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

500

August 4, 1958

MEMORANDUM

To: Mr. Winfield N. Chamberlain
Division of Operation Control & Statistics

From: Director, Division of Base Metals

Subject: Semi-Annual Reports of Certified projects for the period January 1, 1958 thru June 30, 1958.

The following projects were inactive during the cited period.

Docket No.	Contract No.	Name
DMEA-3112	Idm-E651	Centrida Mines, Inc.
DMEA-432	Idm-E1	Mines Management, Inc.
DMEA-81	Idm-E18	United Minerals Corporation
DMEA-1166	Idm-E76	American Zinc, Lead & Smelting Co.
DMEA-390	Idm-E63	Highland-Surprise Cons. Mining Co.
DMEA-125	Idm-E81	Bennett Mining Company
DMEA-981	Idm-E68	Idaho Mining Company
DMEA-525	Idm-E137	Spokane Mining Syndicate
DMEA-1877	Idm-E155	William Mulcahy
DMEA-652	Idm-E177	South Mt. Mining & Concentrating Co.
DMEA-1596	Idm-E184	Nabob Silver-Lead Company

DMEA-2166	Idm-E208	Farmer Mine Enterprises
DMEA-1959	Idm-E223	Wylie M. Gardner and L. M. Vance
DMEA-2123	Idm-E228	Pacific Northwest Mining Company
DMEA-1831	Idm-E242	William Soren
DMEA-1175	Idm-E251	Amador Mining Company (assignee of Kootenay Copper Mines)
DMEA-1894	Idm-E266	Bushman, Breckon and Norden
DMEA-2213	Idm-E294	Elmer Enderlin
DMEA-2388	Idm-E301	American Zinc, Lead & Smelting Co.
DMEA-2269	Idm-E308	Mines Management, Inc.
DMEA-2420	Idm-E380	Hypothek Mining & Milling Co.
DMEA-2237	Idm-E421	Signal Mining Company
DMEA-2637	Idm-E475	Goldenda Lead Mines
DMEA-2862	Idm-E482	Spokane-Idaho Mining Co.
DMEA-2612	Idm-E489	Granore Company (assignee of Index Mining Company)
DMEA-2929	Idm-E587	Grandview Mines
DMEA-3142	Idm-E644	Howe Sound Company
DMEA-3248	Idm-E667-	Alaska Copper Mines, Inc.
DMEA-3664	Idm-E819	Highland-Surprise Cons. Mining Co.

W. R. Griswold

WRG/dl 8-4-58
cc to: Dockets (28)
Admr. R. File
Chonr.

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code

March 10, 1958

Memorandum

To: Wingfield Chamberlain, Statistics Branch
Division of Operation Contract and Statistics

From: Director, Division of Base Metals

Subject: Report on Semi-Annual Reports of Certified Projects for the Period July 1, 1957 thru December 31, 1957.

The following projects were inactive during the cited period.

Docket No.	Contract No.	Name
DMEA-432	Idm-31	Mines Management, Inc.
DMEA-2341	Idm-2436	Western States Copper Corporation
DMEA-2308	Idm-2301	American Zinc, Lead & Smelting Company
DMEA-2426	Idm-2345	Ira L. Mosely
DMEA-2612	Idm-2489	Granore Company, Assignee, (Index Mining Company)

W. R. Griswold

8623

DEFENSE MINERALS EXPLORATION ADMINISTRATION

For the period January 1 - June 30, 1957

Base Metals Division Date February 13, 1958

Semi-Annual Report - Certified Project Date

(Index Mining Company)

DMEA No. 2612 Operator Granore Company Contract No. Idm-E 489

Ore Reserves

Ore Estimates	Tons	Analysis
Original (DMEA)	156,200	Cu. 4.84
Increase (Operator)		
Total		
Decrease (Production)		
Net Available		

Investment

Shafts			Winzes			Drifts & Crosscuts		
Size	Feet	Cost	Size	Feet	Cost	Size	Feet	Cost

Raises			Drilling			Rehabilitation	
Size	Feet	Cost	Type & Size	Feet	Cost	Description	Cost

Facilities

Mine Plant		Mill		Roads	
Description	Cost	Description	Cost	Description	Cost

Remarks

W. R. Griswold/er

DEFENSE MINERALS EXPLORATION ADMINISTRATION

To January 1, 1956

Base Metals Division Date June 22, 1956

Semi-Annual Report - Certified Project Date December 31, 1955

DMEA No. 2612 Operator Granore Company Contract No. Idm-E 489

Ore Reserves

Ore Estimates	Tons	Analysis
Original (DMEA)		
Increase (Operator)		
Total		
Decrease (Production)	No production	
Net Available		

Investment

Shafts			Winzes			Drifts & Crosscuts		
Size	Feet	Cost	Size	Feet	Cost	Size	Feet	Cost

Raises			Drilling			Rehabilitation	
Size	Feet	Cost	Type & Size	Feet	Cost	Description	Cost

Facilities

Mine Plant		Mill		Roads	
Description	Cost	Description	Cost	Description	Cost

Remarks

No report for Period of July - December as work was completed some time in October. Certification was issued in March 1956.

DEC 2

[illegible]

Frank E. Johnson

The project was completed, and in the covering [illegible] transmitting the certification of discovery to the [illegible] dated May 29, 1959, it is stated that the [illegible] is "from July 28, 1953, the date of the original [illegible] to July 28, 1967, . . . which is fourteen [illegible] the date of the original contract." Thus, the Government has placed upon the contract the construction [illegible] to the Operator.

In my opinion this is the construction to which [illegible] is entitled. It is the Government's contract, [illegible] under the circumstances, is to be [illegible] construction most favorable to the Operator.

There is an additional point about which no [illegible] but which may be of some interest in the future. [illegible] "A" of the amended contract sets up the unit [illegible] I in the total sum of $9,855.00. This sum is [illegible] applied to work that "has been completed," and that [illegible] purpose of making the amended contract. The [illegible] the determination the amended contract would [illegible] of making the payment of the Government's [illegible] sum subject to the provisions of the original [illegible] as Congress really, which work hereafter [illegible] payment therefor . . . [illegible] will have no [illegible] in the payment or collection of royalty, as [illegible] is the case in such instances, but there [illegible] in principle relating to royalty that might [illegible] into question.

We note that this Operator contests the Government's [illegible] to make any certification of discovery or development, [illegible] seems to intend to contest any claim of the Government [illegible] royalty. Under these circumstances any withdrawal [illegible] Government's original construction of its own contract [illegible] would seem to be a doubtful matter. Moreover, we [illegible] that whichever way the contract terms may be construed [illegible] to the beginning of the royalty period, [illegible] in effect on the Government's collection of royalty [illegible] particular case.

[illegible] Associate Solicitor
Division of Mineral Resources

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DMEA
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DATE	INITIALS	CODE
1/28	C	220
28	Com	100

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Reporting period: July 1 to December 31, 1957

Date of report: December 28, 1957

Operator: Granore Company (assignee of Index Mining Co.)
1640 Exchange Bldg., Seattle 4, Washington

Mine name: Sunset

County and State: Snohomish County, Washington

Docket number and commodity: DMEA-2612 (copper) K

Contract number: Idm-E489

Property inactive. No change in royalty status since report of January 1 to June 30, 1956.

Signed: E. A. Magill (Engineer)

Distribution:
DMEA (4)
USGS (2)
USBM (2)
USBM (AD)

ACTION ON INTERIM
OF FINANCE AND TRANSPORT

Date 1/28

Referred to:

1. ~~Mr. Mittendorf~~
2. ~~Mr. Johnson~~
3. ~~Mr. Chambers~~
4. Docket Control Mails and Files
5. Division
6. Docket Control Mails and Files
7. 500

Note comments in report regarding:

1.

2.

3.

4.

and take appropriate action.

- - - - - - - - - -

Action taken by Division:

Robert L. Adams

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DMEA
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DATE

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Reporting period: July 1 to December 31, 1957

Date of report: December 28, 1957

Operator: Cranere Company (assignee of Index Mining Co.)
1640 Exchange Bldg., Seattle 4, Washington

Mine name: Sunset

County and State: Snohomish County, Washington

Docket number and commodity: DMEA-2612 (copper)

Contract number: Idm-2489

Property inactive. No change in royalty status since report of January 1 to June 30, 1956.

Signed: E. A. Magill (Engineer)

Distribution:
DMEA (4)
USGS (2)
USBM (2)
DSBM (AD)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Reporting period: January 1 to June 30, 1957 Date of exam: May 28, 1957

Operator: Granore Company (assignee of Index Mining Co.)
1640 Exchange Bldg., Seattle 4, Washington

Mine name: Sunset

County and State: Snohomish County, Washington

Docket number
and commodity: DMEA-2612 (copper)

Contract number: Idm-E489

Project inactive. No change in status since report of January 1 to June 30, 1956.

Signed: E. A. Magill (Engineer)

7/11 Copy 100
~~3/15 Blog 500~~

Distribution:
DMEA (4)
USGS (2)
USBM (AD)
USBM (2)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

SEMI-ANNUAL REPORT OF CERTIFIED PROJECT

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

Reporting period: July 1 to December 31, 1956 Date of exam: Dec. 14, 1956

Operator: Granore Company (assignee of Index Mining Co.)
1640 Exchange Bldg., Seattle 4, Washington

Mine name: Sunset

County and State: Snohomish County, Washington

Docket number
and commodity: DMEA-2612 (copper)

Contract number: Idm-E489

Project inactive. No change in status since report of January 1 to June 30, 1956.

Signed: E. A. Magill (Engineer)

Distribution:
DMEA (4)
USGS (2)
USBM (AD)
USBM (2)

489

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

SEMI-ANNUAL REPORT OF CERTIFIED PROJECT

Reporting period: January 1 to June 30, 1956 Date of exam: June 8, 1956

Operator: Granore Company (assignee of Index Mining Co.)
1640 Exchange Bldg., Seattle 4, Washington

Mine name: Sunset

County and State: Snohomish County, Washington

Docket number
and commodity: DMEA-2612 (copper)

Contract number: Idm-E489

Date of contract: February 20, 1953

Date of certification: March 26, 1956

Expiration date of royalty payments: February 20, 1963 5

Total amount of contract: $115,000.00

Total expenditures under contract: $114,840.00

Amount of Government participation at 50%: $ 57,420.00

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Royalty payments this period: none

Previous royalty payments: none

Total royalty payments to date: none

Percent Government participation repaid: none

Royalty due on production to date: none

Royalty remarks: none

[illegible]

Date _____ 1956

2612

Referred to:

1. ~~Mr. Wittenborn~~
2. ~~Mr. Johnson~~
3. ~~Mr. Blomberg~~
4. Docket Control Mails and Files
5. _____ Division
6. Docket Control Mails and Files

Note comments in report regarding:

1. Some hope

2.

3.

4.

and take appropriate action.

- - - - - -

Action taken by Division:

_____

Initials

Semi-annual report
Contract Idm-E489

Original estimate of reserves (from final Engr.-Geol. report):	Not estimated at this date; report in preparation.
Increase (or decrease) of reserves by work performed subsequent to original and last Field Team estimates:	none
Revised estimate of reserves:	none
Production this period:	none
Amount of previous production (since date of contract):	none
Total DMEA production to date:	none
Percent of revised reserves mined:	none

Production remarks:

There is a good possibility that this property will be brought into production before the end of the royalty period and at least a portion if not all of the loan will be repaid.

Granore Company have relinquished their lease and the property has reverted back to the Index Mining Co., owners of the property.

Other remarks:

The property is inactive at present. The owner is considering applying for another DMEA loan to further explore the property.

Signed: E. A. Magill (Engineer)

Distribution:
DMEA (4)
USGS (2)
USBM (AD)
USBM (2)

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

1201 N. Division St.
Spokane 2, Washington
November 30, 1955

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DEC 19 1955

MEMORANDUM

To: DMEA Field Team, Region I, Northwest District

From: E. A. Magill, Mining Engineer, Bureau of Mines

Subject: Final inspection, Docket No. DMEA 2612 (copper), Granore Company, Snohomish County, Washington, Contract No. Idm-E489

An exploration project contract was entered into with the Index Mining Company on February 20, 1953. Part of the work called for under this contract was completed and the contract was assigned to Granore Company on May 9, 1955 under an amended contract.

The work completed under the original exploration contract with Index Mining Company consisted of a geophysical survey and trenching. The geophysical survey was carried out by Dr. A. R. Clarke of the University of British Columbia. This resistivity type survey disclosed a number of anomalies which were subsequently diamond drilled under the amended contract. Maps showing the locations of the anomalies and a report by Dr. Clarke were submitted to the Field Team by the Operator. Two large bulldozer trenches were made to check several of the anomalies but the overburden was too deep and they encountered bedrock in only one small area.

Granore Company leased the property and an amended contract was assigned to them on May 9, 1955, to be effective as of January 1, 1955. The amended contract allowed $3,000 for the completed geophysical survey and $1,500 for the trenching. In addition, it called for 15,670 feet of diamond drilling at $7 per foot and 405 chemical assays at $2 each.

All work called for under the amended contract has been completed. A summary of the work called for and completed under the amended contract is as follows:

Work item	Authorized	Completed
Geophysical survey	1 unit	1 unit
Trenching	1 unit	1 unit
Diamond drilling	15,670 feet	16,472.8 feet
Chemical assays	405 each	325 each

The Operator completed more diamond drill footage than called for under the exploration contract; this additional footage was for his own account. Complete drill logs and assay data have been submitted by the Operator with his monthly reports.

The exploration work carried out under the contract failed to locate any mineralization in the anomalies as indicated by the geophysical survey. However, the limits of the "Bureau of Mines" orebody were extended by drill holes at depth. Ore was also discovered in the extension of the Harrington vein. Consequently, it is recommended that a certification of discovery be made.

Orig. & 3 cys - Wash.
USGS (2)
DMEA
AD
Turner
EAM/he

E. A. Magill

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of October, 1955 Docket No. DMEA 2612 Contract No. Idm E489

Operator's Name Granore Company Minerals Copper

Address 1640 Exchange Building, Seattle 4, Wash.

Contract Amount, $ 115,000.00 Government Participation 50% % Amount, $ 57,500.00

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	1,519.00	113,790.60	115,309.60	-0-	109,690.00	109,690.00
Bulldozing		1,500.00	1,500.00		1500.00	1500.00
Crosscutting						
Drifting						
Geophysical Survey		3,000.00	3,000.00		3000.00	3000.00
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis		650.00	650.00		650.00	650.00
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
TOTALS		118,940.60	120,459.60	-0-	114,840.00	114,840.00

Betty

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

Date Oct. 20, 1955 Payee GRANORE COMPANY

Per [signature] Title Vice President

*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.

NOTE.—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.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ -0-

Signature [signature]
(Authorized Certifying Officer)

Date ..... Vou. No. .....
(See other side)

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE: Please note my memo of October 24, 1955 to Certifying Officer DMEA Region I

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. 489 in accordance with the terms of the contract.

Signature Elmer A Mazzeld Title Mining Engineer Date Nov 3, 1955

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

151 Signature Stephen W Zoldok Title Mining Engr. Date 12-15-55

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

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DEC 30 1955

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of October 195 5 Docket No. DMEA 2612 Contract No. Idm E489

Operator's Name Granore Company Minerals Copper

Address 1640 Exchange Building, Seattle 4, Washington

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT	
							Units	Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Ft.	1,519.00	217'	115,309.60	16,472.8	7.00		
Churn								
Auger								
Stripping								
Trenching				1,500.00				
~~Test Pits~~ Chem. Analysis	each	-	-	650.00	325	2.00		
Roads and Trails								
Geophysical Survey				3,000.00				
TOTAL DISTRIBUTED COSTS		1,519.00		120,459.60				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		1,519.00		120,459.60				

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

Date Oct. 20, 1955 Operator GRANORE COMPANY

Per [signature] Title Vice President

NOTE.—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.

REMARKS:

(Instructions on reverse)

(For Government use only)

181 Stephen W Zeldok

INSTRUCTIONS

Preparation of Form MF–104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF–104A has been designed to tie in with Form MF–104 for both monthly and cumulative costs. The "Total Costs" on Form MF–104A for each month should equal the monthly "Total Costs" as reported on Form MF–104. This is also true of the "Total Costs To Date".

In preparing Form MF–104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

GRANORE COMPANY

1640 Exchange Building
Seattle 4, Washington

RECEIVED
DEC 20 1955

Oct. 20, 1955

The United States Department of the Interior
Defense Minerals Exploration Administration
Federal Office Building
Seattle 4, Washington

Attention: Mr. Magill

Re: Docket No. DMEA-2612
Contract No. IDM-E489

Gentlemen:

The following report covers progress at The Index Mine for the period October 1st to 5th, 1955.

Footage drilled was 217 feet.

Hole S-20, started last month was completed at 591'. No mineralization was encountered.

The drilling equipment has been removed from the property.

Respectfully submitted,

/S/ J. M. Stitt
Manager

I hereby certify this to be
a true and correct copy.

Robert M. MacRae, Vice President

DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY INDEX MINE

DIP TESTS			LEVEL SURFACE	LAT. 12,071.86 N	HOLE No. S - 20
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LOCATION	DEP. 15,273.28 E	SHEET No. 1
COLLAR	BRUNTON	-30°	ELEVATION 1732.76	BEARING N 34-34 E	LOGGED BY JMS
			FINISHED OCT. 4, 1955	LENGTH 591'	TOTAL RECOV. 90.28 %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	10			Overburden
10	37			"Bx" Core Unalt. GRD.
37	116			"Ax" Core Unalt. GRD Slightly chloritized
				fracture 41-44 ∠ 10°
116	118			light pinkish aplite dyke.
118	[illegible]			Unalt. GRD
202	203			GRD, with slightly rusted fractures at 2" intervals
203	208.5			GRD - slightly bleached
208.5	291			Unalt GRD
291	320			Unalt. GRD, cut by slightly rusted fractures
				at intervals of 2" to 1'.
320	445			Unalt. GRD.
445	448			GRD, with inclusions of f.g. lighter and darker rock
448	448.2			Zone of pinkish feldspars and quartz with [illegible]
				of sericite.
448.2	525.1			Unalt. GRD. 1" band of quartz at 493'
525.1	525.2			Light grey f.g. aplite dyke.
525.2	591			Unalt. GRD 1" band pink feldspars with chloritized
				stringers. Fracture with hematite at 579.8 ∠40°
				591 END OF HOLE

CORE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE

SLUDGE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.
			RUN		SHORT
			571.1	579.7	0
			579.7	586	0
			586	591	1.7
					54.8

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
27-37	.0	297.6	.1
49.3	2.1	322.2	1.2
51.8	0	[illegible]	0
60.4	.4	[illegible]	[illegible]
69.2	.0	322.9	.1
76.4	0	327.2	.1
77.8	0	330.3	[illegible]
84.5	.8	[illegible]	[illegible]
93.6	.0	340.7	[illegible]
101.5	.4	358.7	.1
109.7	0	[illegible]	[illegible]
115.2	0	362.7	1.7
[illegible]	.2	372.3	.1
132.6	0	[illegible]	0
143.2	.2	396.4	0
151.7	.4	397.0	0
[illegible].2	0	406.7	.1
168.8	.4	415.2	.1
175.7	0	422.0	.1
183.5	.0	430.8	0
197.7	.0	439.3	.3
204.4	.4	444.8	.0
206.4	.5	453.1	0
208.4	.0	461.3	0
212.3	[illegible]	464.7	0
214.2	.0	472.9	0
216.2	.1	481.1	0
223.6	.7	488.7	[illegible]
227.5	.7	497.7	0
235.2	0	5[illegible]	0
244.6	.2	514.2	0
251.8	[illegible]	521.1	.4
255.8	[illegible]	[illegible]	.6
261.7	0	533.2	0
269.2	.2	546.1	1.8
274.3	.1	554.2	0
282.9	.6	562.[illegible]	2.9
291.1	.1	571.1	2.3

←

COLUMBIA PRINTING CO

XXXXXXXXXXXXXXXXXX
1201 N. Division Street
Spokane 2, Washington
October 25, 1955

~~Klugsbert~~
Betty

Grandpre Company
1640 Exchange Building
Seattle 4, Washington

Re: Contract No. Idm-E489
Docket No. DMEA 2612
Monthly operating report
for September 1955

Gentlemen:

The subject operating report has been received and processed for payment.

This is to inform you that payment could not be made in the full amount claimed. The deletion is explained in the attached copy of a memorandum to the Field Team from the DMEA Certifying Officer, Region I. You will also note that we are withholding $3,400.00 from the payment due you under the September 1955 MF-104. This is standard procedure for all contracts as the work nears completion or is completed. We are obliged to withhold a portion of the Government's contribution to project costs pending receipt of a final engineering report from the operator and a final accounting.

By Field Team, Region I, NW District

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

cc: DMEA (2)
USGS (2)

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

Pepto

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D.C.~~

1201 N. Division St.
Spokane 2, Washington
October 6, 1955

RECEIVED
OCT 24 1955

MEMORANDUM

To: DMEA Field Team, Region I, Northwest District

From: E. A. Magill, Mining Engineer, Bureau of Mines

Subject: Routine inspection report, Docket No. DMEA 2612 (copper), Granore Company, Snohomish County, Washington, Contract No. Idm-E489

The property was visited on October 5, accompanied by Edward Kawenski and Edward Parsons, Mining Engineers, U. S. Bureau of Mines. Mr. J. M. Stitt, engineer for Granore Company, was at the property.

It is expected that the diamond drilling program at the Sunset mine will be completed by October 8, 1955. At the time of the visit one surface drill operating double shift was drilling on the last hole. This hole, number S-20, was at a depth of 555 feet. It is intended to make this a 750-foot hole.

The Operators completed 2,520 feet of surface diamond drilling during the month of September. In October to the time of the visit they had completed 211 feet. The status of the contract at the time of the visit was:

Total footage completed (Oct. 5, 1955)	16,624.8
Total footage authorized by contract	15,670.0
Total footage Operator expects to drill	17,000.8

This gives 1,330 additional feet of drilling than called for by the contract. The Operators are carrying out this footage at their own expense.

Last month's drilling was carried out to the east of the main mine workings. Generally, it was very disappointing. No mineralized intersections of a minable width were encountered. Maps and the report accompanying the Operator's September report will give complete data on drill holes.

The attempt to drill additional holes under Trout Creek was abandoned after the one surface hole failed to strike bedrock. After drilling 85 feet in overburden the drillers were unable to put the hole down any further. It is unfortunate that this structure beneath the

Creek (found by the one hole from underground) could not be checked further. I believe that it offers the best possibilities of any of the "new" structures found by the diamond drilling.

A number of pulps from split core samples have been sent out for independent assay. Results on part of these have been received, as follows:

Sample No.	Hole No.	Footage	Peter Mack % Cu	Metal. Lab. % Cu
W-64	2-6	2.4 - 3.5	1.38	1.37
W-152	2-13	260.4 - 264.5	Tr	nil
W-229	2-17	290.0 - 300.0	0.77	0.82
W-231	S-13	309.0 - 310.0	3.20	3.26

(Assay certificate from Metallurgical Laboratory attached.)

A number of other sample pulps have been forwarded to the Bureau of Mines laboratory at Albany, Oregon, for assay but the results have not been received as yet.

In general, the results of the diamond drilling have been rather disappointing from the standpoint of placing the property into immediate production. A new ore shoot on the Harrington vein was discovered and the "Bureau of Mines" orebody was extended, although its limits now seem to have been determined. It is apparent from the drilling that further exploration on known mineralized structures may be better carried out by underground drifting or raising. The ore shoots are high grade and limited in extent. Core recovery in the high grade portions of the shoots is not all that could be desired; also the shoots are small enough that diamond drilling may well miss a potentially minable shoot.

E. A. Magill

Orig. & 3 cys - Wash.
USGS (2)
DMEA
M/D
AD
EAM/he

Phone RAINIER
Ga6666

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OCT 24 1955

METALLURGICAL LABORATORY

WILLIS H. OTT

ASSAYERS
Umpire and Smelter Control

METALLURGISTS
6200 AIRPORT WAY
SEATTLE 8

CHEMISTS
Physical and Chemical Testing

No. 4894

CERTIFICATE OF ANALYSIS

Date Sept. 24, 1955

Submitted by U. S. Bureau of Mines

Sample No.	GOLD oz/ton	SILVER oz/ton	COPPER, percent
W-64	trace	0.16	1.37
W-152	nil	nil	nil
W-229	nil	nil	0.82
W-231	nil	nil	3.26

METALLURGICAL LABORATORY.

Sunset Mine, Snohomish County, Wash.
DMEA diamond drilling

Sample No.	Hole No.	Footage	Type
W-64	2-6	2.4-3.5	Core
W-152	2-13	260.4-264.5	Core
W-229	2-17	290 -300	Sludge
W-231	S-13	309 -310	Core

Standard Form No. 1034a—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. W

Bu. Vou. No. 1628

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

Voucher prepared at Spokane 10/24/55
(Give place and date)

THE UNITED STATES, Dr., Payee's Account No. Idm-E489

To Granore Company
(Payee)

1640 Exchange Building (Address) Seattle 4, Washington (City) (State)

PAID BY
Kluglscheid
Betty
(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.
	August 1955	Amount withheld under Voucher #1611 on Aug. 1955 MF-104 dated 9/13/55				3,400.00	
PAYMENT: Complete ☐ Partial ☐ Final ☐		Use continuation sheet(s) if necessary					

Shipped from to Weight Government B/L No. Total ~~3,400.00~~

(Payee must NOT use this space)

Differences _____

Account verified; correct for ~~3,400.00~~

(Signature or initials) M.a.P.

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

MEMORANDUM

ACCOUNTING CLASSIFICATION (For completion by Administrative Office)

Appropriation, limitation, or project symbol	Appropriation title	Limit'n. or Proj't. Amount	Appropriation Amount
14X4401	Revolving Fund, Defense Minerals Production Act, Interior	$3,400.00	$3,400.00

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

Paid by { Check No. _____ dated _____, 19____, for $_____ / Cash, $_____, on _____, 19____. } on Treasurer of the United States in favor of payee named above.

16—22900a-2

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.)

☆ U. S. GOVERNMENT PRINTING OFFICE : 1950 O—75805

16—22000a-2

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OCT 31 1955

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OCT 31 1955

DMEA Field Team, Region I, NW District

October 25, 1955

DMEA Certifying Officer, Region I

Contract No. Ida-X48, Granore Company. Monthly operating reports for August and September 1955.

A payment of $3,400.00 has been made to the operator, which is the amount withheld under Voucher No. 1611 when settlement was made for the Government's share of costs approved for August 1955. This completes payment of the Government's contribution under the August 1955 MF-104.

The operating report for September 1955 has been received and processed for payment.

The operator has claimed costs in excess of the amount allowed by the contract; therefore, 580.8 ft. of diamond drilling at $7.00 per foot, or $4,065.60, has been deducted and the September 1955 MF-104 has been approved in the amount of $13,574.40.

As the contract work has been completed, we are withholding $3,400.00 from the payment due the operator for costs claimed on the September 1955 voucher pending receipt of a final engineering report from the operator evaluating the results of the project work and final accounting.

Myrtle Purdy

cc: Operator
DMEA (2)
USGS
Wash. (2)
Engineer
AD

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED OCT 31 1955 Am. E489

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of September, 1955 Docket No. DMEA 2612 Contract No.

Operator's Name Granore Company Minerals Copper

Address 1640 Exchange Building, Seattle 4, Washington

Contract Amount, $115,000.00 Government Participation: 50 % Amount, $ 57,500.00

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	17,640.00	96,150.60	113,790.60	13574.40	96115.60	109690.00
Bulldozing		1,500.00	1,500.00		1500.00	1500.00
Crosscutting						
Drifting						
Geophysical Survey		3,000.00	3,000.00		3000.00	3000.00
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis		650.00	650.00		650.00	650.00
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
TOTALS		101,300.60	118,940.60	13574.40	101265.60	114840.00

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

Date Oct. 13, 1955 *Payee GRANORE COMPANY

Per [signature] Title Vice President

*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.

NOTE.—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.

(Instructions on reverse)

withholds

6787.20
3400.00
3387.20

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 3387.20

Signature MGP
(Authorized Certifying Officer)

Date 10/24/55 Vou. No. 1629
(See other side)

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E 489 in accordance with the terms of the contract.

Signature /S/ Elvin A. Magill Title Mining Engr Date 10-17-55

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature /S/ Stephen W. Zoldok Title Mining Engr Date 10-20-55

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED
OCT 31 1955

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of September 1955 Docket No. DMEA 2612 Contract No. Idm. E489
Operator's Name Granore Company Minerals Copper
Address 1640 Exchange Building, Seattle 4, Wash.

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes		13574.40	1939.2		15670.0			
Drilling: Core Ft.	Ft.	~~17,640.00~~	~~2520~~	113,790.60	~~16,255.8~~	7.00	7225	underground
Churn							8445	surface
Auger								
Stripping								
Trenching				1,500.00				
~~Test Pits~~ Chem. Analysis	each	-	-	650.00	325	2.00	405	new work at 2.00 each
Roads and Trails								
Geophysical Survey				3,000.00				
TOTAL DISTRIBUTED COSTS		13574.40 ~~17,640.00~~		114840.00 ~~118,940.60~~				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
		13574.40		114840.00				
TOTAL COSTS		~~17,640.00~~		~~118,940.60~~				115000.00

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

Date Oct. 13, 1955 Operator GRANORE COMPANY

Per [signature] Title Vice President

REMARKS:

NOTE.—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.

(Instructions on reverse)

(For Government use only)

/s/ Stephen W Goldoff

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A; it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

GRANORE COMPANY

1640 Exchange Building
Seattle 4, Washington

RECEIVED
OCT 31 1955

Oct. 13, 1955

The United States Department of the Interior
Defense Minerals Exploration Administration
Federal Office Building
Seattle 4, Washington

Attention: Mr. Magill

Re: Docket No. DMEA-2612
Contract No. Idm-E489

Gentlemen:

The following report covers progress at the Index Mine for the month of September, 1955.

Footage Drilled

Surface 2520 Ft.
There was no underground drilling during the month.

Surface Drilling

One drill is operating on two shifts per day. The average footage drilled per shift, exclusive of overburden, was 29 feet. One hole, D.D.H. S-15 was drilled to 84 ft. in overburden. The depth of overburden on the remainder ranged from 13' to 26' with an average of 22'.

The best assay from the mineralized zone in D.D.H. S-14, which was drilled last month, showed 0.62% cu. over 1.0'.

D.D.H. S-15 was collared 200 ft. east of 2-Level portal and directed towards Trout Creek at -45°. It was designed to intersect a possible extension of the mineralized zone located in D.D.H. 2-13. At 84 feet the hole was still in overburden and it was impossible for the contractor to drill any further. A search of the area within a radius of 500 feet of the portal failed to locate a place where another hole could be collared with a reasonable expectation of intersecting the same zone.

Beyond the eastern end of the mine workings, three holes were drilled in the same vertical plane designed to give a continuous cross-section. The first of these, D.D.H. S-13, intersected a zone that assayed 3.20% across 1.0', at 309'. The wall rock on either side of this intersection assayed 0.15% cu. or lower.

The upper hole, D.D.H. S-17, did not intersect anything of commercial interest--- the best assay being 0.65% of cu. across 5.3'. The lower hole, D.D.H. S-19 did not intersect any mineralized zones.

Two holes were drilled to check the mineralized zone found in D.D.H. S-13. D.D.H. S-16, collared 200 feet westerly from D.D.H. S-13, intersected a zone that assayed 2.30% over 1.5'. D.D.H. S-18, collared 200 feet easterly from D.D.H. S-13, intersected a similar zone but the highest assay obtained was 0.22% over 10.5'.

D.D.H. S-20 was collared in September and at the end of the month was at 374'. This hole was designed to provide an intersection below a small, lightly mineralized outcrop on the surface, and also to test the rock below the easternmost anomaly of the resistivity survey. No mineralization has been encountered to date.

Respectfully submitted,

/S/ J. M. Stitt
Manager

I hereby certify this to be a true and correct copy.

Robert M. MacRae, Vice President

DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY INDEX MINE

DIP TESTS		
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED
COLLAR	BRUNTON	-30°
250'	-36°	-30°
500'	-34°	-29°
750'	-33°	-28°

LEVEL SURFACE	LAT. 12,578.85	HOLE No. S-13
LOCATION	DEP. 14,147.63	SHEET No. 1
ELEVATION 1546.54	BEARING N 35° 07 E	LOGGED BY J.H.P. - J.M.S.
FINISHED SEPT. 1, 1955	LENGTH 777'	TOTAL RECOV. 79.3 %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	23			Overburden
23	46			Unalt. Grn. 26-66 "Bx" Grn.
46	[illegible]			Barren Rusty shear zone ∠ 15°
				Some [illegible] alt. with no sulphides but occas. light brownish
				mica. (phlogopite?)
[illegible]	66			Unalt Grn.
66	67			"Ax" Grn. Chl. GRD. Barren Rusty shear at 66.7
				∠ 40°
67	117			Barren unalt. GRD 1' bleached zone at 75'
				98.5 - 101 - Bleached zone
117	119			Chl alt. with no sulphides. Rusty fractures ∠ 45°
[illegible]	[illegible]			Barren unalt. GRD. [illegible]
				[illegible] 156' [illegible]
[illegible]	[illegible]			[illegible]
				[illegible]
	[illegible]			[illegible] ∠ 45°
	[illegible]			[illegible]
	[illegible]			[illegible]
[illegible]	[illegible]			[illegible]
[illegible]	[illegible]			[illegible]
				[illegible]
[illegible]	[illegible]			[illegible]
[illegible]	[illegible]			[illegible]
				[illegible]
[illegible]	248			[illegible]
[illegible]	[illegible]		(Cp)	[illegible] 2"
				[illegible] 3.4' [illegible]
307	[illegible]		Cp	[illegible]
310	[illegible]		(Cp)	[illegible]
				[illegible]
311	[illegible]			[illegible]
				[illegible]
[illegible]	[illegible]			[illegible]
[illegible]	[illegible]			[illegible]
				[illegible] ∠ 45°
[illegible]	348			[illegible]
348	366			GRD. - chlor. alt. Half the normal amount of mafics. Feldspars have a light pinkish tint.

