype of May 21, 1957, enclosed are the original and two copies of bids for the drilling that is proposed by Howe Sound Company on the Calumet claims.

Also enclosed are copies of a letter received from John Lamb, Geologist for Howe Sound Company, giving the number and costs of core boxes that will be required.

Sincerely yours,

D. R. MacLaren

D. R. MacLaren
for: A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region I, NW District

Enclosures

cc: USBM (2)
Kellum

OFFICIAL FILE COPY
D M E A
RECEIVED JUN 7 1957

DATE	INITIALS	CODE
6-10	C	220
6/10	WPK	500

So. 157 Howard Street
Spokane 4, Washington

June 3, 1957

Mr. John Lamb, Geologist
Britannia Mining & Smelting Co., Ltd.
Exploration Division
313 Royal Bank Building
Vancouver 2, B. C.
Canada

Re: Docket No. DMEA-4687 (Copper)
Howe Sound Company
Calumet Claims
Snohomish County, Washington

Dear Mr. Lamb:

Will you please send to us copies of bids from three independent drilling contractors for the proposed 2,400 feet of drilling. If no driller will bid on the job, a statement from you to that effect, giving the names of the drillers from whom bids were requested, will suffice.

Also will you please advise us of the number of core boxes, and the cost of each, that will be needed to store the core.

Your application is being processed in Washington and we have just received a teletype requesting this information.

Sincerely yours,

A. E. Weissenborn
Executive Officer, DMEA
Field Team Region I, NW Dist.

cc: DMEA (2)
USBM (2)
Kellum

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

OFFICIAL FILE COPY
DMEA
RECEIVED JUN 5 1957

DATE	INITIALS	CODE
6/5	C	220
~~6/6~~	~~Klug~~	~~500~~
June 5, 1957		

Memorandum

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

From: Commodity Specialist, Branch of Base Metals

Subject: Review of Application Report, Docket No. DMEA 4687 (copper), Howe Sound Company, Calumet Claims, Snohomish County, Washington

The examiners have recommended that the diamond drilling program, proposed by the applicant, consisting of 12 holes totalling 2400 feet be approved.

I concur with that recommendation.

A. D. McMahon

A. D. McMahon

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

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
5/31	Klugerchied	500
5/31	[illegible]	500
5/31	Selfridge	130
		~~150~~
"	Mittendorf	100
5/31	C	225
6/3		500

MAY 31 1957

WRGriswold/bjl, Rm. 4442, Ext. 3669

Base Metals Div., DMEA

14X4401(01)Revolving Fund, Defense Production Act, Interior, (Transfer to Office of Secretary)

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

T E L E T Y P E

Date:

To: A. E. Weissenborn, Executive Officer, DMEA Field Team, Region I, Northwest District, Spokane, Washington

Re Docket DMEA-4687, Howe Sound Company. No drilling bids have been received from any diamond drilling contractors. Three should be obtained if possible. Give number of core boxes required and cost of each.

George C. Selfridge

Chairman, Operating Committee

Copy to: Docket
Admr. R. File
Op. Committee
Mr. McMahon, USBM
Mr. Kiilsgaard, USGS
Chron.
Confirmation Copy

8623

DOCKET No. DMEA 4687

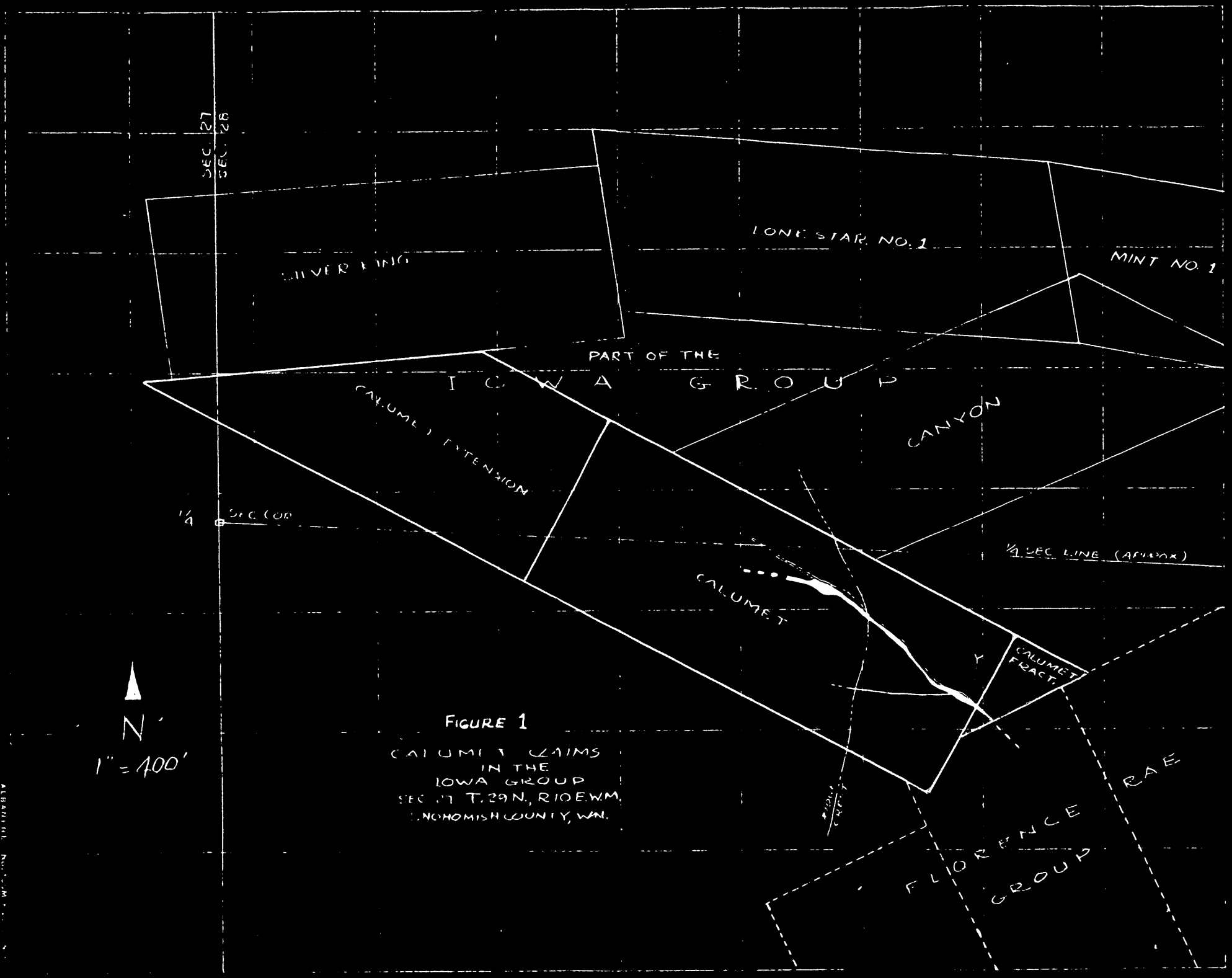


FIGURE 1

CALUMET CLAIMS
IN THE
IOWA GROUP
SEC 27 T. 29 N., R 10 E. W.M.
SNOHOMISH COUNTY, WAS.

DOCKET NO. DMEA 4687

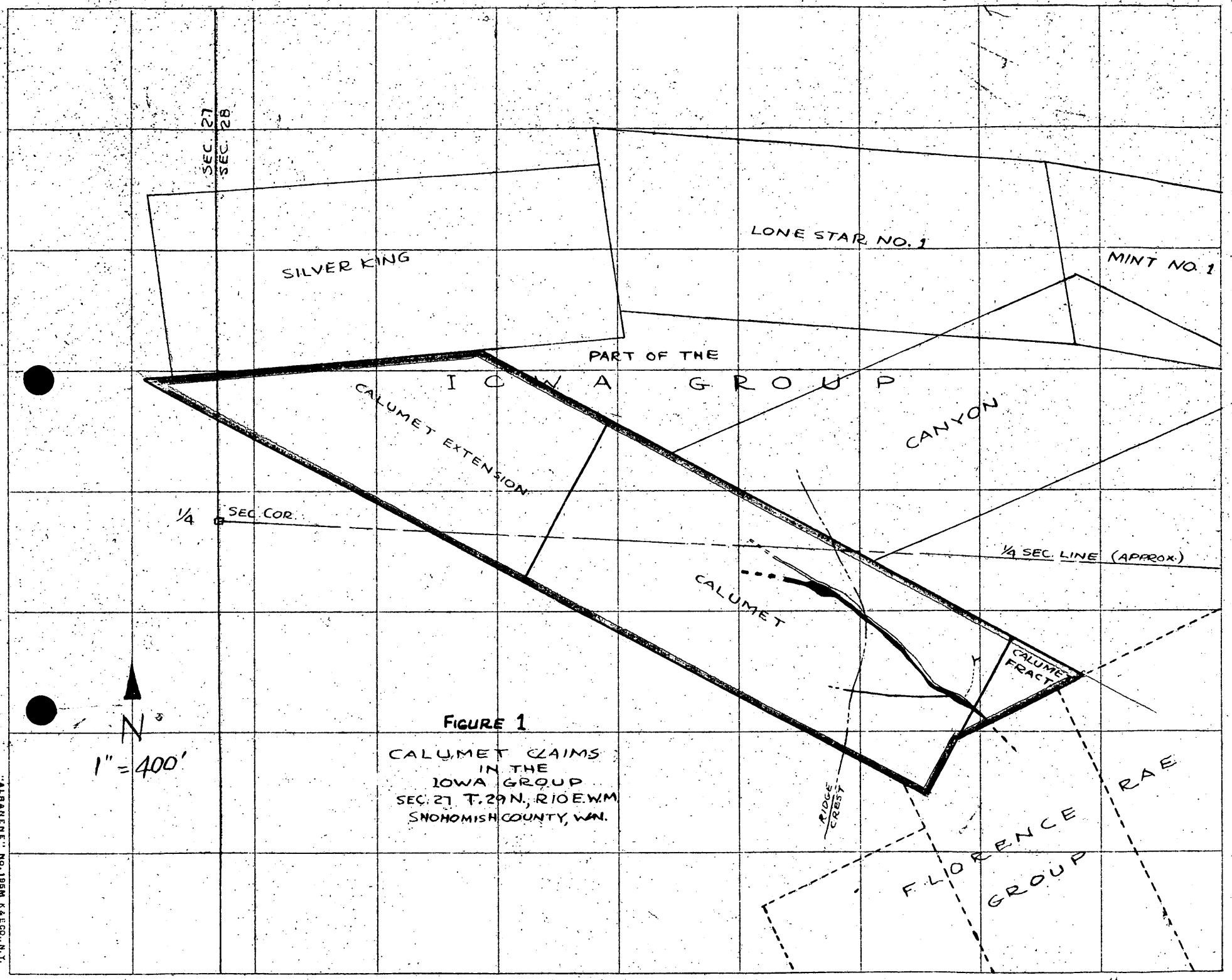


FIGURE 1

CALUMET CLAIMS
IN THE
IOWA GROUP
SEC. 27 T. 29 N., R 10 E. W.M.
SNOHOMISH COUNTY, WAN.

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

Full

Water 8.33#/gal. Gasoline 0.629 to 0.667 Sp. Gr.
8.33 x 0.629 = 5.24#/Gal. = 1.04#/ft.
8.33 x 0.667 = 5.56#/Gal. = 1.11#/ft.

(A.)

Engineering Asst.

