MME Form 9
Rev. Nov. 65

UNITED STATES
DEPARTMENT OF THE INTERIOR
Geological Survey

OFFICIAL DOCKET FILE Contract No. _____ Docket No. 6894

Application
- [ ] Denied
- [ ] Withdrawn

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

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

Folder No. 1:

Left Side

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

Right Side

- [ ] Project Summary (final)
- [ ] Work Completed Analysis (final)

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

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

Additional Folders:

Left Side

Folders No. _____: Reports

- [ ] Analysis of Semiannual Inspection Reports
- [ ] Project Summary (Interim) by MME Engineers

Right Side

- [ ] Field Team Semiannual Report for Certified Project
- [ ] Field Team Interim Reports
- [ ] Operator's Monthly Reports with Transmittal, Narrative and Maps

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

Folders No. _____: Settlement Sheets

Folders No. _____: Drill Logs

Folders No. _____: Royalty Material

72195-65

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
OFFICE OF MINERALS EXPLORATION
656 U. S. Court House
Spokane, Wash., 99201

OFFICIAL COPY
O. M. E.
RECEIVED
SEP 7 1973
INITIALS | CODE

September 4, 1973

MEMORANDUM

To: Chief, Office of Minerals Exploration

From: Field Offiacer, Region I

Subject: New application (copper)
Bornite Exploration Co.
Bornite Mine
Snohomish County, Washington

Forwarded herewith is an application for OME assistance to explore the Bornite mine, about 7 miles south of Darrington, Washington, by diamond drilling 5 holes from surface locations. Objectives of the drilling are the downward extension of three relatively small mineralized outcrops. The applicant states that the property was explored between 1900 and 1909 during which 3,100 feet of adit was driven but stopped 300 feet short of its objective.

I have found no reference in the literature to the Bornite mine as described by the applicant. There is a Bornite prospect described in Washington Division of Geology Reports of Investigations No. 6. This prospect is in Sec. 20, T. 30 N., R. 10 E., at an elevation of 4,500 feet on which there is a 3,000-ft. crosscut that cuts no ore. This Bornite prospect sounds very much like the Bornite mine described in the enclosed application but the latter is in the approximate unsurveyed Sec. 30, T. 31 N., R. 9 E. Perhaps there is an error in the location listed in the Reports of Investigations.

At the Bornite mine there are three separate outcrops of mineralized rock that parallel bedding in dolomite lenses enclosed in hornfelsed argillaceous rock near a quartz diorite intrusive contact. Nearest to the contact is a mineralized outcrop 60 feet long and amaximum of 6 feet thick; 150 feet higher and further from the contact is a lens 50 feet long and a maximum of 6 feet thick; the third outcrop, whose dimensions are not given, is 600 feet from the contact and 300 feet higher in altitude than the one nearest the contact.

The dolomite contains coarse crystals of diopside and blebs of chalcopyrite and bornite. Samples of the diopside bed nearest the contact assayed 5 to 7 percent copper and about $4.00 in gold and silver. Apparently the central parts of the lens are the richest and the extremities of the lenses contain less than one percent copper.

The 3,100-ft. adit crosscut was driven to test the downward projection of the mineralized lenses, a projected distance of 1,800 feet along the slope of the beds.

The applicant wants to test the downward projections of the lenses at a much closer distance to the outcrops than did the adit crosscut. The steep terrain is a problem for access to drill sites by land vehicle and the applicant proposes to fly drilling equipment in via helicopter. He states that a helicopter capable of handling one ton can be rented for $300 an hour and a contractor will drill the holes for $11 per foot (NX core). No contract bids for either the helicopter service or the diamond drilling are included in the application.

The applicant intends to furnish his share of the exploration costs through sale of stock which "will be greatly implemented by acknowledge of a loan by O.M.E." A summary of the Company's financial statement in the letters to the banks indicate only $1,000 cash on hand and the only mine equipment owned is 3,000 feet of air line, 6,000 feet of mine rail, and 1,500 feet of vent pipe.

Perhaps there is a fair-sized resource of copper ore on the applicant's property. I doubt, however, that the known mineralized zones will thicken and lengthen at depth as the report by Dean C. White in the application suggests. It is probably more realistic to conclude that the mineralized outcrops will not extend much further to depth than their surface length. There is no good reason to think that the copper content will become greater in depth than it is on the surface.

Under the present circumstances in O.M.E., I doubt that we can assign a very high priority to this application.

Willard P. Puffett

Willard P. Puffett

Enclosures

MME Form 40
(Revised Nov. 68)

Budget Bureau No. 42-R1368
Approval expires Dec. 1971

RECEIVED
AUG 31
O. M. E.
SPOKANE, WASH.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR FINANCIAL ASSISTANCE IN MINERALS EXPLORATION

Pursuant to Public Law 85—701 (72 Stat. 700; 30 U.S.C. 641)

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

BORNITE EXPLORATION CO.,
P.O. Box 604,
Darrington, Washington 98241

APPLICANT DO NOT USE THIS BLOCK

DOCKET NUMBER: 6894

DATE RECEIVED: September 7, 1973

REGION: I

DIVISION CODE:

BUSINESS ORGANIZATION *(Check one)*

- INDIVIDUAL [ ]
- CORPORATION [X]
- PARTNERSHIP [ ]
- OTHER *(Specify)* [ ]

STATE IN WHICH FIRM IS ORGANIZED: Nevada

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

NAME	ADDRESS	TITLE
Allene de La Bleau	P.O. Box 191, Searchlight, Nev.	Pres.
Ann Winnett	Apt."B", 2047 Charle Street, Costa Mesa, Calif. 92627	Vice-Pres.
M.H. Miller	4557 Hazelnut Avenue, Seal Beach, Cal	Secy-Treas.
Dean White	P.O. Box 604, Darrington, Wash. 98241	Gen.Mngr.

MINERAL(S) FOR WHICH YOU WISH TO EXPLORE

Major(Copper) Minor(Gold & Silver)

ESTIMATED COST OF PROJECT

$23,500.00

PROPERTY NAME	LOCATION COUNTY	STATE
Bornite Mine,	Snohomish County,	Wash.

GENERAL INSTRUCTIONS

Before filling out this application, please read the *OME Regulations for Obtaining Federal Assistance in Financing Explorations for Mineral Reserves* (30 CFR Chap. II). To assure prompt action, your application must provide all applicable material and information specified on the back of this application form. Avoid unnecessary correspondence and delays by submitting complete and accurate information. *Please submit two copies of this application and all accompanying papers* except as otherwise noted. Place your name and address on each sheet. Each item of information, maps, and reports required as a part of this application is described on the back of this form. Identify each attached statement by the item number to which it applies. If an item does not apply to your application, show the item number on your statement and after it write "not applicable." Maps or sketches should be used to supplement narrative descriptions of the property location and boundaries in item 2, existing mine workings and geology in item 3, and the proposed exploration work in item 5. When this information is not too complex, all of it may be shown on one map or sketch. All documents and other attachments submitted as a part of this application, except those in item 3(g) which you mark to be returned, become the property of the Government and will not be returned to the applicant. Send true copies, *not originals*, of leases, contracts, and other documents which are an essential part of your business records. *File this application with the Department of the Interior, U.S. Geological Survey, Office of Minerals Exploration, Washington, D. C., 20242, or with the nearest OME Field Office.*

CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief, and that he would not ordinarily undertake the proposed exploration under current conditions and circumstances at his sole expense.

Aug 28, 1973
DATED

Dean White
BY *(Signature)*

Gen. Mngr.
TITLE

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

INFORMATION REQUIRED WITH THIS APPLICATION

1. Financial Eligibility:

(a) Submit evidence of efforts made within 90 days preceding the filing of this application to obtain credit from your bank of account and at least one other banking institution or other private source of credit. Such evidence shall include (1) true copies of your letters to credit sources which show date of loan request, amount and terms requested, and proposed use of loan funds and (2) true copies of replies from credit sources. If the loan was offered under terms which you consider unreasonable, state why you consider them so.

(b) List names and addresses of affiliated, parent, or controlling companies or organizations and state extent and nature of their interest.