CORE ASSAYS							
SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.	AVERAGE	
W 230	[illegible]	309	[illegible]				
W 231		[illegible]	[illegible]				
W [illegible]	[illegible]	[illegible]	[illegible]				
W 233	[illegible]	[illegible]	[illegible]				
W 234	[illegible]	[illegible]	[illegible]				

SLUDGE ASSAYS					
SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.
W 194	170	180	0.06		
W 195	190	200	[illegible]		
W 196	160	170	[illegible]		
W 197	180	190	0.05		

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
26-66	Bx Grn	304	[illegible]
75	1.2	311.[illegible]	.3
88.1	0	[illegible]	0
89	4.0	[illegible]	.7
92.8	.7	[illegible]	2.5
99.8	1.1	[illegible]	.3
104.9	.3	[illegible]	[illegible]
112.8	1.4	[illegible]	[illegible]
119.9	3.8	[illegible]	.2
126.[illegible]	1.6	351.[illegible]	.7
130.9	0	366.4	.4
135.9	1.8	368.9	.7
142.6	2.5	[illegible]	.4
146.3	0	374.[illegible]	0
151.5	2.4	374.[illegible]	[illegible]
154.5	.4	377.8	[illegible]
159.5	1.4	406	[illegible]
166.4	2.5	414	[illegible]
175.4	6.2	423.2	0
182.7	3.9	431.7	1.[illegible]
[illegible]	7.0	440	.4
189.6	4.3	449.8	.6
207.6	.7	457.2	1.1
212.4	3.1	461.9	2.6
222	4.0	464	.6
230.3	1.0	468.7	.8
233	0	473	1.4
243.9	0	479.8	[illegible]
247	.4	489.[illegible]	.2
255.2	.3	[illegible]	1.1
261.4	1.9	500	0
268	0	515.9	1.3
272.5	.7	525.[illegible]	.6
278.4	3.0	535.3	1.4
285	1.2	545.6	1.4
292.7	2.5	555.6	1.3
300	.2	566	2.1
304.[illegible]	1.7	576	1.6

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DIAMOND DRILL HOLE RECORD
GRANORE COMPANY

PROPERTY

DIP TESTS			
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	
			LEVEL
			LOCATION
			ELEVATION
			FINISHED

LAT.
DEP.
BEARING
LENGTH

HOLE No. S - 13
SHEET No. 2
LOGGED BY
TOTAL RECOV. %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION	CORE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE	SLUDGE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.	RECOVERY RUN	SHORT	RECOVERY RUN	SHORT
368	375			GRD. - Chlor. alt.														[illegible]	[illegible]		
375	399.8			Unalt. GRD														[illegible]	[illegible]		
399.8	401.6			GRD - Chlor. alt. 1/4" stringer [illegible]														[illegible]	[illegible]		
401.6	410.5			Unalt GRD [illegible] fractures at														[illegible]	4		
				406.8 ∠40° and at 409' ∠40°														[illegible]	[illegible]		
410.5	412.2			GRD - Chlor. alt. [illegible] fractures at 30° and														[illegible]	[illegible]		
				bands of [illegible] feldspars at ∠20°														[illegible]	[illegible]		
412.2	[illegible]			Unalt GRD. 423.3 - 424 Chlor. alt.														[illegible]	1		
				430 - 43[illegible] Chlor. alt. and feldspars [illegible]														[illegible]	[illegible]		
				pinkish														[illegible]	[illegible]		
[illegible]	456			GRD - Chlor. alt.														[illegible]	[illegible]		
456	45[illegible]			[illegible] - Mafics [illegible] and some feldspars														[illegible]	[illegible]		
				are pinkish														[illegible]	[illegible]		
457[illegible]	[illegible]			[illegible] bleached, [illegible]														[illegible]	[illegible]		
[illegible]	[illegible]			[illegible]														[illegible]	[illegible]		
[illegible]	[illegible]			[illegible]														[illegible]	[illegible]		
[illegible]	[illegible]			[illegible]														[illegible]	[illegible]		
[illegible]	524			[illegible]														[illegible]	[illegible]		
				[illegible]														[illegible]	[illegible]		
				zone [illegible]														[illegible]	[illegible]		
524	[illegible]			[illegible] less [illegible] than [illegible]														[illegible]	[illegible]		
				[illegible]														[illegible]	[illegible]		
[illegible]	595.5			[illegible] 546 - 5[illegible] [illegible]														[illegible]	[illegible]		
				[illegible] 550 - 5[illegible] [illegible]														777	3.8		
				[illegible] the core [illegible]																	
				[illegible]															[illegible]		
545.5	600			GRD. - cut by several stringers of white																	
				feldspars ∠30°																	
600	604.5			Similar to above plus kaolinization																	
604.5	635.8			GRD. - unalt., except [illegible] bands where some																	
				of the feldspars are [illegible]																	
635.8	640			GRD - bleached and chlor. alt. 557-539 no mafics																	
				are visible																	
640	678.5			GRD - Unalt. except for a bleached zone																	
				668 - 669																	
678.5	[illegible]			GRD - sl. chlor. alt.																	
69[illegible]	709			GRD - Unalt. except for bleached zone 704-705																	
709	729			GRD - sl. chlor. alt. 1/8" stringer epidote at 710.5																	

DIAMOND DRILL HOLE RECORD
GRANORE COMPANY

PROPERTY _____

DIP TESTS			LEVEL	LAT.	HOLE No. S-13
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LOCATION	DEP.	SHEET No. 3
			ELEVATION	BEARING	LOGGED BY
			FINISHED	LENGTH	TOTAL RECOV. %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
729	730			Grey - Bleached and hematite coloring in patches
730	736			Grey - [illegible]
736	739.5			Grey - [illegible] and [illegible] [illegible]
739.5	748			Grey - with [illegible] bleaching and [illegible]
				in patches.
748	777			Unit Grey.
				777 End of hole

CORE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE

SLUDGE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT

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DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS			LEVEL	SURFACE	LAT.	14,479.37	HOLE No.	S-14
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LOCATION		DEP.	11,596.10	SHEET No.	1
COLLAR		-30°	ELEVATION	1745.16	BEARING	N 24-59 E	LOGGED BY	JMS
			FINISHED	AUG. 31, 1955	LENGTH	436'	TOTAL RECOV.	89.1 %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	8			"BX" Core - Unalt. barren GRD
8	21			"AX" Core - Unalt. GRD.
21	22			GRD - Bleached and grain size smaller than normal.
22	30.6			Unalt. GRD.
30.6	31.3			Basic porphyrytic dyke
31.3	32			GRD. - soft, rust colored, badly broken
32	36			Unalt. GRD
36	43			GRD. - soft, rust colored, cut by numerous rusty
				unmin. fractures
43	46			GRD - sl. chlor. alt.
46	46.6			GRD. - very dark due to less feldspars than
				normal A rusty fracture at 46.4 with a "t"
				veinlet of Cp on one side
46.6	55.5			GRD. - with varying amounts of chlor. alt. Rusty
				fractures at < 0° - 30°
55.5	89			Unalt. GRD.
89	96			GRD. - Vary amount of Chlor alt.
96	104			GRD - Chlor. alt. and leaching
104	106.3			GRD - Some leaching of the mafics
106.3	107			Unalt. GRD -
107	107.3			med. grained dark grey basic dyke.
107.3	132			Unalt. GRD. - Rusty fractures at 113.2, 122.8 and 131.1
132	133.8			GRD - Chlor. alt and most of the felspars
				show a light pink color
133.8	136.5			Unalt. GRD.
136.5	159			GRD. - Darker than normal due to larger
				proportion of mafic. 150-153 feldspars
				have more alkali
159	165			GRD - With several short rusted sections and
				cut by numerous rusty fractures
165	174			GRD - Darker than normal due to higher
				proportion of mafics. Sl. chlor. alt
174	185			Bleached zone with sections up to 6" long
				showing a rusted color.
185	192			GRD - sl. chlor. alt.
192	281			GRD - Very near normal, but some of the
				feldspars are pinkish in color. 3" rusty zone
				at 222'

CORE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
W 239	373.2	376.2	Tr.			
W 240	376.2	380.8	0.09			
W 241	380.8	385.8	0.11			
W 242	385.8	389.6	0.33			
W 243	390.4	391.4	0.62			
W 244	391.4	394.4	Tr			

SLUDGE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
9-17	0	273.4	1.0
25.8	.5	279.5	3.0
36	2.0	288.8	2.2
43.8	2.6	297.4	2.2
50.9	.1	302.1	.4
60.5	2.6	305.8	1.1
68.9	.6	312.7	.0
78.2	.8	321.6	.7
86.4	.1	331.1	.8
94.8	1.5	339.2	.0
96	.3	347.8	.8
104	.1	356	0
112.9	.5	365.8	1.6
121.8	1.0	373.3	0
131.3	.7	379	.8
139.3	0	380.8	.7
146.7	.9	385.8	.2
152	.2	390.2	1.2
157.7	1.1	394.8	0
159.9	0	399.1	.2
163.5	.3	404	.6
166.6	.5	408	0
169.2	.3	411.7	0
171	0	417.8	2.3
176.8	2.2	421.2	.3
180.3	.9	426.6	.5
185.5	3.3	432.6	.3
192.6	1.1	436	.5
201	.1		
209.8	.6		46.6
216.8	.2		
223.7	.3		
231.9	0		
240.7	.7		
249	.3		
257.5	.3		
266.5	1.0		
270.3	1.5		

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DIAMOND DRILL HOLE RECORD
GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS			LEVEL	LAT.	HOLE No. S-14
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LOCATION	DEP.	SHEET No. 2
			ELEVATION	BEARING	LOGGED BY
			FINISHED	LENGTH	TOTAL RECOV. %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
281	281.5			Slightly rusted section
281.5	282.1			GRD - bleached and chlor alt. Softer than normal.
282.1	286.7			GRD - bleached, chlor. alt., soft. Bands of 2"-3" of very dark material. Appears to be of later alteration
286.7	289.7			GRD - bleached, chlor. alt. Soft at the beginning of run but hardness increases until it is almost normal at the end of the run.
289.7	298			GRD - bleaching and chlor alt. in varying amounts
298	300			GRD - chlor. alt. Fine-grained, increased amount of mafic gives much darker color than normal.
300	307			GRD - Chlor. alt.
307	314			GRD - Chlor. alt, f.g., darker than normal due to increased amount of mafic.
314	317			GRD - Chlor. alt and bleaching (core becomes softer towards end of run.)
317	332			GRD - Chlor. alt. in varying amounts with some dark bands up to 10" in length.
332	376.2			GRD - slight chlor. alt. in places. Some of the feldspars are pinkish in color.
376.2	389.6		(Cp)	GRD - Chlor. alt. Core is dark and production of fragments smaller than normal. Scattered specks of Cp.
389.6	390.4			F.g. dark grey-green basic dyke.
390.4	391.4		(Cp)	GRD - Chlor. alt. - less than the avg. zone above and decreasing towards end of run. Two stringers of Cp. along edge of dyke.
391.4	408			GRD. - unalt. and normal except for bands where feldspars are bleachy
408	436			Unalt. GRD.
				436 END OF HOLE
				Note: Hole abandoned at 436' because of drilling difficulties.

CORE ASSAYS							SLUDGE ASSAYS						RECOVERY		RECOVERY	
SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE	SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.	RUN	SHORT	RUN	SHORT

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DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS			LEVEL SURFACE	LAT. 12,921.33	HOLE No. S-15
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LOCATION	DEP. 13,180.14	SHEET No. '
COLLAR		-45°	ELEVATION 1410.13	BEARING S 34-56 W	LOGGED BY JMS
			FINISHED SEPT. 7, 1955	LENGTH 84'	TOTAL RECOV. %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	84			Overburden.
				Drillers were unable to drill any deeper so hole was stopped.

CORE ASSAYS: SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE	SLUDGE ASSAYS: SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.	RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT

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DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS		
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED
COLLAR	BRUNTON	-30°
200'	37°	-31°
407'	36°	-30°

LEVEL	SURFACE	LAT. 12,690.15	HOLE No. S-16
LOCATION		DEP. 13,988.05	SHEET No. 1
ELEVATION	1546.07	BEARING N 35° 01' E	LOGGED BY JMS
FINISHED	SEPT. 13, 1955	LENGTH 407'	TOTAL RECOV. 69.68%

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	17			Overburden
17	33			"Bx" core
33	66			"Ax" core GRD Cut by several rusty fractures
				and has several short bleached zones. One speck of
				Cp at 38'
66	77			GRD. Several rusty fractures and rusted zones.
				Several zones where feldspars are pinkish.
77	92			GRD - almost normal but contain few zones that
				are rusty, bleached or have pink feldspars.
92	132			GRD - mostly heavily rusted and cut by heavy
				rusty fractures. Becomes more normal towards
				end of run.
132	156.5			Unalt. barren GRD
156.5	172			As above plus sl. rusted fractures and occassional
				patches containing hematite and epidote.
172	256			Unalt GRD, cut by a few rusty fractures.
				2" heavily rusted zone at 207'
256	267.5		Cp.	GRD - Chl. alt. and some epidote. Approx. 1/4"
				veinlet of Cp. at 256.3. Specks of Cp. to
				267.5. Fair mineralization. 100% recovery.
257.5	262		Cp	GRD with scattered epidote. Rare flecks of Cp.
262	303.5			Unalt. barren GRD. 2" zone of pinkish
				feldspars and several 1/8" bands of epidote at 265'
			Cp	Cp. on fracture at 265.8'
303.5	315			Mafics are completely leached out. Narrow
				bands of hematite and bands of hematite
				coloring throughout the run.
315	349			Normal GRD, unalt. except for a 6" band at
				316' where feldspars are pinkish. Similar a
				band at 318'. 1/8" stringer epidote at 330'
349	380			GRD. with about 1/2-2/3 of the normal amount
				of mafics.
380	387			Unalt. GRD.
387	404			GRD with a little leaching in spots.
404	407			Unalt GRD
				407' END OF HOLE

CORE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
W 247	250	253	Tr.			
W 248	253	256	0.03			
W 249	256	257.5	2.30			
W 250	257.5	262	0.04			
W 251	262	264	Tr.			
W 252	264	271.2	Tr.			

SLUDGE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
279-285.5	3.9	31.3-37.8	0
289.4	1.9	48.2	4.5
297	3.3	52.7	1.0
302.8	2.5	58	2.5
308.1	1.3	61.7	1.4
310.7	0	66.7	1.5
315.2	0	70.3	2.6
321.5	0	74.7	.6
325	.4	77.4	.2
331.2	0	82.4	.2
340	1.8	91.6	1.9
349	4.2	98.7	4.4
352.4	2.0	105.7	3.5
356.5	2.1	109.1	1.0
364.6	.7	113.2	2.0
372.7	.2	122	4.1
381	0	129.7	2.7
388.2	.2	135.4	.4
391.7	1.0	143.7	.3
396.8	0	151.8	0
399.2	0	157.7	.8
407	2.4	166	9.3
		172	5.4
	113.9	180.2	4.6
		184	0
		190	2.4
		199.4	6.2
		207	3.7
		212.4	.2
		221.3	3.6
		230.1	2.3
		239.8	1.2
		248	0
		252.8	.9
		255	1.4
		262	3.5
		271.2	3.0
		279	2.4

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS		
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED
COLLAR	0°	

LEVEL	2	LAT.	13,409.70
LOCATION		DEP.	13,534.40
ELEVATION	1411.18	BEARING	N 53° 07' E
FINISHED	Aug. 30, 1955	LENGTH	884'

HOLE No.	2-16
SHEET No.	1
LOGGED BY	J.H.P. - JMS
TOTAL RECOV.	88.3 %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	6			Grd, slightly bleached, with numerous barren
				rusty, fract
6	35			Unalt Grd Rusty fract @ 22 - 22.5
35	81			Grd, lighter than normal in color - fewer mafics
				Barren rusty fracts. @ 37-38, 50-51
81	92			Grd. similar to above but with still fewer and finer
				mafics.
92	120			Normal unalt. Grd.
120	137.8			Barren chl. alt with much epidote and some hem.
				Two hairlike stringers of Cp in with epidote at 128'
137.8	194			Unalt. Grd. A little epid. @ 148' and 157'
194	199			Grd with numerous fine fracts. Hem. on most fract
				planes. Some chlorite but no Cu min.
199	385			Unalt. Grd.
385	398			Barren Grd. with sections where feldspars
				have pinkish color.
398	405.5			Unalt. Grd.
405.5	408.5			Softer, broken up zone with several mud seams
				of dark red color (Hematite ?)
408.5	415			Grd, slightly chlor., narrow bands of epidote
415	428			Unalt Grd, rusty fracture at 419.2. Trace of
				Cp in 1/16" epidote fracture at 423'
428	432.5			Barren Grd - slightly chlor.
432.5	512.6			Normal Grd. - slightly chlor at 452 - 452.5
512.6	513			Basic dyke
513	523			Unalt. barren Grd. 3 hairlike stringers epidote
				∠35° - 65° at 522'
523	526			Unalt Grd. - with slight Cp. min.
526	531.6			Unalt. barren Grd.
531.6	532			3 stringers (1/8") epidote ∠60°. Fracture ∠10°
532	533			Fracture ∠0°
533	534			Unalt. barren Grd
534	534.7			Grd. slightly darker than normal - slight Cp. min.
534.7	539.7			Grd. as above. Barren except for specks of
				Cp at 539.5
539.7	541			Grd. - bleached to a light greyish green
541	577.4			Unalt. barren Grd. 545-547.7 fault plane ∠0°
				Movement appears to have been ∠70°

CORE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
W 201	523	526	0.18			
W 202	526	530.6	Tr			
W 203	530.6	534	0.07			
W 212	534	534.7	2.00			
W 213	534.7	539.7	0.08			
W 235	705	708	Tr.			
W 236	708	710.5	0.20			
W 237	710.5	711.5	Tr			
W 245	653	658	0.03			
W 246	830	831	1.20			

SLUDGE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.
W 238	700	710	Tr.		

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
0-9.3	1.8	154.1	.2
11	1.3	160.4	0
15.8	.3	169.3	.8
22.5	3.8	177.4	1.2
25.1	1.3	185.9	2.5
33.2	.1	195	.7
40.2	.4	199.3	2.3
42.3	.9	207.8	.1
45.4	1.1	216.5	.5
49.9	1.6	225.1	.2
54.1	3.1	231.2	1.6
57.2	1.2	233.6	0
62.5	.2	238.8	.1
66	2.8	247.9	1.1
70.3	1.4	256.7	.7
74.3	.4	264.9	.4
78	1.4	271.6	.4
80.8	1.0	275.8	.7
84.2	.5	278.8	.6
87.5	1.9	286.8	.8
91.9	1.6	293.7	3.3
96.4	0	298.7	0
100.1	1.0	307.3	.5
108.8	.6	310.7	.3
117.1	1.0	315.6	0
121.8	0	320.6	0
123.7	.1	329.3	.2
125.4	.3	335.5	.7
129.5	2.3	344.3	1.7
130.1	0	348.5	1.0
130.9	.3	356.8	.4
131	0	359.2	.9
131.8	.3	361.5	1.0
135.9	1.9	365.1	0
137.9	.6	367.6	.1
139.7	0	373.2	.1
144.2	0	376.8	.4
149.3	0	385.1	.6

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS			LEVEL 2	LAT.	HOLE No. 2-16
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LOCATION	DEP.	SHEET No. 2
			ELEVATION	BEARING	LOGGED BY
			FINISHED	LENGTH	TOTAL RECOV. %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
				556-557 Fracture ∠ 5°
				567.9 Blebs of epidote
577.4	578.2			Fine-grained, light grey aplite dyke. Contact at
				578.2 ∠ 45° One bleb of Cp. on contact
578.2	604.6			Unalt barren GRD.
604.6	605.5			GRD. - chlor. alt. 604.8-605.3 rusted zone 60°
605.5	623			Unalt. GRD. 614.5-615 several fractures, some rusty.
623	632.7			GRD. - chlor. alt. Several fractures, some slightly rusted.
632.7	633.2			Core is bleached.
633.2	644			Broken rusted section Barren
644	646			light colored zone - quartz and alkali feldspars
646	653			Unalt. GRD.
653	657.5		Cp	GRD. - chlor. alt. A few 1/16" veinlets Cp.
657.5	659			Unalt. GRD.
659	662			GRD - chlor. alt.
662	664.5			Unalt. GRD.
664.5	666			GRD - Chlor. alt.
666	670			Unalt. GRD.
670	670.6			GRD. - Chlor. alt.
670.6	673			Unalt. GRD.
673	688			GRD. - lighter than normal due to less mafic. Some
				of the feldspars are pinkish. One speck of Cp
				at 679 and one at 680 and 1/32" veinlet Cp at 677
688	705			Unalt. barren GRD.
705	707.7			GRD, with sparsely scattered specks of Cp.
707.7	710.5			As above, plus an 1/8" veinlet of Cp + 708', another
				at 708.6'. Bleached zone 709-710.5
				Cp bits on fracture planes.
710.5	729.3			Unalt. barren GRD. 3" bleached zone at 721' with
				a few specks of Cp on fracture plane. 1" band
				of bleached rock at 725'
729.3	730.1			Quartz, with light purple mottling on both ends.
730.1	741			Unalt. barren GRD.
741	744			GRD. Core becomes lighter towards 744 due to
				lessening amount of mafics.
744	750			Unalt. GRD.
750	757			GRD - Chlor. alt. Mafics are bleached.
757	795			Unalt. GRD. 2 rusty fractures at 771' ∠ 50° and 30°

CORE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE

SLUDGE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
385.1-391.9	2.0	642.8	6.2
395	0	644	0
400.8	1.5	644.8	0
405.2	0	653.9	1.0
410.8	.1	661.8	0
415.4	.5	670	.1
419.2	0	678.3	.2
422	0	686.8	.5
423.5	.1	693.8	0
425	.5	703.6	.8
428	2.7	711.9	0
435.1	0	719.9	0
443.7	.1	727.6	0
452	0	736.6	.9
460.3	0	744.0	1.3
469.1	.8	751.5	.9
477.3	.1	753.9	.1
485.5	.2	758.3	0
493.7	.1	766.2	0
502.7	.7	774.1	0
512.6	1.5	781.7	.4
520	1.1	787.7	.3
526.6	0	794.7	1.0
535.4	.8	798.1	.8
539.7	1.3	802.5	.1
547.8	0	806.3	1.1
552.4	0	813.6	0
559.6	0	822.1	.1
567.9	.2	831.9	1.9
576.1	0	835.6	0
584.2	0	845.2	1.4
593	.7	852.8	0
601.1	.1	861.1	0
609.2	.1	870.1	.7
617.5	0	875.3	.3
625.7	2.1	884	.5
629.5	0	—	—
632.8	2.4		103.1

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DIAMOND DRILL HOLE RECORD
GRANORE COMPANY

PROPERTY

DIP TESTS			LEVEL	LAT.	HOLE No. 2-16
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LOCATION	DEP.	SHEET No. 3
			ELEVATION	BEARING	LOGGED BY
			FINISHED	LENGTH	TOTAL RECOV. %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
				Cp min on fractures at 780' and 780.6'
				Several rusted fractures at 786' - 787.7
795	798			GRE - chlor. alt. with rust colored [illegible]
				cut by rusty fractures.
798	807			GRD - U'malt., but cut by fractures, slightly rusty
807	820			Uralt GRD Cp min at 815' on "16" fracture
820	826			GRD - mafics slightly bleached.
826	841			GRD - Core bleached with much lt grey hard. alteration.
			Cp	830-831 Crushed Qtz with Chl. alt and a little Cp. Vein?
841	843			GRD - feldspars are slightly darker than [illegible]
843	847			GRD - bleached, as above
847	858			GRD - normal, except for darker feldspar [illegible]
858	861			GRD - bleached, as above
861	884			GRD - Almost normal, but mafics blotchy and
				irreg. in outline. No Cu min.
				872-873.5 Bleached
				884' END OF HOLE

CORE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE	SLUDGE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.	RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS		
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED
COLLAR	BRUNTON	-30°

LEVEL	SURFACE	LAT.	12,952.08
LOCATION		DEP.	14,415.74
ELEVATION	1822.18	BEARING	N 35°-00 E
FINISHED	SEPT. 21, 1955	LENGTH	765

HOLE No.	S-17
SHEET No.	1
LOGGED BY	JMS
TOTAL RECOV.	89.32%

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	13			Overburden
13	36			"Nx" and "Bx" Core. Unalt. GRD
36	149			"Ax" Core. Unalt GRD 55-66 sl. rusted in zone
				fracts. 2" zone light feldspars [illegible]
				fracture at 68'. 1" light feldspars at 106'
				2" light feldspars at 118', and at 143'
149	152.5			GRD, slight rusty colour to feldspars and
				cut by a heavily rusted fracture at ∠5°
152.5	225			Unalt. GRD. 1" bands light feldspars at 155',
				167', 173'
225	229.6			GRD, sl. rust-colored and cut by a few rusty
				fractures at ∠30° - ∠50°
229.6	237			GRD., slightly bleached.
237	242.5			GRD, with zones of slight rust color and zones
				of heavy rust color.
242.5	254.0			~~As above, except the heavy rust zones have now~~
				less rust.
254.0	254.5			Light grey aplite dyke.
254.5	271			GRD, with a few rusted zones and cut by
				several rusted fractures.
271	304.6			GRD., almost normal but has zones of sl.
				chlor. alt.
304.6	309.5			Dark greenish gray andesite dyke.
309.5	313			Unalt. GRD
313	313.1			Light green dyke. Sharp contacts at ∠40°
313.1	381			Unalt. GRD.
381	383.6			GRD, but mafics are bleached
383.6	466.7			Unalt. GRD.
466.7	480		Cp	Chlor. alt. Med. mineralization from 467-467.1
				Poor mineralization from 467.1 to 480
480	484			Bleached zone with 2 1" bands of quartz.
484	504			GRD. - mostly normal, but has a few bands
				that are slightly bleached or show sl. chlor. alt.
504	508			All the mafics are bleached to a very light
				green. Heavily rusted section with numerous
				rusty fractures 505.5 - 507.5
508	551.3			Normal GRD., with narrow slightly rusted zones
				509-517. Sl. bleached 528-530

CORE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
W253	464	466.7	0.02			
W254	466.7	472	0.65			
W255	472	475	0.07			
W256	475	480	0.09			
W257	480	482.5	0.06			

SLUDGE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
37.1-42.2	0	274.2	.3
46.8	1.6	276.1	.3
55	4.7	279.3	.6
61.8	2.3	284.1	0
70.8	1.0	288.2	1.5
80	3.5	294.8	.1
89.4	1.1	299.2	0
98.2	.5	305	0
106.4	0	306	.2
114.8	.1	309.6	.2
123.8	.3	313.3	.2
131.8	0	321.6	0
139.8	.5	328.7	.8
148.3	0	337	.4
153	0	339.1	.3
158.8	.8	341.3	.5
168.2	1.1	349.6	0
177.2	.5	358.1	2.3
186.3	.7	366.8	.3
195.2	.4	374.9	8.6
203.3	1.8	383.5	0
211.5	1.2	392	1.3
216	0	400.6	.2
221.2	1.8	409	.2
226.4	0	417.4	.1
229.6	1.7	426.3	.7
233.5	.1	434.6	0
237	2.7	441.3	1.9
240	.3	446.3	.9
243.5	.6	451.8	.2
246.3	1.3	460	0
248.5	1.0	467.2	0
252	0	475	.4
255.5	1.1	482.4	0
~~263~~	~~1.5~~	~~490.5~~	~~0~~
264.7	0	494.2	1.2
269.1	0	496	1.0
272	.4	498.6	1.2

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DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY INDEX MINE

DIP TESTS					
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LEVEL	LAT.	HOLE No. S-17
			LOCATION	DEP.	SHEET No. 2
			ELEVATION	BEARING	LOGGED BY
			FINISHED	LENGTH	TOTAL RECOV. %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
551.3	555			Core is bleached, and very soft in spots.
555	590			GRD., mostly normal but has zones up to 6" wide of blotchy feldspars or up to 1" of bleaching. Sl. rusty zones at 578 and 588
590	606			Unalt. GRD
606	620			GRD. almost normal, but the mafics are sl. bleached
620	653			Unalt GRD.
653	662			GRD with some bleaching of mafics. Core is sl. softer than normal from 654-655.4 with no mafics.
662	765			Unalt. GRD. 1/2" quartz vein ∠ 20° at 686' 2 1/16" stringers epidote at 704' 1/16" stringer epidote at 733' ∠ 15°. 1/8" stringer epidote at 752' ∠ 45° A few pinkish feldspars on each side.
				765 END OF HOLE

CORE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE

SLUDGE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
498.6-507	0		
513.6	.3		
516.9	.7		
524.8	0		
533.2	.9		
541.5	0		
550.8	1.0		
553.8	0		
562	0		
570.2	0		
579.2	4.0		
587.3	0		
596.1	.6		
604.3	.1		
613	1.5		
617.3	1.4		
625.7	.2		
634.7	1.0		
642.9	.1		
652.2	1.2		
655.4	.4		
660.2	3.2		
668.3	0		
676.9	0		
685.2	.2		
693.5	0		
698.8	.5		
706.9	0		
715.6	.2		
723.9	0		
732.4	0		
740.6	0		
748.8	.1		
757	0		
765.3	.2		
	77.7		

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DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY INDEX MINE

DIP TESTS			LEVEL SURFACE	LAT. 12,409.49	HOLE No. S-18
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LOCATION	DEP. 14,275.73	SHEET No. 1
Collar		-30°	ELEVATION 1535.61	BEARING N 34-56 E	LOGGED BY JMS
225'	37°	-31°	FINISHED SEPT. 21, 1955	LENGTH 477'	TOTAL RECOV. 80.69 %
477'	36°	-30°			

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	26			Overburden
26	28			"Bx" Core. Unalt. GRD.
28	90.5			"Ax" Core. Unalt. GRD. 1" aplite dyke at 88.5'
90.5	108			Unalt. GRD cut by a few rusty fractures
108	109			Bleached zone with bands 1/8"-1/4" of light feldspars
109	134.8			Unalt. GRD
134.8	135.8			Mafics are smaller than normal, and core is lighter
				in color.
135.8	228			Unalt. GRD 4" zone of light feldspars at 177'
228	232			GRD - sl. altered. Mafics are much smaller than
				normal at beginning of run and are normal size
				but less numerous towards end of run.
232	294			Unalt. GRD. Heavily rusted fracture at 285'
294	297			Bleached zone.
297	302.3			Unalt. GRD.
302.3	304			Sl. bleached zone cut by 2 heavily rusted fractures
304	316			Nearly normal GRD but has some zones of
				splotchy feldspars
316	376.8			Unalt. GRD
376.8	383.8		(Cp)	GRD. with Chlor. alt. Scattered specks of Cp
383.8	391.5			Unalt. GRD
391.5	393		(Cp)	GRD. with some chlor. alt. and feldspars are
				more pinkish. Poor min. Cp
393	396.2			Unalt. GRD.
396.2	412.3		(Cp)	GRD. Chlor. alt., some Cp. min.
412.3	427			Unalt. GRD.
427	428			GRD. Chlor alt No visible min.
428	477			Unalt. GRD.
				477' END OF HOLE

CORE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
W258	373.8	376.8	Tr.			
W259	376.8	383.8	0.04			
W260	383.8	391.5	Tr.			
W261	391.5	393	0.21			
W262	393	396.2	Tr.			
W263	396.2	400	0.13			
W264	400	410.5	0.22			
W265	410.5	412.3	Tr.			
W266	412.3	415.3	Tr.			
W267	427	428	Tr			

SLUDGE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
30-38.2	0	325.3	.4
48.3	2.0	330	.4
58.4	1.9	338.2	.2
68.5	1.6	346.4	0
78.4	.8	357.1	2.3
88	1.3	365	4.9
98.6	2.0	373.7	4.8
105.7	3.3	376.8	1.3
114	.3	386.2	3.1
119.2	3.2	394.5	2.1
127.6	1.0	400	1.7
128.5	0	410.5	8.5
135.2	.4	412.3	1.2
142.3	2.3	421.3	.4
145.3	1.9	425.7	.8
150.3	0	428.6	0
160.4	1.7	437.5	0
171.6	2.7	446	.9
181.6	1.4	454.2	0
191.6	2.0	462.8	.8
199.8	0	469.2	.1
209.8	1.8	477'	1.1
218	1.7		
227.8	1.7		86.3
235.2	0		
243.2	0		
249.6	1.2		
260.8	6.6		
271.8	2.5		
275.6	1.5		
283.7	1.5		
287.2	0		
291.3	1.2		
297.4	.2		
302	0		
308.7	.3		
310.5	.2		
316.8	.1		

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DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY INDEX MINE

DIP TESTS			LEVEL SURFACE	LAT. 12,391.94 N	HOLE No. S-19
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LOCATION	DEP. 14,021.31 E	SHEET No. 1
COLLAR	BRUNTON	-30°	ELEVATION 1451.74	BEARING N 35-15 E	LOGGED BY JMS
			FINISHED SEPT. 27, 1955	LENGTH 350'	TOTAL RECOV. 82.39 %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	30			Overburden
30	40			"Nx" Core. Unalt. GRD
40	55.2			"Ax" Core. Unalt. GRD.
55.2	62			Light f.g. zone with little mafic.
62	100			GRD, with about 1/3 the normal amount of mafic.
				Feldspars are darker than normal and have a
				blotchy appearance. Rusty zone 89.5 - 90.4
100	136			GRD with 1/2 - 2/3 normal amount of mafic and
				feldspars have blotchy appearance.
136	297			Unalt GRD Rust zone 141 - 143. Several
				rust zones 2" in length from 144.5 - 152.
				237 - 251 some of the mafics are bleached and
				feldspars have a blotchy appearance.
297	297.2			Felsite dyke with blebs of epidote.
297.2	310			GRD. mafics are slightly bleached
310	350			Unalt. GRD.
				350' END OF HOLE

CORE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE

SLUDGE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
40-50	1.3	311.4	1.0
55	.6	316.5	.7
62.2	3.1	325.0	.1
66.7	0	332.1	2.1
72.2	.5	336.8	.7
81.8	3.3	339.8	.6
89.2	0	346.5	2.3
92.5	.6	350	3.4
102.4	1.4	—	—
112.1	2.5		54.6
118.2	.7		
120.4	0		
127	0		
136	1.8		
146.8	2.7		
156	5.3		
158.7	1.4		
166.9	2.6		
171	0		
177.5	1.2		
185.6	.4		
190.3	22		
196.2	1.8		
204.8	.2		
211.8	1.2		
220.2	.6		
228.8	0		
237.3	.4		
242	.5		
250.2	.1		
259	.6		
267	.1		
275.4	0		
282.8	1.4		
288.8	2.6		
296.3	.1		
301.2	.7		
305.4	1.8		

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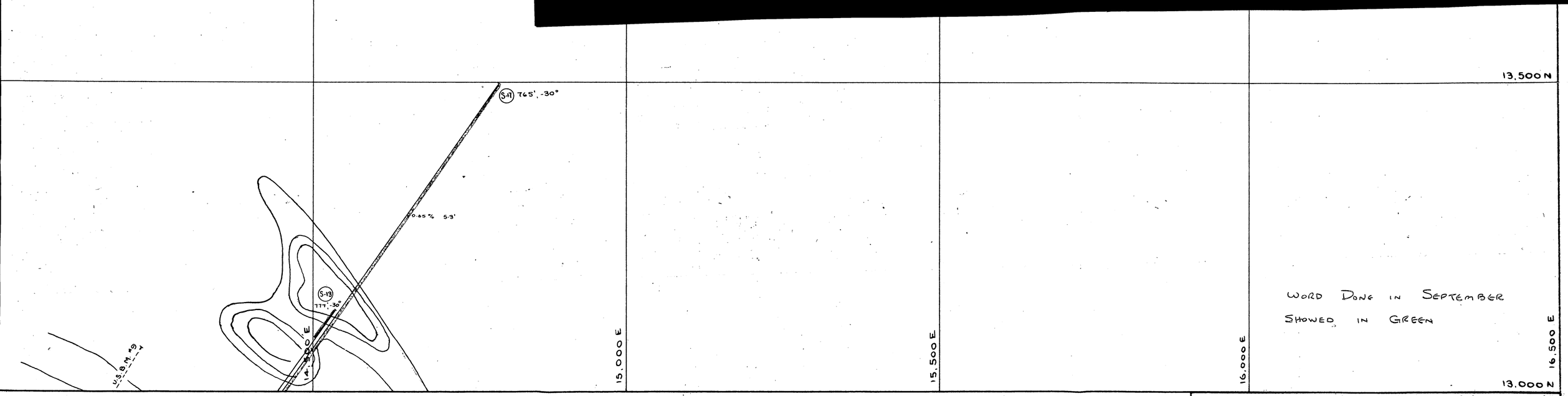

GRANORE COMPANY INDEX, WASHINGTON	TITLE	INDEX MINE SURFACE PLAN
SCALE: 1 INCH = 100 FEET	ELEV.	NO: NORTH-EAST SHEET

Form MF-104 (Rev.)
(April 1952)

W

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of August, 1955 Docket No. DMEA 2612 Contract No. Idm E 489
Operator's Name Granore Company Minerals Copper
Address
Contract Amount, $ Government Participation: 50 % Amount, $ 57,500

ITEMS OF COSTS	FOR OPERATOR'S USE: Monthly Total	Totals Previously Reported	Totals To Date	FOR GOVERNMENT USE ONLY: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:				9/30/55		
Drilling	34,461.00	61,689.60	96,150.60	34426.00	61689.60	96115.60
Bulldozing		1,500.00	1,500.00		1500.00	1500.00
Crosscutting						
Drifting						
Geophysical Survey		3,000.00	3,000.00		3000.00	3000.00
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	200.00	450.00	650.00	200.00	450.00	650.00
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
TOTALS	34,661.00	66,639.60	101,300.60	34626.00	66639.60	101265.60

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

Date Sept. 13, 1955 Payee Granore Company

Per Robert M. Mackie Title Vice President

*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.

NOTE.—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.

(Instructions on reverse)

Approved Payment 17313.00
3400.00
13913.00
withheld check

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 13913.00

Signature MAP
(Authorized Certifying Officer)

Date 9-21-55 Vou. No. 1611
(See other side)

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E4-89 in accordance with the terms of the contract.

Signature /s/ Elwin A Magill Title Mining Engr Date 9-16-55

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature /s/ Stephen W Zoldok Title Mining Engr Date 9-20-55

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED SEP 26 1955

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of August 1955 Docket No. DMEA 2612 Contract No. Idm E 489

Operator's Name Granore Company Minerals Copper

Address 1640 Exchange Building, Seattle 4, Wash.

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes		34426.00		96115.60	13736.8			
Drilling: Core	Ft	~~34,461.00~~	4923	~~96,150.60~~	~~13,735.8~~	7.00	7225	underground
Churn							8445	surface
Auger								
Stripping								
Trenching				1,500.00				
Test Pits Chem. Analysis	each	200.00	100	650.00	325	2.00	405	200 ea (new work)
Roads and Trails								
Geophysical Survey				3,000.00				
TOTAL DISTRIBUTED COSTS		~~34,661.00~~ 34626.00		~~101,300.60~~ 101265.60				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		~~34,661.00~~ 34626.00		~~101,300.60~~ 101265.60				115000.00

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

REMARKS:

Date Sept. 13, 1955 Operator Granore Company

Per Robert M. MacRae Title Vice-President

Robert M. MacRae

→ NOTE.—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.

(Instructions on reverse)

(For Government use only)

/s/ Stephen W Zoldok

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

Elliott 5133

GRANORE COMPANY

1640 Exchange Building
Seattle 4, Washington

RECEIVED
SEP 26 1955

Sept. 13, 1955

The United States Department of the Interior
Defense Minerals Exploration Administration
Federal Office Building
Seattle 4, Washington

Re: Docket No. DMEA-2612
Contract No. Idm-E489

Attention: Mr. Magill

Gentlemen:

The following report covers progress at the Index Mine for the month of August, 1955.

Footage Drilled

Underground	2567 Ft.
Surface	2356 Ft.
Total	4923 Ft.

Underground Drilling

The program of underground diamond drilling was completed this month. D.D.H.s 2-13 to 2-17 inclusive were drilled. Because of the high cost compared to the uncertain information obtainable, it was decided not to drill the two long holes proposed to test the Sunset vein at depth. The compressor and underground drilling equipment have been removed from the property.

D.D.H.2-13, drilled at -30° to test the area under Trout Creek, intersected two slightly mineralized zones as follows:

From	To	Length	% Cu.
571.5'	574.8'	3.3'	0.96
574.8'	589.0'	14.2'	0.09
718.5'	722.9'	4.4'	0.67
722.9'	725.1'	2.3'	Basic Dyke
725.1'	728.1'	3.0'	0.19

Although these zones are much below ore grade, they are interesting because of their similarity to other mine structures; both lying along basic dykes. Also, they show a possibility of ore in a hitherto unexplored area. Two holes from surface are planned to further investigate this occurrence.

D.D.H. 2-14, drilled at -30° in the same vertical plane as 2-4, did not find a downward continuation of the ore intersected by 2-4. The section which correlated with the intersection (6.4' of 5.96%) in 2-4 showed only barren alteration. The second vein assayed 0.90% for 2.7' and 0.34% for 6.0' (See section)

D.D.H. 2-15 was drilled to the northeast from the Little Copper King drift to test for veins parallel to the mine structure. Except for a few hairlike stringers of bornite close to the Little Copper King vein, the hole was barren.

D.D.H. 2-16 and 2-17 were drilled to search for extensions of the Blank and Little Copper King veins. Although both the vein structures appear continuous, no mineralization of mining width and grade was found.

Surface Drilling

Two drills are operating on two shifts each. One hole, S-14, was collared on bedrock. The average depth of overburden on the remainder was 23 feet.