4 months @ $425.00/mo. $1,700.00

Casual Labor

1 man - 4 months @ $350.00 1,400.00

Cook - 3 months @ $400.00 1,200.00

(2.) 2,400 feet, AX drilling @ $6.25/ft. (Includes a safety factor) 15,000.00

(3) Transportation of supplies + Equipment to Sutton Basin (Car) 100.00

(4.) Helicopter Transportation. 1,200.00

(5.) Food for men over and above charged. 700.00

(6) Supplies + Camping Equipment + shelters 1,500.00

2400' drilling @ $9.50/ft $22,800.00

100 samples for Cu, Au, Ag. @ $4.00 including freight etc. 400.00

120 core boxes @ $3.00/each (Wooden) 360.00

$23,560.00

Assume 7 men 3 mos @ 60.00/mo. food = $1260.00
Assume 4 men credit @ $1.50/day for 90 days = -540.00

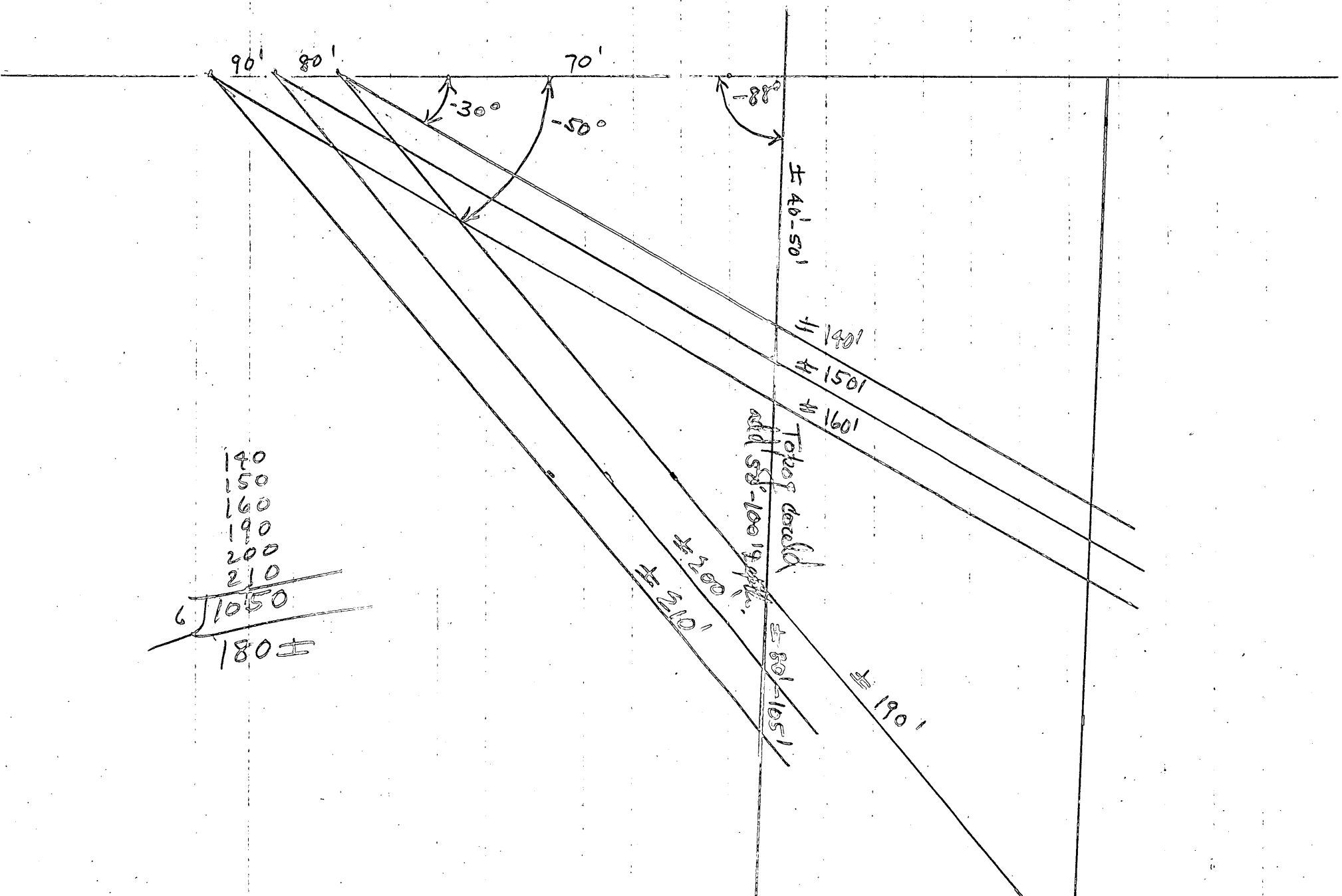
$720.00

say $700.00 for food and odd supplies.

210
3
630

630 | 1900 | $3.01/day which is excessive

Allow $2.00/day, = $60.00/mo./man.


90'
80'
70'
-30°
-50°
-88°
± 40'-50'
± 140'
± 150'
± 160'
Total decrease
add 58'-100 ft.
± 200'
± 210'
± 80'-105'
± 190'
140
150
160
190
200
210
6) 1050
180±

2100
300

14

$14 \overline{)175}$
125

$\boxed{350}$
175

$14 \overline{)2400}$
170

$\begin{array}{r|l} 2400 & 170 \\ 0 & 14 \end{array}$

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

March 22, 1957

Howe Sound Company
730 Fifth Avenue
New York, New York

Subject: DMEA-4687
Re: Exploration Assistance
Calumet Vein

Gentlemen:

Your application for exploration assistance, dated January 15, 1957 submitted to our office at Spokane, Washington has been assigned Docket Number DMEA-4687 and referred to the Base Metals Division in the Washington office. Kindly identify all future correspondence relating to your application by this Docket Number.

Sincerely yours,

Allen S. Dakan, Chief
Operations Control and
Statistics Division

Copy to: Region I N. M.

3571

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
3/19	Selfridge	120
"	Johnson	110
"	Mittendorf	100
3/20	C	225

MAR 19 1957

Department of the Interior
Defense Minerals Exploration
Administration
14X1401(01) Revolving Fund,
Defense Production Act,
Interior, (Transfer to Office of
Secretary)

TELETYPE
XXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXX

Mr. A. E. Weissenborn, Executive Officer
DMEA Field Team, Region I - NW District
South 157 Howard Street
Spokane 4, Washington

RE DOCKET 4220, ROBERT TRUMAN CURTISS, HOWE SOUND LETTER ACCEPTABLE IN LIEU OF FORMAL APPLICATION IN THIS PARTICULAR INSTANCE. USUALLY WE REQUIRE SUBMISSION OF A NEW 103 FORM. NEW DOCKET NUMBER WILL BE 4687.

George C. Selfridge

GEORGE C. SELFRIDGE
CHAIRMAN, OPERATING COMMITTEE

GCSelfridge/esf
3/19/57
Copy to: Docket
Code 500
Admr. R. File
Mr. Selfridge

8623

xxxxxxxxxxxxxxxxxx
So. 157 Howard Street
Spokane 4, Washington

March 1, 1957

OFFICIAL FILE COPY
D M E A
RECEIVED MAR 4 1957

DATE	INITIALS	CO.
2/13	C	220
3/13	WPK	500
		225

Mr. John Lamb, Geologist
Britannia Mining and Smelting Co., Ltd.
Exploration Division
313 Royal Bank Building
Vancouver 2, B. C.

Re: Docket No. DMEA-4220 (Copper)
Calumet Claims
Snohomish County, Washington

Dear Mr. Lamb:

Thank you for your letter of February 20, 1957, enclosing additional information on the Calumet claims. We will forward this to Washington in support of your application. I am returning the original letter from H. B. Smith to Mr. Curtiss dated December 31, 1951, and the "dittoed" copy of a letter from P. C. Stoess to George Startup dated December 26, 1934. We have made copies for our needs.

We had a very enjoyable visit with Mr. Killin this morning.

Sincerely yours,

A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region I, NW District

Enclosures

cc: DMEA (2)
USBM (2)
Kellum

xxxxxxxxxxxxxxxxxx
So. 157 Howard Street
Spokane 4, Washington

March 1, 1957

RECEIVED		
DATE	TIME	CODE

Mr. John Lamb, Geologist
Britannia Mining and Smelting Co., Ltd.
Exploration Division
313 Royal Bank Building
Vancouver 2, B. C.

Re: Docket No. DMEA-4220 (Copper)
Calumet Claims
Snohomish County, Washington

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We had a very enjoyable visit with Mr. Killin this morning.

Sincerely yours,

A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region I, NW District

Enclosures

cc: DMEA (2)
USBM (2)
Kellum

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D. C.~~
So. 157 Howard Street
Spokane 4, Washington

FILE COPY
DMEA
RECEIVED MAR 7 1957

DATE	INITIALS	CODE
3-7	C	220
3/7	WPK	500

March 1, 1957

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Re: Docket No. DMEA-4220 (Copper)
(Formerly Robert Truman Curtiss withdrawn)
Howe Sound Company
Calumet Claims
Snohomish County, Washington

Dear Mr. Selfridge:

Enclosed are three copies of a letter from Mr. John Lamb, geologist for the Britannia Mining and Smelting Company in reply to our letter of February 8, 1957.

No further field investigation appears necessary as we now have enough information to appraise the merits of the application and will prepare a report.

Mr. Killin, geologist in charge of the Vancouver office of the Montana Mining and Smelting Company called on the Executive Officer this morning and discussed the proposal. He stated that Britannia feels that there is a good chance of developing a fair-sized vein deposit of medium- to high-grade ore.

By Field Team, Region I, NW Dist.

A. E. Weissenborn

A. E. Weissenborn, Exec. Officer
U. S. Geological Survey

Wing G. Agnew

Wing G. Agnew, Member
U. S. Bureau of Mines

Enclosures

cc: USBM (2)
Kellum

BRITANNIA MINING AND SMELTING CO., LIMITED

HOWE SOUND COMPANY
NEW YORK CITY

SUBSIDIARIES:

BRITANNIA MINING AND SMELTING CO., LIMITED

☐ HEAD OFFICE
BRITANNIA BEACH, B.C.

☐ (BRITANNIA DIVISION)
BRITANNIA BEACH, B.C.

☐ (SNOW LAKE DIVISION)
SNOW LAKE, MANITOBA

☐ (EXPLORATION DIVISION)
100 ROYAL BANK BUILDING
TORONTO 1, ONTARIO

☐ (EXPLORATION DIVISION)
510 ROYAL BANK BUILDING
VANCOUVER 2, B.C.

HOWE SOUND COMPANY
(ENGLAN DIVISION)
HOLDEN, WASH.

CALUMET MINING COMPANY
COBALT, IDAHO

REFINERY
GARFIELD, UTAH

EL POTOSI MINING COMPANY
CHIHUAHUA, MEXICO

CIA INDUSTRIAL "EL POTOSI" S.A.
CHIHUAHUA, MEXICO

February 20th, 1957.

MAR 7 1957
INITIALS | CODE

A. E. Weissenborn,
Executive Officer, U.S.G.S.,
D.M.E.A.,
Sc. 157 Howard St.,
Spokane 4, Washington.

Dear Sir: Re: Project No [illegible] (copper)

In reply to your letter of February 6th I am enclosing a report written by me and entitled "An Appraisal of the Calumet Vein Sultan Basin - Washington February 1957".

Also enclosed is a letter from H.B. Smith to R.T. Curtiss (Dec 1951) regarding the Calumet and another letter from P.C. Stoess to G. Startup about the same matter.

I realise that our case was not too well represented at first and sincerely hope that these enclosures will help strengthen it. Mr. A. F. Killin, geologist in charge of this office will be in Spokane about March 4th and intends to call and discuss the matter with you.

Thanking you for your advice and interest on our behalf I remain,

Yours truly,

John Lamb,
Geologist.

JL/g
cc. V.H.C.
F.E.

encl.

AN APPRAISAL OF THE CALUMET VEIN

Sultan Basin - Washington

February 1957

FEB 2 1957
ENGINEERING DIVISION

INTRODUCTION

The Calumet vein is one of several mineralized shears outcropping on the property of Sultan Basin Mining Co., Snohomish County, Washington. Optioned recently by Howe Sound Company the vein will be explored by diamond drilling.

LOCATION

Sultan Basin, covering the area drained by the head waters of the north fork of Sultan River, lies in the rugged western ranges of the Cascade Mountains approximately 33 air miles due east of Everett.

Sultan Basin mining district is embraced by a larger mineralized area, drained in the north by Sauk and Stillaguamish River and in the south by Skykomish River. The other mining districts in this are known as Monte Cristo and Index districts. Elevations range from 1300 to over 6000 feet, stream gradients are steep and many precipitous slopes divide the main drainage basins.

MONTE-CRISTO-SULTAN-INDEX AREA

Discovered late in the nineteenth century the area is well known for its numerous mineralized outcroppings. Copper is the main economic mineral with accompanying low silver and gold values and minor lead and zinc. Most of the showings are in shear and fissure zones which have several main trends, the most important being a system of North-Northwest shears with steep dips.

Overall production of the area has been small. Except for the Sunset Mine near Index and one or two properties at Monte Cristo most of the others

RECEIVED
FEB 25 1957
U.S.G.S.
SPOKANE, WASH.

have barely passed the stage of initial development. By to-day's standards the grade of ore produced was high (3 - 5% Cu) but at that time it was marginal.

From a mining standpoint the history of the area has not been bright but it should not be allowed to overshadow the favorable features of any one prospect.

REGIONAL GEOLOGY

The writer knows of no report dealing with the geology of the entire area but the individual districts have been reported upon by various authors. A compilation of their work gives a reasonable idea of the overall geology.

Highly contorted, strongly folded late Paleozoic schist, quartzite and minor volcanics outcrop over large areas. Apparently intrusive into these rocks is much granodiorite which has been unroofed by erosion. A thick series of conglomerate, sandstone and other coarse clastic rocks overlies the granodiorite and although not highly metamorphosed, it has been strongly folded. A few serpentinized peridotite bodies are found in the district, apparently intruding the older sedimentary rocks. A representative body of this type is centered around Red Mountain immediately south of the Calumet Vein.