(c) State how you propose to furnish your share of the cost of the exploration work.

2. Applicant's Rights in Land:

(a) State your interest in the land and mineral rights, whether owner, lessee, purchaser under contract, or other. If you are not the owner, submit one true copy of the lease, contract, or other document (with address of owner) under which you control the property. Describe all liens, mortgages, or other encumbrances on the land and state book and page number and official place where recorded.

(b) State the legal description (section, township, and range; metes and bounds; patent number of claims) of the land upon which you wish to explore and all adjacent land which you own or control. Describe any part of the land or workings which should not be subject to Government royalty and liens. If the land consists of unpatented claims, state book and page number for each recorded location notice, including amended locations, and official place where recorded. State all the names by which you know the property.

(c) For all land or mineral rights encumbered or not owned, submit five copies of Lien and Subordination Agreements signed by owner on MME Form 52. If the agreements cannot be obtained, state reasons and whether you can furnish a performance bond.

3. Physical Description:

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

(b) State your interest, if any, in operations described in (a)

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

(d) Describe known ore reserves, giving quantities and grades.

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

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

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

4. Accessibility of Property:

(a) To aid the OME representative who may examine the property state name, address, and telephone number of person who will meet him; give directions for reaching the property; and describe accessibility of property and of any mine workings.

(b) Name the shipping and supply points and state the distances to the property.

5. Exploration Work:

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

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

(c) If an OME contract is executed, state how soon thereafter work would be started and finished. State your anticipated average daily or monthly rate of progress for each type of work.

6. Experience:

State your operating experience and background to conduct this exploration work and also that of the person who will supervise the work.

7. Estimate of Costs:

Furnish detailed estimates of the necessary costs for time and materials *for each item of the work proposed in 5(a)* under the headings listed below with a total for each heading and the estimated total cost of the work. Costs for any work to be performed by an independent contractor should be listed separately under category (a) below. Costs for any work that is not to be performed by an independent contractor should be listed under categories (b) through (g).

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

(b) Personal services. The cost of supervision, engineering and geological services, outside consultants, and labor should be itemized by numbers and classes of employees; rates of wages, salaries or fees; and periods of employment. State whether these services are available.

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

(d) Operating equipment. List items of equipment and tools costing $50 or more per unit. Give specifications and indicate how each item is to be acquired—i. e., rented, purchased or provided by the applicant. If rented or purchased, state the estimated rental or purchase price. If furnished by the applicant, state condition and present fair market value.

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

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

(g) Miscellaneous. Describe the type and estimate the cost of repairs and maintenance of the operating equipment listed in 7(d). Do not repeat initial repairs listed in 7(e). Show also the costs of analytical work, accounting, workmen's compensation and employees' liability insurance, payroll taxes, and other required costs that do not fall within the previous categories. [*Note*—The Government will not contribute to costs incurred before the date of the contract, or to costs of or incident to: (1) acquiring, using, or possessing land and any existing improvements, facilities, buildings, installations, and appurtenances, or the depreciation and depletion thereof; (2) general overhead, corporate management, interest and taxes (other than payroll and sales taxes); (3) insurance (other than employees' liability insurance); and (4) damages to persons or property (other than authorized repair to or replacement of equipment or other property used in the work).]

ITEM 1-A

Bornite Exploration Co.

FIELD OFFICE:
P.O. Box 604
DARRINGTON, WASH. 98241
(206) 436-5811

HOME OFFICE:
SUITE 405
FIRST NATIONAL BANK BLDG.
302 EAST CARSON
LAS VEGAS, NEVADA 89101
(702) 384-5092

June , 1973.

RECEIVED
AUG 31
O. M. E.
SPOKANE, WASH.

Manager,
Darrington Branch,
Seattle First National Bank,
Darrington, Washington.

Dear Sir:

Please consider this a formal request for a loan from your bank for $11,500 to cover half the cost of a proposed diamond drilling program at the Bornite Mine. Accompanying this letter is a report which covers the geology, the exploration program and the expected results from the same.

A summary of the Company financial statement is as follows:

Property-	Assets	Liabilities
Nine (9) unpatented mining claims	$90,000.00	
Mine Equipment	10,000.00	
Including 3,000 ft - 3" pipe(air line)		
6,000 ft - mine rail(10 lb)		
1,500 ft - 12" vent pipe		
Cash on Hand	1,000.00	
Total	$101,000.00	
Accounts Payable		225.00

Repayment of the loan would necessarily be from future sales of capital stock of the Company.

Sincerely yours,

Dean White

Dean White, Gen. Mngr.

DW:cw
Enclos.

ITEM 1-A

SEATTLE-FIRST NATIONAL BANK DARRINGTON BRANCH

June 6, 1973

RECEIVED
AUG 31
O. M. E.
SPOKANE, WASH.

Mr. Dean White
General Manager
Bornite Exploration Company
P.O. Box 604
Darrington, Wash. 98241

Dear Mr. White;

In answer to your request for a loan from this Bank in the amount of $11,500.00 to cover the cost of a proposed diamond drilling program at the Bornite Mine, please be advised that, although we feel it would be a boon to the economy of this area to have an operating mine such as yours, we would not be able to honor your request due to the unacceptable nature of the collateral available.

Also the source of repayment of the loan would not be within Bank policy guidlines for the reason that repayment should come from profits of the company rather then future sales of capital stock.

Yours very truly,

Ralph Jacobsen

Ralph Jacobsen, Manager

RJ/ej

P. O. BOX 477 / DARRINGTON, WASHINGTON 98124 / TELEPHONE (206) 436-3021

ITEM 1-A

Bornite Exploration Co.

FIELD OFFICE:
P.O. Box 604
DARRINGTON, WASH. 98241
(206) 436-5811

HOME OFFICE:
SUITE 405
FIRST NATIONAL BANK BLDG.
302 EAST CARSON
LAS VEGAS, NEVADA 89101
(702) 384-5092

June 4, 1973.

RECEIVED
AUG 31
O. M. E.
SPOKANE, WASH.

Manager,
First National Bank of Stanwood,
Stanwood, Washington.

Dear Sir:

Please consider this a formal request for a loan from your bank for $11,500 to cover half the cost of a proposed diamond drilling program at the Bornite Mine. Accompanying this letter is a report which covers the geology, the exploration program and the expected results from the same.

A summary of the Company financial statement is as follows:

	Assets	Liabilities
Property- Nine (9) unpatented mining claims	$90,000.00	
Mine Equipment	10,000.00	
Including 3,000 ft - 3" pipe(air Line)		
6,000 ft - mine rail(10 lb)		
1,500 ft - 12" vent pipe		
Cash on Hand	1,000.00	
Total	$101,000.00	
Accounts Payable		225.00

Repayment of the loan would necessarily be from future sales of capital stock of the Company.

Sincerely yours,

Dean White

Dean White, Gen. Mngr.

DW:cw
Enclos.

ITEM 1-A

THE FIRST NATIONAL BANK OF STANWOOD

(206) 629 • 2141
POST OFFICE BOX 588 • STANWOOD, WASHINGTON • 98292

June 8, 1973

RECEIVED
AUG 31
O. M. E.
SPOKANE, WASH.

Mr. Dean White
General Manager
Bornite Co.
Box 604
Darrington, Wash. 98241

Dear Mr. White:

This letter is to inform you that we have received your application for a loan of $11,500.00 to cover one-half of proposed drilling project at the Bornite mine.

Since we are an independent home-owned bank, it is not our policy to lend out fund not in our immediate area. Also, because of the tight money market we are restricting any commerical loans to our deposit customers. The loan also would not qualify, since you stated in your application that repayment would be predicated on future sales of capital stocks on the company instead of cooperated operating profits.

Sincerely,

Jay T. Lien
Assistant Cashier

JTL:sl

ITEM 3-F

STATE OF WASHINGTON

Department of

Natural Resources

COMMISSIONER
BERT COLE

DON LEE FRASER
SUPERVISOR

BOX 168
OLYMPIA, WASHINGTON
98501

August 18, 1971

RECEIVED
AUG 31
O. M. E.
SPOKANE, WASH.