D.D.H. S-10, S-11 and S-12, part of the group of five holes to explore at depth the vein found by U.S.B.M. drilling, were completed. S-10 cut 4.1' of ore grading 7.88% cu. This intersection is 108' down the dip of the vein below the intersection (6.4' of 5.67%) in U.S.B.M. hole No. 7 and is 100' east of the ore found in D.D.H.s S-8 and U.S.B.M. No. 3. D.D.H. S-12, 100' east of S-10 showed only a zone of barren chloritic alteration, as did U.S.B.M. No. 8. D.D.H.s S-9 and S-11, on the west end of the zone, were also barren.

This zone, therefore, has a possible length of 200' with a grade and true width (based on four drill holes) of 7.47% across 4.7', and a depth of 260' down the dip of the vein. Assuming the ore to extend 50 feet below the lowest drill holes, the possible tonnage developed would be 25,000 tons.

To obtain a continuous section across the mine structure, D.D.H. S-12 was continued to a depth of 747' and S-14 was drilled to section with it to a depth of 436'. S-12 intersected a zone of very low grade copper mineralization from 569' to 586.5' (11' of 0.08% and 6.5' of 0.03%) which might be the Sunset vein. S-14 intersected a zone of slightly mineralized chloritic alteration with a basic dyke in the center. This zone is likely the Copper King vein. No assays have been received todate on this material.

D.D.H. S-13 is being drilled east of the mine workings and had reached a depth of 714'. It is part of a group of three holes designed to give a continuous section across the eastern extension of the mine structure. A zone of alteration with slight copper mineralization was encountered from 304' to 325'. No assays are yet available on this zone. A drill hole on either side of S-13 is planned to further explore this mineralization.

Yours very truly,

/S/ J. H. Parliament, P. Eng.
Chief Engineer

I hereby certify this to be
a true and correct copy.

Vice President

RECEIVED
SEP 26 1955

XXXXXXXXXXXXXXXXXX
1201 N. Division St.
Spokane 2, Washington
September 21, 1955

Granore Company
1640 Exchange Building
Seattle 4, Washington

Re: Contract Idm-E489
Granore Company
Operating report for
August 1955

Gentlemen:

The subject operating report has been processed and forwarded to the Disbursing Officer in Portland, Oregon, for payment.

This is to inform you that payment could not be made in the full amount claimed. The amount disallowed is explained in the attached copy of a memorandum to the Field Team from the DMEA Certifying Officer, Region I.

We are withholding a portion of the payment due you as the project is nearing completion. This is standard procedure for all contracts. We are obliged to withhold a portion of the Government's contribution to the cost pending final accounting, and receipt of a final engineering report.

By Field Team, Region I
Northwest District

Verne C. Fryklund, Jr., Acting
Executive Officer
U. S. Geological Survey

cc: DMEA (2)
USGS (2)

Stephen W. Zoldok, Acting Member
U. S. Bureau of Mines

RECEIVED

SEP 26 1955

DMEA Field Team, Region I, NW District

September 21, 1955

DMEA Certifying Officer

Contract Ion-2409, Grenore Company. Monthly operating report for August 1955

The subject operating report has been received and processed for payment.

A difference of 5 feet was found in the total footage accomplished to date and a check revealed that this was apparently due to an error in addition in the narrative report accompanying the July MF-104. Under "Footage Drilled" the Operator shows

Underground	2371 ft.
Surface	1583 ft.
	3954 ft.

The total of 3954 ft. was carried to the MF-104A and charges were made accordingly. We have disallowed this 5 feet at the rate of $7.00 per foot, or $35.00. If the operator finds that the actual footage claimed for either underground or surface drilling is incorrect and that the error is not merely one in addition, he may reclaim the amount disallowed.

We are withholding an amount of $3,400.00, as the project is nearing completion.

Myrtle Purdy

cc: DMEA (2)
USGS (2)

DMEA Field Team, Region I, NW District September 21, 1955

DMEA Certifying Officer

Contract Idm-E489, Granore Company. Monthly operating report for August 1955

The subject operating report has been received and processed for payment.

A difference of 5 feet was found in the total footage accomplished to date and a check revealed that this was apparently due to an error in addition in the narrative report accompanying the July MF-104. Under "Footage Drilled" the Operator shows

Underground	2371 ft.
Surface	1583 ft.
	3959 ft.

The total of 3959 ft. was carried to the MF-104A and charges were made accordingly. We have disallowed this 5 feet at the rate of $7.00 per foot, or $35.00. If the operator finds that the actual footage claimed for either underground or surface drilling is incorrect and that the error is not merely one in addition, he may reclaim the amount disallowed.

We are withholding an amount of $3,400.00, as the project is nearing completion.

Myrtle Purdy

cc: DMEA (2)
USGS (2)
Wash. 2
Engr.
AD

RECEIVED
SEP 26 1955

DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY *INDEX MINE*

DIP TESTS					
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LEVEL *2*	LAT. *14,490.92*	HOLE No. *2-12*
			LOCATION	DEP. *12,572.83*	SHEET No. *1*
COLLAR		0°	ELEVATION *1432.36*	BEARING *N23°42'E*	LOGGED BY *J.H.P.*
			FINISHED *JULY 25, 1955*	LENGTH *506'*	TOTAL RECOV. *95.9 %*

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	18			Geo
18	19			Aplite Dyke
19	66			Geo
66	72			Geo with pinkish tinge. Felspars larger than normal.
72	191			Unalt. normal Geo.
191	193.6			Chlorite with a few grains Cp
193.6	313			Unalt. Geo. 280'-Fract with epid
313	314			Heavily alt. Geo with some vein Qtz and chlorite. No Cu min.
314	320			Unalt. Geo.
320	324			Geo with a little barren Chlorite.
324	340			Unalt. Geo
340	341			Geo with seams of epidote
341	346			Geo
346	348			Geo with much epidote ∠10°
348	351			Unalt. Geo.
351	352			Aplite dykes ∠30°
352	506			Massive unalt Geo.
				506 END of HOLE

CORE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
167	191	193.6	0.12			

SLUDGE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.
W151	310	320	0.10		

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
0-2.6	0	298.8	.1
7.4	0	307.1	.2
13.9	0	315.6	3.1
19.0	.2	317.7	.3
27.0	0	323.9	0
35.2	.1	332.1	.1
42.4	.4	340.3	.2
50.3	0	348.0	0
58.8	.5	356.8	.7
65.0	.1	364.8	0
73.0	0	372.1	0
81.0	1.0	381.7	1.6
[illegible]	0	390.4	.4
[illegible]	0	398.6	.2
104.6	.4	406.9	.1
110.5	1.1	415.1	0
118.3	0	423.3	.2
126.9	0	431.5	.3
135.1	.1	439.8	.3
143.2	1.1	447.8	0
150.4	0	455.9	.1
158.2	0	464.1	0
165.0	0	468.3	0
175.6	.3	472.7	1.
183.7	.1	481.5	.9
191.7	0	490.2	.7
200.1	.2	498.3	.3
207.9	.2	506.0	0
216.1	.1		—
224.5	.4		20.5
232.6	.1		
240.8	0		
248.8	0		
257.0	.3		
265.2	.2		
273.8	.4		
282.1	.1		

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RECEIVED
SEP 26 1955

DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: *INDEX MINE*

DIP TESTS						
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LEVEL	2	LAT.	13,183.87
COLLAR	-30°	-30°	LOCATION		DEP.	13,167.06
250	-36°	-30°	ELEVATION	1402.30	BEARING	S 40° 22' W
500	-36°	-30°	FINISHED	AUG. 8, 1955	LENGTH	765
760	-39°	-28°				

HOLE No. 2-13
SHEET No. 1
LOGGED BY J.H.P.
TOTAL RECOV. 91.2 %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	9			Unalt. Grd with a few rusty frac. Basic dyke.
9	34			Grd with numerous small barren rusty frac.
				Core quite broken.
34	66.8			Normal unalt. Grd. 51' 2" aplite dyke
				45.8' 1" Frac with hem.
66.8	77			Grd with larger than normal biotite looking inclus.
77	79		(Cp)	Rusty frac. Zone with hem. and a few grains Cp.
79	103.2			Some weak Grd. 85-86 Brown rusty zone.
103.2	105.3		Cp	Slight chl. alt. with several hem. stringers
				and one 3" vein of Cp. 160°-70°
105.3	116.4			Unalt. Bleached Grd.
116.4	117.3		Cp	Chl. alt. with a little Cp.
117.3	124			Grd
124	125			Pinkish gray felsite dyke 60°
125	147			Normal unalt. Grd.
147	164			Grd. Core broken and in sections with numerous
				rusty frac. Slight chl. alt. in 1" zones in min.
164	235			Normal unalt. Grd. Occasional narrow brown
				rusty frac. usually at 30°
235	242			Grd with numerous narrow rusty frac. 30°
				Often have a film or frac. plane
242	260			Grd with occas. narrow frac.
260	264.5			Grd with chl. alt. a little malachite on rusty frac. 30°
				and a few fine grains of Cp. Frac. with pinkish
				gaylike band 1" 260.
264.5	293			Unalt. Grd
293	305			Grd with numerous frac. 10-15° Chl, epidote
				on frac. planes No Cp
305	378.6			Unalt Grd.
378.6	379.6			Dark Grey green. And. dyke. Chilled first 1" @ 30°.
				A little chl. in Grd just before dyke. Last cont. ground.
379.6	382.2		Cp.	Chl. alt. with disseminated Cp.
382.2	393			Grd with a little barren chl. alt.
393	526			Unalt. Grd.
526	529			Lt. grey barren alt.
529	552			Unalt Grd

CORE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
11145	103.2	105.3	1.21			
146	116.4	117.3	0.69			
152	260.4	264.5	TR			
165	379.6	382.2	0.26			

SLUDGE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.
W147	140	150	0.03		
148	150	160	0.12		
149	160	170	0.10		

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
9.3-13	1.3	157.7	0
15.8	0	174.5	0
17.9	.4	176.9	0
19.4	.1	180.4	0
20.2	0	185.4	1.2
25.4	1.5	192.4	.3
29.9	.9	200.4	0
30.3	0	208.8	.1
34.7	.4	213.4	0
41.2	0	221.5	.2
45.1	0	225.9	.4
45.8	0	229.8	0
50.6	0	231.7	0
58.9	.2	235.[illegible]	0
66.9	0	240.3	0
68.5	0	241.7	0
76.5	.5	249.1	0
78.0	0	250.1	.2
86.2	3.1	257.3	0
90.8	0	260.4	0
96.2	.4	264.5	0
101.2	0	268.7	1.5
106.6	.1	276.6	.9
113.6	.7	278.8	0
119.8	.6	28[illegible]	0
122.0	0	293.4	1.5
130.3	.3	297.8	0
135.3	0	302.9	.9
144.6	.2	305.3	.1
148.2	.2	308.5	0
151.3	.8	309.9	0
152.7	.2	315.3	0
154.3	0	323.1	0
157.5	.2	329.6	.5
161.5	.4	337.7	0
163.2	.2	342.9	.6
165.8	0	351.2	.1
167.0	.4	355.2	.6

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY *INDEX MINE*

DIP TESTS			LEVEL	LAT.	HOLE No. 2-13
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LOCATION	DEP.	SHEET No. 2
			ELEVATION	BEARING	LOGGED BY J.H.P.
			FINISHED	LENGTH	TOTAL RECOV. %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
552	555			Bleached & alt. Grd with Kaolinized felsp.
				A little alter. & some cpy. & bitter Quartz
555	560			Dk gray green and. dyke.
560	565			Grd, unalt, with a little cpy. A ½" stringer of
				Cp at cnt. on dyke contact.
565	571.5			Barren dk gray green and. dyke.
571.5	582.0		Cp	Grd with more pyrite.
				571.5 - 574.8 Fairly well min with Cp in
				irregular veinlets & lissen.
				574.8 - 582 Occas. veinlets of Cp.
582.0	595			Bleached lt. gray alt. Grd. Host no vis. mafics.
				No Quartz.
595	610			Still bleached but more mafics than prev. sect.
610	677			Normal unalt. Grd
677.0	677.2			~~Barren Qtz stringer in a fault.~~
677.2	715			Unalt. Grd.
715	718.5			Grd with slight chl. alt.
718.5	722.9		Cp	Grd with much chl. alt. and several ½" veins of Qtz.
				Fairly well min with Cp in narrow veinlets
				mostly in Qtz.
722.9	725.1			Dark gray-green andesite dyke. Last contact
				sharp at 45°
725.1	728.1		Cp	Chl. alt. slightly min. with Cp.
728.1	733.4			Unalt Barren Grd.
733.4	738.5		Cp.	Chl. alt. with a few ⅛" stringers of Cp.
738.5	740			Unalt Grd.
740	752			Aplite dyke.
752	765			Unalt Grd.
				765 End of Hole

CORE ASSAYS SAMPLE No.	FROM	TO	% CU.	OZ. AU.	OZ. AG.	AVERAGE
W168	571.5	574.8	0.96			
169	574.8	579.8	0.09			
170	579.8	584.8	0.07			
171	584.8	589.0	0.10			
188	718.5	722.9	0.67			
189	725.1	728.1	0.19			
190	733.4	738.5	0.15			

SLUDGE ASSAYS SAMPLE No.	FROM	TO	% CU.	OZ. AU.	OZ. AG.
W160	420	430	0.07		
161	370	380	0.08		
162	380	390	0.15		

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
359.6	1.1	574.8	1.9
367.9	.4	578.5	.9
375.8	0	587.0	0
383.8	.8	589.4	0
385.7	0	591.6	0
387.0	.7	593.8	1.5
389.9	.4	595.3	0
392.1	0	599.9	0
400.6	0	606.3	1.2
408.8	0	610.5	.2
413.3	.4	616.7	.2
415.8	0	625.0	.3
424.4	.5	632.2	0
431.9	3.2	641.4	.2
439.8	0	645.5	0
446.8	.4	649.9	1.1
451.5	.5	658.0	.1
460.0	.2	660.0	.5
467.7	.1	668.1	0
476.0	.4	676.3	0
484.2	0	681.0	.5
490.9	.7	687.8	1.2
497.5	3.8	691.7	.1
506.3	.6	699.8	0
513.6	.2	706.9	1.7
521.6	0	708.3	.9
525.0	0	709.1	0
533.8	.1	711.9	1.1
541.9	4.0	715.7	.1
547.0	2.0	722.4	.1
550.4	0	724.5	.2
551.8	0	731.9	.6
556.8	0	740	.3
558.8	0	746	0
559.8	0	754.9	.3
564.9	3.2	756.3	.1
565.2	0	765	1.0
570.1	.8		

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS		
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED
COLLAR		-30°
300	-36	-30°
600	-35	-29°

LEVEL	2
LOCATION	
ELEVATION	1432
FINISHED	AUG. 5, 1955
LAT.	13,686
DEP.	13,097
BEARING	N15°26'E
LENGTH	606
HOLE No.	2-14
SHEET No.	1
LOGGED BY	J.H.P.
TOTAL RECOV.	86.9 %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	35			Grd
35	40			Barren chl. alt.
40	61.9			Grd
61.9	65.0			Grd with iron stained fracts.
65.0	71			Grd
71	71.3			Aplite dyke.
71.3	102			Grd. Barren fract. @ 84' & 89'
102	109.4			Grd with pale grey alt. and much fracturing. Hem. plentiful. No Cu min.
109.4	133.1			Unalt. Grd.
133.1	136.8		Cp.	Chl. alt with much epidote and a little ~~Cp~~. 1.8' Core recov.
136.8	138.0			Grd.
~~138.0~~	~~138.2~~		Cp	Vein of Cp
138.2	297			Unalt. Grd.
297	298			Fracture with barren chl. alt.
298	339			Unalt. Grd
339	342			Barren lt. grey alt. with rusty fracturing
342	357			Slightly alt. barren Grd. with blotchy looking mafics.
357	363			Light grey barren alt. Grd with rusty fract. zones parallel to core axis.
363	389			Light grey alt. Grd with occas. sections of nearly normal Grd and others looking like aplite dykes.
389	391			Light alt. w/ much hematite. No Cu min.
391	395			Barren bleached alt. Grd.
395	410			Normal unalt. Grd.
410	437			Lt grey hard alt with occas inclusions of unalt. Grd. No Cu min.
437	457			Unalt. Grd.
457	464.6			Dk grey green andesite dyke. Sharp contacts ∠70°-80°
464.6	472			Chl. alt. with a few ⅛" stringers Cp ∠30°
472	479			Normal unalt Grd.
479	481.5		Cp	Hard lt grey alt. with a few short (1") sections of chl. with fine stringers Cp.
				Cont. Pg. 2.

CORE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
W166	133.1	136.8	0.96			
180	464.7	467.4	0.04			
181	467.4	472	0.14			
182	479.0	481.5	0.11			

SLUDGE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.
164	30	40	0.13		
163	130	140	0.36		

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
0-14	5.9	168.4	0
22.8	.5	176.8	.2
25.0	0	181.9	.1
30.8	1.6	190.0	0
36.0	3.4	194.4	1.9
38.8	2.4	193.3	1.8
41.5	.3	206.3	0
43.5	.2	213.9	1.0
48.3	0	217.0	0
50.7	0	223.2	0
54.0	.4	230.3	1.1
59.0	3.2	238.9	.3
60.0	.6	246.0	0
61.8	.3	255.3	.8
64.0	.9	263.7	.3
68.0	0	271.9	0
72.3	0	280.3	.3
~~77.2~~	~~.9~~	~~288.5~~	~~0~~
82.3	.3	297.0	.4
87.1	.3	305.0	1.0
88.8	.1	309.9	.2
90.0	.1	317.3	2.1
92.8	1.5	322.0	0
93.8	0	330.4	3.1
97.1	1.4	338.2	0
99.2	1.3	342.0	.9
102.2	.6	349.0	.4
104.6	.8	353.3	.3
109.4	0	357.9	.9
112.5	1.4	363.1	.9
115.6	.2	368.8	0
120.6	0	373.0	1.5
125.6	.1	376.5	1.4
133.1	.3	379.3	.9
134.8	.5	385.0	1.9
~~138.2~~	~~1.7~~	~~389.4~~	~~0~~
141.8	2.4	394.9	0
149.9	.3	400.2	0
158.2	.2	403.4	.2
167.2	0		

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DIAMOND DRILL HOLE RECORD
GRANORE COMPANY

PROPERTY _____

DIP TESTS			LEVEL	LAT.	HOLE No. 2-14
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LOCATION	DEP.	SHEET No. 2
			ELEVATION	BEARING	LOGGED BY J.H.P.
			FINISHED	LENGTH	TOTAL RECOV. %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
481.5	502.5			Lt. grey, hard alt GRD with occasional ¼" felds. xl.
				and blotchy alt. mafics. Barren.
502.5	510			Much more intensely alt. – Nearly white with few
				visible mafics.
510	512.5			Barren GRD with a little chl. alt.
512.5	515.2			Qtz vein and chl. alt with Cp in fine reinlets.
				1.1' recov.
515.2	526.8		Cp.	GRD with much chl. alt. Occas. narrow stringers and
				small dissem patches of Cp.
526.8	538			Lt. grey alt., mostly siliceous but one section
				528-530 highly alt. with kaolinized feldspars.
				Last 2' show grading off of alt. to normal GRD.
538	562			Grd – slightly darker than normal with mafics
				more numerous and larger than usual with
				slightly irreg. outlines
562	566			A little barren chl. alt with a few hem. stained
				fractures.
566	575			GRD with a few short sections of pink and grey siliceous
				alt.
575	576			Pinkish grey aplite dyke. Sharp-fissured contacts 20°
576	606			Barren unalt. GRD
				606' END of HOLE

CORE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
W183	512.5	515.2	0.90			
W184	515.2	521.2	0.34			
W185	521.2	526.8	0.02			

SLUDGE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
408.4-419	.4		
[illegible]	1.0		
424	.6		
430.9	0		
438	.4		
442.4	[illegible]		
447.6	[illegible]		
451.1	0		
454.7	.2		
466.4	0		
474.6	1.1		
482.8	0		
491.8	2.9		
495	0		
502	[illegible]		
508.7	1.6		
515.4	3.3		
524.4	.4		
530.4	.3		
538.6	[illegible]		
547	.2		
555	0		
563.7	.4		
566.6	0		
576.2	1.4		
584.4	0		
592.4	2.9		
598.3	0		
606	0		
	77.4		

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DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS		
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED
COLLAR	0°	

LEVEL	2	LAT.	13,946.16
LOCATION		DEP.	13,793.77
ELEVATION	1421.64	BEARING	N 27°38' E
FINISHED	AUG. 16, 1955	LENGTH	502'

HOLE No.	2-15
SHEET No.	1
LOGGED BY	J.H.P - JMS
TOTAL RECOV.	95.0 %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0.	10			CASING
10	14.4			Unalt GRD
14.4	17.2		Cp, Bo	Unalt GRD with ½" frac's with Cp and Bo. about 6" to 8"
				apart. Also a little discom Cp. ∠80°-90°
17.2	22.7		Cp	Unalt GRD with occas. fine frac with Cp
22.7	52.5			Unalt. GRD One ½"-frac. with Cp at 31'
52.5	55			Barren GRD with a little light alt. and some chl
				2" Qtz. vein @ 52.3 with speck of Cp.
55	149.7			Unalt GRD. ½" frac's with Cp @ 86 & 87' 180°
149.7	158.3			Dk. grey-green fg. andesite dyke. Chilled edge @ 1st
				contact ∠85°, 2nd contact ∠80°
158.3	160.3			Unalt. GRD. Barren.
160.3	161.5			Similar andesite dyke. Sharp contacts @ ∠80° & ∠70°
161.5	247			Unalt GRD. ~~⅛" vein Cp ∠80° at 172'~~
				GRD is unum. and unalt at dyke contacts.
247	248		Cp.	GRD mostly unalt, but with a 2" seam of Qtz. and
				chlorite containing a little Cp. Also two hairline
				veins of ½"
248	275			Unalt. GRD. ½" vein Cp at 253' ∠80°
				2-1" Aplite dykes @ 272'. Few specks Cp at 270.9'
275	277			Barren GRD with epidote and slight chl. alt.
277	314			Unalt. GRD. ½" Aplite dike @ 281' & 294'
314	320		Cp	GRD, chl. alt. with a little Cp @ 317
320	376			Unalt. GRD. Narrow frac. with chl @ 355' ∠10°
376.0	376.2			Epidote with a few specks Cp.
376.2	411			Barren unalt. GRD.
411	416			GRD, smaller crystals and less mafic than normal
416	439			GRD, slightly less mafic than normal
439	502			GRD, barren, unalt.
				502' is the end of the hole

CORE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
W191	14.4	17.2	0.31			
W192	17.2	22.7	0.07			
W193	314	320	0.07			

SLUDGE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
10-12.9	.4	243.6	.2
17.8	0	302	.3
22.8	.1	314.8	1.2
27.8	0	318.6	0
30.8	0	326.0	0
38.9	3.1	334.9	.6
42.4	.2	343.2	0
50.8	3.2	351.8	.2
51.7	.2	359.9	1.7
58.9	0	363.0	.1
66.9	0	371.0	0
75	0	380	.8
83.5	.5	391.2	.2
92	.2	396.5	.3
100.8	.7	404.6	.1
108.1	.1	412.8	.1
117.1	.6	420.8	0
123.8	0	429.3	.5
131.8	.2	437.7	.4
139.5	0	446.8	1.0
147.8	0	454.9	0
153.7	.2	463.8	.9
161.9	0	472	.1
168.6	0	480.2	.2
177.5	.7	485.2	0
186.4	.8	493	0
194.8	.2	502	.9
203	0		
212	.5		24.5
220.4	.4		
228.9	.2		
237	0		
245.4	.4		
253.8	.3		
262.3	.5		
270.9	.6		
277.2	.7		
285.2	0		

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS						
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LEVEL 2	LAT. 13,826.26	HOLE No. 2-17
			LOCATION	DEP. 13,745.88	SHEET No. 1
COLLAR	0°		ELEVATION 1419.40	BEARING N 67°19'E	LOGGED BY JMS
			FINISHED AUG. 23, 1955	LENGTH 357.3	TOTAL RECOV. 87.2 %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	13			Barren GRD - chlor.
13	24			GRD - slightly bleached
24	71			Unalt. GRD. - Several blebs of epidote at 62.5'
				Phlogopite particles in fractures at 65'
71	80			GRD. - less mafic than normal.
80	106.6			Unalt. GRD.
106.6	122			GRD. - Feldspars darker than normal. Numerous
				rusty fractures ∠0° - ∠90°
122	172.6			Unalt. GRD. Two rusty fractures at 154.7' ∠25° & 35°,
				a few flecks Cp. near the 35° fracture. Fracture
				at 155.5' ∠30°, with phlogopite. Fracture at 158' ∠35°,
				slightly rusted, flecs of phlogopite. Several fractures
				at 167' showing calcite and phlogopite. Two rusty
				fractures at 172' ∠30° and ∠90°
172.6	173.3			GRD. cut by several ~~unmineralized rusty fractures.~~
				Rock also shows a rusty color.
173.3	188			GRD. - unalt. except for rust colored section at 184'
188	190.3			Bleached zone with a rust colored zone at
				188.2 - 188.6
190.3	214		(Cp)	Unalt GRD. Barren except for sparse flecks
				of Cp from 205 - 214
214	216.2			Bleached, and cut by heavily rusted fractures
216.2	219			GRD. - lighter than normal.
219	226.3		(Cp)	Unalt. GRD. with widely scattered specks of Cp.
226.3	230.5			Core is bleached and is increasingly lighter
				towards 230'
230.5	231.5			Very little mafic - most of the feldspars are pink
				in color - QTZ. MONZONITE
231.5	235.2			GRD. - chlor. alt.
235.2	259		(Cp)	Unalt. GRD., very rare specks of Cp. Rusty
				fractures at 248 with specks of Cp close to them.
259	263		Cp	GRD. - chlor. alt. Feldspars are darker than normal.
				Some Cp. min. increasing towards 263'
263	271.7			Feldspars still dark tint more pink showing. Cp.
				min. very slight.
271.7	276.7			GRD. - Chlor. alt.
276.7	299			Core very light colored due to absence of
				mafics. 2 bands ("4") of light feldspars at 277.7
				with blebs of Cp. along both.

CORE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
W214	202.5	205.5	TR			
W215	205.5	210	TR			
W216	210	214	0.03			
W217	214	216.2	TR			
W218	216.2	219	TR			
W219	219	224	TR			
W220	224	226.3	TR			
W222	252	260	0.11			
W223	260	263.3	0.21			
W224	289	291	2.67			
W225	331.6	333.2	0.46			
W226	333.2	338.2	0.14			
W227	338.2	343.2	0.14			
W228	343.2	348.2	0.15			

SLUDGE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.
W229	280	300	0.77		

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
0-4.6	.2	194	0
9.8	.6	202.6	.5
17	2.7	210.9	.1
24	2.7	219.9	.5
29.9	1.5	229.6	1.2
35.4	2.2	233.3	.6
43.6	.3	243	.1
48.2	.6	251	0
56.6	0	252	.2
64.6	0	260.2	.2
67.6	.3	268.4	.1
75.8	0	271.4	.1
83.9	2.0	274.2	0
92.4	.2	287.x	.3
98	.6	289.1	2.0
106.7	6.4	294.1	0
~~107.9~~	~~.4~~	~~298.1~~	~~2.3~~
110.2	0	300.1	.8
112.9	.9	309.3	.2
117.4	1.7	317.3	.2
121	1.9	325.1	0
123	0	333.3	.3
124.2	.6	341.2	.2
127.6	.9	349.3	0
130.2	.7	357.3	0
132.9	.3		
135.2	0		45.7
140.5	.9		
142.7	.5		
144.2	0		
147.4	1.3		
150.4	.5		
155.0	0		
156.8	.2		
162	0		
168.8	.8		
176.8	.2		
185.8	2.9		

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY INDEX MINE

DIP TESTS			LEVEL 2	LAT.	HOLE No. 2-17
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LOCATION	DEP.	SHEET No. 2
			ELEVATION	BEARING	LOGGED BY
			FINISHED	LENGTH	TOTAL RECOV. %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
289	291		Cp	Two dark bands with a light band of equal length
				between them. 1/4" veinlet of Cp. at 289.3
				with particles of quartz. Medium min. from
				290.3 - 290.7
291	298			Core is very light grey with a few narrow stringers
				of f.g. dark grey rock.
298	300.9			F.g. light greenish grey - Kaolinized
300.9	331.6			Light colored GRD due to lack of mafics. Small
				particles of Cp. in a 1/8" dark grey band at
				229.1. 330-331.6 braided bands of hematite,
				with quartz inter-mixed from 330-330.3
331.6	348.2		Cp	GRD. - chlor. alt. Darker than normal due to
				darker colored feldspars. 1/8" veinlet Cp at
				332' and sparsely scattered specks of Cp from
				~~332 to 348. 1/8" veinlets~~ of Cp. at 336, 341 and 346.
348.2	357.3			Unalt. GRD. - barren except for ~~2 specks of Cp~~
				at 353'
				357.3' is the End of the Hole.

CORE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE	SLUDGE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.	RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY *INDEX MINE*

DIP TESTS		
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED
0	-30°	-30°
250	-36½°	-30°

LEVEL *SURFACE*	LAT. *14,114.61*	HOLE No. *S-8*
LOCATION *~~1499.78~~*	DEP. *11,238.05*	SHEET No. *1*
ELEVATION *1499.78*	BEARING *N 21°03'E*	LOGGED BY *J.H.P.*
FINISHED *JULY 27 1955*	LENGTH *306*	TOTAL RECOV. *89.6%*

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	20			Overburden
20	26			Geo. B× Core
26	232			Unalt. normal. Geo. 163 Barren 1" vuggy Qtz vein.
232	233			Pink Aplite dyke with a little barren chl. alt along last contact
233	263.5			Unalt Geo. At 263' there are a few grains Cp in unalt Geo.
263.5	266.5			Grd with barren Chl. alt.
266.5	280.6			Unalt. Geo.
280.6	282			Chlor. alt with a little Cp.
282	283		Heavy Cp.	Soft Alt. zone with sericite and chlorite. Heavily mineralized with f.g. dissem. Cp.
283	284.8			F.g. dark grey green And. dyke. Contacts broken and indistinct.
284.8	287.8		Heavy Cp.	Ore Zone. Sericite and chlorite alt well min. with f.g. dissem Cp. Core badly crushed but not much loss. Ground very "carey" giving much trouble drilling.
287.8	294			Geo. with chl alt and epidote No Cu min.
294	299		Cp(?)	About 1' of broken core recovered. Also 1.5' of concentrated fine grained chalcopyrite in core barrel. Very likely this washed down from above and was concentrated by the wash water & was then picked up by core barrel. Core recovered is barren.
299	299.3		Cp	Coarse massive Cp with Qtz. (May have come from above) and Sericite
299.3	303.0			Alt. Geo with some chlorite on fractures. One 6" zone of crushed fractured feldspars and hem. No Cu.
303.0	303.3		Cp	Coarse Cp with Qtz and Sericite. Same as 299'. (May have dropped down from above.)
303.3	306			Geo with a little Chl. on fract. No Cu min.
				~~Hole stopped at 306' because of drilling difficulties.~~
				Hole reamed & cased to 300' but impossible to get rods or casing further. Hole badly cored 282-299. Much core. Cp in material brought up by wash water.

CORE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
W142	282	283	13.2	0.17	0.54	
143	284.8	287.8	14.2	0.19	0.60	
144	287.8	291	0.16			
W153	294*	295.5*	20.3	0.40	0.8	
	* See core log					

SLUDGE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.
W154	30	40	Tr		
155	40	50	0.03		
156	50	60	0.04		

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
20-26	0	279.0	1.2
34	0	280.6	.3
44.6	5.3	283.4	1.4
53.8	3.5	284.0	0
55.6	0	286.0	0
59.2	0	287.6	0
64.3	0	289.3	0
67.2	.3	294.0	0
75.6	.2	299.0	4.0
84.0	.2	303	0
92.0	0	306	0
100.0	0		
108.0	0		
112.0	.3		
120.0	.4		
128.0	0		
136.8	.6		
144.8	0		
152.8	0		
161.2	.6		
170.0	0		
178.0	0		
186.4	.2		
194.0	0		
202.0	0		
210.6	.6		
218.0	.6		
226.0	1.2		
231.0	2.8		
236.6	1.0		
241.6	.6		
243.6	0		
248.6	.4		
256.6	2.1		
262.0	1.6		
266.5	0		
272.0	0		
275.0	.3		

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD
GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS		
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED
0	-30°	-30°
300	-37°	-31°

LEVEL: SURFACE
LOCATION:
ELEVATION: 1515.95
FINISHED: JULY 28, 1955

LAT. 14,149.58 } 5.7' from Collar
DEP. 11,146.53
BEARING: N22°13'E
LENGTH: 366

HOLE No.: S-9
SHEET No.: 1
LOGGED BY: J.H.P
TOTAL RECOV.: 80.8%

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	18			Overburden
18	41			"Bx" Core Unalt. Geo.
41	65			Unalt. Geo. Felsp. slightly pinkish in places.
65	135			Normal unalt. Geo. 2" Barren Qtz veins with chlorite at 67' and 84'
135	136			Geo with epidote & chlorite. Barren.
136	155			Unalt. Geo.
155	161			Geo with a little chl. alt. No Cu min.
161	202			Unalt. Geo.
202	215			Geo with slight amt. chl. alt. No Cu min.
				Core badly fractured with chlor & some hemm fract.
215	217.5			Unalt. Geo
217.5	219.5			Decomposed Geo. Almost entirely sand like, with qtz grains and yellow-brown flakes of biotite and phlogopite (?)
219.5	279			Unalt. Geo. Short crushed zone @ 239 but no Cu min.
279	280			Aplite dyke
280	285.3			Geo with chlorite on fractures.
285.3	292.0			Dark chl. alt. with a little mal. and a few grains Cp. L60° 12' of core recov. Zone does not look at all like ore zone in S-8. No sericite or sulphides, which cored fairly well. Very doubtful that last core was ore.
292	293			Soft, claylike, light grey-green chl. gouge. No Cu min.
293	306			Highly alt. Geo with much chlorite and kaolinized felspars.
306	324			Geo, slight amt. chl. alt.
324	327			Fract. zone with hem. & FeO
327	366			Geo with much alt. of felspars. Kaolin on many of fractures. Minor chl. alt. but no Cu min.
				366 End of Hole

CORE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
W150	217.5	219.5	0.05			
157	285.3	292	TR			
158	311	312	0.11			
W159	318	319	0.15			

SLUDGE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
18-27	.4	296.8	0
32.6	0	299.6	.8
41.7	.7	306.1	2.4
48.0	0	311.1	1.3
57.0	.8	318.0	4.5
65.3	0	327.0	4.4
73.4	0	333.0	3.0
82.4	.7	336.0	.9
92.2	1.4	342.6	.8
101.6	1.1	346.2	.2
109.8	.7	351.0	3.6
117.3	0	360.6	4.7
129.9	1.8	366.0	2.2
136.0	.4		
145.2	1.		
155.0	1.4		
160.8	1.1		
169.6	.7		
176.5	.2		
186.3	1.5		
191.6	2.3		
199.0	.3		
206.0	2.3		
214.0	4.7		
217.6	.2		
219.6	0		
225.0	.4		
233.0	0		
238.4	.1		
240.4	0		
248.4	1.6		
253.8	1.7		
262.6	2.4		
269.4	.7		
276.7	1.0		
280.6	0		
284.8	.6		
292.8	5.9		

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD
GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS		
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED
0	-30°	-30°
250	-36°	-30°

LEVEL	SURFACE	LAT.	14,080.96
LOCATION		DEP.	11,329.67
ELEVATION	1491.10	BEARING	N21°E
FINISHED	AUG 4, 1955	LENGTH	297'

HOLE No.	S-10
SHEET No.	1
LOGGED BY	J.H.P.
TOTAL RECOV.	84.8%

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	18			OVERBURDEN
18	24			NX + BX CORE Unalt. GRD.
24	222.5			Unalt. GRD. Narrow Aplite dykes (or alt.) at 165 & 172
222.5	224			Barren Chl. alt.
224	262			Unalt. Geo.
262	270.3			Geo with a little chlorite & epidote. No Cu min.
270.3	274.4			Ore zone. First 0.5' chl. alt with dissem Cp. Then 2.0' massive f.g. Cp with much sericite and some chl. Last 1.6' Almost wholly sericite, with some Cp.
				Very sharp contact at 274.4 with 0.1' Geo with much epidote, then barren, unalt. Geo. ∠40°
				Core recovery in ore zone nearly perfect. Used 5' ordinary core tube + barrel and much care.
274.4	297			Unalt. Barren Geo.
				Hole started caving from action of water on sericite in ore zone and made it impossible to get rods to bottom.
				Hole stopped at 297'

CORE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
172	270.3	272.9	8.32	0.04	0.65	
173	272.9	274.4	7.14	0.02	0.60	

SLUDGE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.
W174	220	230	0.04		

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
18-24	0	257.0	0
37.0	0	260.1	.9
42.0	.6	262.6	.6
47.0	.7	266.0	2.0
48.0	0	267.6	0
52.0	.7	270.0	.2
55.0	.3	272.8	.1
58.6	1.1	276.0	0
66.0	4.6	280.9	0
73.0	5.0	285.5	.5
79.6	3.1	291.8	0
87.6	0	297.0	0
93.0	1.3		
100.0	1.6		A2.4
108.0	1.4		
111.6	1.7		
115.0	0		
122.0	.5		
130.0	.7		
138.0	0		
144.8	.8		
152.0	2.6		
158.8	.2		
167.1	.3		
170.1	.6		
176.6	.2		
184.6	0		
192.6	0		
201.0	3.7		
209.0	0		
217.0	0		
225.0	1.6		
231.4	.8		
235.8	1.1		
238.8	.4		
~~245.3~~	~~1.0~~		
248.8	0		
254.5	1.5		

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS		
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED
0	-30°	-30°
300'		

LEVEL	SURFACE
LOCATION	
ELEVATION	1518.70
FINISHED	AUG 5, 1955
LAT.	14,192.06
DEP.	11,056.83
BEARING	N 20°01'E
LENGTH	325'
HOLE No.	S-11
SHEET No.	1
LOGGED BY	J.H.P.
TOTAL RECOV.	67.6 %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	17			OVERBURDEN
17	20			NX Core Unalt Gro
20	47			Bx " " "
47	80			Ax " " "
80	132			Gro with occas. short barren zones of chl. alt. Core is broken with poor recovery.
132	133			Fract with gouge & kaolin. No min.
133	136			Gro with a little chl. alt. No Cu min.
136	254			Unalt. Gro.
254	254.5			Rusty fract. with a little barren chlorite.
254.5	258			Unalt. Gro.
258	263.7			Gro. fract. & alt. with a little chlorite. Felspars have slightly pinkish tinge. A little epidote.
263.7	284			Unalt. Gro.
284	298			Gro, with slight chlor. alt. Core quite broken but no Cu min. May be zone
298	325			Unalt Gro.
				325' End of Hole.