Structural details are lacking but the writer's observations indicate that the structure is much more complex than that described in the early reports. Except for observations on the main trends of the ore-bearing shears and fissures there is little information on structural control of ore.

CALUMET VEIN

The surface expression of this vein is a strong braided shear zone exposed for about 900 feet. The outcrops are situated in a region of very rugged to-

pography at approximately 5000 ft. in elevation. The shear trends N 55 W and dips from vertical to steeply south, while the width varies from 9 to 30 feet.

Good chalcopyrite mineralization is found at intervals along the shear in vein-like stringers. Occasionally mineralization spreads across the width of the shear but more often it is confined to narrower bands. Probably the ore bodies will form lens-like shoots at favorable structural locations. Leaching and oxidation have produced a strong gossan with some thick white incrustations of sulphates. It is felt that this feature is responsible for the erratic assay values of surface samples.

The many samples taken by different engineers indicate that commercial grade ore may be found in the Calumet vein. They also indicate that gold and silver values could add appreciably to the value of the ore. Following is a list of assays from samples taken by various people.

	Width(ft)	Cu(%)	Au(oz)	Ag(oz)	Zn(%)
Smith	8.1	1.5	0.03	2.58	nil
	6.0	2.34	tr	0.92	1.51
Lamb	5.0	0.83	0.005	2.92	tr
	3.0	tr	tr	tr	tr
Carithers	-	2.0	0.39	1.21	-
	-	1.50	0.18	1.60	-
	1.5	3.02	0.01	2.25	0.10
	2.0	1.80	0.01	1.25	-
	1.5	4.80	0.03	4.10	3.40
	-	0.48	1.03	5.33	-
	-	1.04	tr	1.20	-
	5.0	1.04	.30	0.56	-

	Width(ft)	Cu(%)	Au(oz)	Ag(oz)	Zn(%)
Stoess	7.0	1.8	tr	0.94	-
	6.0	0.29	tr	0.68	-
	3.0	0.93	tr	0.46	-
	6.0	0.30	0.02	1.62	-
	2.0	0.84	2.02	21.50	-
	10.0	0.34	tr	0.90	-
	13.0	0.94	0.02	1.30	-

The country rock around the Calumet Vein is a highly contorted gray schist, grading into a large mass of serpentine at the west end. Numerous prongs and irregular bodies of granodiorite cut the older rocks and are probably related to the large stock, outcropping in the Index district.

CONCLUSION

The Calumet vein is in a strong shear zone following one of the main shear trends in a known mineralized area. The surface showings contain erratic but appreciable values in copper, silver and gold. There is a fair chance that mineralization will extend to considerable depth, probably in the form of lens-like shoots of ore. For these reasons the writer feels that a diamond drilling program is warranted to further test the possibilities of this deposit.

John Lamb

John Lamb,
Geologist.

REFERENCES

1. Geology and Ore Deposits of Sultan Basin, Snohomish County, Washington by Ward Carithers and A.K. Guard
Bulletin 36 - Division of Mines and Geology Olympia.

2. Personal Communication with H.B. Smith, Geologist - Howe Sound Company.

3. Letters by P.C. Stoess - Engineer.

4. Geology and Ore Deposits of Index Mining District, C.E. Weaver - Bulletin No. 7 - Washington Geological Survey.

5. Ore Deposits of Monte Cristo - Washington, by J.E. Spurr
22nd Ann. Rept. - U.S.G.S. 1900.

HOWE SOUND COMPANY
730 FIFTH AVENUE
NEW YORK 19, N. Y.

LOCATION OF MINES:
BRITANNIA BEACH, B. C.
SNOW LAKE, MANITOBA
CHIHUAHUA, MEXICO
HOLDEN, WASHINGTON

EXPLORATION DEPARTMENT
P. O. BOX 1001
SALT LAKE CITY 10, UTAH

December 31, 195[illegible]

Mr. Robert T. Curtiss
Monroe
Washington

re: Sunrise & Calumet Groups
Sultan Basin District
near Sultan
Snohomish Co., Washington

DMEA (3)

Dear Bob:

Recently, Mr. C. V. Brennan reminded me that I have not sent you the data about your Sunrise and Calumet groups of tclaims, obtained at the time of our trip to the properties. I regret that I have overlooked this. The following assay returns were obtained from the Calumet group:

Location	Width ft.	% Cu	% Pb	% Zn	Oz. per ton Au	Oz. per ton Ag
Cut on south slope	1.0	0.08			tr	nil
Same cut	1.8	2.94			tr	3.32
" "	5.3	1.95			0.28	2.80
Cut 400' west of [illegible]	[illegible]	2.34	[illegible]	1.51	tr	[illegible]

A sample from the Sunrise property, representing four inches of massive sulphides, assayed 13.3% Cu, 0.24 oz. of Au per ton, and 4.64 oz. of Ag per ton.

The properties have some interesting features, but the Howe Sound Company is not yet ready to undertake an exploration campaign of the type needed for them.

With best wishes for a Happy and Prosperous New Year for you and your family.

Sincerely

W. B. Smith

cc: [illegible]
[illegible]
[illegible]

RECEIVED
FEB 25 1957
U.S.
SPOKANE, WASH.

COPY COPY

654 Colman Block
Seattle, Washington
Dec. 26th 1934

Mr. Geo. Startup
Sultan, Wn.

My dear Mr. Startup:

In reference to the assay results I got from samples taken on the Calumet when I was in Sultan Basin in Aug-Sept., I have at last been able to run the matter down.

I find that Mr. Ott who made assays was working under considerable disadvantage, and that he had no place to store samples and a huge lot (was) being piled up on him so he was obliged to clear all pulps out about as soon as he got assays made.

The returns I got were not checking up with those you had had formerly, at which, however, I am not surprised. Ott is quite competent and I have no reason to question his assays at all.

However, that the Calumet samples I got varied much from those you have had otherwise does not alter the situation on the property a bit. The Calumet samples I got showed as follows:

C1.- taken from open cut about 500 feet in the West or S. side of the summit, - the second cut from the top. - This cut showed copper ore across about 12 to 15 feet the cut being made diagonally across the vein and representing probably about 12' in actual width.

First sample taken represented some 7 feet showing trace gold, 0.94 oz. silver and 1.8% copper.

C2.- taken next to this on the Hanging wall or S. side, across about 6 feet showed trace gold, 0.68 oz. silver, and 0.29% copper.

C3.- taken across about 3 feet next to C2 showed no gold, 0.46 oz. silver, and 0.93% copper.

C4.- taken from small cut about 150 West or South side of summit across 6 feet of oxidized leached quartz and ore filling, showed gold 0.02 oz., silver 1.62 oz., and 0.3% copper.

C5.- same place as C4 but taken from about 2 feet of heavily stained soft iron filled quartz - 2.02 oz. gold, 21.50 oz. silver, and 0.84% copper.

C6.- open cut about half way between summit and open cut on East or North side of summit, some 10 feet across showed gold nothing, silver 0.90 oz., copper 0.34%.

C7.- open cut about 400 feet below summit on East or North side of latter, across some 13 to 14 feet showed gold 0.02 oz., silver 1.3 oz., copper 0.94%.

While these showings varied much from the results of samples taken by Bob Curtiss and Camerson, such results cannot be regarded as final. None of the singles samplings are. The more sampling I do personally the more I am convinced of this condition. Samplings are only an indication, especially in reference to gold and silver, and on leached or altered surface ores, this applies to copper also.

The whole situation, as I see it, means you have a vein carrying gold-silver-copper ores, some of which are unusually rich and some low grade, but the general trend of all samples assayed indicates that you have something worth going after and that with further opening up, tests and development the whole will make a very substantial showing which can be word very profitably.

In the case of this Calumet group, the ore body can be exposed very readily with relatively little work and rapidly put in condition to operate.

I would not worry much over one of assays being lower than might be expected as against this you just not forget the sample of extra high grade showing 2.02 oz. gold and some 2.02 oz. silver which at present price would mean total of over $84 per ton gold-silver alone. This would sweeten up a lot of very low grade ores. Variations of this kind in assays must be expected and to some extent discounted.

Sincerely,

/s/ P. C. Stoess

R E C E I V E D

Feb. 25, 1957

USGS
Spokane, Wash.

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DMEA
RECEIVED FEB 11 1957

DATE	INITIALS	CODE
2/12	G	220
2/12	[illegible]	500

So. 157 Howard Street
Spokane 4, Washington

February 8, 1957

Mr. John Lamb, Geologist
Britannia Mining and Smelting Co., Ltd.
Exploration Division
313 Royal Bank Building
Vancouver 2, B. C.

Re: Docket No. DMEA-4220 (Copper)
Robert Truman Curtiss
Calumet Claims
Snohomish County, Washington

Dear Mr. Lamb:

This will acknowledge your letter of February 4, 1957, regarding the Calumet property. The information in Mr. Curtiss' application was very scant and the maps not very informative. The very brief excerpts that you give in your letter of January 15, 1957, plus the one assay you cite, do not add very much to what we already know.

The very fact that two experienced geologists, such as yourself and Mr. Smith, regard the property as worth further work will be given considerable weight. Nevertheless, we do have to appraise each application and this appraisal must of necessity be based on fact. I am sure you will appreciate that the more facts an applicant presents, the quicker a satisfactory decision can be reached. We realize that because of the rugged terrain at the Calumet property, there is a limited amount of detailed information that can be obtained at a reasonable expenditure of time and effort, but we do feel that more information than we have at present would be very desirable. A more summary of why you as an experienced geologist believe that this property has a better than average chance to make a mine would be a great help and almost certainly would permit faster action on your proposal. Any additional assay data collected during your examination would also be helpful, as would any other pertinent information that you can give. We do not feel that with the present meagre data available to us, we are in a position to present a strong case one way or the other.

By Field Team, Region I, NW District

A. E. Weissenborn, Exec. Officer
U. S. Geological Survey

Wing G. Agnew, Member
U. S. Bureau of Mines

cc: DMEA (2) w/2 copies of incoming
USBM (2)
Kellum

BRITANNIA MINING AND SMELTING CO., LIMITED

HOWE SOUND COMPANY
NEW YORK CITY

SUBSIDIARIES:

BRITANNIA MINING AND SMELTING CO., LIMITED

- HEAD OFFICE, BRITANNIA BEACH, B.C.
- (BRITANNIA DIVISION) BRITANNIA BEACH, B.C.
- (SNOW LAKE DIVISION) SNOW LAKE, MANITOBA
- (EXPLORATION DIVISION) 406 ROYAL BANK BUILDING, TORONTO 1, ONTARIO
- (EXPLORATION DIVISION) 313 ROYAL BANK BUILDING, VANCOUVER 2, B.C.

HOWE SOUND COMPANY (CHELAN DIVISION) HOLDEN, WASH.

CALERA MINING COMPANY
COBALT, IDAHO
REFINERY
GARFIELD, UTAH

EL POTOSI MINING COMPANY
CHIHUAHUA, MEXICO

CIA INDUSTRIAL "EL POTOSI" S.A.
CHIHUAHUA, MEXICO

DMEA

OFFICIAL FILE COPY
DMEA
RECEIVED FEB 11 1957

DATE	INITIALS	CODE

February 4th, 1957.

A. E. Weissenborn,
Executive Officer,
U.S.G.S.,
South 157 Howard St.,
Spokane 4, Washington.

Dear Sir: Re: Docket No. DMEA 4220 (Copper)

Your letter of January 29th arrived to-day. I am having a photostat sent to you of the option agreement.

Although Britannia Mining and Smelting Company is a subsidiary of Howe Sound Company, the application for DMEA assistance is coming from the latter. My letter may have been ambiguous on that point.

I understood in submitting excerpts from reports by H.B. Smith and myself that these would be added to the supporting evidence submitted by Curtiss (maps, engineer's reports, assays, etc). Neither of our reports are specifically detailed as they were based on relatively brief examinations. We have, however, both had a great deal of experience at operating mines and on exploration and this property strick us as one that had a better-than-average chance of making a mine. Howe Sound Company is now prepared to act on our recommendations. It is the writer's intention to carry out detailed mapping concurrently with the diamond drilling.

Thanking you I remain.

Yours truly,

John Lamb,
Geologist.

JL/g

ORIGINAL FILE COPY
DMEA
RECEIVED FEB 5 1957

DATE	INITIALS	CODE
2/5	C	220
2/5	Klug	500
January 30, 1957		

xxxxxxxxxxxxxxxxxx
So. 157 Howard Street
Spokane 4, Washington

Docket

Mr. John Lamb, Geologist
Britannia Mining and Smelting Co., Ltd.
Exploration Division
313 Royal Bank Building
Vancouver 2, B. C.