Mr. Dean White
General Delivery
Issaquah, Washington 98027

Dear Mr. White:

Mr. Moen is working in the field right now, so I have examined and spectrographed your sample.

The rock is a serpentinized mafic rock, and the mineralization is chalcopyrite (copper-iron sulfide), bornite (copper-iron sulfide), and chrysocolla (copper silicate). The spectrographic results follow:

Major (greater than 0.1%)	Minor (0.1% - 0.01%)m	Trace (less than 0.01%)
Copper (6-7%)	Nickel (0.07%)	Tin
Silicon	Cobalt (0.02%)	Silver (4 oz./ton)
Magnesium	Aluminum	Gold (0.2 oz./ton)
Iron	Sodium	Vanadium
Calcium		Titanium
Manganese		Chromium

Our spectrographic results are only estimates of the amounts of metals in the rock, but rough calculations based on these estimates show about $60.00 per ton in copper, $6.40 per ton in silver, and $8.00 per ton in gold, for a total of about $74.40 per ton. These calculations are based on March, 1971, metal prices. Nickel and cobalt are not present in amounts large enough to be of value.

This sample warrants further investigation. I am sending a list of assaying firms in case you wish to have more accurate analyses run.

I hope these results will be useful to you. If we can be of further assistance, please feel free to call on us or send additional samples.

Very truly yours,

BERT L. COLE
Commissioner of Public Lands

J. Eric Schuster

BY J. Eric Schuster, Geologist
Division of Mines and Geology

JES:oo
1 Attachment

ITEM 3-F

OUR MOTTO: — WHAT THERE IS IN IT, NO MORE NO LESS.

EDMUND E. PHILLIPS, Vice-Pres.—Gen. Mgr.

M. E. PHILLIPS, Secretary

THE COLORADO ASSAYING COMPANY

(INCORPORATED)

ASSAYERS AND CHEMISTS

303—623-2842 2244 BROADWAY

DENVER, COLORADO 80201 August 20, 1971

REPORT ON DETERMINATIONS MADE FOR—

Mr. Dean C. White
P. O. Box #604
Darrington, Washington 98241

RECEIVED
AUG 31
O. M. E.
SPOKANE, WASH.

SAMPLE MARKS	METALS	Amount per Ton Ozs.	Hds.	PER CENT		Value per Ton Dollars	Cents
	Gold	0	01			$	40
	Silver	3	00			6	00
	Copper			8	75	87	50
	Platinum	0	001			0	12
	Palladium	0	003			0	10
	Iridium	none					
	Osmium	none					
	Rhodium	trace					
	Ruthenium	none					

GOLD AT_____PER OUNCE SILVER AT_____PER OUNCE

LEAD AT_____PER UNIT COPPER AT_____PER UNIT

THE COLORADO ASSAYING COMPANY

By Ed Phillips

Bornite Exploration Co.

FIELD OFFICE:
P.O. Box 604
DARRINGTON, WASH. 98241
(206) 436-~~5844~~ 1062

HOME OFFICE:
SUITE ~~405~~ 416
FIRST NATIONAL BANK BLDG.
302 EAST CARSON
LAS VEGAS, NEVADA 89101
(702) 384-5092

August 28, 1973.

RECEIVED
AUG 31
O. M. E.
SPOKANE, WASH.

Office of Minerals Exploration,
656 U.S. Court House,
Spokane, Washington 99201.

Gentlemen:

The Bornite Exploration Co. has a copper property in Snohomish County, Washington which we feel warrants your consideration in respect to an exploration loan. Enclosed please find two copies of the pertinent data as prescribed by you in MME Form 40.

A letter from Mr. Harold Kirkemo of your Office stated that only a small loan could be considered. Consequently, we are applying for a loan of $11,750 to cover half the cost of the first phase of our exploration program.

Sincerely yours,

Dean White

Dean White, Gen. Mngr.

DW:cw
Enclos.

APPLICATION FOR FINANCIAL ASSISTANCE IN

MINERALS EXPLORATION

Item I - Financial Eligibility

(a) Letters & answers submitted

(b) No affiliate, parent or controlling companies in corporate setup.

(c) The Bornite Exploration Co. will furnish its share of the cost of the exploration work thru sale of capital stock which will be greatly implemented by acknowledge of a loan granted by O.M.E. Several prospective investors have indicated that they would invest under these circumstances. However, the company has no written commitments to this effect.

RECEIVED
AUG 31
O.M.E.
SPOKANE, WASH.

Item 2 - Applicants Rights in Land

(a) Property totally owned by company: (see claim map)

(b) 9 unpatented mining claims: Recorded in Snohomish County Mining Records, Everett, Washington on unsurveyed land in R. 9E. T. 31 N. U.S. Geological Survey Map Silverton Quadrangle Washington, Snohomish Co.

Name	Vol.	Pg.
Bornite	58	205
Bornite No. II	58	205
Bornite No. III	58	450
Palladium	58	448
Eureka	58	449
Sweet Marie	58	203
Sweet Marie No. II	58	204
Bornite Copper and Platinum No. I	56	201
Amended	701	495
Bornite Copper and Platinum No. II	56	202
Amended	701	497

(c) Not applicable

Item 3 - Physical Description

(a)(b) See contour map-on outcrop nearest the contact- 2 shallow shafts 5ft. to 7ft. deep near center of bed exposing full width of bed. On next outcrop from contact - shallow surface blasting exposing full width of bed. No work done on outcrop furtherest from contact.

Portal to tunnel was caved - company has cleaned out and retimbered caved area. 3,100 feet of tunnel open for inspection.

(c) As described in report, there has been no production as the present tunnel didn't reach the orebody.

(d) No ore has been blocked out.

(e) See Report

(f) Sampling, outside of a few comparative samples, was done by visual inspection.

RECEIVED
AUG 31
O.M.E.
SPOKANE, WASH.

Item IV - Accessibility of Property

(a) Person to contact - Dean White
Mailing Address - P.O. Box 604
Darrington, Wash. 98241

Street Address - log house corner Montague & Randall Streets, Darrington, Wash.

Phone - A.C. 206 - 436-1062

Property may be reached by driving 12 miles south from Darrington, up Clear Creek and its tributary Copper Creek to end of road. A trail has been slashed from end of road to portal to tunnel - a distance of approximately one and one-quarter miles. From the portal to the outcrops the trail is about one mile long.

(b) Shipping & Supply Points -
Everett, Wash. - 60 miles from mine
Seattle, Wash. - 95 miles from mine
Tacoma, Wash. - 125 miles from mine

Item V - Exploration Work

(a) Exploration work proposed amount to drilling 5 diamond drill holes the location of which are shown on the contour map at outcrops.

Revised schedule is as follows:

Drill Hole	Length	Angle From Horiz
DH 1	125ft.	75°-80°
DH 1A	275ft.	75°-80°
DH 3	700ft.	80°-90°
DH 2	125ft.	75°-80°
DH 4A	125ft.	35°-40°
Total	1,350ft.	

(b) Not applicable

(c) Work will start within 2 weeks after contract award,

weather permitting. Daily drilling average expected - 30ft/day length of time to finish operation - 45 days.

Item VI - Experience

The company, being relatively new has no operating experience. However, Dean White, the general manager has thirty-five years experience in mining and construction and is a graduate of the MacKay School of Mines, Reno, Nevada.

RECEIVED
AUG 31
O. M. E.
SPOKANE, WASH.

Item VII - Estimate of Costs

(a) Independent Contracts.

We expect to contract the diamond-drilling at approximately $11.00 per foot for NX hole. Although no contractor has been up to the property and, consequently, we have no firm bid, however, phone conversations with three different diamond-drilling contractors pretty well set the price per foot at $11.00 plus move-in and move-out.

1,350ft. @ $11.00 = $14,850

A logging company working within 20 minutes flying time of Darrington will rent us a helicopter capable of handling 1 ton for $300.00/hr.

Move-in		
Trucking equipment to jobsite	150.00	
Helicopter time 2hrs @ $300.00	600.00	
		$750.00
Move-out		
Ditto		750.00
		$1,500.00

Estimated time for servicing the diamond-drill crew every two weeks (twice) by smaller helicopter with fuel & supplies is as follows:

8hr @ $135.00/hr = $1,080

Note: This item includes moving diamond drill cores from drillsite to end of road.