CORE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE

SLUDGE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.
W175	80	90	0.03		
176	90	100	0.03		
177	100	110	0.03		
178	110	120	0.04		
179	120	130	0.03		
186	230	240	0.03		
187	250	260	0.04		

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
47-58.4	.3	301.3	.2
65.0	1.7	303.5	1.1
74.4	6.6	312.4	.8
84.2	3.8	320.5	1.1
93.0	3.0	325.0	2.1
101.2	4.3		-
111.7	4.8		90.0
118.7	3.0		
126.2	2.9		
133.0	.2		
140.4	2.2		
146.2	1.6		
153.0	.8		
161.8	.4		
170.6	2.7		
179.4	2.5		
187.0	2.8		
192.8	1.4		
195.3	0		
200.8	3.3		
208.8	4.7		
216.6	4.3		
225.4	5.7		
233.0	3.5		
241.0	5.4		
248.2	2.1		
252.6	1.1		
258.4	1.1		
263.8	3.4		
272.0	.2		
277.8	2.2		
283.0	.1		
285.5	0		
288.8	0		
294.0	3.0		
296.6	.6		
298.0	0		
300.0	0		

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DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY INDEX MINE

DIP TESTS			LEVEL SURFACE	LAT. 14,038.61	HOLE No. S-12
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LOCATION	DEP. 11,424.60	SHEET No. 1
COLLAR	-30°		ELEVATION 1480.91	BEARING N 21°07 E	LOGGED BY J.H.P. - JMS
			FINISHED AUG. 23, 1955	LENGTH 747'	TOTAL RECOV. 91.7 %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	20			OVERBURDEN
20	28			"Nx" Core. Unalt GRD.
28	35			Barren GRD with slight chl. alt. Felspars larger than normal
35	40			Normal unalt GRD.
40	46			Barren chl. alt. with a little kaolinization of felsp
46	89			Unalt. GRD.
89	92			Slightly alt with chl. on fracts. No Cu min.
92	177			Unalt GRD.
177	182			Unalt. GRD with occas. bands of hard pink alt with patches of chlorite. No Cu min.
182	226			Unalt. GRD. 1" band barren pink alt @ 199 ∠40° ½" " epidote @ 207
226	230			Alt. GRD with some chl. and much kaolinization of felspars. Several 1" to 2" bands of soft grey almost clay like kaolin. (does not appear to be gouge.) No Cu min.
230	242			Barren alt. GRD with more chlorite and less kaolin than prev. sect
242	246			Barren GRD, highly alt. with chlorite and a little kaolin.
247	276			Unalt. barren GRD.
276	276.3		CP	Broken chlor. zone with slight Cp. min.
276.3	282			Barren GRD. slightly chlor.
282	293			Unalt. barren GRD.
293	298.3			Barren GRD, slight chlor. alt.
298.3	300.3			Numerous narrow sections of aplite
300.3	330			Barren GRD. 2 bands of epidote, 1/16", at 313' Rusty fractures at 317.5
330	339			Barren GRD, slight chlor. alt.
339	367			Barren GRD. felspars are slightly more pinkish than normal
367	455.5			Normal GRD
455.5	456			Muddy dark red fracture (Hematite ?)
456	469			GRD, slightly chlor.
469	548.5			Normal GRD. Pinkish zone 473.4 - 475. Few blebs of epidote at 499'. 509' - 510' slight chlor. alt. along fracture ∠0°

CORE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
W198	271.6	275.3	Tr.			
W199	275.3	276.3	0.33			
W200	276.3	278.3	Tr.			
W204	566	569	Tr.			
W205	569	574	0.11			
W206	574	577.5	0.02			
W207	577.5	580	0.09			
W208	580	583	Tr.			
W209	583	586	0.02			
W210	586	586.5	0.04			
W211	597.9	599.2	Tr.			

SLUDGE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.
W221	270	280	0.26		

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
448.5-456	0		
465.2	1.1		
473.4	1.6		
481.6	0		
487.6	0		
493.9	.3		
502.6	.6		
512	.5		
530.5	.9		
539.9	1.3		
548.8	.4		
557.8	0		
566.8	.3		
575.5	0		
584.4	.5		
594.1	.8		
603.1	.7		
611.7	.2		
620.7	.8		
630	.4		
638.9	.7		
647.2	.2		
656	.1		
660	0		
668.6	.5		
676.8	.1		
685.8	6		
694.2	2		
702.4	.2		
710.9	.4		
719.9	6		
728.6	2.2		
736	0		
737.3	0		
747	1.2		
	59.8		

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY INDEX MINE

DIP TESTS			LEVEL SURFACE	LAT.	HOLE No. S-12
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LOCATION	DEP.	SHEET No. 2
			ELEVATION	BEARING	LOGGED BY
			FINISHED	LENGTH	TOTAL RECOV. %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
548.5	560.9			GRD. becomes darker than normal
				558.2 - 2 bands (1/8") epidote ∠40°
				559.7 - 2 bands (1/8") epidote ∠30°
560.9	561.9			Nearly all mafics.
561.9	569			Unalt. GRD
569	574		Cp	Much darker than normal due to increased amounts
				of mafic. Few scattered pieces Cp. Hairlike
				bands Cp. at 570.5' and 572' ∠65°
574	577.5			Unalt GRD.
577.5	580			GRD has two darker bands at 577.7 and 579.8
				Both show small blebs of Cp. along fracture planes
580	613.5		(Cp)	Unalt. GRD., barren except for slight Cp on
				fracture planes at 586.3', 598' and 599'
613.5	615			Feldspar crystals are larger and about 1/3 are
				pinkish color. ~~Composition approaching~~ qtz. nonzonite
615	616			Some feldspars are light green
616	654			Unalt. GRD.
654	661			GRD - Crystals are smaller and proportion of
				mafic is smaller than normal.
661	663.6			Unalt. GRD.
663.6	670			GRD - Smaller crystals and less mafic than normal
670	671			F.g. light colored zone. No mafics
671	694			GRD - lighter than normal due to less mafic
694	747			Unalt. GRD.
				747' is the End of the Hole

CORE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE

SLUDGE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
28-30.5	0	233.4	0
33	0	237.6	0
35	0	249	.7
41.4	0	252.2	0
42.8	.6	261.8	.6
46	1.1	265.4	.3
51	0	271.6	0
51.8	0	276.4	0
56	0	280.8	.3
57.8	0	284.5	0
67	0	288.3	.1
75.6	.4	290	0
83.9	0	294.8	1.2
88	0	298	1.0
90	0	299	0
91.9	0	302	0
93.4	.2	308.5	.1
101.8	.9	317.1	.2
110.2	.2	320.7	0
119	.5	324.9	2.6
127.6	.3	332.3	3.5
132	0	338.2	4.4
141.6	2.2	342.8	3.3
145	0	348.4	4.1
151	0	352	0
159.5	.5	357.5	.6
168	.5	360.9	0
174	2.7	367	1.9
180	.3	373	0
184.9	2.4	381.3	.2
188.8	0	388.9	.7
197.3	.7	396.2	0
206.2	0	405.2	.7
210	0	415.2	.6
218.9	0	423.5	0
~~223.4~~	.3	431.7	.2
227	.8	440	.3
227.9	0	448.5	.2

COLUMBIA PRINTING CO

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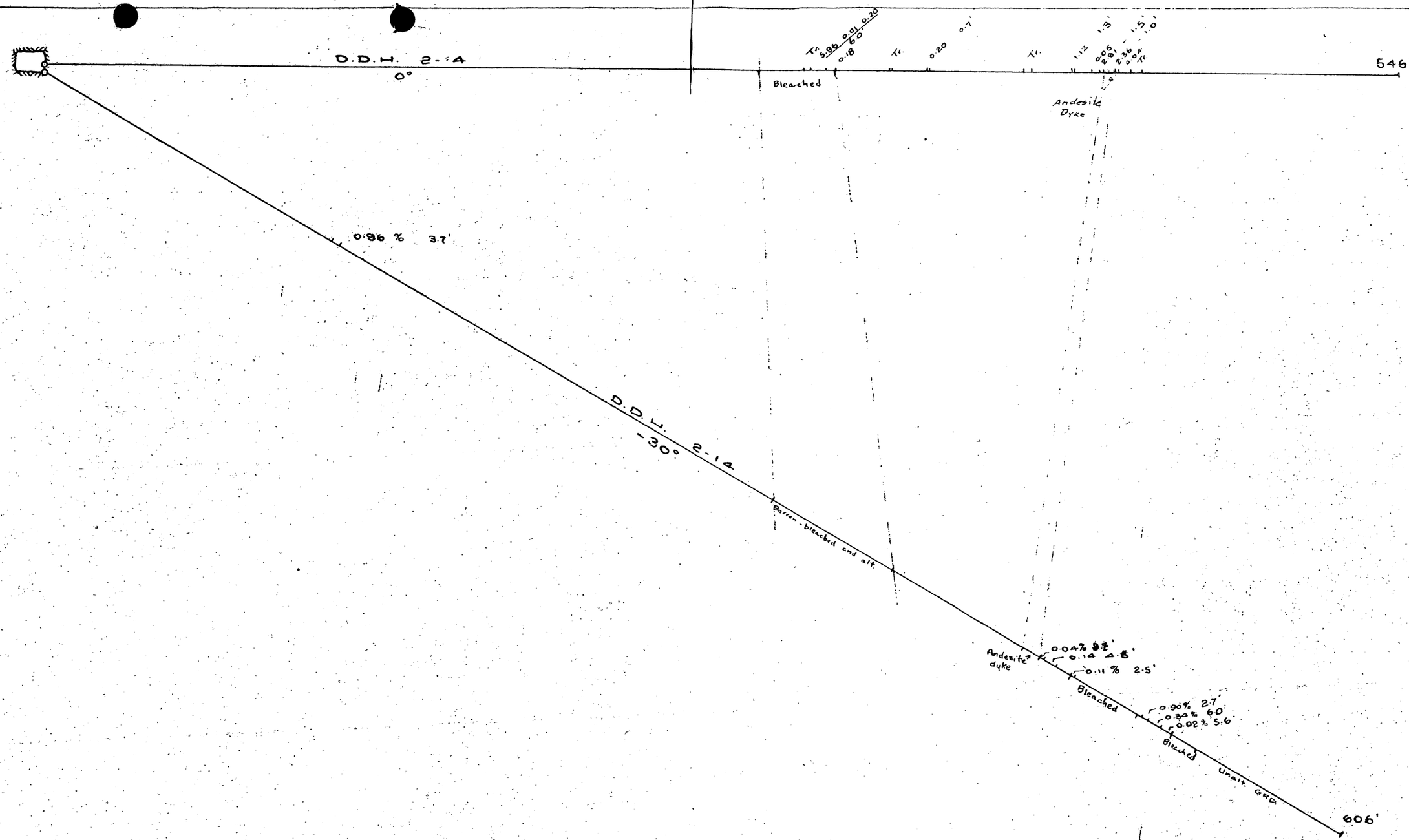
SEP 26 1955



GRANORE COMPANY INDEX, WASHINGTON	TITLE VERTICAL SECTION DDH's 2-4 & 2-14	
SCALE: 1 INCH = 40 FEET	ELEV.	NO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D.C.~~
1201 N. Division St.
Spokane 2, Washington
August 18, 1955

RECEIVED
SEP - 1 1955

MEMORANDUM

To: DMEA Field Team, Region I, NW District

From: E. A. Magill, Bureau of Mines

Subject: Routine inspection report, Docket No. DMEA 2612 (copper), Index Mining Company, Snohomish County, Washington, Contract No. Idm-E489

The subject property was visited on August 1, 1955. Mr. J. H. Parliament, Chief Engineer for Granore Company, was at the property.

The diamond drilling program at the Sunset mine is progressing rapidly with about 4,000 feet of drilling being carried out each month. The surface drilling in Groups 9, 8 and 7 failed to encounter any significant structures or mineralization. Consequently a number of the holes proposed in these groups have been omitted. Drilling in Group 5, i.e. the holes beneath the Bureau of Mines orebody, were more successful. Hole number S-8 drilled beneath U. S. Bureau of Mines drill hole No. 3 encountered 1.0 feet of 13.20% copper and 3.0 feet of 14.20% copper. The Operators have requested lengthening one hole in Group 5 and one hole in Group 6 to 700 feet so that a complete cross-section of the rock in that area could be obtained. Permission to do this was granted in a Field Team letter dated July 26, 1955.

It was suggested to the Operator that it might be desirable to commence drilling to the east of the main workings on Group 2 holes. The Bureau of Mines drilling in 1950 had indicated some very promising structures in that area which were not fully explored at that time.

Underground drilling has been successful in finding some nice ore on the extensions of the Harrington and Johnson veins in holes No's. 2-4, 2-7, 2-8. (See maps accompaning Operators monthly reports.) The hole from underground drilled southwestward under Trout Creek encountered a structure reportedly about 15 feet in width; beneath the creek the best mineralization was only 0.9% copper over 2 feet. However, this is very encouraging geologic evidence and indicates that Quartz Creek might be following a structure parallel to the Sunset vein. This hole tends to prove this theory and more holes to check for an ore shoot are certainly warranted beneath the creek.

The Operator has requested and received permission to drill two underground holes (Q and R) from near the ends of the two long crosscuts. Hole Q to the northeast from the Copper King vein crosscut has been completed; it failed to encounter any mineralization.

The status of the work under the project as of August 1 is as follows:

Work	Completed	Authorized
Underground drilling	5740.3	7225
Surface drilling	3067.5	8445
Chemical analyses	225	405

A list of the completed holes through August 1st is attached.

The Operator has been having all his analysis work done by Peter Mack of Wallace, Idaho. Pulps from a number of samples run by Mack have been checked by the Bureau of Mines at Albany, Oregon; results are as follows:

	Peter Mack			U.S.B.M.		
Sample No.	Cu	Au	Ag	Cu	Au	Ag
W- 55	5.96	0.01	0.20	6.13	0.01	0.30
W- 73	2.91			2.99	< .005	0.10
W- 74	2.36			2.49	< .005	0.10
W-110	5.44			5.68	< .005	0.40

It is to be noted that in all cases the U.S.B.M. assays were slightly higher than Peter Mack's. Spectrographic analysis of these pulps failed to indicate any other elements in sufficient quantity to be of interest.

The Operator hopes to be able to complete the drilling under the exploration project contract before the 1st of November.

E. A. Magill

Orig. & 3 cys - Wash.
USGS (2)
DMEA
M/D
AD
EAM/lb

UNDERGROUND DIAMOND DRILL HOLES

Date Completed	Hole No.	Lot	Dip	Bearing	Length	Elevation of Collar	Inclination	Core Recovery
6/3/55	2-1	14510.51	12189.75	S 27° 07' W	456.8'	1438'	0°	90.0%
6/13/55	2-2	14563.04	12349.21	S 16° 17' W	552'	1435'	0°	86.3%
6/7/55	2-3	13577.24	13142.96	S 26° 22' W	376'	1417'	0°	94.7%
		3' from Collar						
6/20/55	2-4	13686.53	13097.24	N 15° 26' E	546'	1435'	0°	95.0%
		3.3' from Collar						
6/15/55	2-5	14507.08	12500.82	S 19° 02' W	151.5'	1434'	0°	91.3%
6/13/55	2-6	14356.15	12614.48	S 30° 04' W	455'	1430'	0°	90.8%
7/11/55	2-7	13755.22	12998.30	N 11° 51' E	547'	1419.52'	0°	94.3%
6/30/55	2-8	14005.54	12772.94	N 29° 47' E	403'	1425.85'	0°	88.7%
7/9/55	2-9	13944.69	12607.27	S 53° 23' W	418'	1424.84'	0°	84.9%
7/15/55	2-10	13943.27	12609.33	S 21° 01' W	358'	1424.78'	0°	83.7%
		4' from Collar						
7/19/55	2-11	13742.12	12985.84	S 23° 56' W	424'	1419.82	0°	94.5%

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SURFACE DIAMOND DRILL HOLES

Date Completed	Hole No.	Lot	Dip	Bearing	Length	Elevation of Collar	Inclination	Core Recovery
6/9/55	S-1	14581.75	8631.52	N 25° E	254'	1290.03'	-30°	93.0%
6/14/55	S-2	14734.94	8483.28	N 25° E	250.5'	1219.39'	-30°	90.7%
6/20/55	S-3	13996.71	9927.95	N 19° 23' E	403'	1387.60'	-30°	85.9%
6/30/55	S-4	13949.34	10122.64	N 17° 59' E	401'	1382.57'	-31°	74.3%
7/9/55	S-5	14073.93	9750.25	N 18° 57' E	396'	1389.45'	-30°	90.1%
7/15/55	S-6	14850.09	10292.95	S 19° 05' W	278'	1367.18'	-30°	70.1%
7/11/55	S-7	14436.90	10758.90	N 19° 30' E	255'	1535.69'	-30°	82.2%

Form M-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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AUG 23 1955

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of July, 1955 Docket No. DMEA 2612 Contract No. Idm 489

Operator's Name Granore Company Minerals Copper

Address 1640 Exchange Building, Seattle 4, Washington

Contract Amount, $ Government Participation: % Amount, $57,500

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	27,713.00	33,976.60	61,689.60		Klugescheid	
Bulldozing		1,500.00	1,500.00			
Crosscutting					Betty	
Drifting						
Geophysical Survey		3,000.00	3,000.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	210.00	240.00	450.00			
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
TOTALS	27,923.00	38,716.60	66,639.60	27923.00	38716.60	66639.60

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

Date Aug. 11, 1955 *Payee GRANORE COMPANY

Per [signature] Title Vice-President

*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.

NOTE.—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.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 12961.50

Signature [signature]
(Authorized Certifying Officer)

Date 8-17-55 Vou. No. 1580

(See other side)

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. 481 in accordance with the terms of the contract.

Signature Elmer A. Mugill Title Mining Engr Date Aug 15, 1955

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature /S/ Stephen W Goldoh Title Min Engr Date 8-16-55

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED
AUG 23 1955

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of July 1955 Docket No. DMEA 2612 Contract No. Idm E 489
Operator's Name Granore Company Minerals Copper
Address 1640 Exchange Building, Seattle 4, Washington

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT	
							Units	Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Ft.	27,713.00	3959'	61,689.60	8812.8	7.00		
Churn								
Auger								
Stripping								
Trenching				1,500.00				
Test Pits Chem. Analysis	each	210.00	105	450.00	225	2.00		
Roads and Trails								
Geophysical Survey				3,000.00				
TOTAL DISTRIBUTED COSTS		27,923.00		66,639.60				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		27,923.00		66,639.60				

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

Date August 11, 1955 Operator GRANORE COMPANY

Per [signature] Title Vice President

REMARKS:

NOTE.—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.

(Instructions on reverse)

(For Government use only)

/S/ Stephen W Zoldok

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 872894

Elliott 5133

GRANORE COMPANY

1640 Exchange Building
Seattle 4, Washington

Aug. 11, 1955

The United States Department of the Interior
Defense Minerals Exploration Administration
Federal Office Building
Seattle 4, Washington

Attention: Mr. Magill

Re: Docket No. DMEA-2612
Contract No. Idm-E489

Gentlemen:

The following report covers progress at the Index Mine for the month of July, 1955.

Footage Drilled

Underground	2371 ft. 2376
Surface	1583 ft.
Total	3959 ft.

Underground Drilling

D.D.H.s 2-7 and 2-9 to 2-12 inclusive were completed and 2-13 and 2-14 are now being drilled. Two machines are operating on two shifts each. The average footage drilled per shift was 32.2'. Core recovery was about the same as last month except toward the ends of 2-9 and 2-10, where the broken ground near surface gave below average recovery.

D.D.H.s 2-9, 2-10 and 2-11, drilled to the southwest of the Sunset zone, proved practically barren. As 2-3 was also almost a blank, it was decided to omit the remaining two holes designed to further explore this area.

D.D.H. 2-12 was drilled to investigate the unexplored area to the northeast of the Copper King vein. One section, from 191.o' to 193.6' had chloritic alteration with a few grains of chalcopyrite, and a few other short sections showed barren chloritic alteration. The remainder of the hole was in unaltered granodiorite with no copper mineralization. Total core recovery was 96%.

D.D.H. 2-13, inclined at -30°, is now being drilled to the southwest to test the area under Trout Creek. To date it has reached a length of 547' and has encountered no important sections of alteration or copper mineralization.

Surface Drilling

Surface drilling has been progressing satisfactorily. One drill is operating two shifts per day and one drill on day shift only. The average footage drilled per shift, exclusive of overburden, was 32.2 feet. The depth of overburden for five holes this month ranged from 17' to 28' with an average of 20.2'. One hole, S-6 was started on bedrock.

D.D.H. S-5, the third hole of proposed Group 7, was completed. Like S-3 and S-4, S-5 showed no copper mineralization or zones of alteration. It was therefore decided to omit the fourth proposed hole of this group.

D.D.H.s S-6 and S-7, drilled to test Anomaly "D", encountered only granodiorite and aplite dykes. The remaining three holes proposed to further test this anomaly were therefore omitted.

D.D.H.s S-8, S-9, S-10 and S-11 are part of a group of five holes designed to explore at depth the vein found by U.S.B.M. drilling.

D.D.H. S-8, drilled at -30° under U.S.B.M.D.H.3 encountered an ore zone consisting of chloritic and sericitic alteration with massive chalcopyrite which assayed as follows:

From	To	Length	Cu%	Au	Ag
282	283	1.0'	13.20	0.17	0.54
283	284.8	1.8'	Barren Basic Dyke		
284.8	287.8	3.0'	14.20	0.19	0.60
287.8	291.0	3.2'	0.16		

This zone correlates with the intersection in D.H.3 (9.1' of 5.10% cu) with a dip of 80° to the north. Core recovery in the ore zone was good but below it there was considerable core loss. Unmineralized granodiorite and a section of ground, concentrated fine-grained chalcopyrite was recovered. This chalcopyrite was very likely washed down the hole from the previous ore zone.

The action of the drill water on the sericitic resulted in caving ground that made drilling impossible. The hole was reamed and cased to 300' but it had to be abandoned at 306'.

D.D.H. S-9, 100' northwest of S-8 and almost on section with U.S.B.M. D.H.s 4 and 6, did not show an ore zone similar to S-8. Chloritic alteration slightly mineralized with chalcopyrite was intersected from 285.3' to 292.0'. Only 1.2' of core was recovered from this section but the seritization and massive chalcopyrite, which usually cores fairly well, was absent.

D.D.H. S-10, 100' southeast of S-8 and D.D.H. S-11, 100' northwest of S-9, had reached depths of 135' and 28', respectively, at month's end.

Yours very truly,

/S/ J. H. Parliament, P. Eng.
Chief Engineer

I hereby certify this to be a true and correct copy.

Robert M. MacRae, Vice President

DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS				
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LEVEL 2	LAT. 13,755.22
			LOCATION	DEP. 12,998.30
COLLAR		0°	ELEVATION 1419.52	BEARING N 11° 51' E
			FINISHED JULY. 11, 1955	LENGTH 547

HOLE No. 2-7
SHEET No. 1
LOGGED BY J.H.P.
TOTAL RECOV. 94.3 %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	3.3			GRD with slight Chl. alt.
3.3	6.8		Cp.	Chl alt with a little Cp.
				Some epidote in 1/8" seams at ∠80°
6.8	29.4			GRD.
29.4	31.5			Rusty frost zone with hem & epid. Some chlor. No Cp.
31.5	66.0			Unalt GRD. 2" Apl. dyke @ 33.6' Irreg. contact.
66.0	69.0			Core broken. Several 1/8" bands epidote ∠70°-80°
69.0	70.6		Cp	Chlor. alt with some dissem. Cp.
70.6	97			GRD. 84' 1/4" band epid. ∠80°
97	102			GRD. Core shattered. No alt. or min.
102	188			Unalt GRD. 105' 1/4" band epid. ∠80°
188	194			GRD. Shattered core. No alt. or min.
194	213			GRD.
213	230.5			GRD with occas. patches of Chl. alt. and a little
			Cp	Cp. Core loss more than average.
230.5	235.2		Cp	Chl alt well min. with Cp in dissem patches
				& in veinlets 1/4 to 3/4" ∠80°
235.2	239.0			GRD with some chl. alt. No min.
239.0	249			" " light colored alt.
249	250.2			Dark grey speckled Dyke.
250.2	259			GRD with pinkish felsp. and some pale grey alt.
259	295.5			Unalt GRD.
295.5	299.5		Cp.	GRD with small rounded patches chl. alt.
				Flecks & grains of Cp occur in alt. and in
				mafics.
299.5	364.3			Normal unalt. GRD.
				325-335 Some bleaching of mafics.
364.3	368			F.g. grey green basic dyke. Contact ∠ indistinct.
				Epidote in wall rock at 2nd contact. No cu min.
368	408			GRD with slightly more mafics than normal.
408	408.3			F.g. dark grey green basic dyke
				Sharp borders at ∠70°
				(Cont. pg. 2)

CORE ASSAYS

SAMPLE No.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
W91	3.3	6.8	TR			
92	69.0	70.6	0.12			
95	213	214	0.09			
96	214	220.3	TR			
97	220.3	224.3	TR			
98	224.3	230.5	0.15			
111	230.5	235.2	1.82			
112	235.2	239	TR			
108	295.5	299.5	TR			
117	408.3	410.4	0.23			
118	410.4	413.0	TR			
119	413.0	414.7	0.48			
120	414.7	417.6	0.10			
121	417.6	422.7	0.54			
122	422.7	426.3	0.88			
123	427.3	429.5	2.25			
124	429.5	433.5	0.90			
129	433.5	440.5	0.42			
130	440.5	442.6	0.15			

SLUDGE ASSAYS

SAMPLE No.	FROM	TO	% CU.	OZ. AU.	OZ. AG.
W93	0	10	.41		
99	220	230	0.53		
W100	210	220	0.07		

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
0-3.3	2.2	241.8	.3
8.8	1.9	245.7	1.6
13.2	.4	251.6	.3
21.0	0	253.8	.4
29.4	.5	257.0	.6
31.0	0	258.0	0
33.4	.7	265.2	.2
34.4	0	270.5	.6
40.4	0	277.9	0
45.3	0	285.3	0
53.4	0	293.9	.2
~~59.1~~	~~0~~	295.5	.2
66.2	0	298.5	0
68.3	.2	306.5	.7
69.8	.2	314.0	0
77.7	0	322.1	0
85.7	0	325.5	4.
93.7	0	332.2	0
102.8	0	340.8	1.1
110.8	.7	348.1	0
118.3	.7	356.1	0
125.3	0	364.3	0
133.4	0	372.3	0
139.9	0	380.3	0
148.2	0	388.4	0
156.2	0	390.8	0
164.0	0	399.0	0
172.5	.5	407.0	0
180.6	0	408.0	0
188.7	0	414.7	0
194.9	0	422.7	.1
203.0	0	429.5	0
207.9	0	432.3	.4
214.0	2.	440.4	.6
220.5	4.2	443.4	0
227.2	2.	451.5	0
230.5	0	459.7	.3
238.6	0	467.7	0

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD
GRANORE COMPANY

PROPERTY *INDEX MINE*

DIP TESTS			LEVEL	LAT.	HOLE No. 2-7
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LOCATION	DEP.	SHEET No. 2
			ELEVATION	BEARING	LOGGED BY J.H.P.
			FINISHED	LENGTH	TOTAL RECOV. %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
408.3	426.3		Cp.	Grd with patches of chl. alt and a little Cp in dissem & veinlets. 424-426 Several ½ to 2" veins Qtz and a 2" band of sericite.
426.3	427.3			F.g. grey green andesite dyke. Sharp first contact ∠ 30°. Not min.
427.3	440.5		Cp	Chl. alt with frequent 1" to 3" bands of f.g. white Qtz. Fairly well min with Cp. dissem. & in irreg. veinlets
440.5	442.6		Cp	Chl alt with a few specks Cp.
442.6	495			Unalt. Grd. Occas narrow fract. with epid.
495	496			Pale pinkish-grey alt with fine matics. "Bleached" appearance.
496	530.7			Grd. A little epid. No alt or min.
530.7	547			Grd with patches of chl. alt. No Cu min. Some hem. @ 541-542
				547 End of Hole

CORE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE

SLUDGE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
475.8	0		
483.9	.1		
492.2	0		
500.3	0		
508.4	0		
516.5	0		
524.7	0		
532.8	0		
541.0	.3		
547.0	3.		
	31.2		

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS		
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED
COLLAR	0°	

LEVEL	2	LAT.	14,005.54
LOCATION		DEP.	12,772.94
ELEVATION	1425.85	BEARING	N 29°47'E
FINISHED	JUNE. 30, 1955	LENGTH	403'

HOLE No.	2-8
SHEET No.	1
LOGGED BY	J.H.P
TOTAL RECOV.	88.7%

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	41.8			Unalt. GRD
41.8	52.8			Aplite Dyke
52.8	60			GRD
60	62.4		Cp	Chlor. alt. with a little Cp., dissem.
62.4	74			GRD
74	74.5		Cp	GRD with a few specks Cp.
74.5	163			GRD 127' Small fract with hem.
				132 " " " Chlor. No min.
				137 Pinkish grey patch with vuggy Qtz
163	166.3			F.g. dark green and dyke with sharp banded borders @ ∠80°
166.3	177.3			GRD.
177.3	178.4			And. dyke ∠50°
178.4	184			GRD
184	185			Aplite dyke
185	249			Unalt GRD. 2" pinkish bands with epid. at 233' and 290' ∠70°
249	251			Chl. alt. No min.
251	285			Unalt. GRD.
285	294			GRD with some chl. alt. No min.
294	305.6		Cp	Chl. alt. with occas. 1/16 veinlets Cp. ∠80°-90°
305.6	317.8			GRD with a little chl. alt. No min
317.8	323.5		Cp	GRD with chl. alt., well min. with Cp., dissem. & in veinlets up to 1/4" Some vein Qtz.
323.5	326.2			Some chl. alt. No Cu min.
326.2	328.9		Cp	Chl. alt. fairly well min with Cp in 1/16" veinlets & dissem.
328.9	335.7			GRD with a little chl alt. No min.
335.7	336.7		Cp	Chl. alt. with Cp.
336.7	360			GRD with occas. small patches chl. alt. Some epidote. No Cu min.
360	403			Unalt. GRD. Some of core is shattered but no min.
				397' 2" Qtz. vein with one 1/8" patch Cp. ∠20°
				403 End of Hole

CORE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
W94	60	62.4	0.02			
101	287	294	Tr			
102	294	301.3	0.13			
103	301.3	305.6	0.15			
104	317.8	323.5	2.19			
105	323.5	326.2	0.06			
106	326.2	328.9	0.52			
107	335.7	336.7	0.65			

SLUDGE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.
W109	280	290	0.08		
W110	290	300	5.44		

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
0-7.8	0	213.8	0
16.8	0	216.8	0
20.6	1.2	224.9	.2
21.4	.3	232.7	1.8
24.0	0	237.8	.8
29.9	3.1	242.9	0
31.4	0	250.8	0
33.0	0	256.8	.9
38.1	.2	264.8	3.3
41.8	.4	269.9	0
47.0	.2	278.0	0
53.0	.8	287.1	3.4
61.8	.5	294.0	3.9
66.2	.7	301.3	3.1
71.6	.4	308.8	0
75.8	0	317.0	.1
81.9	2.6	325.0	.3
87.8	1.4	333.9	.7
94.4	1.2	340.3	0
98.8	0	348.3	0
104.4	1.7	356.9	.3
112.0	.9	365.4	0
118.8	0	373.8	0
127.0	.8	382.0	0
133.6	.2	390.0	.2
137.0	0	398.4	.8
145.2	0		[illegible]
148.9	.5		
157.0	0		
~~165.2~~	~~.1~~		
168.8	.7		
177.2	.2		
180.8	.3		
184.0	1.4		
190.2	3.3		
192.2	0		
198.2	1.6		
205.4	.5		

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD
GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS						
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LEVEL 2	LAT. 13,944.69	HOLE No. 2-9
			LOCATION	DEP. 12,607.27	SHEET No. 1
COLLAR		0°	ELEVATION 1424.84	BEARING S 53°23'W	LOGGED BY J.H.P.
			FINISHED JULY 9, 1955	LENGTH 418'	TOTAL RECOV. 84.9%

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	19		Cp	GRD with occas. patches of Chl. alt. and a little Cp.
19	30			GRD.
30	32			Chl. alt. No min.
32	55			GRD
55	63.3		Cp	Chl. alt with a little Cp in dissem. & occas. veinlets
63.3	116			Unalt GRD. 104' Fract. with epid. ∠60°
				111 " " ∠70°
116	117.5			GRD with Chlor. alt. No min.
117.5	139.7			GRD with occas. patches of pink feldspars. 1" barren Qtz. @ 123'
139.7	140		Cp.	Chl. alt. with a few specks Cp
140	143.5			GRD.
143.5	157.4			GRD with much chl. alt. Fairly well min. with Cp in dissem.
				and veinlets up to 1/8" at random ∠s. Several stringers @ 60°
157.4	204.			Normal GRD. A few narrow unmin. bands chl. alt in first
				ten ft. " 1/8" fracts with epidote & ch. alt at 183', 197'
				and 198' ∠60°
204	204.5		Cp, Mal	Chl. alt with 1/2" Qtz vein with blebs of Cp and a few
				specks malachite. A little dissem. Cp in alt. rock.
204.5	217.5			GRD.
217.5	217.6			Chl. alt. with a few specks Cp.
217.6	255.3			Unalt. GRD. Feldspars have faintly pinkish tinge.
255.3	256.7		Cp.	Chl. alt. with a little Cp
256.7	265			GRD. Aplite dyke 259.9 - 260.3
265	267		Cp	Chl. alt. with a little Cp
267	270			GRD
270	282		Cp	GRD with patches of chl. alt. and a few grains Cp.
282	321			Unalt. GRD. 312-313 A little epid. and chl. alt.
				No Cu min.
321	323			GRD with fract. parallel to core, with some chl. alt. No Cu.
323	354			GRD. Rusty fract. 327-328 ∠0°
354	355			Pinkish-grey f.g. alt. (Aplite dyke?)
355	361			GRD.
361	362			Chl. alt. No Cu min.
362	401			Unalt. GRD.
401	414			Dk. grey basic dyke with some rusty fract. Contacts
				irregular and banded with light colored rock.
414	418			"Cave" Practically no core. Pieces look like pebbles. Probably
				surface edge of bedrock.
				418 END OF HOLE.

CORE ASSAYS SAMPLE No.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
W113	55.0	60.2	0.39			
114	60.2	63.3	0.03			
115	143.5	150.2	0.58			
116	150.2	157.4	0.35			
125	255.3	256.7	0.08			
126	265	267	TR			
127	270	271	TR			
128	272	273	TR			
W141	275	282	TR			

SLUDGE ASSAYS SAMPLE No.	FROM	TO	% CU.	OZ. AU.	OZ. AG.