Re: Docket No. DMEA-4220 (Copper)
Robert Truman Curtiss
Calumet Claims
Snohomish County, Washington

Dear Mr. Lamb:

This will acknowledge receipt of your letter of January 15, 1957, addressed to Mr. E. A. Magill, in which you advise us that Howe Sound Company holds an option to purchase the property of the Sultan Basin Mining Company, and that Britannia Mining and Smelting Company, Limited, wishes to take over an application for exploration on this property submitted by Mr. Curtiss.

When Mr. Curtiss closed on your option to purchase, he ceased to control the claims on which he wished to explore, unless, as he says is the case for the Mint claims, there is an exclusion for a sufficient period of time to allow completion of the project. We, therefore, recommended that Mr. Curtiss' application be denied without prejudice.

Your letter requesting a contract with your company for essentially the same work as contemplated by Mr. Curtiss has been forwarded to our Washington, D. C. office. Accompanying your letter were excerpts from a report by J. Lamb (presumably yourself) prepared in 1956 for Britannia Mining Company and from a report by H. B. Smith prepared in 1951 for Howe Sound Company. The information contained in your application is scanty and it would be helpful in considering your proposal if you would send us three copies of each report or at least copies of the pertinent parts.

We have asked Mr. Curtiss for a copy of the purchase option but have not yet received a reply. It is necessary that we have a signed copy, or a photostat of a signed copy of this document before your application can be fully processed. It would be to your advantage to forward us a copy in case we do not receive one from Mr. Curtiss. From your letter it appears that Howe Sound Company holds the option, but that Britannia Mining Company is requesting the DMEA assistance. If this is so, we will also need a properly executed assignment of the option to Britannia Mining Company.

By Field Team, Region I, NW Dist.

A. E. Weissenborn, Exec. Officer
U. S. Geological Survey

Wing G. Agnew, Member
U. S. Bureau of Mines

cc: DMEA (2)
USBM (2)
Kellum

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DMEA
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DATE	INITIALS	CODE
2/5	G	220
2/5	Clay	500

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D. C.~~
So. 157 Howard Street
Spokane 4, Washington

January 29, 1957

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Re: Docket No. DMEA-4220 (Copper)
Robert Truman Curtiss
Calumet Claims
Snohomish County, Washington

Dear Mr. Selfridge:

Enclosed are three copies of a letter dated January 15, 1956, from John Lamb, geologist for the Britannia Mining and Smelting Company, a unit of the Howe Sound Company, addressed to E. A. Magill, engineer of the Bureau of Mines, in which he confirms that Howe Sound Company holds an option to purchase the claims of the Sultan Basin Mining Company and wishes to take over an application submitted by R. T. Curtiss (Docket DMEA-4220) for aid to explore on these claims.

As stated in our letter of January 14, 1957, regarding Docket DMEA-4220, the results of a field examination we made October 8, 1956, and an evaluation of available information regarding the Calumet claims indicate that more detailed information would be desirable in considering an exploration program. We had hoped that should Howe Sound Company apply for DMEA aid they would include enough additional data so that, with the information we have, we could fairly judge the merits of the property and their proposal. However, they have included only very brief excerpts from two reports, one by John Lamb, the other by H. B. Smith who is also a geologist for Howe Sound Company, and an estimate of costs for their proposed drilling. We will request copies of the two reports from which the excerpts were taken, and as soon as they are received will prepare a field report. It will not be necessary to make another field examination.

In accordance with your letter of January 8, 1957, we have written to Mr. Curtiss for a copy of the option to purchase, in connection with his requested amendment for more work on the Mint claims, Docket DMEA-2435, but as yet have received no reply.

We have not asked Mr. Lamb to present a complete formal application as his letter, combined with Mr. Curtiss' application, contains all the information required. For purposes of appraisal of the property and the program proposed by Mr. Lamb, we can see no difficulty in combining the information in Mr. Lamb's letter with that in Mr. Curtiss' request and the data we have from our field examination of October 8, 1956.

By Field Team, Region I, NW Dist.

A. E. Weissenborn

A. E. Weissenborn, Exec. Officer
U. S. Geological Survey

Wing G. Agnew

Wing G. Agnew, Member
U. S. Bureau of Mines

Enclosures

cc: USBM (2)
Kellum

BRITANNIA MINING AND SMELTING CO., LIMITED

OFFICIAL FILE COPY
DMEA
RECEIVED FEB 5 1957

DATE	INITIALS	CODE

January 15th, 1956.

HOWE SOUND COMPANY
NEW YORK CITY

SUBSIDIARIES:

BRITANNIA MINING AND SMELTING CO., LIMITED:

- [ ] HEAD OFFICE BRITANNIA BEACH, B.C.
- [ ] (BRITANNIA DIVISION) BRITANNIA BEACH, B.C.
- [ ] (SNOW LAKE DIVISION) SNOW LAKE, MANITOBA
- [ ] (EXPLORATION DIVISION) 405 ROYAL BANK BUILDING TORONTO 1, ONTARIO
- [X] (EXPLORATION DIVISION) 313 ROYAL BANK BUILDING VANCOUVER 2, B.C.

HOWE SOUND COMPANY
(CHELAN DIVISION)
HOLDEN, WASH.

CALERA MINING COMPANY
COBALT, IDAHO

REFINERY
GARFIELD, UTAH

EL POTOSI MINING COMPANY
CHIHUAHUA, MEXICO

CIA INDUSTRIAL "EL POTOSI" S.A.
CHIHUAHUA, MEXICO

Mr. E. A. Magill,
215 Federal Bldg.,
Seattle 4, Washington.

Dear Mr. Magill:

In reference to Application by R. T. Curtiss for DMEA contract to diamond drill the Calumet Vein,

Sultan Basin Mining Company,
Snohomish Co. Washington.

Howe Sound Company now holds an option to purchase the above-named property and intends to explore the Calumet Vein by diamond drilling, during the current year. In this regard we wish to take over Mr. Curtiss' application for a contract based on unit drilling costs of 9 dollars per foot.

Enclosed in quadruplicate are the following:

a. Cost Estimates for proposed drill program

b. Excerpt from Report of H.B. Smith, Chief Geologist, Exploration Div. Salt Lake City, Howe Sound Company.

c. Excerpt from Report of J. Lamb, Geologist, Vancouver Exploration Div. Britannia Mining and Smelting Co. Limited

d. A map of surface showings of Calumet Vein and a map of the west end of the Vein indicating the proposed drilling plan.

You will see from the map that our program is very similar to that of Curtiss except that it is concentrated more towards the western end of the vein. Briefly it is as follows: Starting at ⚠ where the Vein crosses the ridge a series of holes are to be drilled at one hundred foot intervals along the vein. At each setup it is proposed to drill two holes northward to intersect the vein, one inclined at -30° and the other at -50°, the aggregate footage approximating 350 feet. The total footage drilled from all the locations will be about 2100 ft. The remaining three or four hundred feet will be drilled to further test the most promising zones.

Trusting that our application will be favorably received I remain,

Yours truly,

John Lamb

John Lamb,
Geologist.

JL/g

RECEIVED
JAN 22 1957
U. S. G. S.
SPOKANE, WASH.

BRITANNIA MINING AND SMELTING CO., LIMITED

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DATE | INITIALS

HOWE SOUND COMPANY
NEW YORK CITY

SUBSIDIARIES:

BRITANNIA MINING AND SMELTING CO., LIMITED:

- [ ] HEAD OFFICE BRITANNIA BEACH, B.C.
- [ ] (BRITANNIA DIVISION) BRITANNIA BEACH, B.C.
- [ ] (SNOW LAKE DIVISION) SNOW LAKE, MANITOBA
- [ ] (EXPLORATION DIVISION) 405 ROYAL BANK BUILDING TORONTO 1, ONTARIO
- [X] (EXPLORATION DIVISION) 313 ROYAL BANK BUILDING VANCOUVER 2, B.C.

HOWE SOUND COMPANY
(CHELAN DIVISION)
HOLDEN, WASH.

CALERA MINING COMPANY
COBALT, IDAHO

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CHIHUAHUA, MEXICO

CIA INDUSTRIAL "EL POTOSI" S.A.
CHIHUAHUA, MEXICO

RECEIVED
JAN 22 1957
U. S. G. S.
SPOKANE, WASH.

CALUMET PROSPECT

SULTAN BASIN - SNOHOMISH COUNTY

EXCERPTS FROM REPORT OF J. LAMB (GEOLOGIST)

FOR BRITANNIA MINING AND SMELTING CO. LIMITED, 1956.

CONCLUSION AND RECOMMENDATIONS

The Calumet Vein of the Sultan Basin Mining Company is a strong structure and is known to be at least 900 feet long. It contains erratic values in gold, silver and copper, some of which are quite high. The mineralization is discontinuous and lensy in character. The vein has, however, some chance of making a mineable orebody and for this reason is worth some interest. A modest program of diamond drilling is feasible, owing to the steep topography.

The writer recommends that if an option agreement can be made with the owners, the above program should be carried out.

EXCERPTS FROM REPORT OF H. B. SMITH (GEOLOGIST)

FOR HOWE SOUND COMPANY, 1951

GEOLOGY

The Calumet Vein is 5 to 10 feet wide, strikes N42W to N70W, dips steeply to the southwest and is enclosed in metamorphic rocks. It consists of quartz, pyrite, chalcopyrite and sphalerite.

Samples	Cu	Au	Ag	Zn
5.3 ft	@ 1.95%	0.22oz.	2.80 oz.	-
6 ft	@ 2.34%	tr	0.92 oz.	1.51%

CONCLUSION

The prospect shows some good mineralization. More work is needed to determine its possibilities.

RECOMMENDATION

Worthy of future attention.

DRILLING PROGRAM - CALUMET VEIN

COST ESTIMATES

1.	Engineering Asst.	
	4 months @ $425	$ 1700.00
	Casual labor	
	one man 4 months @ $350	1400.00
	cook - one man 3 months @ $400	1200.00
2.	2400 ft. of diamond drilling (AX) @ $6.25/ft based on discussion with Lynch Bros. D.D. contractors	15000.00
3.	Transportation of supplies and equipment to Sultan Basin	100.00
4.	Helicopter transportation	1200.00
5.	Food and supplies for 7 men for 3 months	1900.00
6.	Sundry supplies and camping equipment and erection of shelters	1500.00
		$ 24000.00

RECEIVED
JAN 22 1957
U. S. G. S.
SPOKANE, WASH

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D. C.~~
So. 157 Howard Street
Spokane 4, Washington

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RECEIVED JAN 22 1957

DATE	INITIALS	CODE
1-22	C	220
		1302
1-25	CW	220
1/28	WPK	500

January 14, 1957

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Re: Docket No. DMEA-4220 (Copper)
Robert Truman Curtiss
Calumet Claims,
Snohomish County, Washington

Dear Mr. Selfridge:

An examination of the above-referenced property was made October 8, 1956. The results of this examination and an evaluation of available information regarding the property indicate that more detailed information is needed before an exploration program can be justified.

Subsequent to the field examination, Mr. Curtiss informed our office that Howe Sound Mining Company had taken a lease and option on his Calumet and other holdings in Sultan Basin. We are enclosing two copies of a letter dated December 28, 1956, from Mr. Vinton H. Clarke, Vice President of Howe Sound Company, in which he states that he has asked Mr. A. F. Killin and Mr. John Lamb of Howe Sound's Vancouver office to advise us as to their interest in a DMEA program. As yet we have heard nothing further.

Inasmuch as Mr. Curtiss does not now have control of the property, it is recommended that his application be denied without prejudice to the property. Presumably more data will be submitted by Howe Sound which, with our present information, can be of value in judging the merits of the property and any proposal which they might make.

By Field Team, Region I, NW Dist.

A. E. Weissenborn
A. E. Weissenborn, Exec. Officer
U. S. Geological Survey

Wing C. Agnew, Member
U. S. Bureau of Mines

Enclosures

cc: USBM (2)
Kellum

Reviewed by
DMEA OPERATING COMMITTEE
1-25-57
(date)

TELEPHONES CIRCLE 7-5695-6

HOWE SOUND COMPANY

CHELAN DIVISION

HOLDEN, WASH.

NEW YORK OFFICE
730 FIFTH AVENUE

OFFICIAL FILE COPY
DMEA
RECEIVED JAN 22 1957

DATE	INITIALS	CODE

NEW YORK, December 13, 1956

Mr. A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region I, N.W District
United States Department of the Interior
Defense Minerals Exploration Administration
Rm. 157 Howard Street
Spokane 4, Washington

Dear Mr. Weissenborn:

Mr. Roper has sent on to us your letter to him under date of December 20th, in which you refer to the application you have on file for D.M.F.A. assistance on the Calumet Claims, near Monroe, Washington.