(b) Personal Service

1. Supervisor 6 weeks @ $500.00/wk + Ins. + Payroll Tax - $3,600.00

2. Laborer @ ($5.50/hr + $1.00/hr Payroll Taxes + Ins.
100 hrs @ $7.00 700.00

3. Carpenter($6.75 + $1.50/hr Payroll Taxes + Ins) 60 hrs @ $9.00 540.00

(c) Operating Material & Supplies

Dynamite - 200 lbs.	70.00
Caps & Prima-cord	30.00
Drill Steel for Jackhammer (rented) 2 wks @ $20.00/wk	40.00
Oil & Fuel	20.00

(d) Operating Equipment

Gasoline-operated Copra Jackhammer 2wk @ $85.00/wk	170.00
Freight	15.00

(e) Not Applicable

(f) Portable bldg. (panelled) deemed necessary (for safety sake) to house drill crew due to sudden rain & snow storms at 4,200' elevation Bldg. 16' x 12'

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Cost of material	500.00
Cost of labor - Carpenter as above	540.00
	$1,140.00
Helicopter time for moving bldg. pannels in & out 2hr @ $135.00	270.00

Summation

(a)	Diamond-drilling	$14,850.00
	Move in - out	1,500.00
	Servicing drill crew	1,080.00
(b)	Personal Service	
	Supervisor	3,600.00
	Laborer	700.00
	Carpenter	540.00
(c)	Operating Materials & Supplies	160.00
(d)	Operating Equipment	185.00
(e)	Not Applicable	
(f)	Portable Bldg. Material & Transportation	870.00
		$23,485.00

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GEOLOGY AND EXPLORATION PROGRAM FOR THE BORNITE MINE

by

Dean C. White
Mining Engineer

6694

SEP 8 1973

April, 1973

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GEOLOGY AND EXPLORATION PROGRAM
FOR THE BORNITE MINE

The Bornite Mine consists of nine unpatented mining claims located in Snohomish County, Washington about ~~ten~~ 7 w PR miles south and two miles west of Darrington, Washington. The claims are situated on the south side of that branch of Clear Creek which heads in Windy Pass and are about one-half mile east of Windy Pass. The terrain is rugged to precipitous; cliffs and rockslides predominate the landscape. This factor has undoubtedly been the main deterrent that has kept these claims from being developed before now.

A Forest Service road has been built in the last ten years to within one mile airline of the portal of the main tunnel. The elevation at the road terminal is about 2,000 feet; the elevation at the portal is 1,000 feet higher; consequently, about two and one-half miles of road would have to be built to service the main tunnel. A rough estimate of the cost of this road is in the neighborhood of One Hundred Thousand Dollars ($100,000).

HISTORY

The Bornite claims were originally discovered in 1900. The Bornite Gold & Copper Mining Co. was incorporated under the laws of the State of Maryland in 1903. And authenticated report stated that the original locator was offered either $40,000 in cash or a block of stock in the Company for his interest; he demonstrated his faith in his find by choosing the stock. In the ensuing years until the operation closed down in 1909, the Company built twelve miles of horse-tram from the railhead at Darrington; installed a hydro-electric system consisting

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of about 8,000 feet of 9 inch pipeline with a 30 inch Pelton Wheel, generator and a direct drive compressor; built on aerial cable tram from the horse-tram terminal to the tunnel portal about 3,500 feet long and rising a 1,000 feet in elevation; installed 4,000 feet of 4 inch airline; and drove 3,100 feet of 6' x 8' haulage tunnel. The depression of 1907 created financial difficulties for the Company and the tunnel was stopped some 300 feet short of its objective in 1909. The objective was to explore three mineralized areas which outcropped on the surface 1000 feet higher than the tunnel.

GEOLOGY

This report is directed for understanding by the layman and will necessarily be explanatory in detail, omitting geological terms or explaining them as they appear. The exploration program prescribed and the expected results from the program are predicated on the interpretation? WPP interruption of the geological features of the Bornite Mine.

To begin with, ore is rock that contains metals or minerals and that can be mined and treated to extract these metals or minerals for a profit. The concentration, by nature, of these metals and minerals that make it profitable to mine them is generally associated with an intrusive body of rock in the earth's crust. Molten rock mixed with water and gases that penetrate the earth's crust is called magma. If this mixture spills out on the surface of earth whether by violent eruption, as witnessed in volcanic action, or by welding thru cracks in the earth's crust, it is said to be extrusive. The magma that becomes entrapped within the earth's crust and cools into rock there is termed intrusive. Granite is a commonly known intrusive

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rock while the lava, basalt, which frequents many areas of the world is an extrusive rock. Granite and basalt are representive examples of the two major classifications of rocks from magma, both of which have several sub-classifications. The intrusive rock mass at the Bornite Mine is quartz diorite.

According to size, the intrusive rock masses are called batholiths or stocks; the batholith is the larger of the two and may cover several hundred square miles. Both are formed thousands of feet below the surface, and the time required for cooling is measured in thousands of years. The pressures and temperatures involved in the emplacement of these rock masses is beyond conception by those of us that think in terms of everyday life.

Subsequent erosion, again over periods of thousands of years, uncovered these bodies and exposed them to our sight. Two characteristics identify the rocks of intrusive bodies; generally they are homogeneous in composition and the rock-forming mineral crystals are coarse and well developed. Mineral crystals in extrusive rocks that have cooled rapidly are minute and hardly discernible to the eye, as evidenced in lavas.

Hydrothermal solutions is the name given by geologists to the mixture of water and gases that accompany the melt. It may have, in chemical solution, one or more of the metals used by man; as well as some of the rock forming minerals, silica in particular. A portion of the hydrothermal solution is dissipated at the time of intrusion, or shortly thereafter, into the surrounding rock. The remaining portion becomes entrapped in pools within the newly formed rock mass, and these

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pregnant solutions with the concentration of those metals and minerals not needed in the rock forming process are the source of much of the ore we mine later in lodes and veins and quarries.

Thousands of words incorporated in hundreds of books have been written about ore deposits. It is not the purpose of this report to summarize these but to deal specifically with the ore deposits at the Bornite Mine. However, a description of the general type of the deposit encountered here is in order for the reader to appreciate the expected results from the exploration programs.

During the emplacement of a batholith or stock in the upper portions of the earth's crust, the rocks which it encounters may undergo changes. The alterations that undergo at or near the contact, known as contact metamorphism, are evidenced by the formation of new minerals in the invaded rock. In some cases recrystallization is brought about merely thru the increase in temperature and pressure; in others, chemically active solutions from the intrusive may produce significant mineralogical changes in the country rock.

The type and extent of the metamorphic changes depend on the nature of the magma but even more on the country rock. Thus, sandstone is converted to quartzite; whereas shale becomes "hornfels," a dense structureless rock composed of a fine grained mixture of several minerals. The most striking changes are broughtabout when a granite magma intrudes limestones or dolomites, and the solutions from the magma react chemically with them.

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Such is the case governing the formation of the ore deposits at the Bornite Mine. A bed or beds of dolomite occurred in a shale sequence. The intrusion metamorphosed the shale to hornfels. Subsequent release of hydrothermal solutions from a pool deep in the still cooling mass, seeking a channel for release, came in contact with the dolomite. The calcium and magnesium from the dolomite combined with the silica from the solutions and a new mineral, diopside, was formed. The chemical reaction also precipitated copper in combination with iron and sulfur; the minerals bornite and chalcopyrite resulting.

The release of the entrapped solutions could have happened in a number of ways: stresses generated by the contractional action of the rock during the cooling process could have fractured the rock surrounding the pool. A geologic disturbance in a nearby area might have made the escape route for the solutions.

Authorities on mineral deposition concede that contact metamorphic ore bodies are deep-seated and can be productive to great depths. One of the older copper mines in the west at Bisbee, Arizona is an example of this type.