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
0-5	0	196.8	0
8.8	.1	204.8	.1
10	0	212.8	1.
13	1.3	217.6	2.
18	1.5	226.1	.3
19.6	0	234.8	.7
24.8	.1	238.5	.7
27.	.6	247.1	0
32.4	.7	255.8	2.8
36.8	1.6	264.2	.1
41	.1	272.3	.5
44.8	1.4	276.3	.3
47.8	2.	282	3.8
49.5	.6	283	.2
53.1	.7	289.2	.6
55.3	1.2	291.5	.8
60.2	.3	297.3	0
63.9	.2	305.1	1.4
68.9	0	312.2	0
74.	.1	317.2	2.2
78.6	0	322	.7
84	.3	323.8	.2
88.5	1.3	331.8	0
93.9	0	336.8	.5
98.2	.4	344.8	0
106.7	0	353.5	.6
114.6	.2	355.1	0
116.8	.6	362.3	.8
122.9	.7	370.3	.1
130.4	0	376.5	1.4
137.8	1.3	384.6	3.2
139.7	.1	392	0
142.8	.4	397.8	4.
146.6	.8	402	2.5
150.2	.4	407.7	2.7
154.8	0	411.5	3.1
163.8	.3	414.9	1.3
172.5	.6	418	3.
180.7	1.6		
188.8	0		83.6

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD
GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS			LEVEL 2	LAT. 13,943.27	HOLE No. 2-10
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LOCATION	DEP. 12,609.33	SHEET No. 1
COLLAR		0°	ELEVATION 1424.78	BEARING S21°01'W	LOGGED BY J.H.P.
			FINISHED JULY 15, 1955	LENGTH 358	TOTAL RECOV. 83.7%

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	7			Grp with a little Chl. alt. No min.
7	13.6			Grp
13.6	15		Mal	Chl. alt with a little malachite on rusty fract
15	18.2			Grp
18.2	23.9		Cp	Chlor. alt with a few specks Cp
23.9	26.3			Chlor. alt fairly well min. with Cp in irreg. veinlets
				25.5 - 26.1 Sericite, not incl Cp.
26.3	101.5			Unalt. Grp. 84.7 - 85.0 Chl. alt, no min.
101.5	109.0		Cp	Chl alt. A few specks Cp
109.0	123.1			Grp
123.1	127.8		Cp	Chl. alt. with a little Cp
127.8	138			Grp.
138	150			~~Chlor alt. No min~~
150	155			Alt. Grp with some chlorite and patches of pale
				buff, soft mineral, like kaolin. No Cu min.
155	175			Grp.
175	182			Grp with faintly pinkish tinge and bands of v.s.
				grey to med. grey hard alt.
182	209			Unalt Grp.
209	209.5		Cp	Chl. alt. and rusty fract. with ¼" vein of Qtz and
				Cp at first contact.
209.5	225			Grp.
225	226			Chl alt. No Cu min.
226	242			Grp.
242	248			Grp with sections of Chl. alt. No Cu min.
248	304			Unalt. Grp. Barren rusty fract @ 286' ∠30°, 300' ∠20°
304	304.5			Aplite Dyke
304.5	336			Unalt. Grp.
336	348			Fract. Grp with a little chl. alt. and a few rusty fract.
				at ∠20°. No Cu min.
348	350			Dk Grey green Andesite dyke
350	357			Badly broken Grp. "Caving" ground. Stick rods
				Grp is rusty with much ore loss
				358' End of Hole

CORE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
W 131	18.2	23.8	TR			
132	23.8	26.3	0.41			
137	101.5	106.5	008			
138	106.5	109	0.04			
W 139	123.1	127.8	TR			

SLUDGE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
[illegible] - 4.1	.7	254.9	.8
7.8	.6	263.0	1.2
9.2	0	272.2	0
12.2	.2	281.3	0
15.7	.2	285.5	.4
23.9	0	297.0	.5
32.2	0	[illegible]	0
40.8	.9	[illegible]	.4
44.6	.5	[illegible]	1.0
52.0	3.7	[illegible]	.2
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	.5	342.5	5.1
77.3	.4	353.1	4.1
85.4	[illegible]	[illegible]	.1
[illegible]	[illegible]	354.3	4.5
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	.7		
[illegible]	[illegible]		
119.2	.6		
127.8	1.4		
135.[illegible]	[illegible]		
143.5	[illegible]		
[illegible]	[illegible]		
[illegible]	[illegible]		
[illegible]	1.6		
169.5	1.4		
177.5	[illegible]		
189.3	.5		
[illegible]	[illegible]		
[illegible]	[illegible]		
[illegible]	[illegible]		
[illegible]	[illegible]		
[illegible]	0		
[illegible]	.5		
[illegible]	1.0		
257.2	0		
[illegible]	[illegible]		

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD
GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS			LEVEL 2	LAT. 13,742.12 } 4' from collar	HOLE No. 2-11
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LOCATION	DEP. 12,985.84	SHEET No. 1
COLLAR		0°	ELEVATION 1419.82	BEARING S 23° 56' W	LOGGED BY J.H.P.
			FINISHED JULY 19, 1955	LENGTH 424	TOTAL RECOV. 94.5%

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	15			CAVE. CASED THRU old drift.
15	29			GRD. "B" Core.
29	31.4			GRD with some chl alt No cu. min.
31.4	43.6			GRD.
43.6	44.6			Pale grey hard alt. with some epid. & hem.
44.6	47.6			GRD.
47.6	49.2			Pale grey hard alt. with pinkish iron stain
49.2	86.8			Unalt. GRD. Core is shattered in a few places but unalt and no min.
86.8	87.8			GRD with a little chl alt. No Cu min.
87.8	178			Unalt GRD. 117.7-118 Vuggy band of pinkish grey alt ∠30°
178	180			~~Rusty fract. zone. No min~~
180	189			Unalt. GRD.
189	189.5		Cp.	Aplite dyke. 1/16" vein of Cp on first contact.
189.5	197			GRD with frequent narrow fract ∠30°-40° with chlor. & hem. No Cu min.
197	227			Unalt. GRD.
227	228			Chl. alt. No Cu min.
228	233			GRD.
233	234.5		Cp.	Pale grey hard alt. GRD with 2" band of Chl. alt containing a few grains Cp.
234.5	246			GRD.
246	250			Pale pinkish grey alt. GRD with prominent felspars and few mafics.
250	346			Unalt. GRD.
346	350			Pale grey hard alt GRD with prominent felspars.
350	398			Unalt. GRD. 363' Fract with chlor. & hem. ∠30° 387-398 Much epid. in fract ∠10-20°
398	424			Unalt. GRD. Mafics more pronounced than normal. Some careless in last run but no alt. or min.
				424 - END of HOLE

CORE ASSAYS							SLUDGE ASSAYS					
SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE	SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
15-29	1	288.0	.2
31.4	.4	296.2	0
39.6	0	304.5	.2
46.2	0	312.8	.1
48.8	.2	321.5	.9
50.8	0	326.2	.2
54.5	0	342.9	0
62.8	0	351.2	0
70.8	0	359.5	1.8
78.8	0	368.3	.4
86.9	2.5	377.1	.6
~~95.4~~	~~.2~~	~~385.6~~	~~0~~
103.9	.5	390.5	0
112.2	0		
114.8	0		22.0
123.8	1.		
131.2	.9		
139.3	0		
147.6	.3		
155.9	.5		
164.2	.2		
172.7	.3		
178.0	1.1		
185.6	4.3		
193.4	.7		
197.2	1.		
205.4	0		
212.8	0		
222.1	1.3		
223.9	0		
228.2	0		
234.2	.9		
242.6	0		
247.3	0		
255.5	.2		
263.6	.1		
271.8	0		
279.8	0		

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS		
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED
0	-30	-30
200	38°	-31
400	40°	-32

LEVEL	SURFACE	LAT.	13,949.34
LOCATION		DEP.	10,122.64
ELEVATION	1382.57	BEARING	N 17°59'E
FINISHED	JUNE 30, 1955	LENGTH	401

HOLE No.	S-4
SHEET No.	1
LOGGED BY	J.H.P
TOTAL RECOV.	74.3 %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	23			Overburden: clay & boulders
23	77			Lt. dore grey rock with occos. 1/16" dark specks.
				Aplite dyke or light alt. phase of Grd.
				Core badly broken.
77	81			F.g. dark grey basic dyke.
81	101			Some lt. grey aplite or alt. Core reduced to "Ex"
101	134			Normal Grd. at 81'
134	139			Aplite dyke.
139	180			Grd. Slightly lighter and with less matics than
				normal. 141.0-141.5 Rusty fract. with Epid.
180	187.4			Dk. grey green basic dyke with 1/16" dark phenos.
				and occos. rounded white amygdules. ∠60°
187.4	286			Normal Grd.
286	287			Aplite dyke.
287	295			Normal Grd.
295	385			Grd with much fewer matics and frequent
				pink felspars. Much lighter in appearance
				than normal. In a few places ground mass
				has pale green tinge.
385	401			Grd with matics more pronounced than previous.
				but still less than normal. A few 1/4" rusty
				fractures but no min.
				401 END of HOLE

CORE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE

SLUDGE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
23-29	1.9	292.0	2.7
34.0	3.1	300.8	.5
37.0	.4	309.8	2.6
46.0	6.3	319.4	1.2
53.0	3.8	328.9	1.0
55.0	.6	337.0	0
57.0	.3	347.0	6.9
60.3	0	356.5	1.1
61.8	0	364.0	.2
72.6	9.3	372.6	.3
76.0	1.6	381.4	1.1
79.0	1.9	389.0	2.3
82.6	0	393.0	1.0
85.0	1.3	397.6	2.3
87.3	.5	401.0	.8
92.0	3.9		
93.3	.9	2.97 =	103.2
102.0	7.6		
111.6	3.7		
122.0	1.8		
132.0	.6		
141.0	.8		
147.9	2.4		
156.6	2.3		
165.2	.2		
175.0	1.2		
184.0	.5		
192.4	.2		
202.6	1.9		
211.9	.7		
~~220.0~~	~~2.6~~		
228.0	4.4		
233.0	1.3		
241.0	1.6		
249.4	.2		
259.4	2.5		
269.5	2.0		
281.0	4.9		

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: *INDEX MINE*

DIP TESTS		
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED
0	-30°	-30°
390	-36°	-30°

LEVEL	*SURFACE*	LAT.	*14 073.93*
LOCATION		DEP.	*9,750.25*
ELEVATION	*1389.45*	BEARING	*N 18°57'E*
FINISHED	*JULY 9 1955*	LENGTH	*396*

HOLE No.	*S-5*
SHEET No.	*1*
LOGGED BY	*J.H.P.*
TOTAL RECOV.	*90.1%*

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	14			Overburden - Big boulders
14	61			Normal Grd. "BX" Core
				52-53 Light gray, mon basic dyke. Rusty contact
61	117			Normal unalt. Grd.
				65' Narrow rusty fract.
117	123.5			Grd. with bleachy appearance. Some chl. alt., probably
				due to following dyke. No min.
123.5	133			Fg. dk grey green to black basic dyke with 1/16" rounded
				white amygdules. A little chlorite. No Cu min.
				Contacts obscured.
133	134			Altered Grd like first contact
134	156			Unalt. Grd.
156	159			Grd with chl. alt. Some hem. but no Cu min.
159	175.2			Dove grey, f.g. aplite dyke with some Grd. inclusions
				Contacts irreg. L 20°
175.2	213			Unalt. Grd. 1" Apl. dyke at 200'
213	214			Grd with a few narrow fract. with hem. & chl.
214	263			Unalt. Grd.
263	267			Grd with occas. patches of dark alteration and prominent
				larger than usual Felspars. No Cu min
267	267.2		Cp, Mal.	Fracture with Qtz and a few specks of Cp and Mal. L 60°
267.2	275			Grd with numerous 1/16" fract with epid. L 70°
275	297			Grd with occas. sections of speckled grey + black rock
				possibly Grd with mafics much smaller than usual.
				Contacts not shown. Does not appear to be dyke.
297	344			Grd with large irreg. mafics.
344	347			A little Dark chl. alt. No Cu min.
347	348.2			Grey clayey gouge. Fault. A little chl. alt with hem. on
				last contact.
348.2	361.5			Unalt. Grd.
361.5	380.5			Lt grey Fg. Aplite Dyke.
380.5	396			Unalt. Grd.
				396 End of Hole.

CORE ASSAYS							SLUDGE ASSAYS					
SAMPLE No.	FROM	TO	% CU.	OZ. AU.	OZ. AG.	AVERAGE	SAMPLE No.	FROM	TO	% CU.	OZ. AU.	OZ. AG.

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
14-18	0.4	232.6	.2
26	0	240.5	5.3
35	.6	249	.2
43	.5	257	.2
51.5	0	260	.3
53	0	267	0
54.3	0	270	1.3
57	.3	275.7	1.5
61	.1	284	0
65	2.5	292	0
73	0	297	.6
81	.2	305	0
89	0	313	0
98	1.	321	0
106	0	329	0
112	1.5	337.6	.4
116	.1	345	0
117.6	0	348.2	.7
122	.4	357	.4
126	.8	362	0
127	0	366	.7
127.6	0	367	.1
137	1.1	369	0
145	0	370.6	0
154	.5	372	0
155.9	.2	376.5	.2
158.8	1.3	379.6	.5
160.8	0	388.7	1.
165.1	1.1	391.7	.2
171.2	.3	396	.7
176.6	1.		
186.6	3.2		33.2
192.	2.3		
197	2.1		
201	2.2		
209.6	0		
215.6	1.		
224	0		

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS		
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED
COLLAR		-50°

LEVEL	SURFACE	LAT.	14,850.09
LOCATION		DEP.	10,232.95
ELEVATION	1367.18	BEARING	S 19°05'W
FINISHED	JULY 15, 1955	LENGTH	278

HOLE No.	S-6
SHEET No.	1
LOGGED BY	J.HP
TOTAL RECOV.	70.1 %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	10			GRD "B" core
10	47			GRD. Mafics larger and more plentiful than normal.
47	50			Rusty fract. zone. No min.
50	59			GRD.
59	69			Alt. GRD., rather crumbly and decomposed with prominent felspars, partly Kaolinized. A few small patches chlorite and a little hem. but no Cu min.
69	93			Normal GRD.
93	167			Aplite Dyke. 97-143 hard f.g. dove grey with a few 1/16" mafic & fels. phenos. 143-153 color changes to greenish grey 153-167 Greyish-green soft kaolinized dyke with bands of soft white limey-looking material. A few narrow rusty bands at last contact.
167	236			Normal unalt. GRD.
236	245			GRD with much fracturing. Hem. fairly plentiful. A little chlorite No cu. min.
245	278			Massive unalt GRD. 266' 2" band of chlor. alt. No cu min.
				278' End of Hole

CORE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE

SLUDGE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.
W190	230	240	Tr.		

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
0-11.6	.0	182.0	2.0
13.6	.4	186.6	2.0
20.2	2.8	188.0	.8
23.0	.7	192.0	1.5
27.2	1.4	198.6	1.2
34.8	1.4	204.6	.9
40.2	1.7	212.0	1.9
47.0	3.3	215.6	.4
49.7	1.7	223.0	.6
53.0	1.7	228.8	.3
61.0	6.0	230.0	.2
67.0	3.8	236.0	1.1
69.0	1.0	243.0	3.6
77.6	4.9	245.0	0
83.6	.7	247.6	0
87.6	1.8	255.0	1.2
95.0	3.1	261.6	2.3
99.0	.9	270.0	.2
107.0	4.6	278.0	1.5
109.6	.9		—
112.6	1.0		829
118.6	3.0		
120.0	0		
123.0	1.8		
126.5	1.3		
130.0	.3		
133.0	1.0		
137.0	2.0		
139.0	.1		
143.0	2.2		
146.0	0		
150.6	.9		
155.6	0		
157.9	.1		
163.0	1.6		
169.0	2.0		
173.0	1.3		
177.0	0		

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: *INDEX MINE*

DIP TESTS						
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LEVEL	*SURFACE*	LAT.	*14,436.90*
			LOCATION		DEP.	*10,758.90*
COLLAR		*-30°*	ELEVATION	*1535.69*	BEARING	*N 19°30'E*
			FINISHED	*JULY. 11, 1955*	LENGTH	*255'*

HOLE No.	*S-7*
SHEET No.	*1*
LOGGED BY	*J.H.P*
TOTAL RECOV.	*82.2%*

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	28			OVERBURDEN
28	36			Unalt Grd with a few rusty fract. "B" Core.
36	56			Unalt. Grd.
56	71			Grd with slightly brownish matics. Numerous rusty fract. 145° No Cu min. Some hem.
71	167			Normal Grd. More broken than usual. Occasional narrow rusty fracts. Fract with hem @ 91' " " " 126'
167	170			Grd with a general pale green tinge. Some dark green chlorite and a little hem. No Cu min.
170	212			Normal Grd. More massive than first part of hole. Core in larger pieces. A few stringers of epidote.
212	215			Grd with a little alt. ort. No Cu min. A few specks of soft tan colored min.
215	255			Massive unalt. Grd. No oil or min.
				255 End of Hole

CORE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE

SLUDGE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.
W132	100	110	0.04		
136	110	120	0.08		
135	120	130	0.03		
W134	130	140	0.12		

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
28-29.6	.2	205-213	1.7
33	0	22.1	4.0
36.6	.1	229	1.5
46	4.1	237.6	.3
54	3.7	246.6	.4
57.4	1.0	255	0
60.8	0		
66.8	1.3		45.3
71	0		
72.6	0		
76.6	.9		
78	.4		
81.6	0		
85.6	1.3		
87	0		
92	.5		
99	4.6		
108	2.8		
117.3	2.1		
124.8	1.7		
131	2.7		
138.5	3.2		
142.7	.2		
145	0		
151	.9		
156	.4		
158	.4		
160	0		
164	.7		
167	.7		
171.8	1.6		
175.9	1.4		
179	0		
187.2	0		
191.8	.3		
199.4	.2		
200.4	0		
205	0		

COLUMBIA PRINTING CO

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

VC7

RECEIVED
SEP - 1 1955

August 16, 1955

Memorandum

To: DMEA Field Team, Region I, Northwest District

From: Donald F. Kellum, Geologist, U. S. Geological Survey

Subject: Routine inspection, Docket No. DMEA-2612 (copper), Granore Company (Assignee of Index Mining Company), Snohomish County, Washington, Contract No. Idm-E489

Routine inspection of the Index mine was made on July 27, 1955, by Donald C. Alvord, Geologist, USGS, and myself. An inspection was also made on July 7, 1955, with E. A. Magill, Mining Engineer, USBM, and Tom N. Huber, Field Assistant, USGS.

As a result of information gained from drilling to date, several changes in the originally proposed program have been made. These changes permit footage from areas shown as barren by previous drilling to be used to further test the extension of known mineralized zones. Authorization for part of these changes was made by Field Team letter to the Operator dated July 26, 1955, in reply to proposals submitted by the Operator dated July 8 and 22, 1955. The position of proposed underground holes indicated by the Operator in his letter of July 22 as S, T, U, V, W, and D (alternate) extension, were discussed with Mr. Parliament, engineer in charge, on July 27. At that time, drilling from the No. 2 level, west of the main haulageway, had been completed except for the proposed holes S and T; to avoid delaying a drilling crew in this area or the additional expense of resetting airline and returning a drilling rig at a later date, the Operator had collared and drilled part of proposed hole T to test the downward extension of veins intersected by DDH 2-4. Proposed holes U and V are placed to test the extension of two areas in the Sunset vein which are indicated to be stoped to the No. 4 level and will intersect the vein at least 150 feet below the No. 5 level in hole V, and 220 feet below No. 4 level in hole U. Since the mine is flooded below the No. 2 level and there is no definite information available as to extent or grade of ore in this portion of the Sunset vein, this is the only means to gain information on this area.

The location proposed for hole W to test the Little Copper King vein is satisfactory as shown; the east drift along the Blank vein is too narrow for a drill setup and would require at least as much additional

expense as would result in drilling from the proposed location. There are no present exposures of the Little Copper King vein in the drift, which is heavily timbered and caved to each side of the main crosscut. Extension of drill hole D (alternate) was approved, although it was recommended that it be directed several degrees more to the east.

Inasmuch as footage allotted to the underground portion of the contract is not sufficient to allow all of the proposed drilling, it is recommended that sufficient footage be transferred from surface drilling to permit completion of the outlined drilling. The contract authorizes 7,225 feet of underground drilling; drilling completed and proposed is 9,811.5 feet.

Drilling from the No. 2 level has indicated several zones of below-ore grade copper in holes 2-1, 2-2, 2-5, 2-6, 2-9, 2-10, 2-11, and 2-3 which correspond respectively to holes P, O, N, M, I, H, F, and E. Mineralized zones intersected by the first four holes of the above group probably represent westward extensions of the Sunset, Johnson, and Harrington veins. The rock intersected by drilling south of the Sunset vein (DDH's 2-9, 2-10, 2-11, and 2-3) was essentially barren, further testing of this area by holes G and C was omitted.

Holes 2-8 (L), 2-7 (K), and 2-4 (J), testing the area north of the Sunset vein indicate extensions of the Johnson and Harrington veins eastward from present workings exposing these veins on the No. 2 level. Assays of the core from these holes indicates that the zone corresponding to the extension of the Johnson vein ranges from 1.12 percent to 2.93 percent copper over a core thickness ranging from 1.5 feet to 5.7 feet. The eastward extension of the Harrington vein intersected by DDH's 2-7 and 2-4 ranges from 4.7 feet to 6.4 feet in core thickness with respective assays of 1.82 percent and 5.96 percent copper. As these veins dip steeply, core thickness closely approximates true thickness in the flat drill holes.

Surface drilling has, so far, been concentrated on the western end of the property. Results here have indicated that surface anomalies determined by a resistivity survey are largely unrelated in this area to any appreciable mineralization. Core recovery is good.

Holes drilled in Group 9 at the extreme western end of the property were in unaltered granodiorite with no indication of a cause for surface anomaly. Group 7, on the eastern prolongation of the anomaly tested by Group 9, intersected slight amounts of chalcopyrite in the three holes drilled. However, as this amount was insignificant, the proposed final hole of the group was omitted. Group 8, north of Group 7, tested an anomaly by two of the five proposed holes, and the three remaining holes were omitted as no ore was indicated. Drilling in the above groups includes surface hole Nos. 1 through 7.

Drilling in Group 5, testing the eastern extension of the anomaly indicated as barren in Group 8, encountered the downward extension of a vein found by earlier Bureau of Mines drilling. In this group two holes had been drilled at the time of the July 27 inspection; S-8, the center hole of the group, intersected ore between 284.8 and 287.8 feet and was continued to 306 feet with difficulty, due to caving from the ore zone. An attempt to deepen this hole was abandoned at 306 feet after reaming and casing failed to stop water loss. S-9, immediately west of S-8 in this group, intersected a slightly altered and mineralized zone immediately preceding a loss of 6 feet of core between footage 284-296. Inasmuch as water and sludge were also lost, nothing concerning the extension of the ore intersected by hole S-8 is known until other holes of this group are completed. All holes in Group 5 will be drilled, and one will be extended to 700 feet to give a partial cross section through the zone explored by underground workings in the Index Mine to the east. A corresponding hole from Group 6 located north of Group 5 will be extended a like distance to complete this section.

At the time of the last inspection, footage drilled from the underground totaled 5,493.3 feet. Surface drilling totaled 2,843.5 feet.

Distribution:
DMEA (orig. & 3)
USBM (2)
USBM (AD)
Docket
Kellum

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.4
Approval expires 6-30-53.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED
JUL 18 1955

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of June, 195 5 Docket No. DMEA 2612 Contract No. Idm E-489
Operator's Name Granore Company Minerals Copper
Address 1640 Exchange Building, Seattle 4, Washington
Contract Amount, $ 115000.00 Government Participation: 50 % Amount, $ 57,500

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	29,594.60	4,382.00	33,976.60	29594.60	4382.00	33976.60
Bulldozing		1,500.00	1,500.00		1500.00	1500.00
Crosscutting						
Drifting						
Geophysical Survey		3,000.00	3,000.00		3000.00	3000.00
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis	240.00		240.00		240.00	240.00
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
TOTALS	29,834.60	8,882.00	38,716.60	29834.60	8882.00	38716.60

Approved
Betty

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

Date July 14, 1955 Payee Granore Company

Per [signature] Title Vice-President

*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.

NOTE.—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.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 14917 30

Signature M. 2P
(Authorized Certifying Officer)

Date 7-22-55 Vou. No. 1569
(See other side)

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. 489 in accordance with the terms of the contract.

Signature Elmer A. Mazzil Title Mining Engr Date July 20, 1955

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature 1st Stephen W Zoldok Title Mining Eng Date 7-21-55

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(*a*) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(*b*) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(*c*) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

GPO 83-38476

Form MP-104A
(April 1952)

Budget Bureau No. 42-R1151.1
Approval expires 6-30-53.

RECEIVED
JUL 25 1956

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of June 195 5 Docket No. DMEA 2612 Contract No. Idm E-489
Operator's Name Grancore Company Minerals Copper
Address 1640 ExchangeBldg., Seattle 4, Washington

OPERATION	Unit	Costs This Month	Units This Month	Costs to Date	Units to Date	Unit Costs to Date	Authorized by Contract: Units	Authorized by Contract: Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Ft	29,594.60	4227.8'	33,976.60	4853.8	7.00	15690	7.00 ft
Churn								
Auger								
Stripping								
Trenching				1,500.00				1500.00
~~Assays~~ Chem. Analyses	each	240.00	120	240.00	120	2.00	105	2.00 each
Roads and Trails								
Geophysical Survey				3,000.00				3000.00
Total Distributed Costs		29,834.60		38,716.60				Total Costs Authorized by Contract
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
Total Costs		29,834.60		38,716.60				115000.00

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

Date July 14, 1955 Operator Grancore Company

Per [signature] Title Vice-President

Remarks:

→ NOTE.—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.

(Instructions on reverse)

(For Government use only)

/s/ Stephen W Goldok

INSTRUCTIONS

Preparation of Form MF–104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF–104A has been designed to tie in with Form MF–104 for both monthly and cumulative costs. The "Total Costs" on Form MF–104A for each month should equal the monthly "Total Costs" as reported on Form MF–104. This is also true of the "Total Costs To Date".

In preparing Form MF–104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 83-38475

Elliott 5133

GRANORE COMPANY
1640 Exchange Building
Seattle 4, Washington

RECEIVED
JUL 26 1955

July 14, 1955

The United States Department of the Interior
Defense Minerals Exploration Administration
Federal Office Building
Seattle 4, Washington

Attention: Mr. McGill

Re: Docket No. DMEA-2612
Contract No. Idm-2489

Gentlemen:

The following report covers progress at the Index Mine for the month of June 1955.

Footage Drilled

Underground	2743.3 Ft.
Surface	1484.5 Ft.
Total	4227.8 Ft.

Underground Drilling

Note: The following table gives the relationship between actual D.D.H. numbers and the proposed holes on Map 50-40-1.

Actual No.	Proposed D.H. No.
2-1	P
2-2	O
2-3	N
2-4	J
2-5	M
2-6	H
2-7	K
2-8	L
2-9	I

D.D.H.s 2-1 to 2-6 inclusive and 2-8 were completed. 2-7 was drilled to 380 feet and 2-9 was started. The drilling rate per shift has improved over last month, mainly due to the shortening of the air lines as the drills move closer to the portal, and to the rearrangement of the drilling sequence. The average footage per shift was 31.8'. Two drills are operating on two shifts each.

The average core recovery underground was 90.1%. There was some core loss in a few of the zones of chloritic alteration, but the loss was not serious in most of the mineralized sections. In the heavily mineralized intersection in D.D.H.2-4 recovery was over 80%.

D.D.H.s 2-1, 2-2, 2-5 and 2-6, drilled to the southwest, cut a number of altered and mineralized zones, corresponding to those in the long crosscut. These intersections are all much below mining width and grade.

D.D.H.s 2-4, 2-7 and 2-8 are a little more encouraging. An intersection grading 5.96% Cu.for 6.4 Feet in D.D.H.2-4 and a well mineralized 4.7 foot intersection in D.D.H.2-7 are probably an extension of the Harrington Vein. An intersection fairly well mineralized for 5.7 feet in D.D.H.2-8 could be an extension of the Johnson Vein. D.D.H.2-7 is not yet deep enough to check the continuity of this zone.

In D.D.H.2-4 from 424.8' to 432.3' there are two mineralized sections (1.5' of 2.91% and 1.0' of 2.36%) seperated by 5.0' of andesite dyke. A narrow andesite dyke in D.D.H.2-8 might correlate with this dyke, but no mineralization was found near it. D.D.H.2-7 has not yet been drilled this far.

To date no assay results have been received for samples from D.D.H.s 2-7 and 2-8.

D.D.H.2-3, drilled to investigate several mineralized shears in the main crosscut, was in barren granodiorite for most of its length. A little chalcopyrite occurred from 336' to 352' but the zone is much below ore grade.

Surface Drilling

Drilling from surface is not progressing as fast as was anticipated due to a shortage of drillers. At present one drill is operating on a two shift basis and one drill on day shift only. The contractors hope to increase this to two machines on two shifts each, with a third machine on one shift piping through overburden.

The average footage drilled per shift, exclusive of overburden, was 33.6'. To date three holes were collared on bedrock and two were started in overburden. The depth of overburden in the latter was 23' and 14'.

D.D.H.s S-1 and S-2 were drilled to test the most westerly anomaly. Except where they cut narrow dykes, these holes were entirely in massive granodiorite. No copper mineralization or structure that would account for the anomaly was found.

D.D.H.s, S-3, S-4 and S-5 were drilled on the next anomaly east. D.D.H. S-3 encountered a section of unaltered granodiorite between 242' and 244.5' which contained a few 1/32 inch veinlets of chalcopyrite and assayed 0.06% copper, and at 384' there was an 1/8" fracture with chalcopyrite and bornite. The remainder of the hole was barren. D.D.H. S-4 and the part of S-5 drilled to date are devoid of mineralization. No fractures or zones of alteration or anything to account for the anomaly were found. The complete absence of chloritic alteration zones, so numerous in the underground holes, is very noticeable in the surface holes drilled to date.

The present plan for the surface drilling is to complete Group 7 (on the surface map) and then move the drills to Group 8.

Yours very truly,

/S/ J. H. Parliament, P. Eng.
Chief Engineer

I hereby certify this to be a true and correct copy.

Vice President

LIST OF ABBREVIATIONS USED IN D.D. LOGS.

INDEX MINE

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GRD.	Granodiorite
A pl.	Aplite
Chlor.	Chlorite or Chloritic
Ser.	Sericite or Sereciti c
Alt.	Alteration
Min.	Mineralization
CP.	Chalcopyrite
BO.	Bornite
∠70°	Angle with Axis of Core-70°
Dissem.	Dissemination
f.g.	Fine Grained
c.g.	Coarse Grained
Hem.	Hematite
Qtz.	Quartz
fract.	Fracture
and.	Andesite
occas.	Occasional
v.	Very
ep.	Epidote
sulph.	Sulphides
CU.	Copper
d.	Dark
l.	Light
amt.	Amount

DIAMOND DRILL HOLE RECORD
GRANORE COMPANY

PROPERTY *INDEX MINE*

DIP TESTS						
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LEVEL *2*	LAT. *14,510.51*	HOLE No. *2-1*
COLLAR	0°	BRUNTON	LOCATION	DEP. *12,189.75*	SHEET No. *1*
			ELEVATION *1438*	BEARING *S 27°07'W*	LOGGED BY *J.H.P.*
			FINISHED *June 3, 1955*	LENGTH *456.8'*	TOTAL RECOV. *90.02 %*

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	3.7	GRD		Massive c.g. GRD. Casing Core.
3.7	20.6	"		" " "
20.6	21.7			Dk. green chlor. alt. Slight shearing. No min.
21.7	55.0			Some GRD. 45'-46' Pinkish phase.
55.0	57.3		Cp	Dk. grey alt. with some fine shearing. A little Cp, dissem. & on shearing
57.3	70.2			GRD
70.2	71.6			Dk grey alt. No sulph.
71.6	79.0			GRD with irreg. seams ∥ epid.
79.0	80.1		Cp	D. grey green chlor alt with epid. & a few 1/8" veinlets Cp. 135
80.1	100.0			GRD
100.0	102.3		Cp	Chlor. alt with a little Cp in 1/8" veinlets. Int'l obscure.
102.3	175			Unalt massive GRD.
175	198			GRD with frequent alt zones. Core shattered with some loss. Veinlets ∥ epid. but no sulph.
198	221			Massive unalt. GRD.
221	223.7		Cp	Chlor. alt. One 1/8" stringer Cp at 223'
223.7	243.5			GRD with some dark alt. No sulph.
243.5	245		Cp	D. chlor. alt. with a little Cp.
245	306.3			Massive GRD. 247.8 Speck of Cp and 1/16" fract. with epid. 180°
306.3	309.4		Cp	Dark chlor. alt. with Cp dissem & in fine stringers & few specks Cp in GRD wallrock.
309.4	327			GRD
327	342			Chlor. alt. with a few scattered 1/16" veinlets Cp and a little dissem. Cp.
342	424			Massive unalt. GRD. F.g. pinkish alt. @ 409' ∠ 80°
424	426			Chlor. alt with epid. No sulph.
426	453.7			GRD
453.7	456.6			Chlor. alt. no sulph.
456.6	456.8			GRD.
				456.8 END of HOLE

CORE ASSAYS SAMPLE No.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
W 1	55.0	57.3	0.01			
W 2	79.0	80.1	0.04			
W 3	100.0	102.3	0.16			
W 9	222.9	223.7	0.17			
W 19	243.5	245.0	0.22			
W 16	303.3	306.3	TR			
W 17	306.3	309.4	0.08	TR	TR	
W 18	309.4	312.4	TR			
W 22	325.0	328.5	TR			
W 23	328.5	334	0.06			
W 24	334	339	TR			
W 25	339	342	TR			
W 26	342	347	TR			
W 27	453.7	456.6	TR			

SLUDGE ASSAYS SAMPLE No.	FROM	TO	% CU.	OZ. AU.	OZ. AG.
W 5	170	180	0.06		
W 6	180	190	0.11		
W 7	190	200	0.12		
W 20	330	340	0.10		
W 21	340	350	0.07		

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
0-3.7	0	198-20[illegible]	0
3.7-8.7	0	214.4	.8
13.3	0	222.8	0
20.6	.2	223.7	.4
25.7	0	228.5	1.7
30.7	.3	232.0	.8
35.7	0	235	0
41.6	.5	243	0
46.8	0	249	.5
53.7	0	251.8	0
5[illegible].7	.5	259	0
63.0	.5	265.1	0
71.0	.7	272	1.4
78.0	2.0	277.9	0
79.0	0	279.4	0
83.0	.8	284	.3
89.0	.5	291	.2
96.8	0	299.3	0
100.3	.4	307.5	0
102.3	.6	315.0	1.2
106.3	1.4	317.5	.5
111.9	3	319	0
116.5	1.4	327	.2
125.5	0	334.7 340.2	.5 1.3
132.0	.1	347 355	2.4 0
136.7	1.5	363.7 371.6	1.1 .3
143.0	0	379.0 383	0 0
1[illegible].6	0	39[illegible]	0
156.6	.6	393	0
151.0	.6	395	.3
160.0	0	403.8	1.4
167	1.0	411.9	.6
172	3.3	416	.1
179.3	2.0	423	0
19[illegible].3	0	426	0
196.0	2.1	435	1.8
199.0	1.6	443	1.1
[illegible]	.8	449.8	0
[illegible] 198.0	.6 1.4	456.8	0

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DIAMOND DRILL HOLE RECORD
GRANORE COMPANY

PROPERTY: *INDEX MINE*

DIP TESTS						
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LEVEL *2*	LAT. *14,563.04*	HOLE No. *2-2*
			LOCATION	DEP. *12,349.21*	SHEET No. *1*
COLLAR	0°		ELEVATION *1435*	BEARING *S 6° 17' W*	LOGGED BY *J.H.P.*
			FINISHED *JUNE. 13, 1955*	LENGTH *552'*	TOTAL RECOV. *86.3%*

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	2.5			[illegible]
2.5	48.0			Coarse [illegible] with a few fine stringers of epidote.
			Cp	[illegible] of Cp [illegible] @ L35°
				No other sulphides
48.0	55.0			Dark alteration zone @ L40°. No sulphides
55.0	68.3			GRD with dark alteration zones.
			Cp	55.1 - 58.3 disseminated chalcopyrite with occasional fine stringers of Cp
68.3	100.3			Massive GRD.
				100.3 Narrow rusty fracture L45°
				115-116 [illegible]
				[illegible]
[illegible]	131.6		Cp	Dark alteration with Cp in small blebs.
131.6	136.9			GRD
136.9	137.4		Cp	Dark alt with Cp
137.4	145.			Massive GRD.
				Hole temporarily stopped at 145'
145	152			
152	152.8			Dark chloritic alt. [illegible] min.
152.8	160.8			GRD
160.8	161.6			DK Chl alt with veinlets of Cp 1/8" to 1/4"
161.6	162.4			GRD
162.4	168.8		Cp	Alt. with Cp in blebs & veinlets
168.8	173.5			GRD with a few narrow bands of chlorite with a little Cp
173.5	207.5			GRD.
				175 3" pinkish sil dyke (Aplite)
207.5	209.5		Cp	Chloritic alt. with Cp.
209.5	213.5			GRD.
213.5	222.5		Cp	Chloritic alt. with a little Cp.
222.5	225.0			GRD with slight chloritic alt. no min. a few reddish cracks (hematite) L40°
225.0	230.		Cp	Dark chloritic alt. slight scattered Cp.
230	237		Cp	Less alt GRD, Blotchy appearance, some epidote and a few hematite filled fractures @ L30°. A few specks Cp

CORE ASSAYS							SLUDGE ASSAYS						RECOVERY		RECOVERY	
SAMPLE No.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE	SAMPLE No.	FROM	TO	% CU.	OZ. AU.	OZ. AG.	RUN	SHORT	RUN	SHORT
W8	[illegible]	[illegible]	[illegible]										2.5-7.4	0	[illegible]	[illegible]
W9	52.4	54.5	0.55	TR	TR								12.3	0	[illegible]	[illegible]
W10	[illegible]	[illegible]	[illegible]	TR	TR								[illegible]	0	[illegible]	1.2
W11	[illegible]	123.3	0.16	TR	TR								[illegible]	0	278.5	1.2
W12	133.3	[illegible]	0.01	TR	TR								[illegible]	0	288.7	0
W13	119.6	121.2	0.08										[illegible]	.2	[illegible]	.2
W14	126.9	127.4	[illegible]										51.0	0	302.2	0
							W15	56	[illegible]	0.25			[illegible]	0	311	1.7
							W16	[illegible]	[illegible]	[illegible]			[illegible]	0	317.2	[illegible]
													[illegible]	[illegible]	325.6	[illegible]
W20	[illegible]	[illegible]	[illegible]										78.9	0	[illegible]	[illegible]
W21	122.6	122.4	TR										80.2	0	[illegible]	0
W22	122.4	122.8	0.34										95.5	2.9	[illegible]	.3
W23	[illegible]	[illegible]	[illegible]										103.6	1.3	[illegible]	[illegible]
W32	207.5	209.5	[illegible]										[illegible]	.3	[illegible]	[illegible]
W33	209.5	213.5	TR										111.7	0	373.5	2.4
W34	213.5	222.5	0.05										[illegible]	0	382.3	.5
													120.2	.4	[illegible]	[illegible]
W36	[illegible]	231.6	0.16										128.4	0	[illegible]	[illegible]
W37	251.3	254.2	0.30										130.0	.5	[illegible]	.2
W38	384.2	391.1	0.26										[illegible]	.2	405.6	0
W39	391.1	394.9	TR										[illegible]	[illegible]	412.3	0
W40	409.3	414.2	0.14										153.5	1.5	425.2	.7
													157.5	.5	433.1	4.6
							W44	230	240	0.09			165.5	1.1	441.5	.4
							W45	380	390	0.76			166.8	.4	449.3	0
													176.8	[illegible]	457.8	.2
W46	447.1	448.4	0.06										[illegible]	[illegible]	465.8	0
W47	452.5	453.7	0.43										[illegible]	[illegible]	466.3	.4
													[illegible]	.7	469.8	.5
W48	485.6	495.7	0.94										[illegible]	[illegible]	472.8	0
W49	495.7	500.4	TR										207.5	1.3	482.2	1.3
													[illegible]	[illegible]	491.2	4.
							W50	450	490	0.65			[illegible]	2.4	500.4	5.8
							W51	490	500	0.88			[illegible]	2.5	503.	.4
													[illegible]	2.6	506.8	1.6
													[illegible]	2.5	514.5	3.6
													[illegible]	4.1	520.8	.1

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DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: *INDEX MINE*

DIP TESTS			LEVEL	LAT.	HOLE No. 2-2
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LOCATION	DEP.	SHEET No. 2
			ELEVATION	BEARING	LOGGED BY
			FINISHED	LENGTH	TOTAL RECOV. %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION	CORE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE	SLUDGE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.	RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
237	237.2			Fg dark green basic dyke @ L80°. Maybe wider -														526.8 to 528.8	.1		
				Some core loss.														533.2	.4		
237.2	256			Same "biotite" GRD														535.7	2.1		
256	271			Fresh unalt GRD.														547.1	2.7		
271	272			Chl. alt., no min.														551.0	2.2		
272	379.6			Unalt. GRD., slightly pinkish tinge, 330' - speck of Cp																	
				342 - 344 Several rusty fractures, ⅛", L20°															75.4		
				360 - 365 Core shattered no min.																	
379.6	391.1		Cp	Chlor. alt with Cp in veinlets L80° & L70° and																	
				disem. Edge of alt zone @ 45°																	
391.1	394.9			Less alt. with a little Cp.																	
394.9	409.3			Unalt. GRD. with occasional stringers of epidote																	
				@ L80°																	
409.3	414.2		Cp	Chlor. alt. with Cp in 1/16" veinlets @ L60°																	
414.2	447.1			GRD. Few inches chlor. alt. at 416.8 & 421.8 with																	
				a little disem. Cp.																	
447.1	448.4		Cp	Chl. alt. with Cp.																	
448.4	452.5			GRD with occas. chl. alt. No Cu.																	
452.5	453.7		Cp	Chl. alt. with veinlets of Cp @ 80°																	
453.7	465.8			GRD with occas bands chl. alt. No Cu.																	
465.8	455.2			Lighter col. than norm GRD with creamy																	
				striped feldspars from ¼ to 3/16"																	
455.2	495.7			Chl. alt. well min with Cp in 1/16" veinlets and																	
				disem. L80° 30% recovery																	
495.7	500.4			Broken core. GRD with occas. fractures																	
				with limonite																	
500.4	515.4			GRD with occas larger than normal felsp																	
515.4	515.5			Aplite dyke L45°																	
515.5	552			GRD. Mostly broken into 1"-2" pcs. No Cu min.																	
				552 END OF HOLE																	

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DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS		
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED
COLLAR	0°	BRUNTON

LEVEL: 2	LAT.: 13,577.24	HOLE No.: 2-3
LOCATION: Hoist Room	DEP.: 13,142.96	SHEET No.: 1
ELEVATION: 1417	BEARING: S 26°22'W	LOGGED BY: J.H.P
FINISHED: June 7, 1955	LENGTH: 376'	TOTAL RECOV.: 94.7 %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION	CORE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE	SLUDGE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.	RECOVERY RUN	SHORT	RECOVERY RUN	SHORT
0	3		-	Massive Grd Casing [illegible]	W41	.2[illegible]															
3	107.5			" f.g. [illegible] [illegible]	W42	.33															
107.5	107.8			Rusty fract. ∠45° No min.	W43	.17															
107.8	145			Grd.																	
145	146.9			Rusty fract. Zone. No min.																	
146.9	199			Massive Grd.																	
				185' 2" f.g. pinkish aplite dyke ∠60°																	
				186' 2" " " " " ∠80°																	
199	199.5			Pinkish grey apl. dyke ∠90°																	
199.5	200.5			Grd																	
200.5	201.5			Aplite dyke. Irreg. contact.																	
201	314			Massive unalt. Grd.																	
				272 - 275.8 Core badly shattered [illegible]																	
				311 - 313 " " " "																	
314	315			F.g. pinkish apl. dyke ∠30°																	
315	336.5			Grd. Narrow fract. @ 328 with sericite ∠10°. No min.																	
336.5	352			Chl. alt with many rusty fract. Some dissem. Py																	
				346 - 346.8 Qtz vein with Py.																	
				Core broken, loss above average.																	
352	360			Slightly alt. with some rusty fractures																	
360	376			Grd. Fairly fresh looking with a few fractures nearly parallel to core axis																	
				376 End of Hole.																	