Mr. A. F. Killin and Mr. John Lamb, in our Vancouver exploration office, have been handling our option with Mr. Robert T. Curtiss on these claims and I have asked them to get in touch with you at an early date regarding the Curtiss application. It is my impression that they wish this application to be processed by your office and that it would fit in with our plans for the coming season, which they are presently developing. However, I am sure that you will hear from them within the near future.

Our Vancouver office, for geographical reasons now takes care of the area in Washington and Oregon, west of the Cascade Mountains, as they can handle this area much more easily than our Salt Lake City office. Our operating properties take care of outside prospects within easily reached distances from their location.

May I take this opportunity of wishing you a happy holiday season and success for the coming year!

Yours sincerely,

WHC/gk

DMEA

File Copy
Surname
Klugescheid
Trimmel
Nelson
Gethon
Selfridge
Johnson

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

MAR 30 1956

Mr. Robert Truman Curtiss
RFD #1, Box 156
Monroe, Washington

Re: Docket No. DMEA-4220 (Copper)
Robert Truman Curtiss
Calumet Claims
Snohomish County, Washington

Dear Mr. Curtiss:

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

Mr. A. E. Weissenborn
Executive Officer
DMEA Field Team, Region I
Northwest District
South 157 Howard Street
Spokane 4, Washington

If the Field Team requires additional information concerning your application, they will contact you at an early date.

Sincerely yours,

C. G. Mitchell

Administrator

WPKlugescheid/er 2/28/56
Copy to: Docket
Admr R File
Op. Committee
Base Metals
Mr. Pennington, USBM
Mr. Kiilsgaard, USGS
Region I, NW Dist. (2)
Chron.

File Copy
Surname
Klugescheid
Signed
Selfridge
Johnson

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

MAY 30 1956

Mr. A. E. Weissenborn
Executive Officer
DMEA Field Team, Region I
Northwest District
South 157 Howard Street
Spokane 4, Washington

Re: Docket No. DMEA-4220 (Copper)
Robert Truman Curtiss
Calumet Claims
Snohomish County, Washington

Dear Mr. Weissenborn:

The cited application for exploration assistance is being referred to your office for consideration, a field examination of the property if warranted, and recommendation.

The drilling costs in this case seem high but due to the topography they may be reasonable. Technical supervision is excessive for the operation of one drill.

The first series of holes mentioned are so short that they would be of little value. The samples taken in the trenches during a previous examination were nearly completely barren, due to leaching, and such short holes would still be in the same zone. If it were possible to get further downhill and, with longer holes, to drill into the sulphide zone, results would be much more conclusive.

The correct method of attack would be a drift at a much lower level than the one now existent but the applicant says that he does not have sufficient funds to carry on such a program.

Copies of memoranda dated March 21 and 23, 1956, by J. W. Pennington, Bureau of Mines, and N. E. Nelson, Geological Survey, respectively, relating to the project are enclosed for your information.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee (SHB)

Enclosures

APPROVED:

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

N. E. Nelson (SHB)
Member, Geological Survey

Mr. Pennington, USBM
Mr. Killsgaard, USGS
Chron.

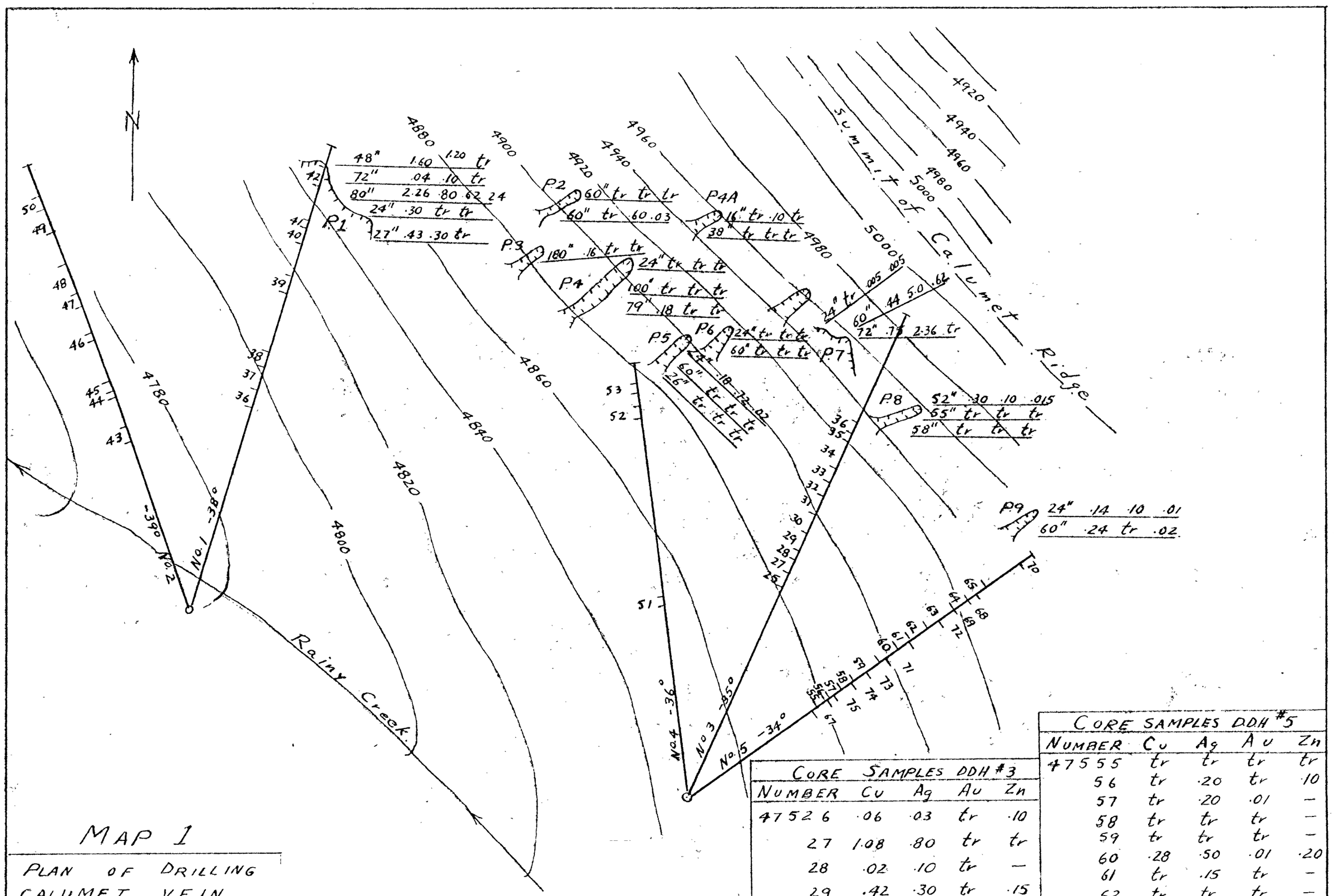
WPKlugescheid/er 2/27/56
Copy to: Docket
Admr R File
Op. Committee
Base Metals

First cut near South east end Line of Calumet Claim

Robert T Curtis's
Route 1 Bx 156
Monroe, Wash

Looking into valley from point 100' below portal on Calumet Claim

Robt. T Curtis's
Route 1 Box 156
Monroe, Wash.



MAP 1

PLAN OF DRILLING
CALUMET VEIN
Scale 1" = 40'
SEPT 24/57 J. Lamb
DMEA 4687 (Copper) No 1111

* ORDER OF ASSAY VALUES
Cu Ag Au Zn

* P = pit or open cut

CORE SAMPLES DDH #1

Number	Cu	Ag	Au	Zn
47536	tr	.15	tr	–
37	tr	.15	tr	–
38	tr	.10	tr	–
39	tr	tr	tr	–
40	.12	.30	tr	–
41	tr	15	tr	–
42	tr	tr	tr	–

CORE SAMPLES DDH #2

Number	Cu	Ag	Au	Zn
47543	.12	tr	tr	–
44	tr	.30	tr	–
45	tr	tr	tr	–
46	tr	.10	tr	–
47	tr	tr	tr	–
48	tr	.10	tr	–
49	tr	tr	tr	–
50	tr	.10	tr	–

CORE SAMPLES DDH #3

Number	Cu	Ag	Au	Zn
47526	.06	.03	tr	.10
27	1.08	.80	tr	tr
28	.02	.10	tr	–
29	.42	.30	tr	.15
30	.06	.10	.01	.10
31	.04	.20	tr	.10
32	1.72	.90	tr	.30
33	.60	10	tr	tr
34	tr	tr	tr	tr
35	2.92	.90	.09	.25
66	tr	tr	tr	–

CORE SAMPLES #4 DDH.

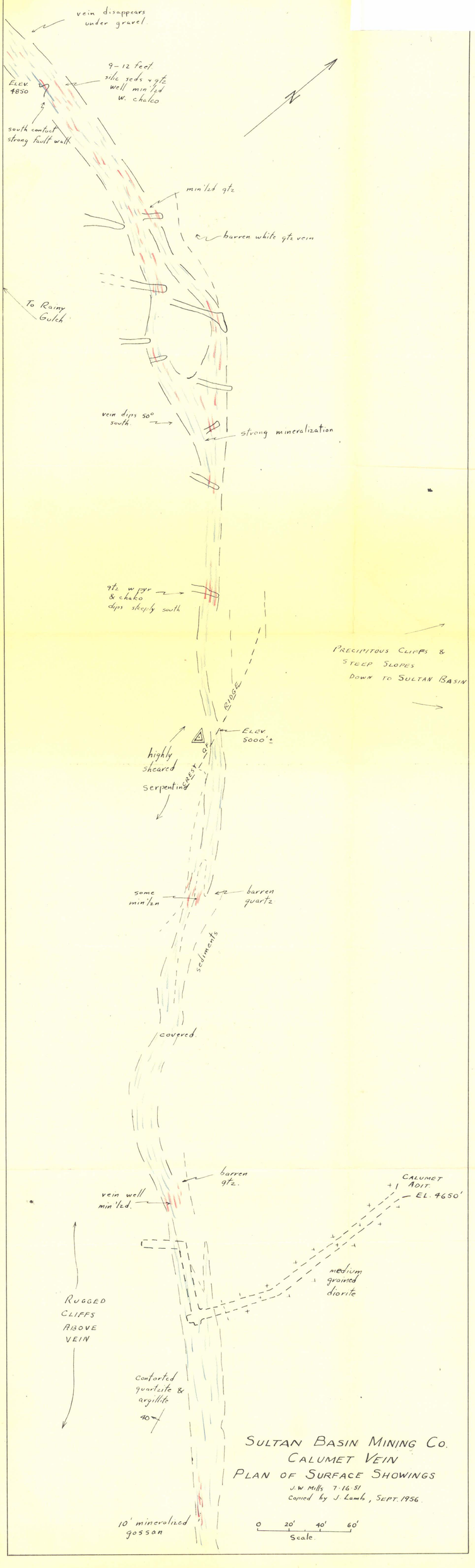
Number	Cu	Ag	Au	Zn
47551	tr	tr	tr	–
52	tr	.10	tr	–
53	tr	.10	tr	–