Copper minerals outcrop in the hornfels in three separate places on the Bornite Claims. The lower two outcrops, near the contact, appear to be segments of the same bed of dolomite (now diopside) even though there is a lateral displacement of some 300 feet. The outcrop closer to the contact, about 100 feet, is 60 feet long and 6 feet wide near the middle and tapers to about 3 feet at each end. The next out-

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crop is about 300 feet deeper in the hornfels and 150 feet higher in elevation. The length of this outcrop is 50 feet, the width at the middle is 6 feet; it is not as fully developed as the other outcrop and tapers more rapidly to a mere point on each end. Both of these beds parallel the contact both in dip and strike, and they are separated by a late postmineral fault almost at right angles to the strike of the beds. Probably the fault followed a plane of weakness that occurred before the metamorphism of the shale beds.

There is definite evidence of channeling of the hydrothermal solutions in both beds. Near the middle they have developed to the full 6 foot width of the original dolomite bed and both taper down at the ends. The diopside is coarse grained in the center and is fine grained on the periphery and at the ends of the beds. Blobs of solid metallization of chalcopyrite and bornite occur near the middle of the bed nearest the contact. The lack of heavy concentration of the metals in the other bed indicates it was near the top of the copper mineralized zone. The apparent conclusions one can draw from this evidence are; first, the hornfels were partially cooled when the hydrothermal action took place. Continuing emanations of hot solutions from a source deep in the batholith reheated the dolomite bed and allowed the growth of the large crystals of diopside in the channel. Away from the channel the solution cooled more rapidly with subsequently less chemical reation and smaller crystals of the minerals formed. As the solutions rose from their source both the temperature and the pressure diminished, reducing both the chemical reacting and

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the penetrating ability of the solutions. They became leaner in their silica and metallic load. Conversely, one can expect the deeper the vein is exposed, the more developed and enriched the vein would be.

The development of the ore bodies in this type of deposit at depth is limited only by structural and chemical controls. Structural controls include the width of the original bed of dolomite, the permeability of the rocks surrounding the bed, and faulting which may dam the lateral flow of the solutions. Chemical control deals with the composition of the dolomite bed. As the bed grades in shale, the dilution by foreign matter, clay and silt, in this case, would slow down the chemical reaction between the solutions and the dolomite; thereby limiting lateral mineralization. Thus you can expect the copper mineralized diopside body to be as persistent as the dolomite layer in the sedimentary series that was metamorphosed and to be proportionally elongated and enriched as the temperature and pressure of the hydrothermal solutions increased at depth.

At first glance the third outcrop is insignificant as it consists only of a small area in the hornfels that shows minor copper mineralization. It is 600 feet from the contact and 300 feet higher in elevation than the outcrop nearest the contact. The mineralizing solutions, if from the same source, would have had to travel 1,000 feet further thru cooler rock to reach this exposure than to the outcrop near the contact. This outcrop could very well be the end product at the upward limits of a mineral channel and is indicative of a good area to look for ore at the tunnel level. It is 1800 feet down the slope of the beds from the outcrop to its projection at the tunnel level.

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Samples taken across the center of the diopside bed nearest the contact assayed from 5% to 7% in copper with gold and silver values amounting to about $4.00 per ton. The blobs of solid metallization near the center of the channeling of the solutions do not lend for accurate sampling. The ore grades to about 1% copper at the ends of the outcrop with correspondingly lower gold and silver values. The bed higher up sampled over all about 1% copper.

To summarize the geologic aspects at the Bornite Mine; first, the copper mineralized deposits are contact metamorphic which are deep seated; secondly, there is definite evidence of channeling of late hydrothermal solutions, rich in copper minerals; and thirdly, the relationship of development and size between the three deposits coupled with their source distance indicates an increase in size and copper enrichment as the beds go deeper. One other feature should be considered in detail and that is the fault that apparently offsets the dolomite bed. There is a good possibility that this fault line was the main artery at depth for the hydrothermal solutions to move from the pool within the intrusive mass. Where the fault intersected the dolomite beds, the solutions bled off from the fault line channelway and enriched the beds from the intersection outwardly. It is a rare incident to find a single bed of dolomite or limestone in a sedimentary series. Thus the prospect of ore bodies other than these indicated by surface outcrops, is feasible at depth.

The projections of the two beds are 1400 feet and 1600 feet, respectively, down the slope of the beds to the tunnel level, it does not take any stretch of the imagination to visualize that at this

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elevation the diopside beds will be developed to their full 6 foot width and lengthen out to meet the fault line on one end and extend laterally in the other direction as well. The copper mineralization of the beds should increase correspondingly. The anticipated ore body at the tunnel level should be 300 to 400 feet long, 6 feet wide and assay from 4% to 6% copper with gold and silver values. This estimate in grade and tonnage resolves in gross revenue above the tunnel level to an anticipated $6,000,000. Whether or not this prediction is within reason can only be proven with further exploration. This amount of $6,000,000 gross should triple in the next 1,000 feet below the present tunnel level and it is at that elevation, 2,000 feet above sea level, where the mill should be built, assuming the exploration program proves successful.

EXPLORATION PROGRAM

During the summer of 1972 a survey of the workings was made, correlating the underground work to the outcrops above. The results of the survey showed the tunnel missed the downward projection of the ore body by about 250 feet, assuming the ore lay vertical down the slope of the bed. A copy of the map is an intergal part of this report.

The next phase in the exploration program is diamond drilling from the surface. The diamond drilling program should be limited to only prove the downward continuity of the ore bodies, as a fullblown program to determine the grade and dimensions of the ore body would cost much more than tunneling from below to obtain the same results. The location of 4 holes to be drilled are shown on the map. DH1 and DH2 will intersect their respective ore bodies at 100 feet below the

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outcrops and will be 125 feet deep. DH3 and DH4 are each 550 feet deep and intersect the ore bodies 400 feet below the outcrops. All holes are vertical or nearly so, and total approximately 1,300 feet of drilling.

The cost estimate is as follows:

Move in and move out of drill rig	$ 1,500
1300 ft. NX hole @ $11.00/ft	14,300
Supply fuel & food - Helicopter time 8 hrs @ $135.00	1,080
Engineering & Supervision (6 weeks)	3,000
Drill site preparation (Blasting for level setup of drilling)	800
Living quarters (12' x 16" building)	1,000
Move in & out of building	270
	$22,950

Good core samples from the diamond drilling will not only prove continuity of the ore deposits to depth but will furnish a limited index on the extensiveness of metalization. More important, good results from such a program will encourage and substantiate the financial investment for Phase II, which is to explore the ore bodies by tunneling 1,000 feet below the outcrops.

The existing tunnel, which is about 3,100 feet long, was driven in quartz diorite to within 150 feet of the end, there it crossed the contact into the hornfels. The tunnel ended in a bed of altered dolomite; the diopside is very fine grained and spotty and shows no copper mineralization. About 60 feet from the face of the tunnel a branch was driven to the south towards the ore for 40 feet. It is

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250 feet from the end of this drift to the vertical project of the outcrop at the tunnel level. Supposedly the dolomite bed showing in the face of the main tunnel is the same one in which the richer outcrop occurred on the surface. The branch angles to intercept the dolomite bed again about 150 feet ahead.

Naturally, satisfactory results from Phase I are prerequisite to the expenditure to carry out Phase II. An estimate of the cost to explore the ore bodies by tunneling is as follows:

Supervision & Engineer (3 months)	$6,000
Move in equipment & supplies	8,000
Housing for equipment & crew, cookhouse	8,500
Water system for camp & underground	2,500
Relay track, airline, ventline	5,000
Drive 800 ft. 6' x 8' tunnel @ $50.00/ft	40,000
	$70,000

Mining costs to put an underground mine into production and to keep it producing are divided into three separate categories; exploration, development and exploitation. Exploration has to do with finding the ore and determining the size and grade of the deposit. Development entails doing the necessary work preliminary to the actual mining operation; such as, sinking a shaft, driving tunnels at different levels, making ore passes and air shafts. Exploitation is the actual mining operation, i.e., extracting the ore from the mine and sending it to the mill for treatment. In practice, these operations may grade into each other; a tunnel driven for exploration can be used as part of the development work; and if it is

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driven partially in an ore body, ore is extracted. There is no hard and fast rule to determine what percentage each is of the total cost of the mining operation as there are too many variables; each mine is a separate entity and presents its own problems.