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DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS				
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LEVEL 2	LAT. 13,686.53 } 3' from collar
			LOCATION	DEP. 13,097.24
COLLAR	0°		ELEVATION 1435	BEARING N15°26'E
			FINISHED June 20, 1955	LENGTH 546'

HOLE No. 2-4
SHEET No. 1
LOGGED BY J.H.P
TOTAL RECOV. 95.0%

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	25.5			GRD - Massive & fresh looking
				12' Epid. in ½" fract. ∠20°
				18.5' ¼" fract. filled with epid. ∠80°
25.5	29.0			Chl. alt with a few specks Cp and hem. 50% Core loss
29.0	58.5			Unalt. GRD.
58.5	83.7			GRD with a generally more pinkish tinge. Core is shattered in places at fairly oblique ∠
				75.0' Narrow rusty fract.
				80-83 Series of reddish fract. @ small ∠ to core.
				Some surfaces have hem. & chl. but no Cu min.
83.8	139			Normal dark grey GRD.
				97.5' Narrow fract. with chl. & Hem.
				131.5 " " " " ∠15°
139	140			Dark alt. zone with much epid. and a little hem. ∠45° No Cu min.
140	142.7			Core broken. Matrix has slightly greenish tinge. A few specks pyrite and a sl. tan min.
142.7	226			Unalt. GRD.
				181' Narrow vuggy fract with epid
226	234			Core badly shattered. No alt. or Cu min.
234	250			Unalt. GRD.
250	250.5			Creamy coloured alt. with 1" band of reddish brecciated material.
250.5	280.7			Unalt. GRD
280.7	281.7			Pale greyish green alt. with indef. borders. A few ⅛" seams of Kaolin.
281.7	286.5			GRD. slightly alt. with ⅛" dark grey bands ∠60°
286.5	294			Dove grey alt with almost complete bleaching of mafics. A few irreg. bands of f.g. siliceous material
294	307.3			GRD with slight bleaching & alt.
307.3	313.7			Heavily min. Zone with bands of massive f.g. Cp up to 2" wide interspersed with grey alt. GRD containing much dissem. Cp. Borders of min. are indef. (0.9' Core loss)
				310' Much Sep. with Cp.
313.7	317.7			GRD with slight grey alt. and occas. specks Cp.
317.7	339.7			GRD. 333' Fract. with hem. ∠15°

CORE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
W54	304.7	307.3	TR			
W55	307.3	313.7	5.96	0.01	0.20	
W56	313.7	317.7	0.18			
W57	339.7	340.7	TR			
W58	354.9	355.6	0.20			
W82	394.4	397.5	TR			
W81	413.4	414.7	1.12			
W72	421.8	424.8	0.05			
W73	424.8	426.3	2.91			
W74	431.3	432.3	2.36			
W75	432.3	437.7	0.04			
W76	437.7	442.7	TR			

SLUDGE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.

RECOVERY

RUN	SHORT	RUN	SHORT
[illegible]	2.9	271.9	0
[illegible]	0	279.9	0
[illegible]	[illegible]	287.0	0
[illegible]	3.1	292.9	0
[illegible]	[illegible]	296.6	0
[illegible]	[illegible]	304.8	0
[illegible]	[illegible]	312.9	.7
[illegible]	.3	320.0	.4
[illegible]	2.5	328.2	0
[illegible]	[illegible]	335.8	1.3
[illegible]	[illegible]	337.8	0
[illegible]	[illegible]	346.4	0
[illegible]	[illegible]	354.8	0
[illegible]	[illegible]	362.9	0
[illegible]	[illegible]	371.0	0
[illegible]	[illegible]	375.3	1.8
[illegible]	[illegible]	383.0	0
[illegible]	[illegible]	391.2	0
[illegible]	[illegible]	399.6	.1
[illegible]	.4	407.7	0
[illegible]	[illegible]	415.9	0
[illegible]	1.0	423.8	0
149.8	3.4	428.0	.1
158.0	0	430.4	.2
[illegible]	.4	434.8	1.1
[illegible]	0	439.7	0
[illegible]	[illegible]	447.6	.5
[illegible]	[illegible]	455.6	0
[illegible]	[illegible]	463.9	0
[illegible]	0	471.3	0
[illegible]	[illegible]	479.9	0
[illegible]	[illegible]	488.0	0
[illegible]	[illegible]	496.0	0
236.9	0	504.1	0
245.2	.1	509.8	.7
253.7	.2	518.5	0
254.8	.1	526.5	0
263.9	.7	534.9	.3

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY *INDEX MINE.*

DIP TESTS			LEVEL	LAT.	HOLE No. 2-4
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LOCATION	DEP.	SHEET No. 2
			ELEVATION	BEARING	LOGGED BY J.H.P.
			FINISHED	LENGTH	TOTAL RECOV. %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
339.7	340.7		Cp.	2" bands chl. alt. with dissem Cp.
340.7	354.9			GRD.
354.9	355.6		Cp	Chl. alt. with f.g. Cp.
355.6	394.4			Unalt. GRD.
394.4	397.5		Cp	Slight chl. alt. with a few 1/32" stringers Cp
397.5	413.4			GRD.
413.4	414.7		Cp	Chl. alt. with dissem Cp and a 1/8" vein Cp ∠80°
414.7	424.8			GRD. 420' - 1" vein Cp with hem.
424.8	426.3		Cp	GRD with chl. alt², well min. with irreg patches of Cp. Some Qtz.
426.3	431.3			Dark greyish black f.g. and dyke. Very sharp borders with Cp. right to edge of dyke. A few specs Cp in first 1/4" of dyke but none in remainder or in 2nd border. Dyke is probably post min and Cp is inclusion
431.3	432.3			Chlor. alt. well min with Cp with a little vein Qtz. Same as -ins^t min. sect.
432.3	442.7			GRD with some sil. alt. "Blotchy" black & white appearance from alt. of mafics. Occas. specs Cp.
442.7	457.7			GRD
457.7	459.8			GRD with a little Chl. alt, epid & hem. Some pinkish phases. No Cu min.
459.8	546			Unalt. GRD. No min. 508-516 Core shattered but no min. or alt.
				546' End of Hole.

CORE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE	SLUDGE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.	RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
													543.0	.3		
													546.0	.1		
														27.1		

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DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS			LEVEL 2	LAT. 14,507.08	HOLE No. 2-5
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LOCATION	DEP. 12,500.82 (8.3' from Collar)	SHEET No. 1
COLLAR	0°	BRUNTON	ELEVATION 1434	BEARING S 19°02'W	LOGGED BY J.H.P.
			FINISHED JUNE 15 1955	LENGTH 151.5	TOTAL RECOV. 91.3 %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	11.4			Unalt. massive Grd.
11.4	12.4		Cp	Dk chlor. alt. with 1/16" veinlets Cp ∠80°
12.4	21.8			Grd, unalt.
21.8	22.0		Cp	Narrow chl. alt. with a little Cp in 1/16" veinlets @ ∠80°
22.0	25			Grd
25	31.7			Grd with lt grey "bleached" appearance. Some epid.
31.7	33.5			Dk chlor alt with Cp in blebs & narrow veinlets ∠80°
33.5	106			Massive unalt Grd.
106.1	108.6			Pale grey alt. with slightly bleached inclics.
108.6	113.7			Chlor. Alt with a little Cp. (30% Recov)
113.7	151.5			Grd with occas. bands of epid. 1/4" - 1/8" wide ∠80°
				151.5' End of Hole

CORE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
W59	11.4	12.4	0.73			
W60	31.7	33.5	0.44			
W61	108.8	113.7	0.33			

SLUDGE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
0-6.2	.4		
10.8	0		
16.8	.4		
23.9	0		
30.9	0		
31.7	.4		
35.6	.3		
43.5	0		
51.9	0		
60	.1		
68.4	.4		
75.8	0		
85.2	.5		
94.5	.3		
103.2	3.1		
106	.3		
108.9	1.6		
113.7	3.4		
121.9	0		
128.9	1.0		
135.2	0		
140.7	0		
146.4	.2		
151.5	.8		

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DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY *INDEX MINE*

DIP TESTS						
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LEVEL 2	LAT. 14,356.15	HOLE No. 2-6
			LOCATION	DEP. 12,614.48	SHEET No. 1
COLLAR	0°		ELEVATION 1430	BEARING S30°04'W	LOGGED BY J.H.P.
			FINISHED JUNE.23,1955	LENGTH 455	TOTAL RECOV. 90.8 %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	2.4		Cp	GRD with some chlor. alt., v. little Cp
2.4	3.5		Cp	Chlor alt. with Cp. Ore ½" vein @ ∠90° some dissem Cp.
3.5	18.3			GRD. with mottled pinkish appearance. No Cu min.
18.3	21.7		Cp	Dk. grey green chlor. alt. with Cp in veins & dissem. Some sul. in center.
21.7	32.5			GRD with a little lt. colored alt.
32.5	39		Cp	Chlor. alt. with occas. veinlets & dissem. Cp. ∠70°
39	43.7			GRD with slight chlor. alt.
43.7	44.8		Cp	Chlor. alt with ½" veinlets Cp ∠70°
44.8	60.4			Unalt. GRD. ½" Epid. fract @ 57.1 ∠80°
60.4	62.2		Cp.	Chl. alt. with a few ½" veinlets Cp. ∠70°
62.2	72.6			GRD
72.6	74.5		Cp	Chl. alt with a little dissem Cp.
74.5	78.8			GRD.
78.8	83.0		Cp.	Chl. alt. " " " " "
83.0	118.9			Unalt. GRD.
118.9	121.3			F.g. grey green andesite dyke
121.3	211.5			Unalt GRD. 163' ½" Epid. in fract. ∠50°
211.5	212.7		Cp	Chl. alt with irreg. veinlets Cp
212.7	219			GRD with some chl. alt. v. slight amt. Cp
219	259.2			Unalt. GRD. 227.5' fract with epidote.
259.2	260.2		Cp	Chl. alt. with massive Cp. Some core loss but
				mostly in succeeding unmin. Sec.
260.2	265.4			Unmin. GRD Core broken with 50% loss
265	345			Unalt. GRD.
345	347.7		Cp	Chl alt. with dissem Cp. (40% Recov)
				(All core taken for sample)
347.7	366.3			GRD with epid. & some chl. alt.
366.3	381.5		Cp	GRD. with chl. alt. and a few veinlets Cp ∠90°
				and occas. dissem: Cp 369-370 Slickensided fault ∠10°
381.5	383.8			Unalt. GRD
383.8	386.3		Cp	Chl. alt. with a little Cp
386.3	411.5			GRD.
411.5	413.2			Chl. alt. Hematite. No Cu min.
413.2	420.4			GRD. Slight. Chl alt.
420.4	422		Cp.	Chl. alt. with epidote and a few specks Cp

CORE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
W63	0	2.4	0.04			
64	2.4	3.5	1.38			
65	18.3	21.7	0.76			
66	32.5	39.0	0.17			
67	39.0	43.7	TR			
68	43.7	44.8	0.62			
69	60.4	62.2	0.14			
70	72.6	74.5	0.31			
71	78.8	83.0	0.29			
79	211.5	212.7	1.14			
80	212.7	217.7	TR			
77	259.2	260.2	11.30			
78	260.2	265.4	0.03			
84	345	347.7	4.25	TR	0.30	
85	366.3	369.5	0.05			
87	369.5	372.5	TR			
88	372.5	376.8	TR			
89	376.8	381.5	0.20			
W 90	448.3	453.5	1.09			

SLUDGE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.
W 83	260	270	0.64		
W 86	440	450	0.37		

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
0-7.2	0	[illegible]	0
7.2-12	.5	2.5.5	.1
2[illegible].4	.2	2[illegible]	.1
25.2	.4	292.3	.4
35	0	3[illegible]	.3
39.8	.7	309.2	.4
42.5	.8	316.4	1.
4[illegible].4	0	324.2	.1
57.1	0	332	0
[illegible]	.2	3[illegible]	0
71	.2	342	1.5
75.9	0	347.5	2.6
5[illegible].9	1.2	35[illegible]	1.7
~~94.4~~	~~.2~~	~~360.9~~	~~1.3~~
102.9	1.3	3[illegible]2.8	0
116.8	2.9	3[illegible]6.5	1.6
118.8	0	360.5	0
121.2	.3	372.4	.4
129.3	.2	376.8	2.5
137.6	0	382.2	.4
145	0	387.2	0
152.9	.2	392	.1
160.4	0	397.1	.2
16[illegible].4	.5	399.5	0
17[illegible]	.3	403.9	0
181.2	.2	4[illegible]	.2
194.4	0	4[illegible]	1.2
202.5	.5	415.9	1.6
204.2	0	417.7	.8
212.3	0	42[illegible]	.5
220.4	0	427.4	.3
228.3	0	432.6	0
236.2	.1	436	2.
244.4	.2	441.8	.7
253.4	0	446.5	0
255.5	1.5	451.8	.9
259.2	.9		
265.4	2.5		41.6

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY *INDEX MINE*

DIP TESTS			LEVEL	LAT.	HOLE No. 2-6
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LOCATION	DEP.	SHEET No. 2
			ELEVATION	BEARING	LOGGED BY J.H.P.
			FINISHED	LENGTH	TOTAL RECOV. %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
422	424			Unalt. Grd.
424	425			Chl. alt with a little Cp, dissem.
425	432.6			Grd
432.6	437.6			Lt grey siliceous rock with fine black speckling. Aplite dyke?
437.6	448.3			Grd.
448.3	453.5			Chl. alt. with a little dissem. Cp.
453.5	455			Unalt. Grd.
				455' End of Hole

CORE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE	SLUDGE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.	RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT

COLUMBIA PRINTING CO

DIAMOND DRILL HOLE RECORD
GRANORE COMPANY

PROPERTY: INDEX MINE

DIP TESTS		
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED
0°	-30°	-30°
254'	-35°	-30°

LEVEL	SURFACE	LAT.	14581.75
LOCATION		DEP.	8631.52
ELEVATION	1290.03	BEARING	N25°E
FINISHED	JUNE 9, 1955	LENGTH	254

HOLE No.	S-1
SHEET No.	1
LOGGED BY	J.H.P
TOTAL RECOV.	93.0 %

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	2			Grd. Casing [illegible]
2	85.7			Massive unit [illegible]
				53.0' Veggy [illegible]
85.7	86			Fg. grey sheared dyke L45°
86	92			Grd.
92	92.5			Similar dike L60°
92.5	239			Fresh unalt. Grd.
239	239.5			Aplite dyke with borders fine limonited dark mineral. Limonitic and contact @ L45°
239.5	254			Fresh unalt. Grd.
				244.5 Fold in ⅛" fract @ 45°
				254' END OF HOLE

CORE ASSAYS								SLUDGE ASSAYS								RECOVERY		RECOVERY	
SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE		SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.	RUN	SHORT	RUN	SHORT
														9-6.4	2		
														14.6	.1		
														22.4	0		
														31.[illegible]	.5		
														40.9	1.3		
														49.0	.2		
														55.2	0		
														64.9	.7		
														74.0	.3		
														82.2	.9		
														91.6	.3		
														100.2	.3		
														108.9	0		
														118	.0		
														127	.3		
														136	.4		
														145	.6		
														153.4	.4		
														161.7	0		
														170.7	.5		
														180	1.2		
														190	1.		
														199.5	1.1		
														209	1.4		
														218.5	0		
														227	.4		
														244	2.3		
														254	1.6		
															17.9		

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DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: *INDEX MINE*

DIP TESTS						
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED	LEVEL *SURFACE*	LAT. *14,734.94*	HOLE No. *S-2*
			LOCATION	DEP. *8,483.28*	SHEET No. *1*
0	-30°		ELEVATION *1219.39*	BEARING *N25°E*	LOGGED BY *J.H.P.*
			FINISHED *JUNE. 14, 1955*	LENGTH *250.5*	TOTAL RECOV. *90.7 %*

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	117			Unalt. massive Grd 36.6' ¼" fract with epid. 113.5' 2" apl. dyke ∠40°
117	118			Greenish brown basic dyke with ang dyke of soft white min. ∠ obscured.
118	135			Grd. Mafics have slightly brownish tinge.
135	148			Normal massive Grd.
148	200			Grd with slightly brownish mafics. 156' Narrow rusty fract. ∠ obscured 170' " " " ∠ " 188 " " " ∠20°
200	250.5			Massive unalt Grd with fresh "black & white" appearance. 217' Narrow rusty fract. ∠35° Lost 2 runs pulled 8' sections of core in one piece. 250.5' END OF HOLE.

CORE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE

SLUDGE ASSAYS SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.
W52	130	140	0.02		
W53	120	130	Tr.		

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
0-36	0		
8.5	0		
13.5	.9		
18.5	0		
23	0		
28	0		
[illegible]	0		
37.5	0		
39.7	.2		
44.6	0		
49.5	0		
55.	.4		
[illegible]	[illegible]		
[illegible]	.1		
70.4	.1		
75.4	.1		
80.4	0		
[illegible]	.2		
[illegible]	.3		
105.8	1.2		
110.8	.2		
117.1	1.8		
125.8	3.5		
135.8	3.8		
144.4	1.0		
148.9	0		
157.5	4.7		
167.6	1.9		
176.6	1.7		
[illegible]	.7		
192.[illegible]	[illegible]		
201.[illegible]	0		
[illegible]	.2		
[illegible]	0		
225.8	0		
[illegible]	0		
242.5	.2		
250.5	0		
	23.2		

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DIAMOND DRILL HOLE RECORD

GRANORE COMPANY

PROPERTY: *INDEX MINE*

DIP TESTS		
FOOTAGE	ANGLE RECORDED	ANGLE CORRECTED
0	-30°	-30°
200	-36°	-30°
400	-36°	-30°

LEVEL	SURFACE	LAT.	13,996.71
LOCATION		DEP.	9927.95
ELEVATION	1387.60	BEARING	N19°23'E
FINISHED	JUNE 29, 1955	LENGTH	403

HOLE No.	S-3		
SHEET No.	1		
LOGGED BY	J.H.P.		
TOTAL RECOV.	85.9 %		

FOOTAGE FROM	FOOTAGE TO	ROCK TYPE	MINERALIZATION	DESCRIPTION
0	2			GRD "N" CORE
2	27			" "B" CORE
27	52			MASSIVE normal GRD. unalt.
52	70			GRD with more pronounced foliation & lower mafics
70	71			Dark grey speckled dyke ∠60°
71	88			Aplite dyke.
88	149			Unalt GRD.
149	152.2			Aplite dyke ∠35°
152.2	180.5			Unalt. GRD.
180.5	188			Dk grey green basic dyke with ⅛" rounded white amygdules. Borders obscured.
188	201			GRD.
201	201.2			Basic dyke like above
201.2	242.0			Unalt. GRD.
242.0	244.5		Cp.	Unalt. GRD. with ⅛" veinlets & about 2" open
244.5	258.8			Massive unalt. GRD.
258.8	263			Shattered GRD. No min or alt. ¼" fract with epidote @ 258.8 ∠50°
263	332			Unalt GRD. Narrow fract with hem. @ 278' ∠50° Occas. bailite fract with epid. ∠ 50°-60°
332	346			Lt. grey aplite dyke mostly f.g. but with dk grey speckled borders and some speckled sections in center of dyke. Contacts ground off.
346	384.5			Normal GRD
384.5	384.6		Cp. Bo	Narrow fract (probably less than ⅛") with Cp and Bo. No alt. vein ∠30°. A little epid. a few inches before fract.
384.6	403			Unalt. GRD. Core shattered from 395 to end but no min. or alt.
				403' END of HOLE

CORE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG	AVERAGE
W32	242	244.5	0.06			

SLUDGE ASSAYS

SAMPLE NO.	FROM	TO	% CU.	OZ. AU.	OZ. AG.

RECOVERY RUN	RECOVERY SHORT	RECOVERY RUN	RECOVERY SHORT
0-6	1.	332	.5
6-17	1.9	341	.7
23.4	0	351	1.6
35.3	0	360	.5
43.	.3	368	3.5
52	.4	377.7	1.3
60	2.5	387	.7
70	1.5	395	2.8
78	2.	403	0
85	3.1		
88	.8		57.0
96	1.		
102	2.2		
[illegible]	1.1		
15	1.7		
[illegible]	1.7		
139	1.5		
148	[illegible]		
155	[illegible]		
161.5	.4		
170	0		
180	1.5		
[illegible]	[illegible]		
198.2	.4		
206.3	0		
214.6	.4		
222.9	.1		
231.8	.5		
242	1.8		
253.5	.8		
264.	0		
274.2	1.		
284	1.4		
291.5	0		
299.6	0		
308.9	3.5		
317.1	.3		
325.3	0		

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JUL 25 19[illegible]

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

RECEIVED
JUL 15 1955

June 27, 1955

Memorandum

To: DMEA Field Team, Region I, Northwest District

From: Donald F. Kellum, Geologist, U. S. Geological Survey

Subject: Routine inspection, Index Mining Company, Docket No. DMEA-2612 (copper), Snohomish County, Washington, Contract No. Idm-E489, Granore Co. (Assignee of)

The property was visited June 8, 1955, in company with Willard P. Puffett, geologist, Geological Survey. Present at the property were Mr. J. H. Parliament, chief engineer for Granore Company, Mr. Bishop, foreman, and Messrs. Al Byer and Ralph Miller, surveyor and general assistant respectively.

During the visit portions of the adit level including the Sunset vein and Copper King vein were inspected and cores from four underground diamond drill holes in this area were logged. Work preparatory to surface drilling on the property has been done, and two drills were in operation at the first drill sites on the western end of the property. Lynch Brothers of Seattle are contracted for the drilling. All work is being conducted by Parliament in a very efficient and workmanlike manner.

Mr. Parliament states that a transit survey of accessible underground workings and all surface work has been made which will give the needed control for correlation between surface and underground drilling. Maps of the underground showing detailed ground outline are being prepared by the operator at scales of 40 and 100 feet to the inch.

Facilities for logging and splitting of core and storage space for 10,000 feet of boxed core are provided. However, inasmuch as available core boxes are limited, permission was requested by Parliament to strip portions of the core which intersected unaltered granodiorite. This request was granted by Field Team letter dated June 20, 1955, in which it was agreed that after examination by DMEA field representatives only the core showing signs of alteration and mineralization as well as skeletal portions of unaltered

granodiorite need be retained.

The holes logged are those designated "P", "O", "E", and "J" as indicated on the proposed drill layout by Dr. B. S. W. Buffam and included with the contract docket. These holes have been re-designated by the operator as DDH's 2-1, 2-2, 2-3, and 2-4, respectively, in the order drilled. The footage drilled is as follows:

Hole	Footage
2-1	456.8
2-2	491.2 (in progress)
2-3	376.0
2-4	194.1 (in progress)

Most of the rock intersected is a granodiorite containing 10-20 percent mafics--generally chloritized hornblende, and 60-80 percent feldspar, with minor quartz and biotite. Within this "normal" granodiorite sporadic zones composed of 30-50 percent chloritized hornblende, or 1-10 percent pink potassium feldspar, or 1-2 percent epidote may occur singly or together. Chalcopyrite, the only copper mineral recognized, is associated with some of the mafic-rich zones of chloritized hornblende as sparsely occurring specks and seams ranging in thickness from one-thirty-second inch to three-eighths inch with the majority of seams less than one-sixteenth inch in thickness. Two such zones ranging in thickness from 1 to 15 feet and containing very sparsely disseminated chalcopyrite were intersected by DDH's 2-1 and 2-2. These zones are definitely below ore grade. A similar zone was intersected near the end of DDH-2-3. The mineralized portions of the core have been split and sent for assay by the operator.

Distribution:
DMEA (Orig. & 3)
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Docket
Kellum

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

1201 N. Division St.
Spokane 2, Washington
June 7, 1955

MEMORANDUM

To: DMEA Field Team, Region I, Northwest District

From: E. A. Magill, Mining Engineer, Bureau of Mines

Subject: Routine inspection, Docket No. DMEA 2612 (copper), Granore Company, assignee of Index Mining Co., Sunset Mine, Snohomish County, Washington, Amended Contract No. Idm-E489

A visit was made to the subject property on June 2, 1955. Mr. Harvey Parliament, engineer in charge of the project for Granore Company, was contacted at the property.

Mr. Parliament has been at the property since the latter part of April, carrying out preliminary work for the drilling program. He has made a transit-tape survey locating both the underground and surface drill holes. Bulldozer roads have been made to or near all the proposed surface drill sites. A number of helper sets have been placed in the main adit and underground drill stations have been barred down and stulls placed near a number of the stations where there were loose slabs. The old "dry" house has been rehabilitated and is being used for a core storage shed. Racks have been built for storing 10,000 feet of AX core.

At the time of the visit there were two diamond drills operating underground and two surface diamond drills were being moved into position. The underground drills were operating on a double shift basis. Lynch Bros. of Seattle are the drill contractors.

Air for the underground drills is being supplied by a 600 cfm Gardner Denver diesel-driven compressor. The old 4-inch mine airline is being used back as far as the winze; from there on it was necessary to lay 2-inch pipe with the last several hundred feet being 1½-inch pipe. Total distance from the compressor to DD 2-1 is about 2500 feet. Difficulty was encountered when two drills were operating near the end of the line; consequently, DD 2-2 has been shut down for the time being and the drill moved to the end of the 4-inch line on hole DD 2-3.

At the time of the visit the following holes had been started:

Hole DD 2-1

Coor.: 14525 N
12185 E
Bearing: S 26 W
Inclination: Horizontal
Depth: 398 feet (proposed depth 450 feet)

Hole DD 2-2

Coor.: 14582 N
12338 E
Bearing: S 5 W
Inclination: Horizontal
Depth: 145 feet (proposed depth 550 feet)

Hole DD 2-3

Coor.: 13577 N
13147 E
Bearing: S 27 W
Inclination: Horizontal
Depth: 174 feet (proposed depth 375 feet)

Status of work as of June 2, 1955:

	Authorized	Completed
Underground diamond drilling	7,225 feet	717 feet
Surface " "	8,445 "	none
Analyses	405	none

The work under this project now that it has finally gotten underway appears to be progressing very satisfactorily and is of high quality. It is expected that drilling will progress very rapidly from now on; they hope to have eight shifts working on the drills and should average about 200 feet of hole per day. The drillers are working a 6-day week.

E. A. Magill

Orig. & 3 cys - Wash.
USGS (2)
DMEA
M/D
AD
EAM/he

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.4
Approval expires 6-30-53.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED
JUN 24 1955

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of May, 1955 Docket No. DMEA 2612 Contract No. Idm E-489
Operator's Name Granore Company Minerals Copper
Address 1640 Exchange Building, Seattle 4, Washington
Contract Amount, $115,000.00 Government Participation: 50 % Amount, $57,500.00

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	$4,382.00		$4,382.00	10%		
Bulldozing		$1,500.00	1,500.00			
Crosscutting						
Drifting						
Geophysical Survey		3,000.00	3,000.00			
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis						
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
TOTALS	$4,382.00	$4,500.00	$8,882.00	438.20	450.00	888.20

I certify that the above bill is correct and just and that payment therefor has not been received.
Date June 7, 1955 *Payee Granore Company
Per [signature] Title Vice-President

*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.

→ NOTE.—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.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 2191.00

Signature MSP
(Authorized Certifying Officer)

Date 6-20-55 Vou. No. 1520
(See other side)

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E489 in accordance with the terms of the contract.

Signature (S) Elwin A. Magill Title Mining Engr Date 6-7-55

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature (S) Stephen W. Goldich Title Mining Engr Date 6-16-55

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

GPO 83-38476

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151
Approval expires 6-30-53.

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

RECEIVED
JUN 24 1955

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of May 1955 Docket No. DMEA 2612 Contract No. Idm E-489
Operator's Name Granore Company Minerals Copper
Address 1640 Exchange Building, Seattle 4, Washington

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT	
							Units	Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Ft.	$4,382.00	626	$4,382.00	626	$7.00	15670'	7.00 ft
Churn								
Auger								
Stripping								
Trenching				$1,500.00				1500.00 *
Test Pits								
~~Roads and Trails~~ Assays							405	2.00 each
Geophysical Survey				$3,000.00				3000.00 *
TOTAL DISTRIBUTED COSTS		$4,382.00		$8,882.00				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		$4,382.00		$8,882.00				115000.00

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

Date June 7, 1955 Operator Granore Company

Per [signature] Title Vice-President

REMARKS:

→ NOTE.—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.

(Instructions on reverse)

(For Government use only)

/s/ Stephen W Zoldok

INSTRUCTIONS

Preparation of Form MF–104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF–104A has been designed to tie in with Form MF–104 for both monthly and cumulative costs. The "Total Costs" on Form MF–104A for each month should equal the monthly "Total Costs" as reported on Form MF–104. This is also true of the "Total Costs To Date".

In preparing Form MF–104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

U. S. GOVERNMENT PRINTING OFFICE 205676

RECEIVED
JUN 2 4 1955

PROGRESS REPORT FOR MAY 1955

Granore Company, Index Mine (Sunset)

Index, Washington

Underground Drilling

Underground diamond drilling was started from 2 level during the later part of May. A 600 c.f.m. portable compressor was set up at the two level portal to supply compressed air for the drills. The existing 3 inch air line was found useable as far as the shaft (about 1200') and new air and water lines were laid from the shaft to the farthest proposed hole. Drilling was started in the most northwesterly part of the mine, on holes DDH 2-1 and DDH 2-2 (see map). The air lines were found insufficient to supply two drills at this distance from the source of air so DDH 2-2 was temporarily stopped and the drill moved to DDH 2-3 at the end of the 3 inch air line. This proved more satisfactory. DDH 2-2 will be completed after DDH 2-1 is finished. At month's end two drills were operating on two shifts each.

Footage drilled is as follows:

Hole	Footage
2-1	340
2-2	145 (temporarily stopped)
2-3	141
Total.....	626 feet

Several mineralized sections, probably below ore grade, were encountered. Samples of all mineralized zones have been sent for assay but todate no returns have been received. Complete detailed drill logs with assays will be submitted each month as the holes are completed.

Surface Drilling

Two surface drill rigs arrived on the property May 31st and the water lines for the first holes are partially laid. Actual drilling should be underway by June 3rd. The collars of all the surface holes have been spotted and all the access roads and set-up preparations requiring a bulldozer have been completed. A total of 61 hours of bulldozer work was done.

General

The 2 level workings have been resurveyed and detailed. Surface transit loops have been surveyed to tie all surface work to the underground workings. A core shed with rack storage for 10,000 feet of core and facilities for logging and splitting core, and drying sludge samples has been prepared.

Drilling is being done by Lynch Bros. of Seattle. It is hoped shortly to have four drill-shifts underground and four drill-shifts on surface with possibly a fifth drill-shift on surface piping holes thru overburden to bedrock.

Respectfully submitted,

/S/ J. H. Parliament
Chief Engineer

I hereby certify that the above Progress Report for May is a true and correct copy.

Robert M. MacRae
Vice-President

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.3.
Approval expires 6-30-53.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
NOV 18 1954

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of March to Nov 8, 1954 Docket No. DMEA 2612 Contract No. Idm-5499
Operator's Name Index Mining Company, Minerals Copper
Address 2430 Monte Vista Pl Seattle 99 Washington.
Contract Amount, $ 115,000 Government Participation: 50% Amount, $ 57,500

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling						
Bulldozing—trenching	700.00		700.00	1500.00	—0—	1500.00
Crosscutting						
Drifting						
Geophysical Survey				37.78	2962.22	3000.00
(2) Labor and Supervision:						
Labor	1812.50	331.80	2144.30			
Supervision		48.00	48.00			
Technical Services	960.00	2075.72	3035.72			
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives	48.95		48.95			
Pipe						
Track						
Laundry Expenses	18.76	23.13	41.89			
(4) Operating Equipment:	180.00					
Rental	180.00	410.00	580.00			
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis						
Payroll Taxes	122.64		122.64			
Liability Insurance						
(8) Contingencies (specify): Telephone	99.72	73.57	173.29			
TOTALS	3932.47	2962.22	6894.69			

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

Date Nov. 8, 1954 *Payee Index Mining Company

Per [signature] Title President.

*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.

→ NOTE.—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.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 768 89

Signature MEP
(Authorized Certifying Officer)

Date 11/12/54 Vou. No. 1352

(See other side)

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E4489 in accordance with the terms of the contract.

Signature /s/ Elwin A. Magill Title Mining Engr Date 11/9/54

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature /s/ Stephen W. Goldoft Title Mining Engr Date 11/10/54

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

GPO 83-38476

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151
Approval expires 6-30-53.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
NOV 18 1954

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of March to Nov 8, 1954 Docket No. DMEA 2612 Contract No. Icm-2489
Operator's Name Index Mining Company Minerals Copper
Address 2430 Monte Vista Pl, Seattle 99, Washington

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT	
							Units	Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core								
Churn								
Auger								
Stripping								
Trenching								
Test Pits & prospecting		2588.79		2588.79				
Roads and Trails								
Geophysical Survey		1343.68		4305.90				
TOTAL DISTRIBUTED COSTS		3932.47		6894.69				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS								

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

Date Nov. 8, 1954 Operator Index Mining Company

Per [signature] Title President

REMARKS:

→ NOTE.—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.

(Instructions on reverse)

(For Government use only)

INSTRUCTIONS

Preparation of Form MF–104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF–104A has been designed to tie in with Form MF–104 for both monthly and cumulative costs. The "Total Costs" on Form MF–104A for each month should equal the monthly "Total Costs" as reported on Form MF–104. This is also true of the "Total Costs To Date".