CORE SAMPLES DDH #5

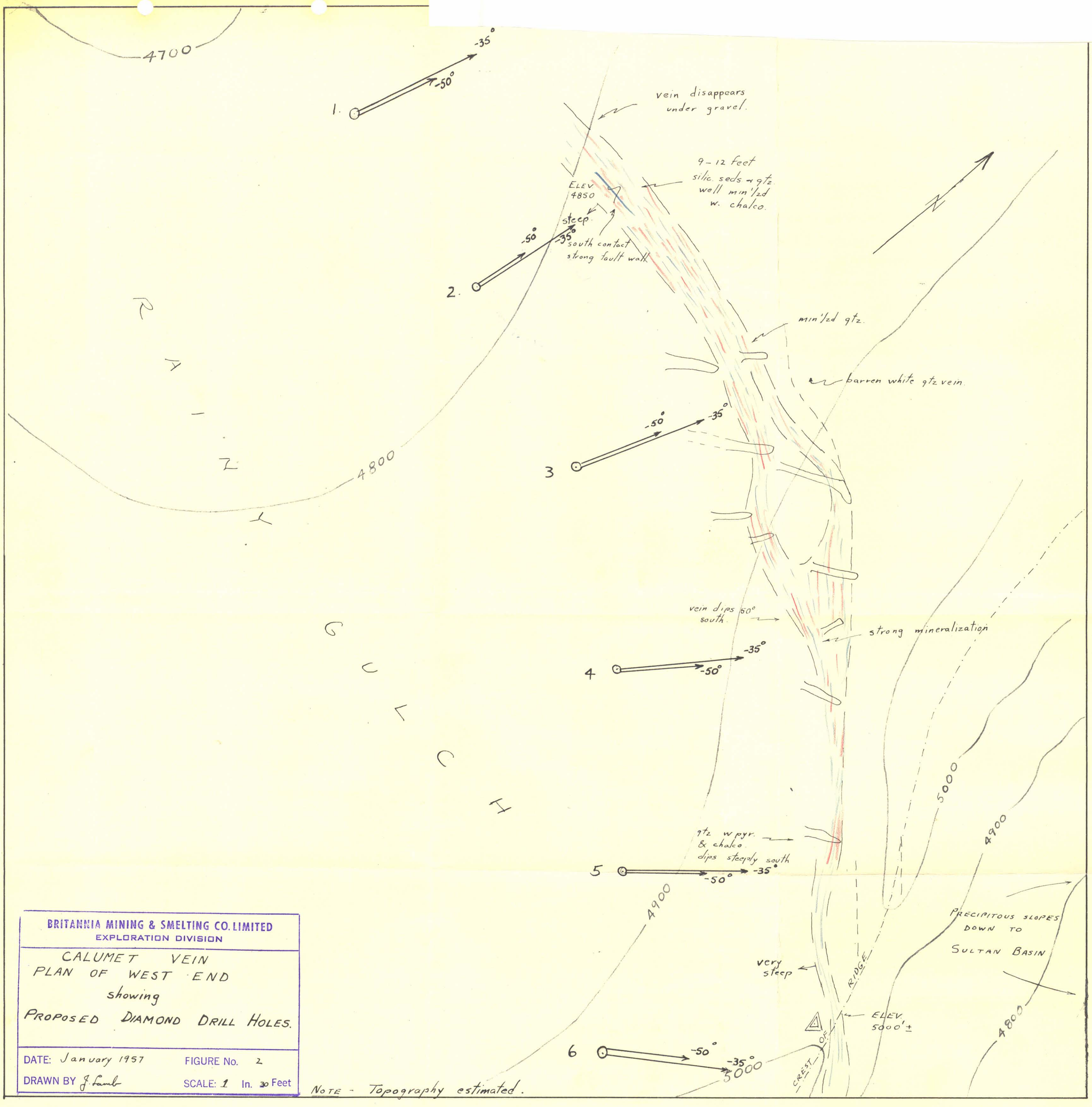
Number	Cu	Ag	Au	Zn
47555	tr	tr	tr	tr
56	tr	.20	tr	.10
57	tr	.20	.01	–
58	tr	tr	tr	–
59	tr	tr	tr	–
60	.28	.50	.01	.20
61	tr	.15	tr	–
62	tr	tr	tr	–
63	tr	tr	tr	–
64	tr	.30	.03	–
65	tr	tr	tr	–

SLUDGE SAMPLES #5

Number	Cu	Ag	Au	Zn
47567	.06	.20	tr	tr
75	.14	tr	tr	–
74	.20	tr	tr	–
73	.32	.20	tr	.65
71	.26	.60	tr	.20
72	.10	.10	tr	–
69	.36	.50	.02	–
68	.16	.20	tr	–
70	.04	tr	tr	–



SULTAN BASIN MINING CO.
CALUMET VEIN
PLAN OF SURFACE SHOWINGS
J.W. Mills 7-16-51
Copied by J. Lamb, SEPT. 1956.



BRITANNIA MINING & SMELTING CO. LIMITED
EXPLORATION DIVISION

CALUMET VEIN
PLAN OF WEST END
showing
PROPOSED DIAMOND DRILL HOLES.

DATE: January 1957 FIGURE No. 2

DRAWN BY J. Lamb SCALE: 1 In. 30 Feet

NOTE - Topography estimated.

UNITED STATES
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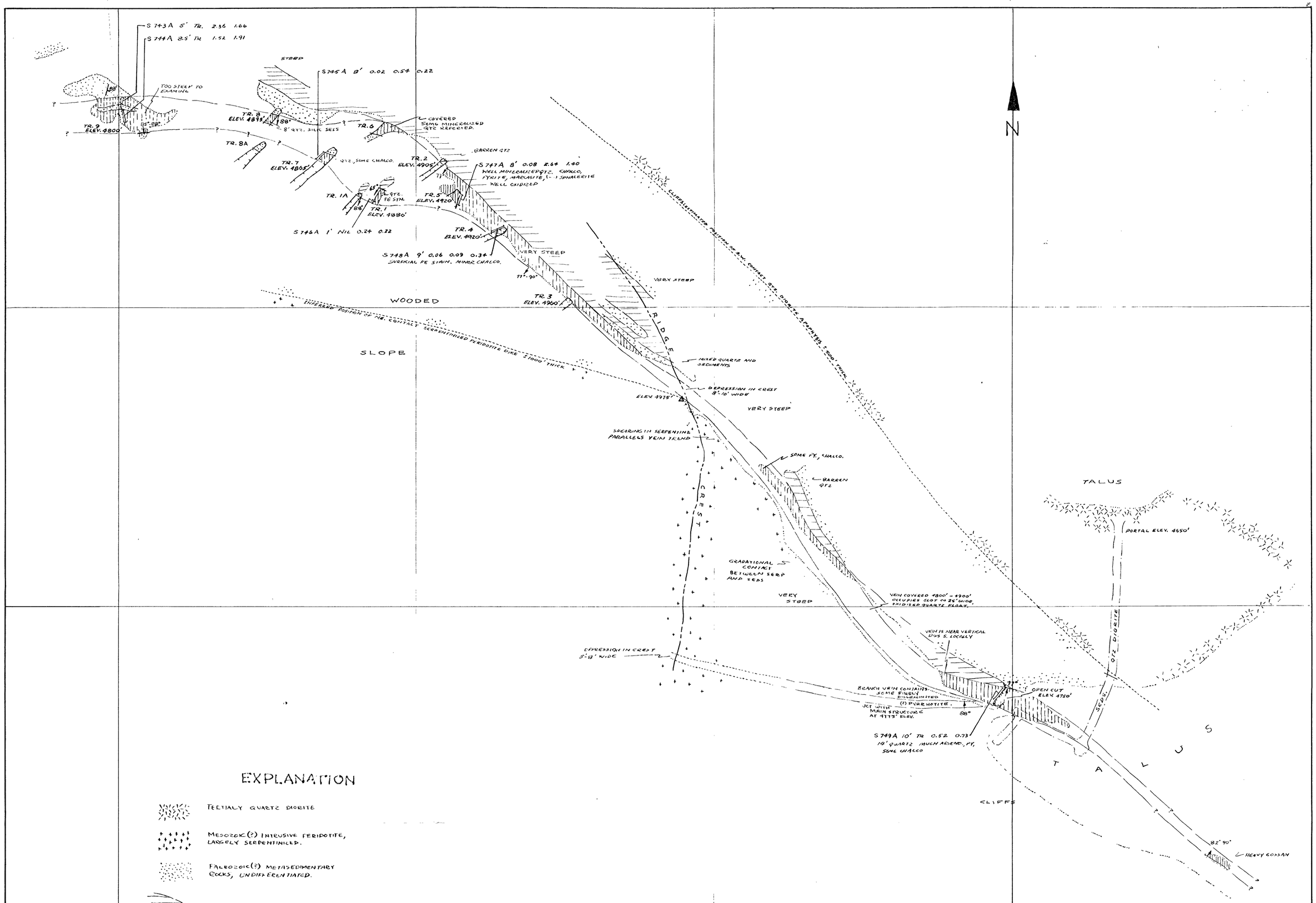
DOCKET NO. DMEA 4687



EXPLANATION

TERTIARY QUARTZ DIORITE

MESOZOIC (?) INTRUSIVE PERIDOTITE, LARGELY SERPENTINIZED.

PALEOZOIC (?) METASEDIMENTARY ROCKS, UNDIFFERENTIATED.

BARREN QUARTZ

MINERALIZED QUARTZ

LIMITS OF CUTCROP

SAMPLE No	FEET	OZ./TON AU	AG	% CU
S 747 A	8'	0.08	2.64	1.40

COPIED FROM MAP BY J.W. MILLS 7/16/51

MAJOR ADDITIONS BY DF. KELLUM 10/8/56

CALUMET VEIN

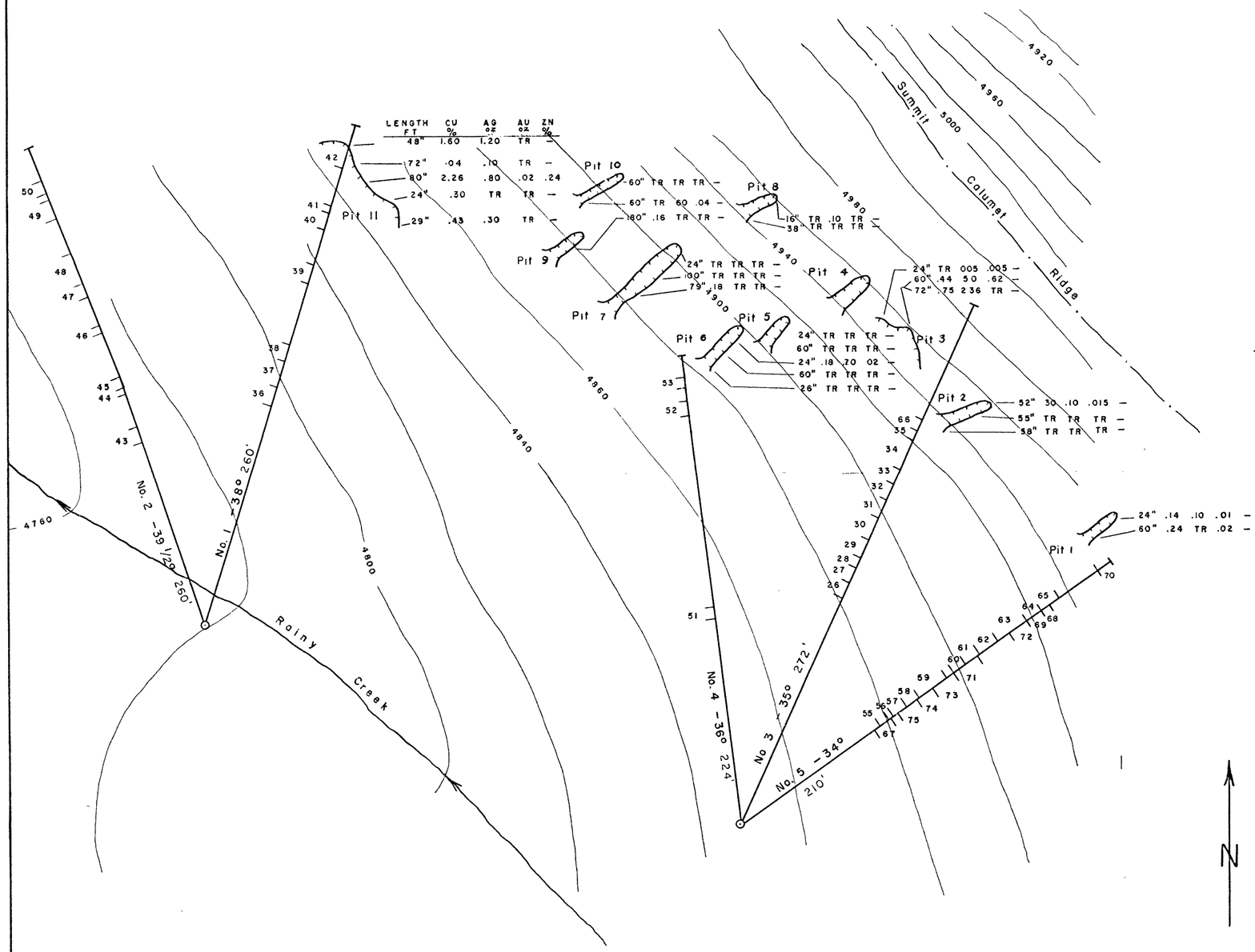
IOWA GROUP

SEC. 27, T. 29 N., R. 10 E. W. M.

SNOHOMISH COUNTY, WASH.