Since profit is the difference between gross receipts minus costs and is the main concern in any business, we should be aware of the fact that when the exploration program is completed, 75% of the development work will also be completed. Thus a higher return can be expected on production.

To summarize, this exploration program should develop ore enough to supply a 100 ton mill for three and a half years with a net operating profit of $3,000 a day, or $1,000,000 a year. Allowing 25% of this figure for taxes, 10% to amortize the capital investment and 15% for exploration and development of future ore, the profit per share of total issued company stock would be $2.00 per share, sustaining a market value of $20.00 per share.

The U. S. Government has a program to aid the exploration of minerals in the United States, administered by the U. S. Geological Survey. In the instance of copper exploration, they will loan 50% of the cost of the exploration program to the small and needy. I know of no other more deserving than the Bornite Exploration Company from a standpoint of geological and economic potentials.

SUPPLEMENT TO REPORT

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This supplement was written to give the results of further examination of the Bornite Mine in the early part of August, 1973. The writer with two men spent a week camped near the outcrops at 4,200 ft. elevation. During this time a heliport was built, drilling and blasting to expose the ore was done on the two lower outcrops and two days was spent prospecting for other beds of diopside in the hornfels. The results of this exploration was the discovery of another outcrop on a bench between two cliffs about 50 feet from the contact. It seemed to be in the continuation of the bed that housed the middle outcrop of the three previous known ones, and was about 200 to 250 ft. higher in elevation than that outcrop. It was partially covered with overburden but seemed to be about 4 ft. wide and 60 to 70 ft. long. Copper mineralization wasn't as prevalent as in the two lower outcrops. The copper content was estimated at about one percent. Unlike the other outcrops, magnetite occurred in considerable quantity both as pure mineral laying on the footwall of the bed and mixed with the diopside. The diopside was considerably darker, probably due to the presence of iron in the mineral compound. Copper occurred mostly as chalcopyrite with some evidence of bornite. Cliffs and steep terrain prevented moving the portable gasoline-operated drill to this outcrop for further exploration in the time we had.

However, the drilling and blasting that was done on the two lower outcrops definitely allowed an upgrading of the estimated values of the copper ore exposed. The lower outcrop, as now exposed,

averages 5 ft. wide for the full 60 ft. of length; and a visual estimate of the copper content is between 5% and 6% overall. The new exposure on the next higher outcrop allowed an upgrading of the estimate of the copper content to 1½% to 2%.

Another result of this investigation was the revision of the diamond drilling program. The reasoning behind this change is based on the fact that there is sufficient value in the lower outcrop which, if proven to the tunnel level, would warrant a mining operation. If this ore body continues downward to the tunnel level with no increase in size or value, there is 2½ to 3 million dollars worth of ore in sight. Consequently, concentration of the drilling program in this area seems logical.

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The new proposed program is as follows:

Drill Hole	Length	Angle to Horiz.
DH 1	125ft.	75°-80°
DH 1A	275ft.	75°-80°
DH 3	700ft.	80°-90°
DH 2	125ft.	75°-80°
DH 4A	125ft.	35°-40°
	1,350ft.	

DH 3 has been increased in length to drill thru the ore body and to reach the contact. This information helps establish the relative dip of the contact and the ore: to determine whether they are parallel, converging or diverging at depth. It identifies the diopside in the end of the tunnel as to whether or not it is the parent bed of the ore.

The new drilling program entails practically the same amount of work and the cost should be the same, approximately $23,500.

Bornite Exploration Co.
P.O. Box 604
DARRINGTON, WASH. 98241

DEAN WHITE, Mng. Eng.
General Manager
(206) 436-~~5041~~ 1062

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FILE COPY

September 11, 1973

Mr. Dean White, General Manager
Bornite Exploration Co.
P.O. Box 604
Darrington, Washington 98241

Re: CME-6894 (Copper)
Bornite Exploration Co.
Bornite Mine
Snohomish County, Washington

Dear Mr. White:

Your application for exploration assistance, dated August 28, 1973, has been assigned Docket No. CME-6894. Please identify all future correspondence relating to this application by this docket number.

We enclose for your information a copy of Exhibit A entitled "Notice to Prospective Federally Assisted Construction Contractors" which describes certain recent additional regulations and requirements. This should be filed with your copy of the application.

A preliminary review of your application raises several questions. The sketch map of your claims and the contour map of the same area do not have a common tie-point to indicate the physical location of the work you propose relative to the boundaries of the claims. You list the nine unpatented claims and cite the volume and page numbers on which they are recorded in Snohomish County records. Is the Bornite Exploration Co. the holder of these claims by location, or by other legal conveyance? If ownership is by location, a statement to that effect is needed. If the ownership is by purchase or other agreement, a document to verify the transaction will be needed.

Could you please inform us whether your mine is the same property as that described in Washington Division of Geology's Report of Investigations No. 6. The property described in that publication is called the Bornite prospect, located in Sec. 28, T. 30 N., R. 10 E., and is said to have a 3,000 foot crosscut. If it is the same property, is your stated location in T. 31 N., R. 9 E. more nearly accurate than the published location?

Another significant matter concerns the financial capability of your company to provide its share of the costs of an exploration project. Federal funds are not granted in advance, but are provided through payment of the Government's share of allowable costs each month as work proceeds under the terms of a contract. An applicant must demonstrate that he has adequate resources to finance his share of the costs as they accrue. The financial statement you provided to the banks does not indicate enough cash on hand to cover your costs. The possible future sale of capital stock in your company is not tangible enough to qualify, either. Submittal of the information and material suggested in this letter should not be construed as a commitment by the Government that the application will be approved and a contract offered.