In preparing Form MF–104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 83-38475

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
NOV 18 1954

DMEA FIELD TEAM, REGION II

November 15, 1954

DMEA Certifying Officer, Region II

Contract Idm-E489, Docket DMEA 2612, Index Mining Company
Monthly operating report for March to Nov, 8, 1954.

The subject operating report has been received and processed.

A deletion of $2,394.69 was made from the amount of $3,932.47 submitted by the operator for payment. The details of this deletion follow.

$1,305.90 was deducted from the amount claimed for geophysical survey. The contract allows $3,000.00 for this item. The amount is starred. The amount deleted represents the amount claimed by the operator in excess of the $3,000.00

$1,088.79 was deducted from the amount claimed for trenching. The contract allows $1,500.00 for trenching and the $1,500.00 is starred. The amount deleted represents the amount claimed by the operator in excess of the amount allowed by the contract.

Myrtle Purdy

cc: Wash. (2) ✓
Engr.
AD

INDEX MINING COMPANY
2430 Monte Vista Place
Seattle 99, Washington

DEPT. OF THE INTERIOR
Defense Minerals Administration
RECEIVED
NOV 18 1954

November 3, 1954.

Mr. A. E. Weissenborn,
Executive Officer
Defense Minerals Exploration Administration
Field Team, Region II
Spokane, Washington.

Subject: Docket No. DMEA 2612
Contract No. Idm-E489
March to date.

Dear Mr. Weissenborn:

Enclosed herewith please find 5 copies covering the additional geophysical work done this summer as well as a rather extensive surface prospecting campaign. I think largely because of this work we have interested the Granby Mining Smelting and Powere Company of 165 Broadway, New York C, New York in an extensive diamond drilling campaign after an examination thereof by their consulting engineer.

This Company is asking for a one year extension in time for DMEA Contract Idm-E489 and that you allow that this approximate $54,000.00 of DMEA money which has already been appropriated be used for diamond drilling.

I believe that if the Department can make these concessions that work would be started almost immediately.

Enclosed please find 2 prints of each of the geophysical survey maps, scale 1" - 200', which together show the complete survey.

With kindest personal regards I am,

Sincerely yours,

C. V. Brennan

C. V. Brennan.

CVB:A

Report of work done under Docket No. MEA 2612
May 1 to October 31st, 1954.

During the summer of 1954 further geophysical surveying was done on the Sunset property and the result of this work, on the area west of the new Bureau of Mines ore body down to the County road looked quite encouraging. There is a considerable amount of rock exposure in this section and surface prospecting was done here but the results were disappointing, perhaps because there is a heavy mantel of gravel and clay over a good part of this section.

Quite extensive prospecting was carried on over other parts of the property and encouraging looking boulders of well mineralized granite were exposed in the general section above anomaly C and to the west thereof. Copper in place was also exposed here.

It would seem to be very advisable and important that the surface diamond drill campaign initiated by the U. S. Bureau of Mines in 1950, and which was so successful, should be further continued and underground drilling such as was recommended by the Government engineer at that time be carried out. The work done to date under MEA contract 2612 has given a lot of new and helpful information on which to base such a diamond drilling campaign.

C. Brown.

COPY

...of the INTERIOR
... Minerals Administration
RECEIVED
NOV 16 1954

REPORT ON GEOPHYSICAL SURVEY
Done under Docket No. DMEA 2612, the summer of 1954.

The area investigated extended from the U. S. Bureau of Mines diamond drill hole 1 as far west as the north fork of the Skykomish River road. This work was done by the electrical resistivity method which had been found useful during previous geophysical investigations on the propert. The results are shown on the accompanying map.

Four areas of low resistivity values may be noted. The first striking almost E-W and crossing the base line at 8'w is the continuation of an anomaly already outlined during the previous survey. The values suggest a weak shear zone with minor amounts of mineralization.

The second anomaly crosses the base line from C to 3w. This area has been tested by D.F. hole 1 in which the results were surprisingly disappointing.

The third low area extends across the map region and is probably caused by a strong shear zone which may be well mineralized. The better portions of this zone are between 6w and 12w and in the vicinity of 18w. The wide areas of generally low resistivities at either end are in part caused by clay in the overburden.

The fourth low zone lies near the road and is not nearly as continuous as the previous zone.

RECOMMENDATIONS

Western Area.

The long central anomaly should be tested by trenching if possible on lines 6w, 7. 5w, and 9w as well as on line 18w. If sulphide mineralization is encountered the anomaly should be diamond drilled.

Respectfully submitted

A. . Clark
Geophysical Consultant

July 5, 1954

COPY

IND X MINING COMPANY
2430 Monte Vista Place
Seattle 99, Washington

Subject: Docket No. DTEA 2612
Contract No.Idm-E489
March to date.
November 8, 1954.

Distribution Sheet

	Geophysical Survey	Pits and Prospecting	Total
Bulldozer		700.00	700.00
Labor	300.00	1512.50	1812.50
Technical services	815.00	145.00	960.00
Explosives		48.85	48.85
Laundry expense	13.76	5.00	18.76
Rentals	150.00	20.00	170.00
Gov.payroll tax	22.00	100.64	122.64
Telephone	42.92	56.80	99.72
	1343.68	2588.79	3932.47

COPY

INDEX MINING COMPANY
2430 Monte Vista Place,
Seattle 99, Washington.

Subject: Docket No. DMEA 2612
Contract No.Idm-E489
March to date
November 8, 1954.

State of Washington and Federal Taxes

State Employment Security Taxes:

6/30/54	10.60
9/30/54	28.96

State Department Labor & Industry

6/30/54	15.40
9/30/54	31.04

Federal Employees Quarterly Tax

6/30/54	7.85
9/30/54	21.45
Estimate for October payroll	7.34
	122.64

COPY

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D.C.~~

1201 N. Division St.
Spokane 2, Washington
October 4, 1954

RECEIVED
OCT 8 - 1954

MEMORANDUM

To: DMEA Field Team, Region II

From: E. A. Magill, Bureau of Mines, Region II

Subject: Progress examination, Index Mining Company, Snohomish County, Washington, Contract No. Idm-E489, Docket No. DMEA 2612 (copper)

A routine progress examination was made of the subject property on September 20, 1954 in company with Willard Puffett and Don Kellum of the Geological Survey. Several hours were spent in Seattle on October 1 with Mr. C. V. Brennan, president of the Index Mining Company, discussing the progress of the project.

The geophysical survey by Dr. Clarke has been completed and Mr. Brennan has a map showing the anomalies. He intends to submit a copy of this map with his next monthly progress report. Two bulldozer trenches were made in an attempt to test one of the anomalies but unfortunately the overburden was too thick to expose bedrock excepting for one small exposure of granodiorite.

Mr. Brennan has had Mr. Robert Curtiss and a helper spend quite some time in an attempt to trace out the surface extensions of some of the veins exposed in the underground workings. This work was undertaken with the idea of extending westward the presently known vein system. If another ore body could be found out to the west from the main Sunset workings it might be feasible to drive a 3000-ft. low level crosscut from the county road to cut the ore shoots to the west and come in a hundred feet or so below the lowest workings on the Sunset vein. This would also alleviate the pumping problem in the Sunset workings.

The prospecting by Mr. Curtiss has been partially successful. Several pieces of float have been found in the areas indicated by the geophysical survey and the surface outcrop of the Little Copper King vein has been located. However, there is not sufficient proof of ore bodies other than the "Bureau of Mines" ore body to warrant any alteration in the exploration project at the present time.

Mr. Brennan's health is very poor because of a stroke which he suffered several years ago. He has finally realized that he is not physically capable of directing an exploration program. Because of this

he is currently attempting to interest one of the large mining companies into taking over the property and completing the work called for under the exploration project contract.

Orig. & 3 cys - Wash.
USGS (2)
DMEA
M/D
AD
EAM/he

E. A. Magill

XXXXXXXXXXXXXXXXX
So. 157 Howard Street
Spokane 4, Washington

September 24, 1954

Memorandum

To: DMEA Field Team, Region II

From: Willard P. Puffett, Geologist, U. S. Geological Survey

Subject: Routine inspection, Docket No. DMEA 2612 (copper), Index Mining Company, Snohomish County, Washington, Contract No. Idm-7489

Mr. E. A. Magill, Bureau of Mines, Don Kellum, Geological Survey, and I inspected the Index Mining Company property near Index, Washington, on Monday afternoon, September 20, 1954. A caretaker, known as "Ole," was the only representative of the Index Mining company at the property. Mr. Robert Curtiss of Monroe, Washington, has been doing prospecting on the surface for the operator.

Apparently the geophysical survey being carried out by Dr. Clarke has been completed, although as yet we have received no map which he has prepared. Two bulldozer trenches have been excavated to test anomalies indicated from the result of the surveys.

Both trenches are nearly 300 feet long and strike N. 10° W. The center of the east trench is at co-ordinates 14,250 N., 10,000 E., and the center of the west trench is at co-ordinates 14,450 N., 9,530 E. The locations of these points were determined by tape and compass traverse and can be considered only approximate.

Varved clays overlying glacial till were cut by both trenches. Although the east trench is a maximum of 18 feet deep, no bedrock was cut. Fresh granodiorite was cut in one place in the west trench, but no evidence of any vein material was seen. Considerable water was in the deeper portions of both trenches, but it is doubtful that the water obscured any significant geologic information.

Mr. Magill has been corresponding with Mr. Brennan, the owner of the mine, to determine what his plans are regarding carrying out the contract provisions. Mr. Magill will probably discuss Mr. Brennan's plans in his inspection report.

Distribution:
DMEA (Orig. & 3) Docket
USGS (2) Puffett

Monthly status report - Region II

No. 986, dated June 15 - July 15, 1954

Operator completed geophysical survey of the property - now carrying out bulldozer trenching of the more favorable anomalies. Initial trenching being carried out on the anomaliesin vicinity of USBM ore body.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D.C.~~

1201 N. Division St.
Spokane 2, Washington
July 14, 1954

MEMORANDUM

To: DMEA Field Team, Region II

From: E. A. Magill, Mining Engineer, Bureau of Mines

Subject: Progress examination, Index Mining Company, Snohomish County, Washington, Contract No. Idm-E489, Docket No. DMEA 261~~8~~2 (copper)

A visit was made to the subject property on July 9, 1954. Robert Craig and a helper were on the property at the time of the visit.

Dr. A. R. Clarke had spent a week on the property during the latter part of June, completing and rechecking parts of the resistivity survey which he had worked on last year. Robert Craig has spent several weeks at the property, carefully examining the areas of low anomalies in an attempt to find evidence of copper mineralization. Because of the dense undergrowth, work of this type is difficult. A series of proposed bulldozer trenches have been laid out to further check the anomalies disclosed by the geophysical survey. It was expected that trenching would commence on July 12, 1954.

A copy of Dr. Clarke's report is expected in the near future.

E. A. Magill

Orig. & 3 cys - Wash.
USGS (2)
DMEA
M/D
AD
EAM/he

Fo[illegible]v.)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1036.3.
Approval expires 6-30-53.

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of March thru Nov, 1953 Docket No. DMEA 2612 Contract No. IDM-E 489
Operator's Name Index Mining Co Minerals Copper
Address 2430 Monte Vista Place, Seattle 99, Washington.
Contract Amount, $ 115,000.00 Government Participation: 50 % Amount, $ 57,500.00

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling						
Bulldozing						
Crosscutting						
Drifting						
(2) Labor and Supervision:						
Labor Feb to Nov 30	331.80		331.80	—		—
Supervision	48.00		48.00	—		—
Technical Services	630.72	1445.00	2075.72	1227.22	1735.00	2962.22
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Sundry Feb to Nov 30	23.13			—		—
(4) Operating Equipment:						
Rental	120.00	290.00	410.00	—	—	—
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis						
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
telephone Feb to Nov.			73.57	—	—	—
Pacific T & T bill	62.37			—	—	—
Sundry B.C. Tel	11.20			—	—	—
TOTALS	1227.22	1735.00	2962.22	1227.22	1735.00	2962.22

I certify that the above bill is correct and just and that payment therefor has not been received.
Date May 3/54 *Payee Index Mining Co.
Per C Brennan Title President

*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 Do[illegible]mpany, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—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.

(Instructions on reverse)

All charges are in connection with Geophysical survey

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 613 61

Signature MDP
(Authorized Certifying Officer)

Date 6/15/54 Vou. No. 1177
(See other side)

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E 489 in accordance with the terms of the contract.

Signature /S/ Elwin A Magill Title Mining Engr Date 5/28/54

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature /S/ Stephen W Zoldok Title Mining Engr Date 6/2/54

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

GPO 83-38476

Form MF-193A
April 195[illegible]

Budget Bureau No. 42-R1151
Approval expires 6-30-53.

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of March Rev. 1953 Docket No. DMEA 2612 Contract No. IDI-E 489
Operator's Name Index Mining Co. Minerals Copper
Address 2430 Monte Vista Place, Seattle 99, Washington.

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT	
							Units	Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core								
Churn								
Auger								
Stripping								
Trenching								
Test Pits								
Roads and Trails								
Geophysical survey		1227.22		1735.00		2962.22		
TOTAL DISTRIBUTED COSTS								TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS								

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

Date May 3, 1954 Operator Index Mining Co

Per C Brennan Title President

NOTE.—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.

REMARKS:

(Instructions on reverse)

(For Government use only)

INSTRUCTIONS

Preparation of Form MF–104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF–104A has been designed to tie in with Form MF–104 for both monthly and cumulative costs. The "Total Costs" on Form MF–104A for each month should equal the monthly "Total Costs" as reported on Form MF–104. This is also true of the "Total Costs To Date".

In preparing Form MF–104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 83-38475

COPY

May 3, 1954

Mr. A. E. Weissenborn,
Executive Officer
Defense Minerals Exploration Administration
Field Team, Region II
Spokane, Washington.

Subject: Docket No. DMEA 2612
Contract No. Idm-E489
March through November 1953.

Dear Mr. Weissenborn:

Enclosed herewith please find 5 copies covering the geophysical work August to November 30th, 1953. It also includes some previous accounts which had not carried individual receipts in the previous bill.

It has been quite difficult to get the work forwarded during the past year as Dr. Clark and Mr. Craig are very busy men. The survey is not yet quite completed to my satisfaction and of course Dr. Clark as a professor at the University is hard to get ahold of, but I have he and Mr. Craig under promise for a week in June, which I hope will put the situation in good shape.

At that time I am looking forward to being able to go to Spokane in order to confer with you and your associates in connection with this whole matter.

With kindest personal regards, I remain

Sincerely yours,

/s/ C. V. Brennan

President

6/15/54

All charges to date under this project have been in connection with Item 3, Exhibit "A", Geophysical Survey, according to Mr. Magill, project engineer.

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

DEPARTMENT OF THE INTERIOR
SEP 21 1953

September 16, 1953

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

Dear Mr. Selfridge:

Enclosed are the following routine inspection reports by geologists and mining engineers of the Geological Survey and Bureau of Mines:

Docket No.	Name	Contract No.
2658	Ottawa Tungsten Co., Lewis & Clark Co., Mont.	490
2612	Index Mining Co., Snohomish Co., Wash.	489
X 2628	Strickland Butte Mine, Crook Co., Oregon (2)	537
1608X	Mt. Rainier Mining Co., Pierce Co., Wash. (2)	383
2635	Bradley Mining Co. (Ima mine), Lemhi Co., Idaho	427
3007	Silver Coin Mining Co., Snohomish Co., Wash.	None
2950	J. R. Simplot Co. (Chalspar mine), Custer Co., Idaho	543
1353	S. J. Holden & Assoc., Chelan Co., Wash.	172
2868	Gilmore Mine, Lemhi Co., Idaho	574
208	Linton Mines (Blacktail Mine), Missoula Co.,Mont.	226
2266	Pioneer Mine, Stevens Co., Wash.	330
2123	Lucile Mine, Stevens Co, Wash.	228
2475	Jim Creek Mine, Pend Oreille Co., Wash.	318
325	Scandia Prospect, Stevens Co., Wash.	60
2341	Western States Copper Corp., King Co., Wash. (2)	436
2435	Curtiss and Rogers (Mint Claims), Snohomish Co., Wash. (2)	417
1727	Hughesville Silver & Lead Mining Co., Judith Basin Co., Montana	117
2183	Elkhorn Consolidated, Inc., Jefferson Co., Mont.	268
2471	North Boulder (A. F. Carlson), Jefferson Co.,Mont.	313
2034	White Pine Lead Co., Jefferson Co., Mont.	273
2731	Pohl & Kleinschmidt (Pearl Claims), Broadwater Co., Mont.	465

Docket No.	Name	Contract No.
129	Bennett Mining Co. (Dacotah Mine), Cascade Co., Mont.	81
2419	Lone Eagle Mine, Jefferson Co., Montana	299
2225	D. A. McNabb (Sylvan Mine), Jefferson Co., Mont.	238
326	Hope Bullion Property (A. K. Romerio), Jefferson Co., Montana	220
981	Idaho Mining Co., Wash.-Idaho Mine, Shoshone Co., Idaho	88(Amended)

Sincerely yours,

Thor H. Kiilsgaard
Acting Executive Officer, DMEA
Field Team, Region II

Enclosures (30 in quad.)
cc: USBM(2)

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

1201 N. Division St.
Spokane 2, Washington
September 14, 1953

MEMORANDUM

To: DMEA Field Team, Region II

From: E. A. Magill, Mining Engineer, Bureau of Mines

Subject: Progress examination, Index Mining Co., Snohomish County, Washington, Contract No. Idm-E489, Docket No. DMEA 2612 (copper)

A visit was made to the subject property on September 10, 1953. Dr. A. R. Clarke and an assistant were at the property working on the geophysical survey.

Dr. Clarke is completing the resistivity survey which was started a number of months ago. He expects to have his field work finished by September 13. It will be sometime in October before his computations are completed and the information correlated with the known geological features.

At the time of the visit they were using a slight variation in the method which had been used previously. Instead of running traverses parallel to the electrodes, they were running them at right angles. The conductor wire was laid along the road which parallels Trout Creek, with the electrodes being placed on a strike similar to that of the main Sunset vein system so that the traverses would cut the structures at right angles. This method was being used because of the difficulty in stringing the wire and placing the electrodes in the heavily wooded area. Dr. Clarke stated that results were similar whether traverses were run parallel or at right angles, the difference being in the computations, which are more difficult with a right angle traverse.

Dr. Clarke believes that the best anomaly found to date is to the east of the Sunset crosscut between 1700 and 2000 feet. It appears to line up with the Blank or Little Copper King vein rather than the Sunset vein. He recommends that this anomaly be either trenched or diamond drilled. It may be difficult to trench the area because of the steep hillside and large boulders; however, it will be necessary to doze out a drill site so I believe that an attempt should be made first to trench.

It is Dr. Clarke's opinion that the anomalies which have been found between the road and the Sunset vein in the vicinity of the Sunset crosscut are caused by clay rather than ore structures. This also applies to the anomalies to the west of the Bureau of Mines orebody. Incidentally, the orebody which the Bureau of Mines located by diamond drilling did not produce a particularly strong anomaly when the present survey was conducted over it.

It is planned that the remaining three days will be spent in rechecking the area between Trout Creek and the Bureau of Mines orebody and between the west end of the Sunset vein and the Bureau of Mines orebody.

The road to the portal of the proposed Bureau crosscut has not been commenced. This work is being held up by the logging contractor who has been hired to construct it because he wishes to take full advantage of the good weather in his logging operations and not through any delay on the part of the Operator. It appears, however, that the road construction will be commenced within a few days.

As soon as the road is completed it is expected that work will be started on the crosscut. The Operator plans on having a transit survey run so that, if possible, the new crosscut will coincide with the No. 3 level in the Sunset mine workings.

E. A. Magill

Orig. & 3 cys - Wash.
USGS (2)
DMEA
M/D
EAM/he

Form M-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.3.
Approval expires 6-30-53.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of March thru August, 1953 Docket No. DMEA 2612 Contract No. I DM-E 489
Operator's Name Index Mining Co. Minerals Copper
Address 2430 Monte Vista Place, Seattle 99, Washington
Contract Amount, $ 115,000.00 Government Participation: 50 % Amount, $ ~~2170.32~~ 57,500.00

ITEMS OF COSTS	FOR OPERATOR'S USE: Monthly Total	Totals Previously Reported	Totals To Date	FOR GOVERNMENT USE ONLY: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling						
Bulldozing						
Crosscutting						
Drifting						
(2) Labor and Supervision:						
* Labor	388.00	✓		—		
Supervision						
Technical Services	1445.00	✓		1445.00		
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
* Track						
Sundry gas, batteries etc	8.97	✓		—		
(4) Operating Equipment:						
Rental	290.00	✓		290.00		
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis						
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
* Telephone	38.35	✓		—		
TOTALS	2170.32			1735.00	—	1735.00

I certify that the above bill is correct and just and that payment therefor has not been received.
Date August 31/53 *Payee Index Mining Co.
Per N. Brennan Title President.

*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.

→ NOTE.—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.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:
867.50
$ 867.50

Signature [illegible] (Authorized Certifying Officer)
Date 12/9/53 Vou. No. 999 (See other side)

* Insufficient supporting invoices.

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. EH89 in accordance with the terms of the contract.

Signature /S/ Elwin A. Megill Title Mining Eng Date 12/4/53

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature /S/ Thomas E. Howard Title Mining Eng Date 12/8/53

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

GPO 83-38476

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151
Approval expires 6-30-53.

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of MARCH - AUGT inclusive 1953 Docket No. DMEA 2612 Contract No. IDM-E489
Operator's Name Index Mining Co. Minerals COPPER
Address 2430 Hoge Bldg Place, Seattle 99 Wash.

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT	
							Units	Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core								
Churn								
Auger								
Stripping								
Trenching on geophysical anomaly		1644.00						
Test Pits								
Roads and Trails		1735.00						
Geophysical Survey		2606.32						
TOTAL DISTRIBUTED COSTS		~~2170.32~~ 1735.00						TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS								

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

Date AUGUST 31/53 Operator INDEX MINING CO.

Per C. V. Brennan Title PRESIDENT

REMARKS: SEE ACCOMPANYING LETTER

→ NOTE.—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.

(Instructions on reverse)

(For Government use only)

INSTRUCTIONS

Preparation of Form MF–104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF–104A has been designed to tie in with Form MF–104 for both monthly and cumulative costs. The "Total Costs" on Form MF–104A for each month should equal the monthly "Total Costs" as reported on Form MF–104. This is also true of the "Total Costs To Date".

In preparing Form MF–104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 83-38475

INDEX MINING COMPANY
2430 Monte Vista Place,
Seattle 99, Washington.

December 2, 1953.

The Administrator,
Defense Minerals Exploration Administration.

Dear Sir: Re. DMEA Docket No. 2612 and contract No.10M-E 489 for the Index Mining Co.

Work in this regard was started in March 1953 and continued at intervals to date.

Mr. A. R. Clark and R. J. Craig were contracted with to make a geophysical survey of the area and although their schedule has been very full all summer in the east as well as in the west we have gained a great deal of useful information which looks very promising.

There is still some important work to tie in and we will then submit the final report on this work for 1953 although there will doubtless be some further detailed work which should be done early next year.

Mr. Clark plans to recommend some surface diamond drilling. Before the year end we expect to get the road to the portal of the crosscut to be driven to the Bureau of Mines ore body completed so that this crosscut will be started very early in the spring of 1954, depending somewhat on climatic conditions. As the elevation is low, about 1300 feet above sea level, this should be early.

Thanking you for your help in this matter,

Sincerely yours,

C. V. Brennan, President.

CVB:A

REPORT ON THE GEOPHYSICAL SURVEY

[illegible] MINT AREA

INDEX, WASHINGTON.

INTRODUCTION:

The field work has been done at intervals over the past year under widely varying conditions in so far as the probable moisture content of the overburden is concerned. Since the resistivity methods by which the survey was carried out are influenced by moisture in the overburden, one could not expect to be able to repeat results too closely, in other words a variation in calculated resistivity values might occur between the results obtained in dry weather and in wet weather. Since tests showed that the difference in calculated resistivity values over the ore zones and over the barren zones were always of this order or much greater it was decided that these zones would be recognizable. In general the effect of increased moisture was to decrease all the values for resistivities.

METHOD OF [illegible] SURVEY.

Two methods were used, differing only in the direction in which the surface voltage drop was measured with respect to the line joining the electrodes by which current was introduced into the ground.

METHOD -A.

In this method two current electrodes were placed about 3000 feet apart and connected to the terminals of an 800 cycle 110 volt generator. The line joining the electrodes was approximately at right angles to the general strike of the known veins. Two potential probes were kept 50 feet apart and the voltage drop between them was measured by a vacum tube voltmeter which would read voltages as low as two microvolts. These voltage readings were taken at 50 foot intervals along lines parallel to the line between the current electrodes.

METHOD -B

This method differed from A in that the line joining the current electrodes was parallel to the strike of the veins while the traverse lines along which the voltages were measured were at right angles to the current line.

Both methods have certain advantages over the other. In method A a deflection in the direction of the traverse line did not have as large an influence on calculated resistivity values as in method B. However the second method always produces a more marked drop in resistivity values over a long conductor and since experimental tests showed that even over the best ore intersections from diamond drilling there was not an extreme change it was thought that with care in running traverses the second method was likely to produce good results. In addition the local topography

made the use of method B desirable.

Both methods were used, method A in the west and central section and method B in the eastern section. At points where the two methods overlapped there was a good agreement between calculated resistivity values.

In calculating resistivities it was necessary to know the current flowing to ground. This was determined by measuring the voltage drop across an known resistance in the current electrode line. Hence it was chiefly a case of using the voltmeter to compare ground resistances with the known resistance in the line. Thus errors due to changes in voltmeter amplification were largely eliminated.

The results obtained are shown on the map. Only one set of values were omitted. These were taken with method B for test purposes and the ground current was not measured. In calculation it was assumed to be one ampere which is likely much too high and the resulting resistivity values were then much too low.

DISCUSSION OF RESULTS.

Part of the contours of equal resistivity were drawn. The largest contour value being 3×10^3 ohm cm. Higher value contours would only show areas of very shallow overburden and add to the complexity of the map.

A number of resistivity anomalies stand out. These have been lettered A, B, C etc.

ANOMALY A.

Is part of a long narrow conducting zone in the eastern section. The overburden is likely shallow and will not be too effective in producing low values. The anomaly extends east of the creek with a small area of very low values near its end. Minor amounts of chalcopyrite mineralization are evident in the easterly bank in the anomaly zone. The better part of the conducting zone lies between lines C 13 and C 5. A short anomaly lies south of the main one on line C-4. This also shows evidence of mineralization on the logging spur road.

ANOMALY B.

This region is short. There are high clay banks on the south side near its west end which may account in part for the low values. However it is part of a long series of low values and is of interest.

ANOMALY C.

The low erratic values are chiefly due to overburden. Any other conducting ore zone is completely masked.

ANOMALY D.

This anomaly may mark the extension of the ore found by drilling to the east of line A-8. The values are very low and the results were obtained with method A which has a tendency to produce higher values. The anomaly is of considerable interest.

ANOMALY E.

This zone is part of the Sunset Mine vein. The values to the west of the small tunnel (wet tunnel) shown are better than the contours indicate. They are also lower than any others over the Sunset vein. The anomaly south of the main vein and parallel to it is also of interest.

ANOMALY F.

The values are caused by a short conductor. The area of lows to the east might be partially due to overburden. There is evidence of mineralization in the cuts on the logging road. No extension of the low values was found on the traverse along the logging road some 1000 feet east.

ANOMALY G.

This anomaly was found on only one line. There is no evidence of mineralization in the creek banks just to the east. Because of the position of the creek bottom the traverse is also off line at this point which may account for the low values. It may be that the anomaly is a spurious one.

RECOMMENDATIONS.

As a preliminary test the positions of three recommended drill holes are shown on the map. In addition anomaly E should be tested by drifting or drilling.

Respectfully submitted.

A. R. Clark.

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

1201 N. Division St.
Spokane 2, Washington
August 14, 1953

MEMORANDUM

To: DMEA Field Team, Region II

From: E. A. Magill, Mining Engineer, Bureau of Mines

Subject: Progress examination, Index Mining Co., Snohomish County, Washington, Contract Idm-E489, Docket No. DMEA 2612 (copper)

A visit was made to the subject property on August 4, 1953. Mr. Robert Craig of Vancouver, B. C. and an assistant were conducting a geophysical survey at the property.

The survey has been completed in the areas to the west and east of the old mine workings. At the time of the visit they were running a traverse directly over the main Sunset adit. Anomalies have been found to both the east and west on strike with the Sunset vein and a rather strong anomaly has been found to the west of the main Sunset crosscut between the Sunset vein and the road. Dr. Clark is expected to return to the property early in September and complete the geophysical survey.

The Operators are using the resistivity method in their survey. Electrical current at 800 cycles is introduced into the ground through electrodes 2,000 feet apart which are connected to the generator by insulated wires. A series of traverses are run (parallel to the electrodes) at 300-foot intervals, readings being taken every 50 feet on these traverses. These readings are taken by sticking two probes into the ground at a 50-foot interval, these probes being connected to a sensitive volt meter which records the difference in potential, in microvolts, between the probes. The resistivity of the ground is then calculated by a modification of Ohm's law and resistance readings in ohms per centimeter are plotted on the map. Where the resistance is low, a good conductor is indicated.

The Operators have blazed out the proposed road to the portal site of the Bureau crosscut. Construction of this section of road has been promised by the logging contractor in the area for a number of weeks. The Operators expect it will be started in the near future.

Work under the exploration project contract has been relatively slow. This can be attributed directly to the illness of Mr. C. V. Brennan.

E. A. Magill

E. A. Magill

Orig. & 3 cys - Wash.
USGS (2)
DMEA
M/D
EAM;mp

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

1201 N. Division St.
Spokane 2, Washington
July 15, 1953

MEMORANDUM

To: DMEA Field Team, Region II

From: E. A. Magill, Mining Engineer, Bureau of Mines

Subject: Index Mining Co., Snohomish County, Washington, Contract Idm-E489, Docket No. DMEA 2612 (copper)

Mr. C. V. Brennan was visited on July 10, 1953, at his home in Seattle. Mr. Brennan has been incapacitated from the effects of a stroke in November 1952. However, on this visit he appeared to be greatly improved.

Work under the exploration project has consisted of a geophysical survey conducted by Dr. A. R. Clarke, Head of the Physics Department at the University of British Columbia. Unfortunately, it has been necessary for Dr. Clarke to temporarily suspend the work due to previous commitments to the Noranda Company in eastern Canada. A survey of the areas to the west and east of the old Sunset workings has been completed. The next work will cover the central area in an attempt to determine the relationship of the anomalies to the known vein structures. Mr. Brennan is very much pleased with the results to date.

The construction of the road to the proposed site of the "Bureau" (of Mines) crosscut has been arranged for, according to Mr. Brennan, and should be completed by the 1st of August. It is intended to contract the driving of the 600-foot crosscut.

Invoicing procedures were discussed with the Operator and he plans on submitting an invoice as soon as the maps covering the geophysical work are brought up to date by Dr. Clarke.

E. A. Magill

E. A. Magill

Orig. & 3 cys - Wash.
USGS (2)
DMEA
M/D
EAM/he

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D.C.~~
So. 157 Howard Street
Spokane 4, Washington

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 5 1953

April 24, 1953

Memorandum

To: DMEA Field Team, Region II

From: Willard P. Puffett, Geologist, U. S. Geological Survey

Subject: Routine Inspection, Docket No. DMEA-2612 (Copper), Index Mining Company, Snohomish County, Washington, Contract No. Idm-E489.

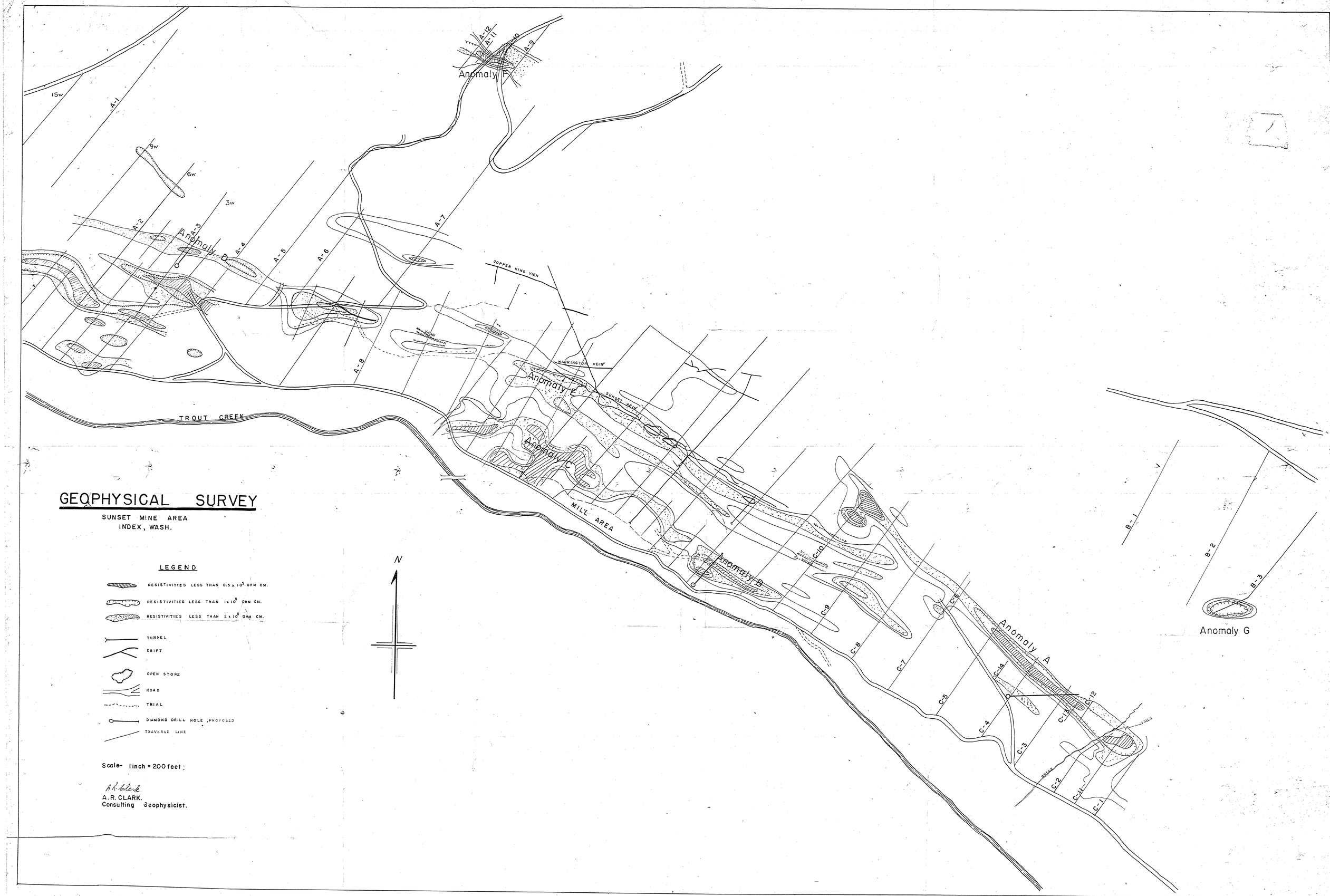
A visit was made to the Sunset Mine of the Index Mining Company on Thursday, April 23, 1953. No one was working at the property.

Mr. C. V. Brennan, president of the company, was visited at his home in Seattle, Washington. According to Mr. Brennan, the only work being done under terms of the contract is the running of geophysical survey traverses across the property. As this work is being done by a Professor from a Vancouver, British Columbia University, the work time is limited to week ends on which the Professor can take leave from his teaching duties. It is expected that after the school year is over, pace of the work will increase.

Only more or less reconnaissance work has been done on the geophysical traverses to date. This has shown the existence of at least six strong anomalies. Detailed work to follow will, of course, attempt to trace out the low resistance areas and then surface trenching will be done to search for evidence of ore which might be the cause of the low resistivity anomalies.

Because of the apparently favorable results found to date by the geophysical work, Mr. Brennan is reluctant to begin other phases of the exploration work until the geophysical work is completed. It is his opinion that perhaps more satisfactory exploration can be planned at a possible saving in costs by awaiting the final results of the geophysical work.