1" = 40'

PLATE 1



ASSAYS

Core Samples DDH No. 1

NUMBER	Cu	Ag	Au	Zn
47536	TR	.15	TR	—
37	TR	.15	TR	—
38	TR	.10	TR	—
39	TR	TR	TR	—
40	.12	.30	TR	—
41	TR	.15	TR	—
42	TR	TR	TR	—

Core Samples DDH No. 2

47543	.12	TR	TR	—
44	TR	30	TR	—
45	TR	TR	TR	—
46	TR	.10	TR	—
47	TR	TR	TR	—
48	TR	.10	TR	—
49	TR	TR	TR	—
50	TR	.10	TR	—

Core Samples DDH No. 3

47526	.06	.03	TR	.10
27	1.08	.80	TR	TR
28	.02	.10	TR	0
29	.42	.30	TR	.15
30	.06	.10	.01	.10
31	.04	.20	TR	.10
32	1.72	.09	TR	.30
33	.60	.10	TR	TR
34	TR	TR	TR	TR
35	2.92	.90	.09	.25
66	TR	TR	TR	—

Core Samples DDH No. 4

47551	TR	TR	TR	—
52	TR	.10	TR	—
53	TR	.10	TR	—

Core Samples DDH No. 5

47555	TR	TR	TR	TR
56	TR	.20	TR	.10
57	TR	.20	.01	0
58	TR	TR	TR	0
59	TR	TR	TR	0
60	.29	.50	.01	.20
61	TR	.15	TR	0
62	TR	TR	TR	0
63	TR	TR	TR	0
64	TR	.30	03	0
65	TR	TR	TR	0

Sludge Samples No. 5

47567	.06	.20	TR	TR
75	.14	TR	TR	0
74	.20	TR	TR	0
73	.32	.20	TR	.65
71	.26	.60	TR	.20
72	.10	.10	TR	0
69	.36	.50	.02	0
68	.16	.20	TR	0
70	.04	TR	TR	0

ASSAY MAP
CALUMET CLAIMS

HOWE SOUND COMPANY
Snohomish County, Washington

40 20 0 40 FEET

H. F Albee

Feb. 1958

Plate 2

Base furnished by operator.

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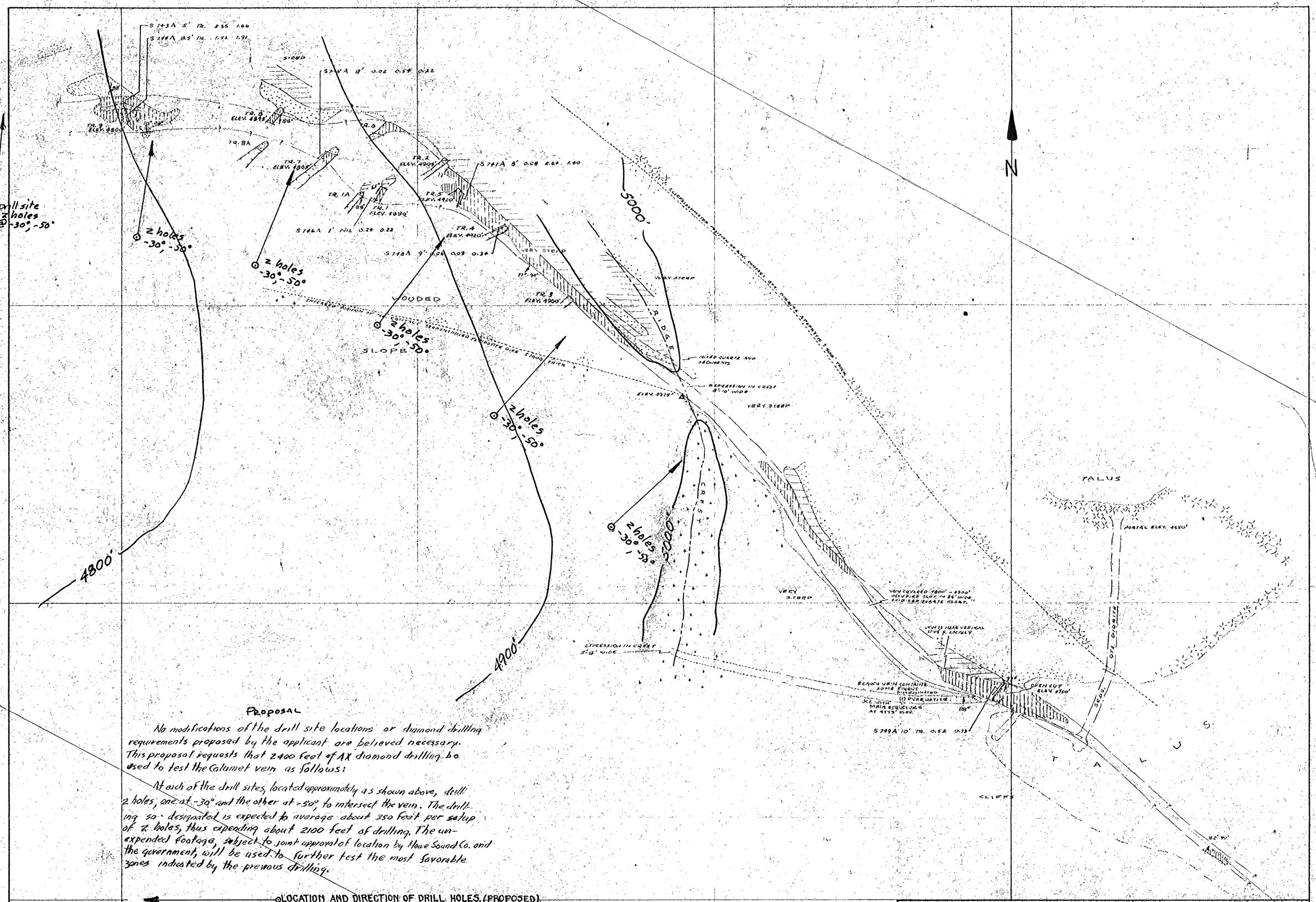


PROPOSAL

No modifications of the drill site locations or diamond drilling requirements proposed by the applicant are believed necessary. This proposal requests that 2400 feet of AX diamond drilling be used to test the Calumet vein as follows:

At each of the drill sites, located approximately as shown above, drill 2 holes, one at -30° and the other at -50°, to intersect the vein. The drilling so designated is expected to average about 350 feet per setup of 2 holes, thus expending about 2100 feet of drilling. The unexpended footage, subject to joint approval of location by Howe Sound Co. and the government, will be used to further test the most favorable zones indicated by the previous drilling.

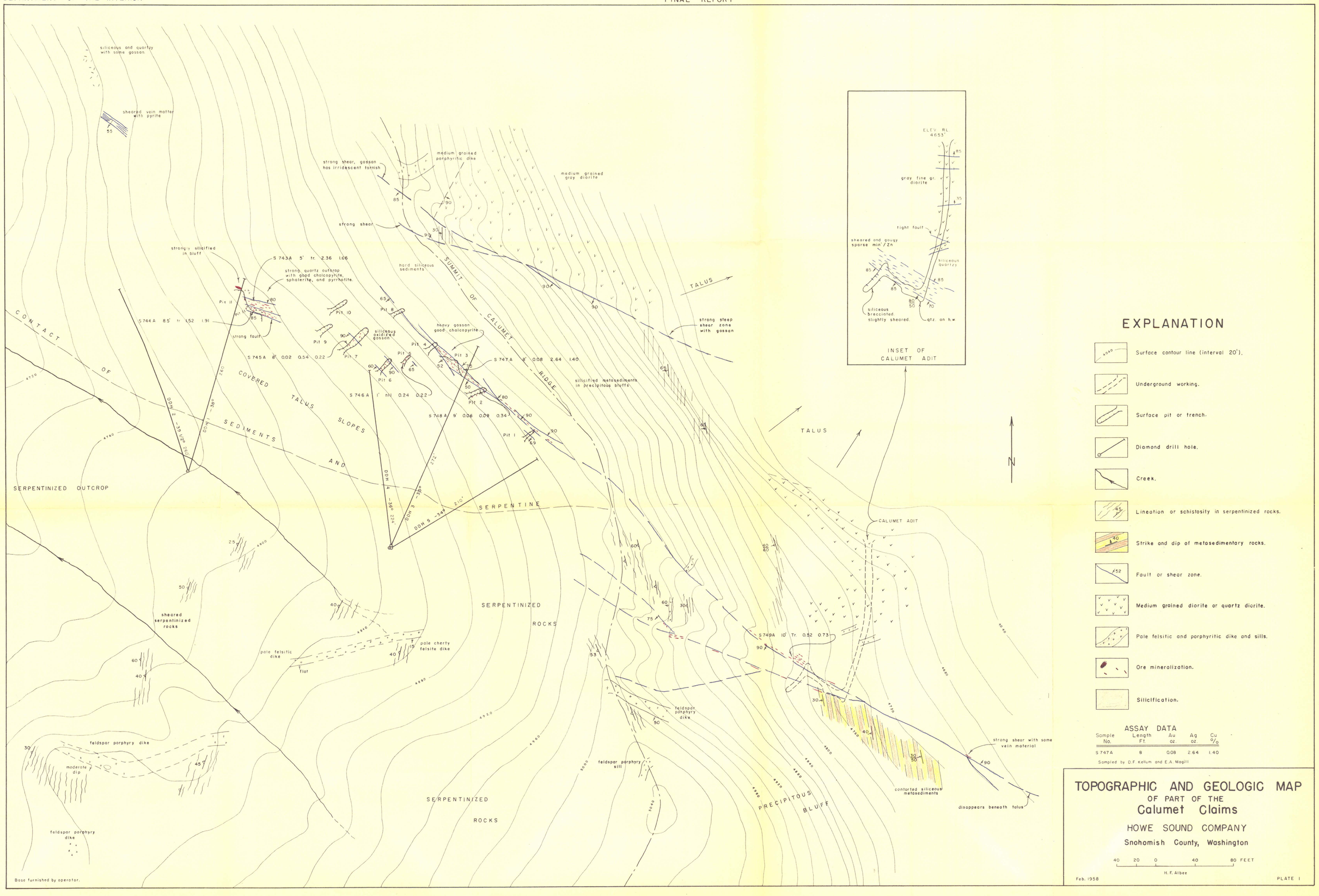
LOCATION AND DIRECTION OF DRILL HOLES (PROPOSED)

Base from applicants map by J. W. Mills 1/15/57
Proposed work by applicant

APPLICANT'S PROPOSED DRILLING
CALUMET VEIN DMEA-4687
IOWA GROUP
SEC. 27, T. 29 N., R. 10 E. W.M.
SNOHOMISH COUNTY, WASH.
1" = 40'

PLATE 2

3/4 size


siliceous and quartzy with some gossan
sheared vein matter with pyrite
strong shear, gossan has irridescent tarnish
medium grained porphyritic dike
medium grained gray diorite
strong shear
strongly silicified in bluff
S 743A 5' tr. 2.36 1.66
strong quartz outcrop with good chalcopyrite, sphalerite, and pyrrhotite.
hard siliceous sediments
SUMMIT OF CALUMET RIDGE
TALUS
strong steep shear zone with gossan
CONTACT OF COVERED TALUS SLOPES AND SEDIMENTS AND SERPENTINE
S 744A 8.5' tr 1.52 1.91
strong fault
S 745A 8' 0.02 0.54 0.22
siliceous oxidized gossan
heavy gossan good chalcopyrite
S 747A 8' 0.08 2.64 1.40
silicified metasediments in precipitous bluffs
S 746A 1' nil 0.24 0.22
S 748A 9' 0.06 0.09 0.34
SERPENTINIZED OUTCROP
DDH 2 -39 1/2° 260
DDH 1 -38° 240
DDH 4 -38° 224
DDH 3 -38°
DDH 5 -34° 210°
sheared serpentinized rocks
pale felsitic dike
pale cherty felsite dike
flat
SERPENTINIZED ROCKS
feldspar porphyry dike
moderate dip
feldspar porphyry sill
S 749A 10' Tr. 0.52 0.73
CALUMET ADIT
contorted siliceous metasediments
PRECIPITOUS BLUFF
strong shear with some vein material
disappears beneath talus
INSET OF CALUMET ADIT
ELEV. RL 4653'
gray fine gr. diorite
tight fault
sheared and gougy sparse min/Zn
siliceous quartzy
siliceous brecciated slightly sheared.
qtz. on h.w.
N
EXPLANATION
Surface contour line (interval 20').
Underground working.
Surface pit or trench.
Diamond drill hole.
Creek.
Lineation or schistosity in serpentinized rocks.
Strike and dip of metasedimentary rocks.
Fault or shear zone.
Medium grained diorite or quartz diorite.
Pale felsitic and porphyritic dike and sills.
Ore mineralization.
Silicification.
ASSAY DATA
Sample No. | Length Ft. | Au oz. | Ag oz. | Cu %
S 747A | 8 | 0.08 | 2.64 | 1.40
Sampled by D.F. Kellum and E.A. Magill
TOPOGRAPHIC AND GEOLOGIC MAP
OF PART OF THE
Calumet Claims
HOWE SOUND COMPANY
Snohomish County, Washington
40 20 0 40 80 FEET
H. F. Albee
Feb. 1958
PLATE I
Base furnished by operator.

talus slope with large blocks of broken sediment

copper mineralization in some blocks

silicified gouge with some gossan

sheared vein matter with pyrite

greenish serpentinized rock outcrop

CAMP LAKE

serpentine rock

LEGEND

surface contour (in feet above sea level)

underground workings

surface pit or trench

tent or building

diamond drill hole

creek

location or orientation of serpentinized rocks

strike & dip of sedimentary rocks

fault or shear zone

mine underground workings in pit depth

pale tabular & pyroclastic dacite dike

ore mineralization

silicification

sediments

CALUMET ADIT

INSET OF CALUMET ADIT

silicified gouge

MAP 2.