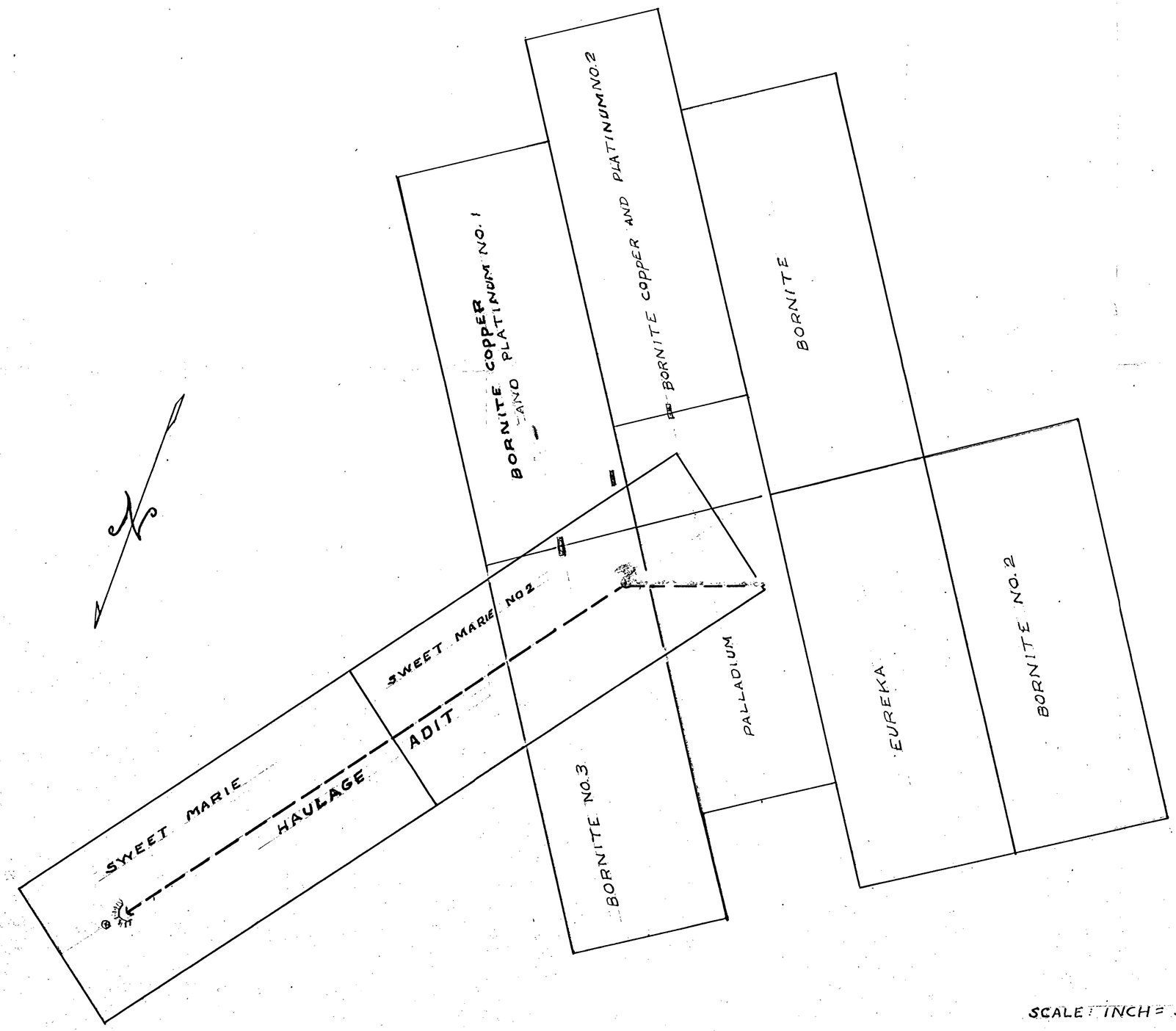
Sincerely yours,

Robert A. Weeks

Robert A. Weeks, Acting Chief
Office of Minerals Exploration

Enclosure

cc
DRF
MR Rdg.
OME Rdg.
OME Files
Mr. Kirkemo
RWeeks
Region I
RAWeeks/gpw



SCALE: 1 INCH = 300 FEET

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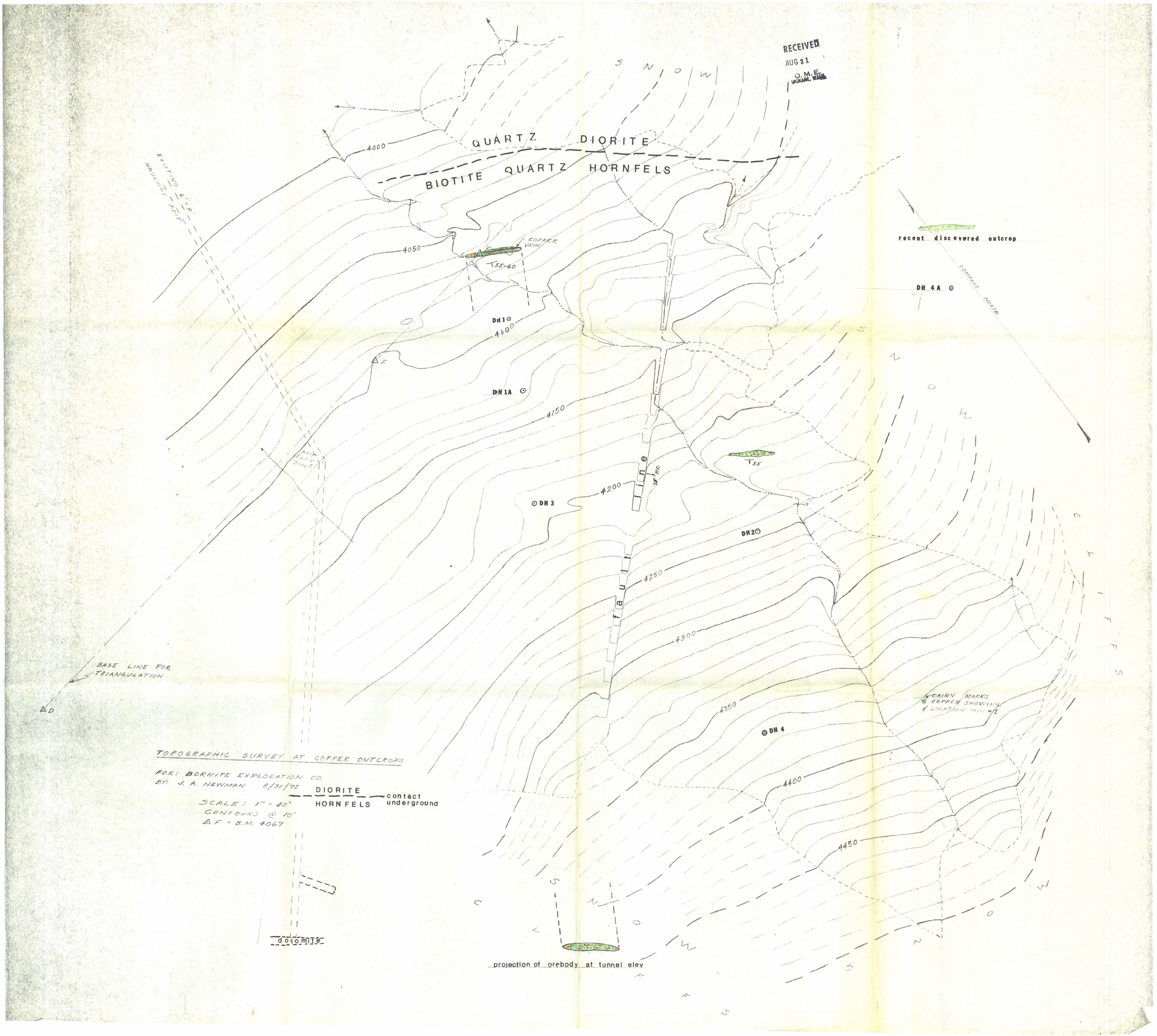
PLAT UNPATENTED MINING CLAIMS

OWNED BY

BORNITE EXPLORATION CO.

SNOHOMISH CO WASH

DRAWN BY DEAN WHITE 2-73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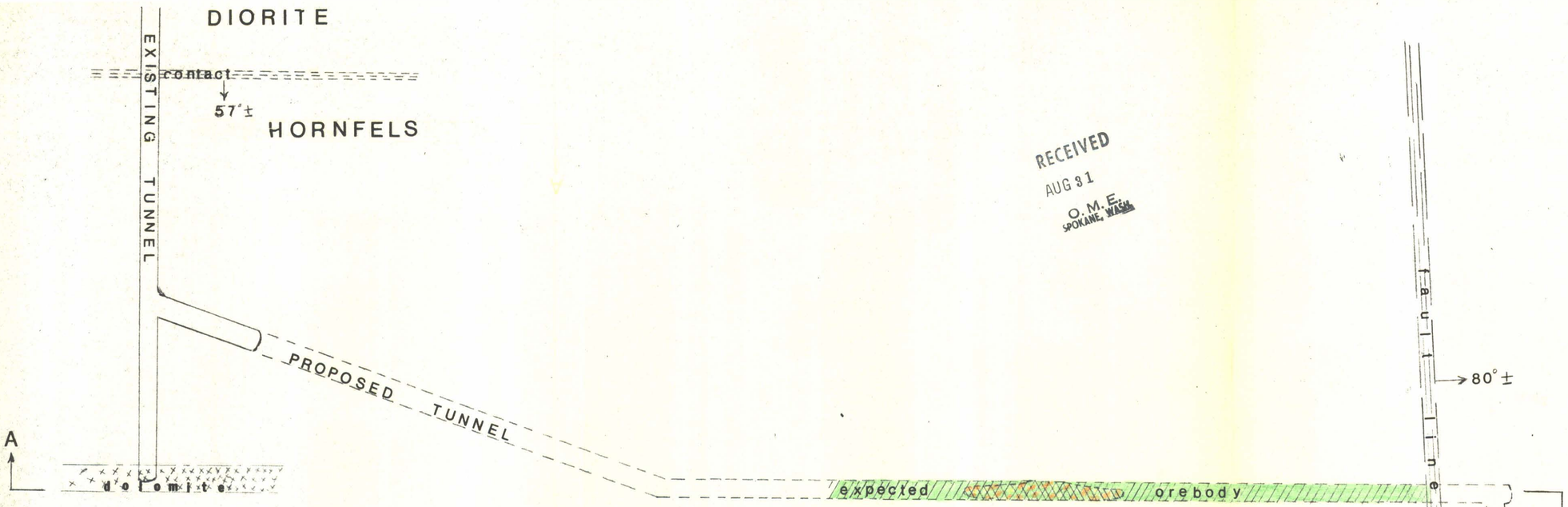
SNOW
QUARTZ DIORITE
BIOTITE QUARTZ HORNFELS
EXISTING E.K.B. HAULAGE ADIT
4000
4050
4100
4150
4200
4250
4300
4350
4400
4450
COPPER VEIN
T55-60
DH 1
DH 1A
DH 2
DH 3
DH 4
DH 4A
recent discovered outcrop
COMPASS NORTH
T55
fault line
ADIT ELEV. 3000±
BASE LINE FOR TRIANGULATION
D
E
F
CAIRN MARKS
COPPER SHOWING
LOCATION MON #1
TOPOGRAPHIC SURVEY AT COPPER OUTCROPS
FOR: BORNITE EXPLORATION CO.
BY: J. A. NEWMAN 8/31/72
SCALE: 1" = 40'
CONTOURS @ 10'
F = B.M. 4067
DIORITE
HORNFELS
contact underground
dolomite
projection of orebody at tunnel elev