TOPOGRAPHIC & GEOLOGIC MAP

OF PART OF THE

CALUMET CLAIM

SULTAN BASIN MINING COMPANY

SNOHOMISH COUNTY WASHINGTON

SCALE 1 IN = 40 FT.

OCTOBER 1937 - SURVEYED & DRAWN BY [illegible]

NORTHWEST MINING COMPANY

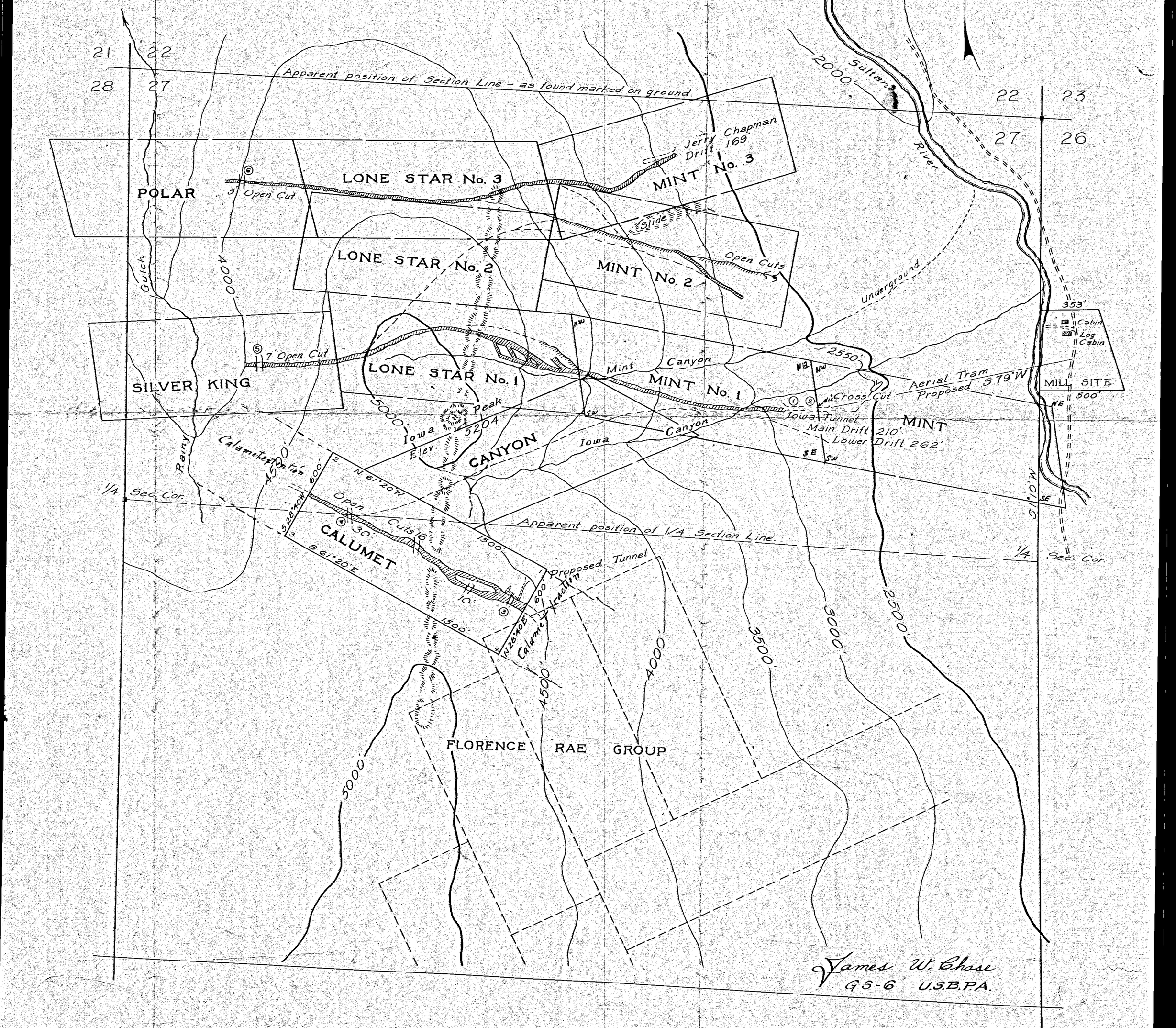
IOWA GROUP

CURTISS & ~~ROGERS~~

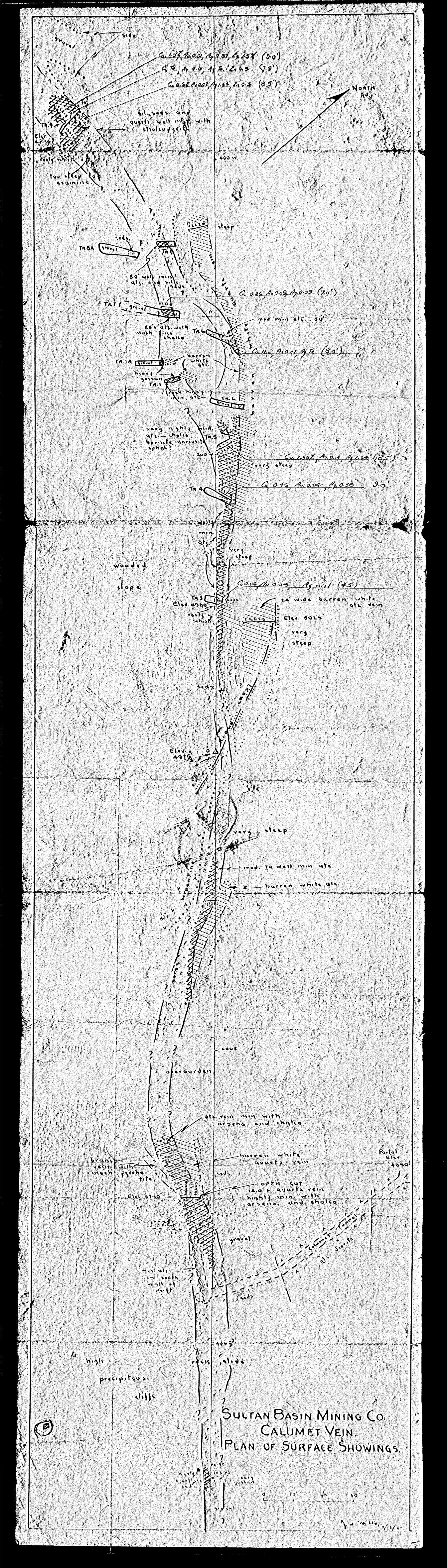
SEC. 27 T29N R10E W.M.
SNOHOMISH, CO., WASH

Scale: 1"=400'

100 0 100 500 1000



James W. Chase
GS-6 U.S.B.P.A.


North
Cu 1.5%, Au 0.01, Ag 0.37, Zn 1.5% (9.0')
Cu Tr., Au 0.01, Ag Tr., Zn 0.3 (7.5')
Cu 0.66 Au 0.01, Ag 1.6%, Zn 0.3 (8.5')
sil. seds. and quartz well min. with chalcopyr.
Tr. 9
very white
too steep to examine
400 W.
steep
Tr. 8A
gravel
Tr. 8
8.0' well min. qtz. and sil. seds.
Cu 0.26, Au 0.05, Ag 0.09 (7.0')
Tr. 7
gravel
mod min. qtz. 8.0'
7.0' qtz. with much fine chalco.
Tr. 6
Cu Nil, Au 0.01, Ag Tr. (8.0')
Tr. 1A
gravel
barren white qtz.
heavy gossan
Tr. 1
fresh highly min. qtz.
Tr. 2
gravel
very highly min. qtz. — chalco. bornite, marcasite, sphal.!
Tr. 5
200 W.
Cu 1.86%, Au 0.14, Ag 1.64 (10.5')
very steep
Tr. 4
Cu 0.46, Au 0.04, Ag 0.38 9.0'
well min. qtz.
very steep
wooded slope
Cu 0.06, Au 0.03, Ag 0.11 (7.5')
Tr. 3
Elev. 4980'
rusty schist
24' wide barren white qtz. vein
Elev. 5025'
very steep
seds
Elev. 4915'
very steep
mod. to well min. qtz.
barren white qtz.
100 E.
overburden
qtz. vein min. with arseno. and chalco.
barren white quartz vein
branch vein with much pyrrhotite
Portal Elev. 4650'
seds
OPEN CUT 14.0' + quartz vein highly min. with arseno. and chalco.
Elev. 4750
gravel
Tunnel
Calumet
qtz.
diorite
min. qtz. on south wall of cut
seds
400 S.
high precipitous cliffs
rock slide
SULTAN BASIN MINING CO.
CALUMET VEIN.
PLAN OF SURFACE SHOWINGS.
highly quartzose seds
0 10 20 30

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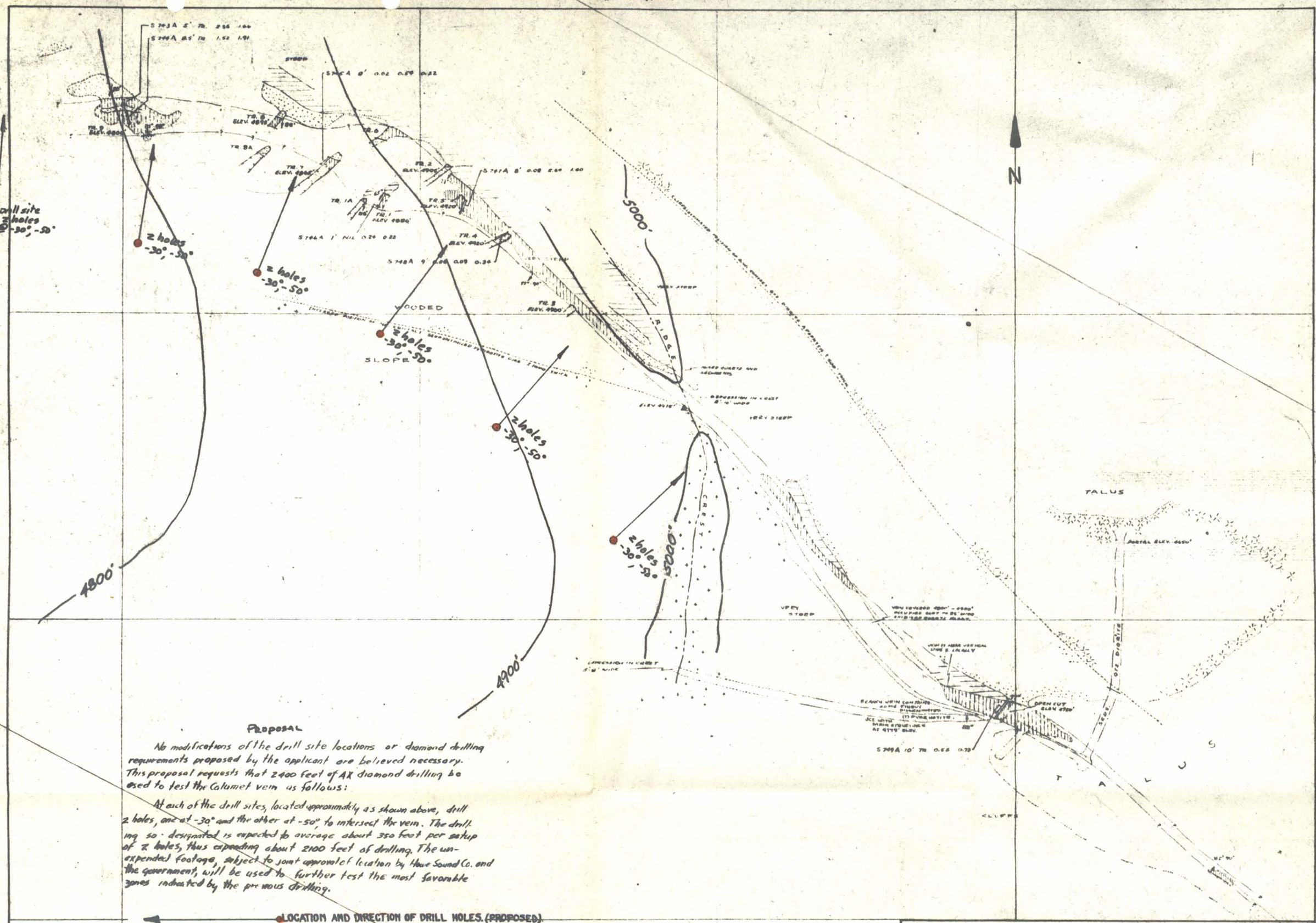

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