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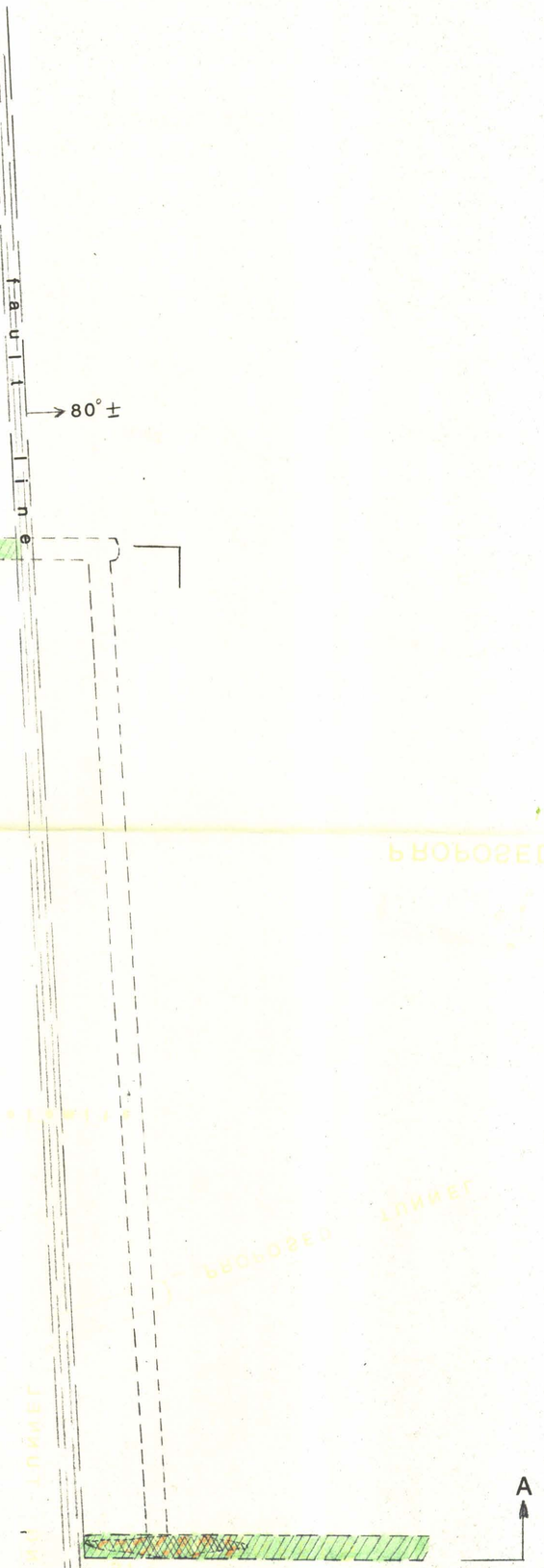

PLAN

PROPOSED UNDERGROUND EXPLORATION
at
BORNITE MINE

scale = 1 in = 30 feet

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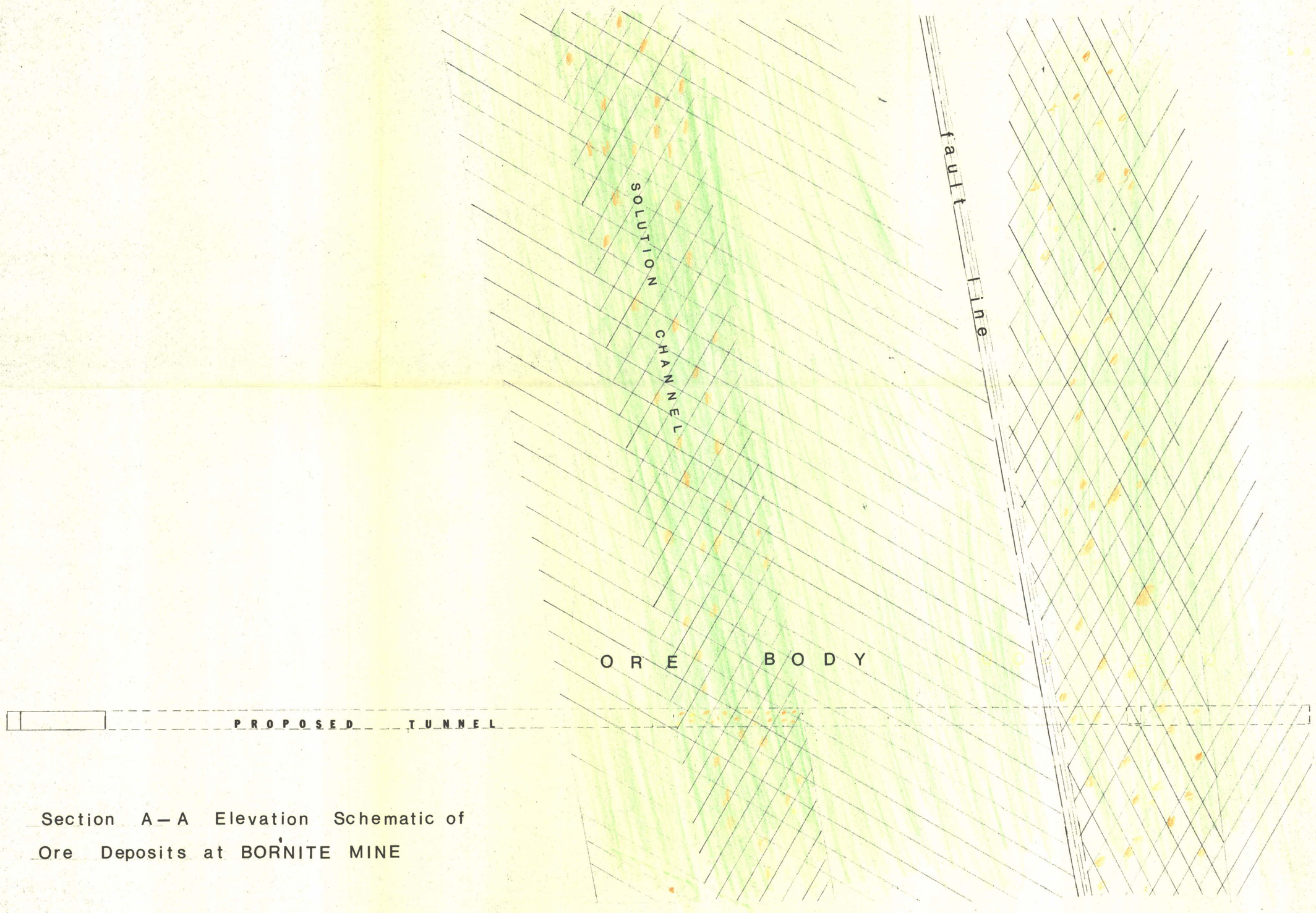
SOUTHE. MINE



Section A—A Elevation Schematic of
Ore Deposits at BORNITE MINE