Distribution:
DMEA (Orig. & 3)
USBM (2)
Docket
Puffett


GEOPHYSICAL SURVEY
SUNSET MINE AREA
INDEX, WASH.
LEGEND
RESISTIVITIES LESS THAN 0.5 x 10^5 OHM CM.
RESISTIVITIES LESS THAN 1 x 10^5 OHM CM.
RESISTIVITIES LESS THAN 2 x 10^5 OHM CM.
TUNNEL
DRIFT
OPEN STOPE
ROAD
TRIAL
DIAMOND DRILL HOLE, PROPOSED
TRAVERSE LINE
Scale- 1 inch = 200 feet.
A.R. Clark
A.R. CLARK.
Consulting Geophysicist.
N
Anomaly F
Anomaly D
Anomaly E
Anomaly C
Anomaly B
Anomaly A
Anomaly G
COPPER KING VIEN
HARRINGTON VEIN
SUNSET VEIN
TROUT CREEK
MILL AREA
FAULT
A-1
A-2
A-3
A-4
A-5
A-6
A-7
A-8
A-9
A-10
A-11
A-12
B-1
B-2
B-3
C-1
C-2
C-3
C-4
C-5
C-6
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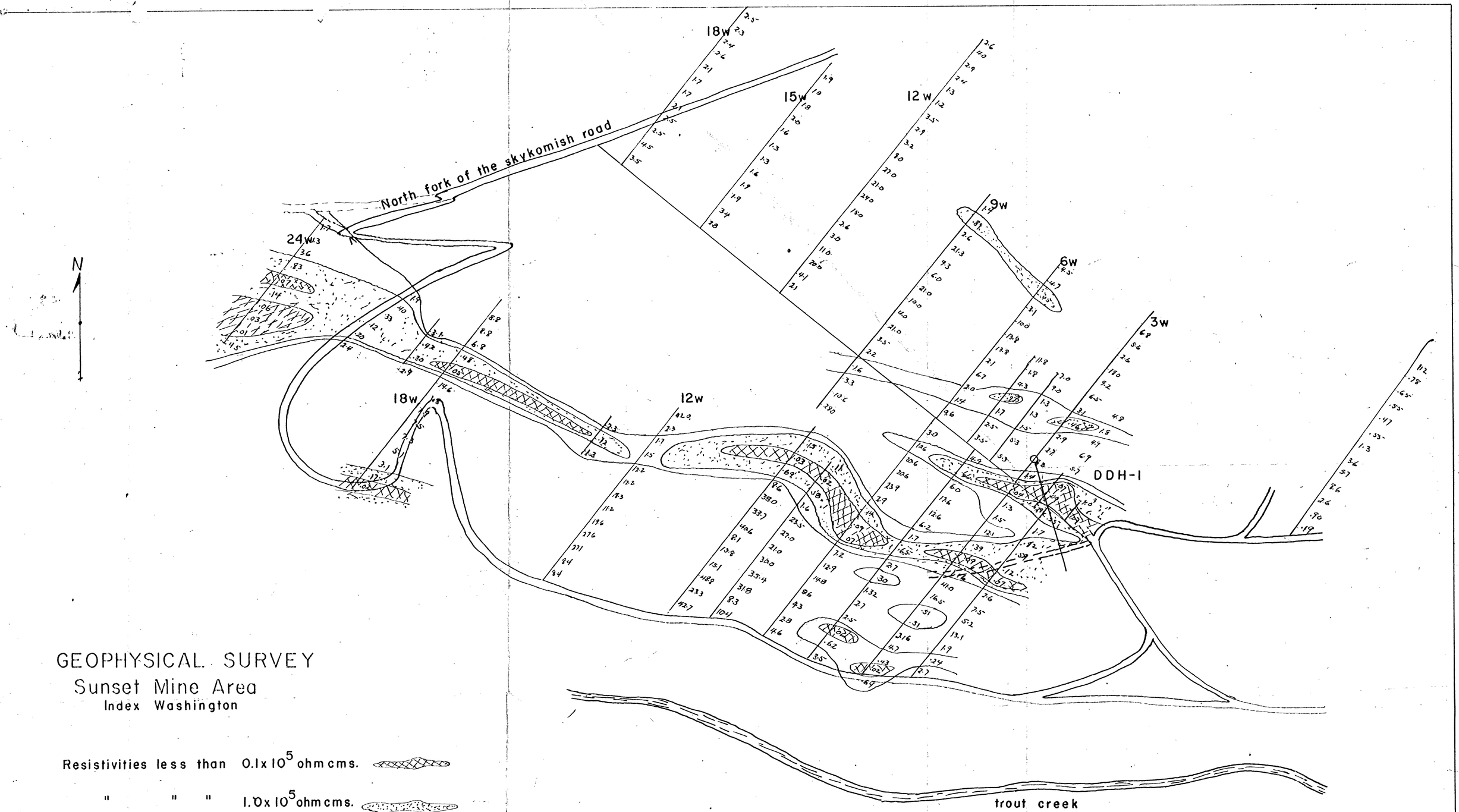
C-13
C-14
15w
6w
3w
3w



GEOPHYSICAL SURVEY

Sunset Mine Area

Index Washington

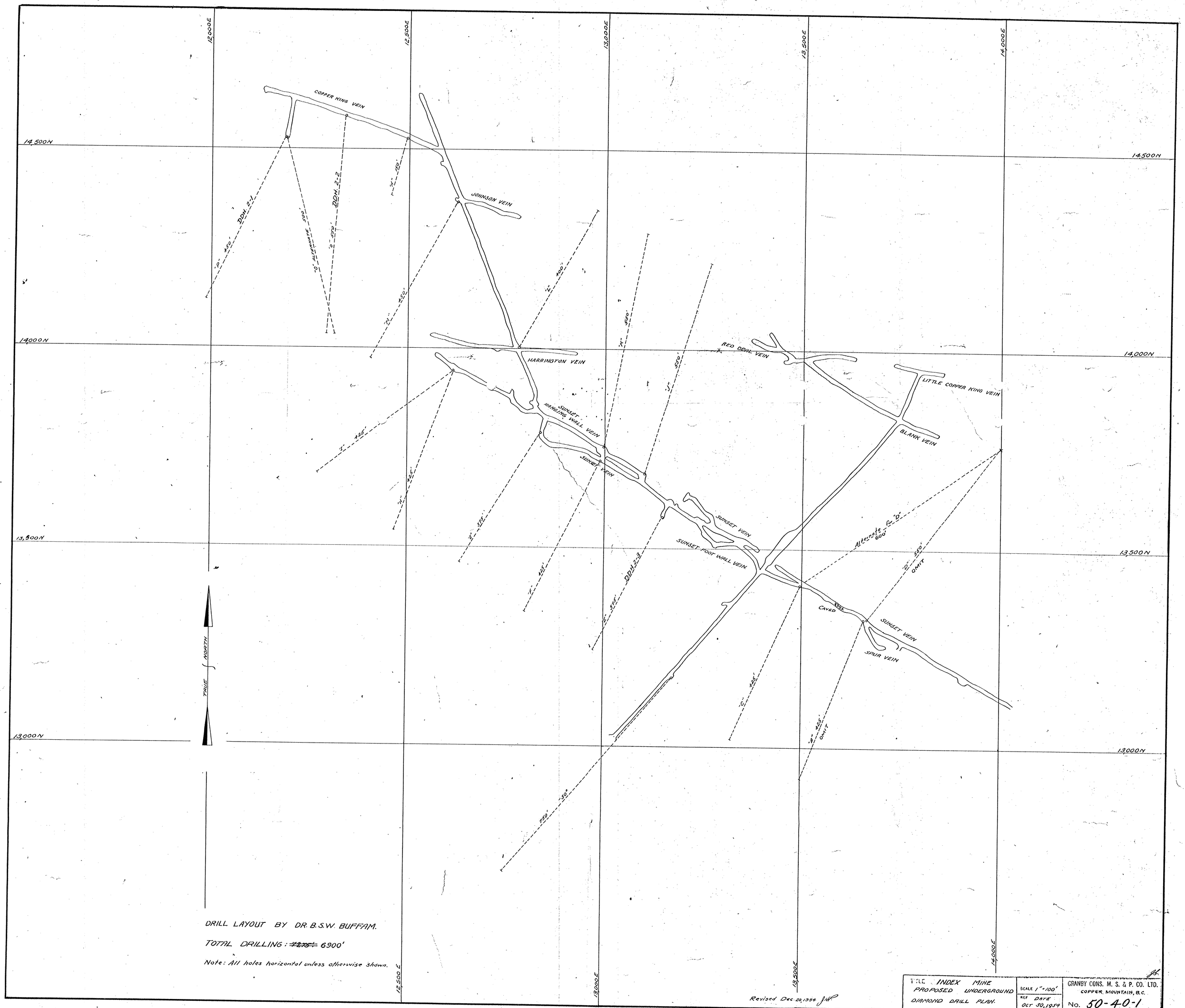
Resistivities less than 0.1×10^5 ohm cms.

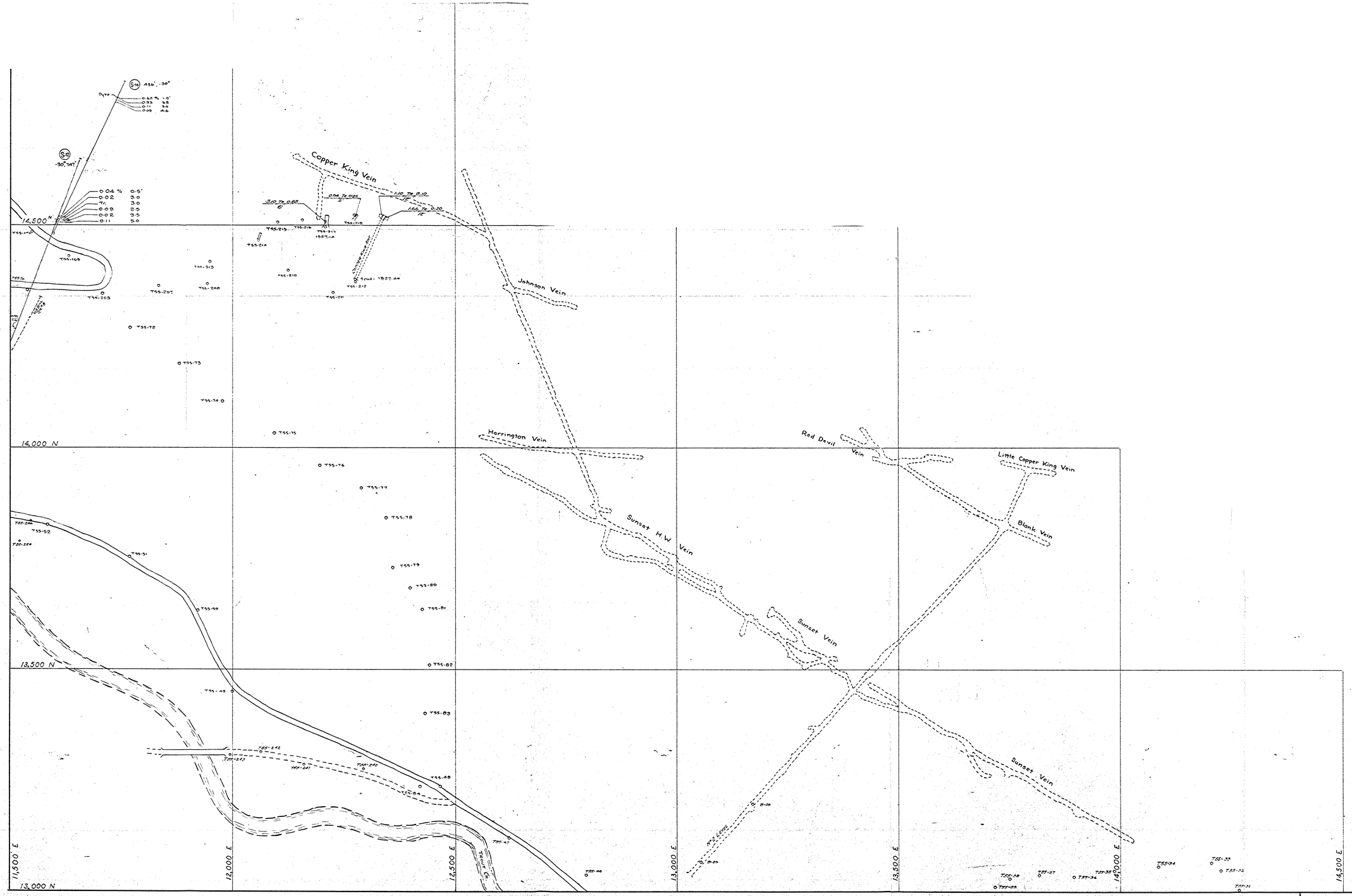
" " " 1.0×10^5 ohm cms.

Line number - 12 w.

Scale 1 inch = 200 feet.

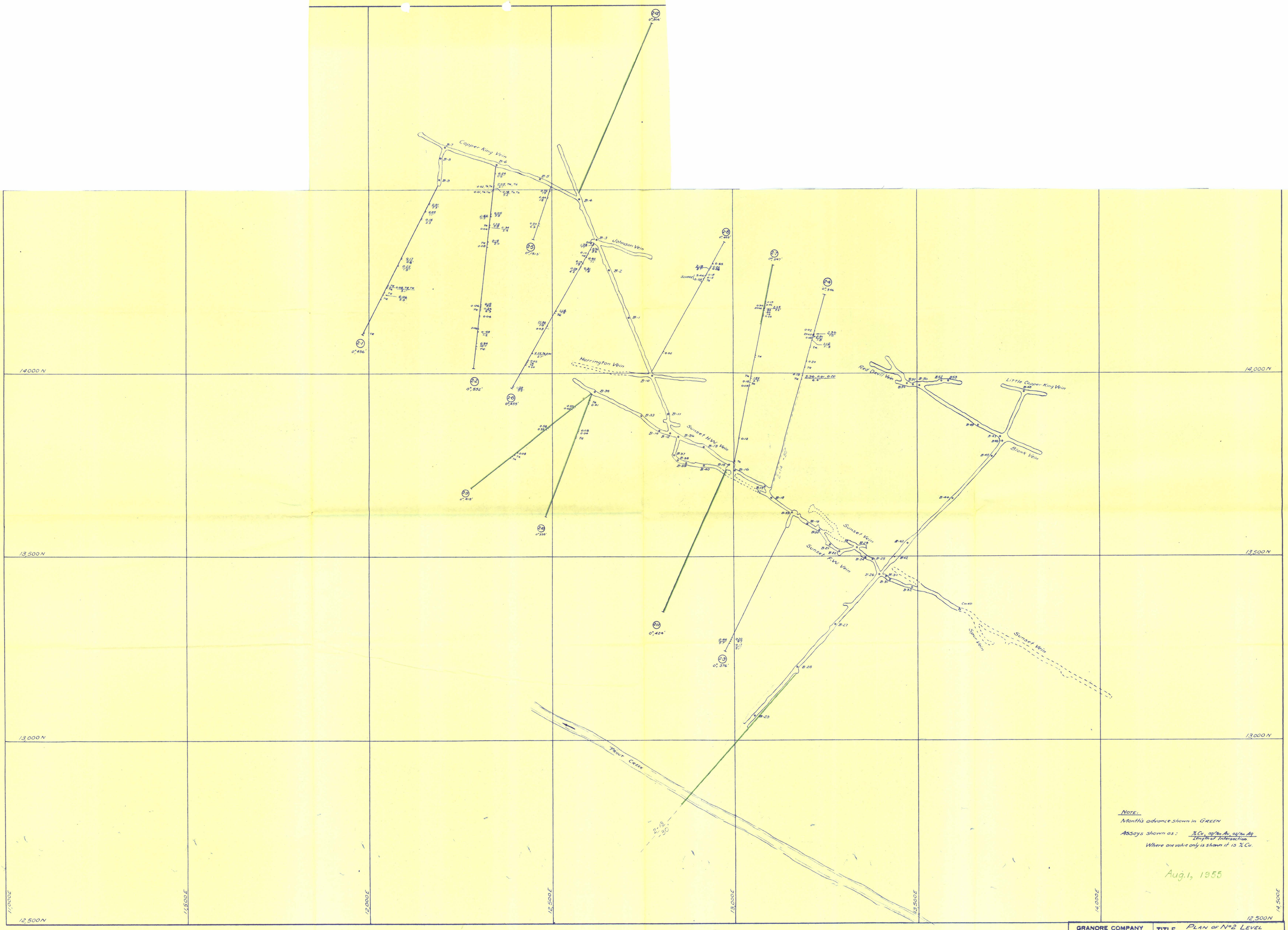
June 54
A.R. Clark

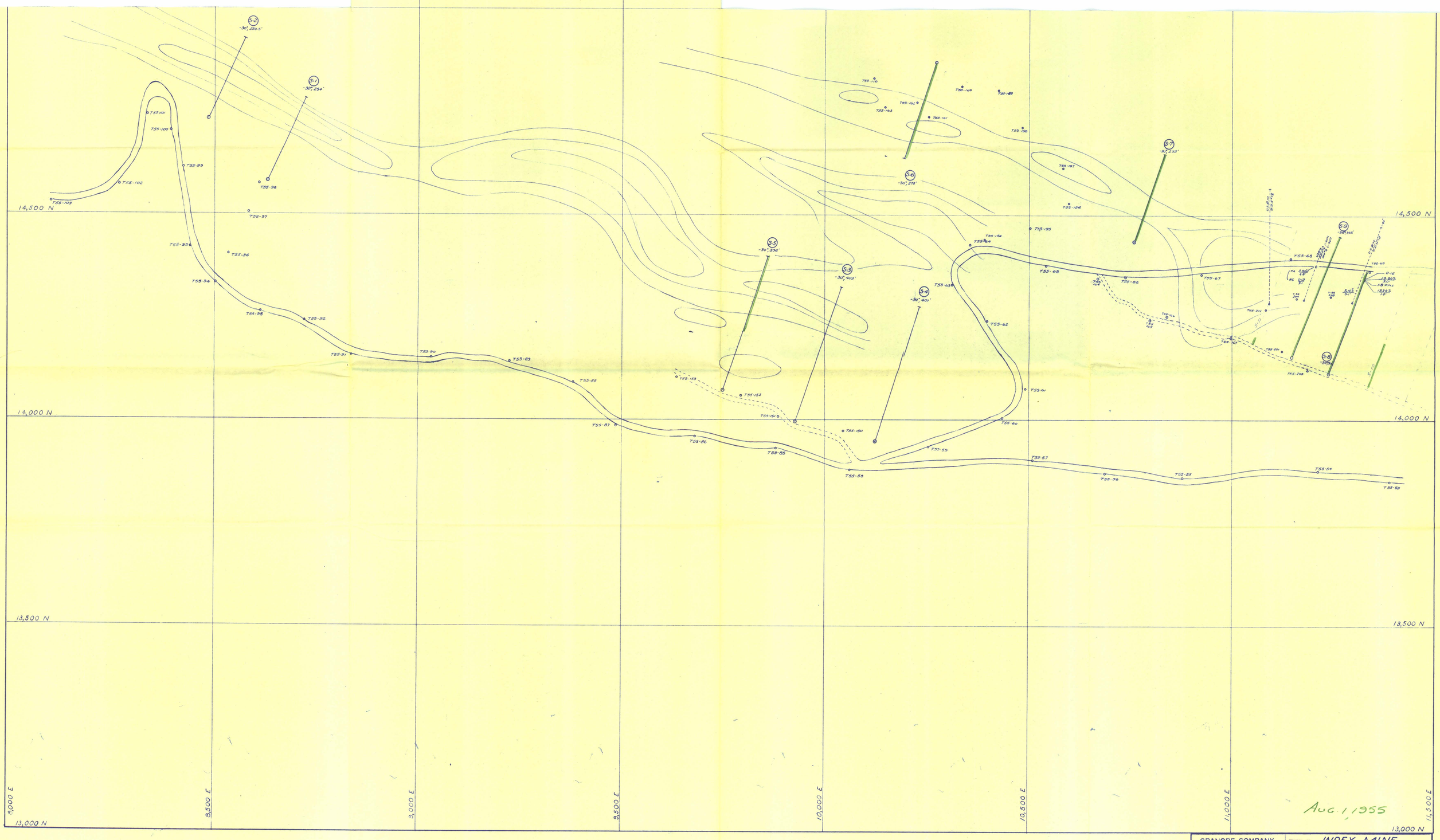

12,000E
12,500E
13,000E
13,500E
14,000E
14,500N
14000N
13,500N
13000N
COPPER KING VEIN
JOHNSON VEIN
HARRINGTON VEIN
RED DEVIL VEIN
LITTLE COPPER KING VEIN
BLANK VEIN
SUNSET HANGING WALL VEIN
SUNSET VEIN
SUNSET FOOT WALL VEIN
SUNSET VEIN
SPUR VEIN
CAVED
DDH 2-1
DDH 2-2
DDH 2-3
Alternate for 'D' 600'
OMIT
OMIT
TRUE NORTH
DRILL LAYOUT BY DR. B.S.W. BUFFAM.
TOTAL DRILLING: ~~[illegible]~~ 6900'
Note: All holes horizontal unless otherwise shown.
Revised Dec 20, 1954 JAP
THE INDEX MINE
PROPOSED UNDERGROUND
DIAMOND DRILL PLAN.
SCALE 1" = 100'
REF
DATE
OCT 30, 1954
GRANBY CONS. M. S. & P. CO. LTD.
COPPER MOUNTAIN, B.C.
No. 50-40-1



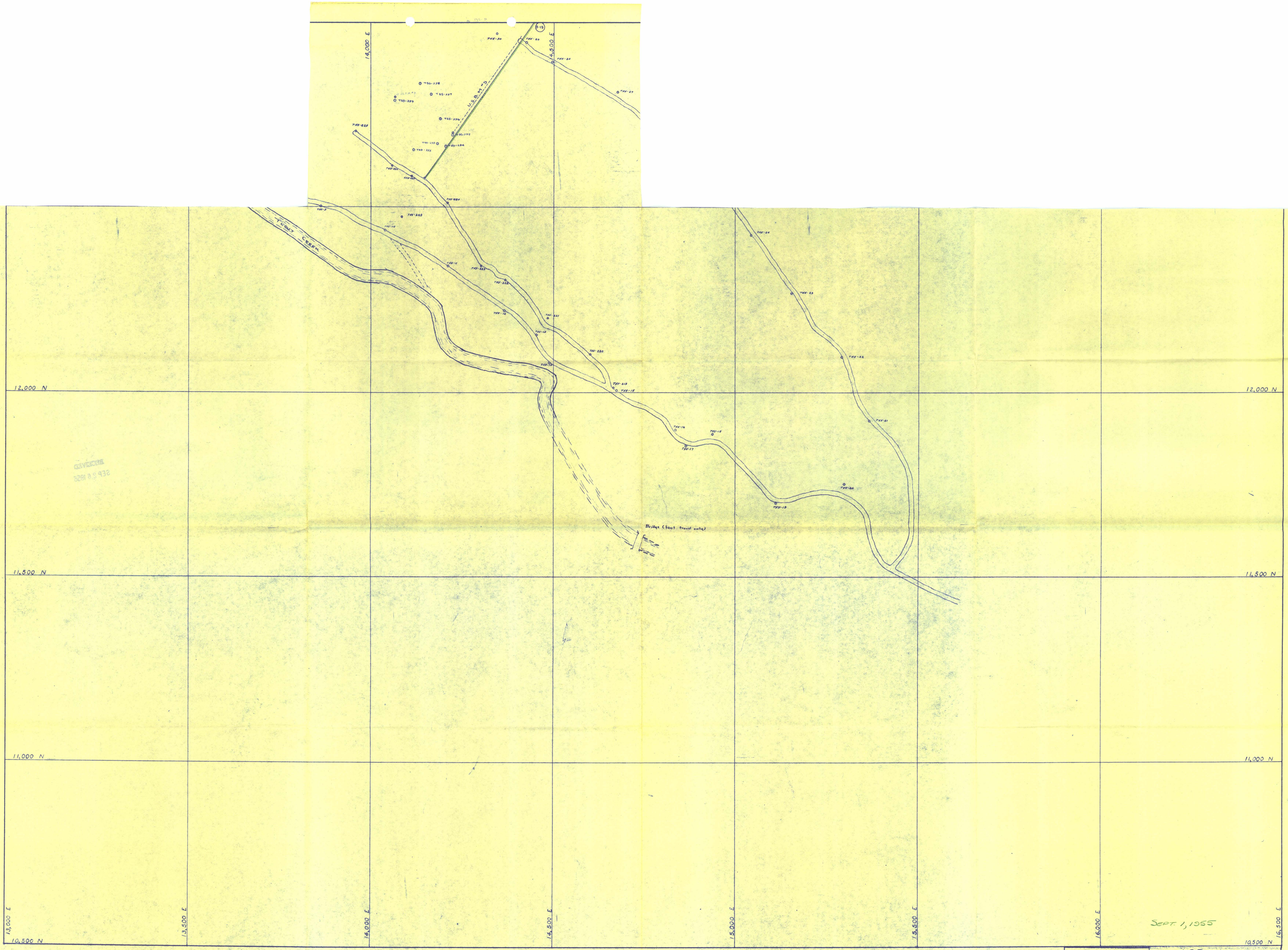
GRANORE COMPANY INDEX, WASHINGTON	TITLE INDEX MINE SURFACE PLAN	
SCALE: 1 INCH = 100 FEET	ELEV.	NO: CENTER SHEET

COPPER MOUNTAIN, B.C.
SCALE 1 INCH TO 200 FEET
TITLE: PROPOSED SURFACE DRILLING
No. 50-28-0 (REV)
Map Traced from Geophysical Map of A.R. Clark
Drill Holes laid out by Dr. B.S.W. Burfam.
ANOMALY G
ANOMALY A
ANOMALY B
ANOMALY C
ANOMALY D
ANOMALY E
ANOMALY F
GROUP 1
3 Holes @ 350'
Total 1050'
GROUP 2
5 Holes @ 350'
Total 1750'
GROUP 3
1 Hole @ 350'
GROUP 4
4 Holes @ 350'
Total 1400'
GROUP 5
5 Holes @ 350'
Total 1750'
GROUP 6
3 Holes @ 350'
Total 1050'
GROUP 7
4 Holes @ 400'
Total 1600'
GROUP 8
5 Holes @ 250'
Total 1250'
GROUP 9
2 Holes @ 250'
Total 500'
GROUP 10
2 Holes @ 250'
Total 500'
COPPER KING VEIN
HARRINGTON VEIN
SUNSET VEIN
VEINS
TROUT CREEK
LINE 18W
Proposed Haulage and Development Drift
North Fork of the Skykomish Road
Approx Edge of Bottom Land
Possible Mill Site
Approx Elev. 900'
T28N, R10E
SEC 35 | SEC 36
SEC 2 | SEC 1
T27N, R10E
Month's Advance in Green.
June 1955
NOTE: All holes to be drilled at -30°
Drilling to be "A" size core.
Total Proposed Surface Drilling 11,200'
15,000N
13,000N
11,000N
15,000E
13,000E
11,000E
30006
JHP Dec 20/1954


Copper King Vein
Johnson Vein
Harrington Vein
Sunset H.W. Vein
Sunset F.W. Vein
Sunset Vein
Red Devil Vein
Little Copper King Vein
Black Vein
Spur Vein
Trout Creek
14000 N
13,500 N
13,000 N
12,500 N
11,000 E
11,500 E
12,000 E
12,500 E
13,000 E
13,500 E
14,000 E
14,500 E
NOTE:
Month's advance shown in GREEN
Assays shown as: % Cu, oz/ton Au, oz/ton Ag / Length of Intersection
Where one value only is shown it is % Cu.
Aug. 1, 1955
GRANORE COMPANY
INDEX, WASHINGTON
SCALE: 1 INCH = 100 FEET
TITLE PLAN OF No 2 LEVEL INDEX MINE
ELEV. 1400
No: U-100

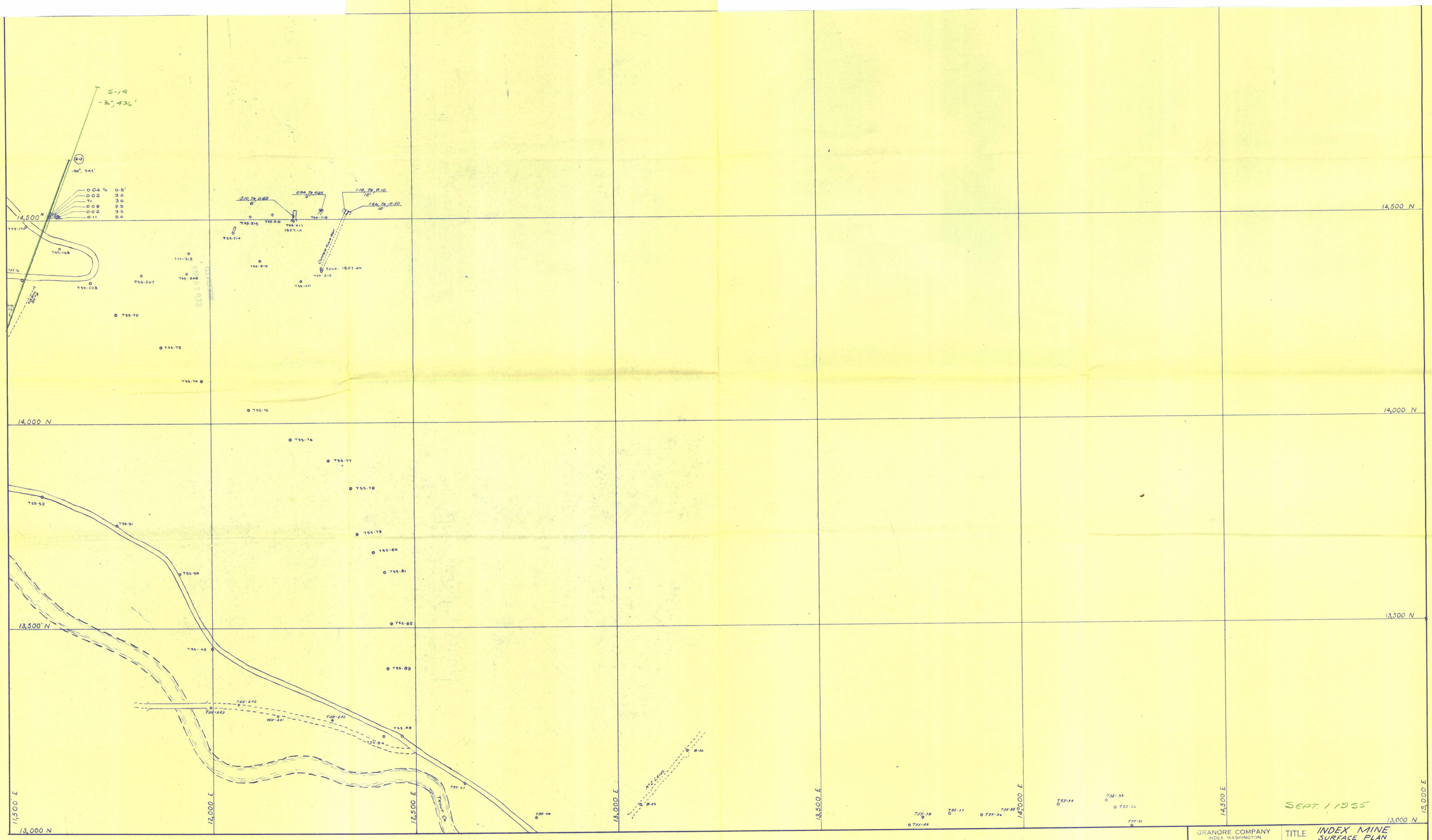


GRANORE COMPANY INDEX, WASHINGTON	TITLE INDEX MINE SURFACE PLAN	
SCALE: 1 INCH = 100 FEET	ELEV.	No. WEST SHEET

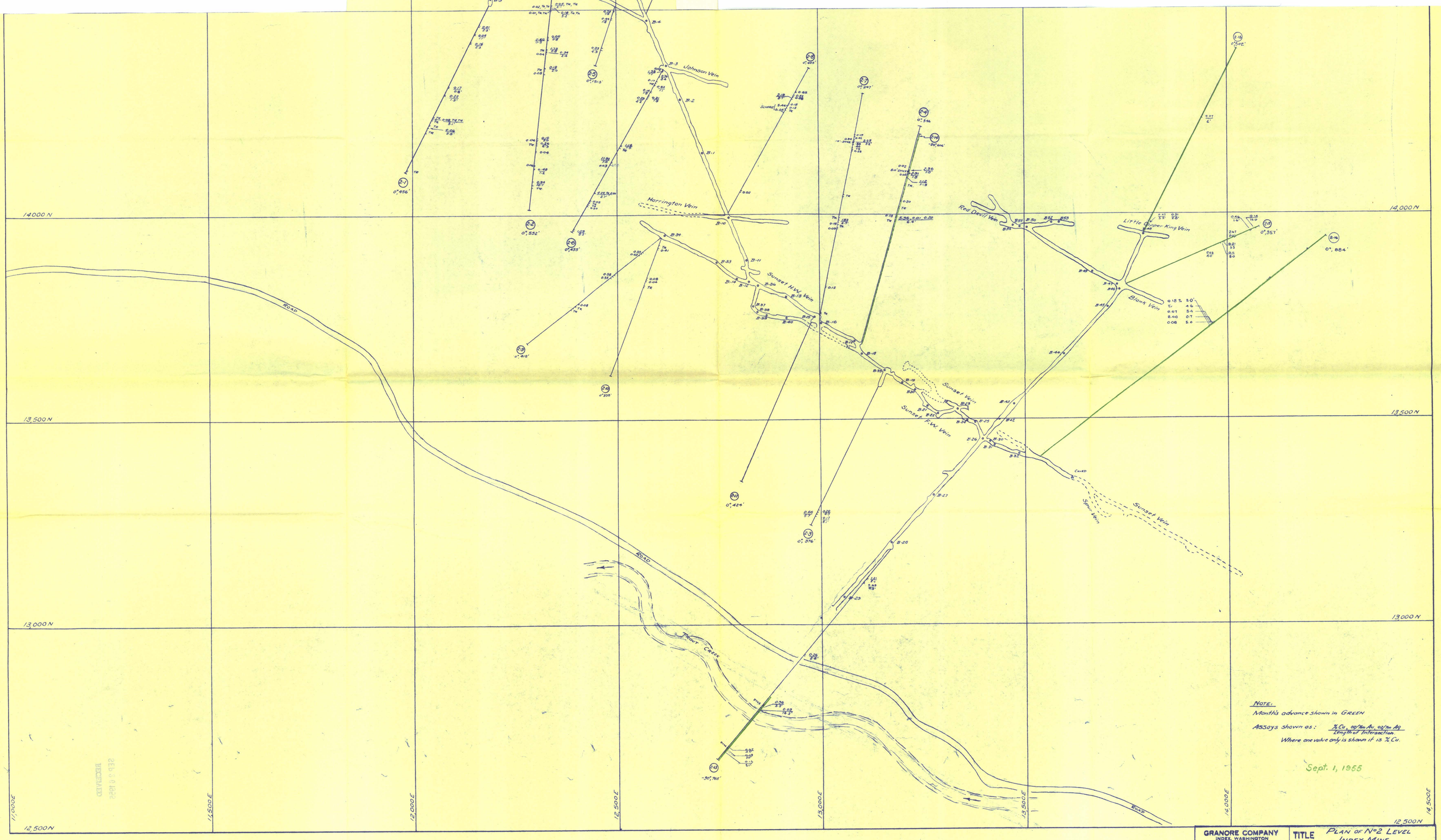


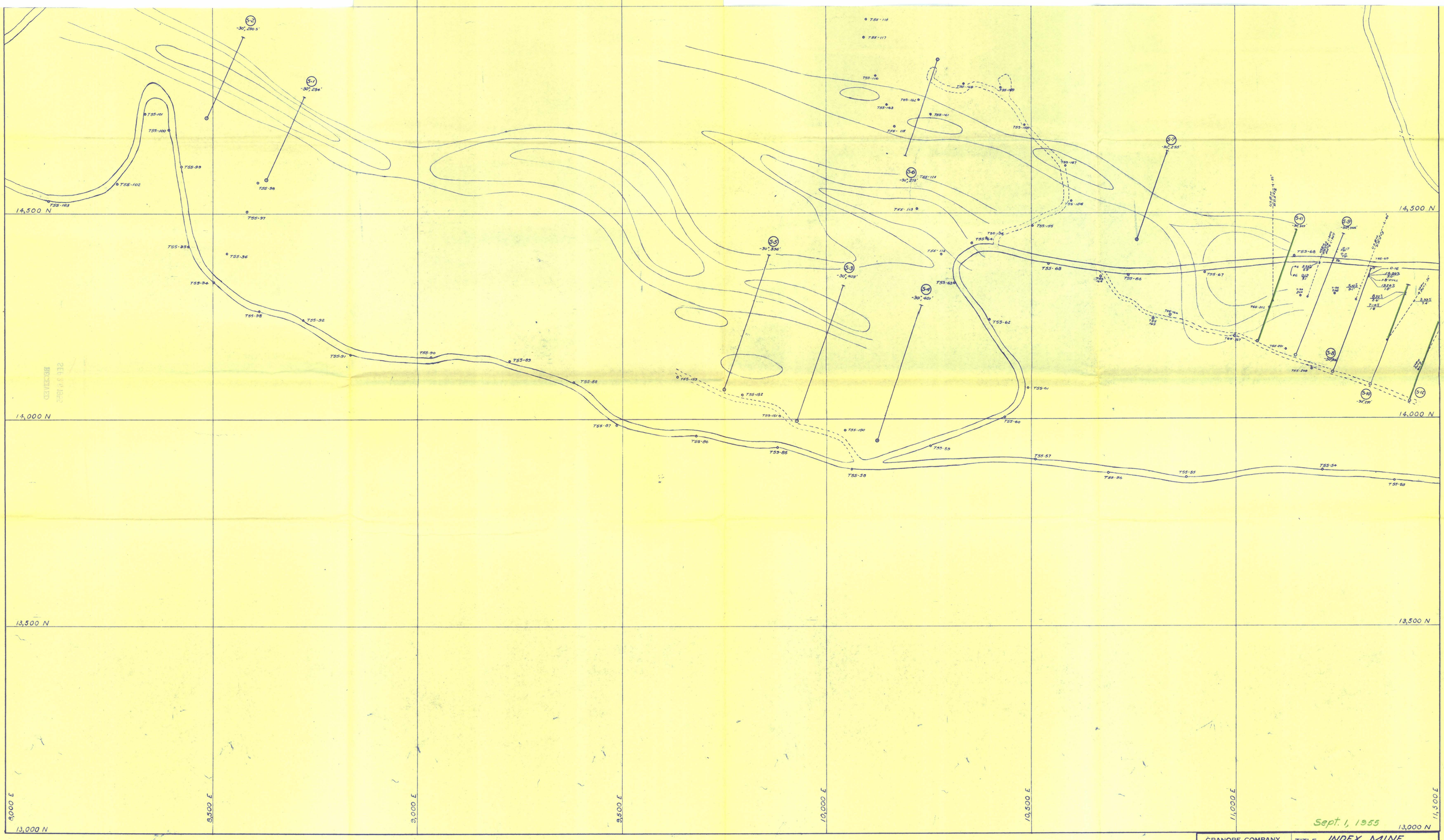
SEPT. 1, 1955

GRANORE COMPANY INDEX, WASHINGTON	TITLE INDEX MINE SURFACE PLAN
SCALE: 1 INCH = 100 FEET	ELEV. / NO: EAST SHEET



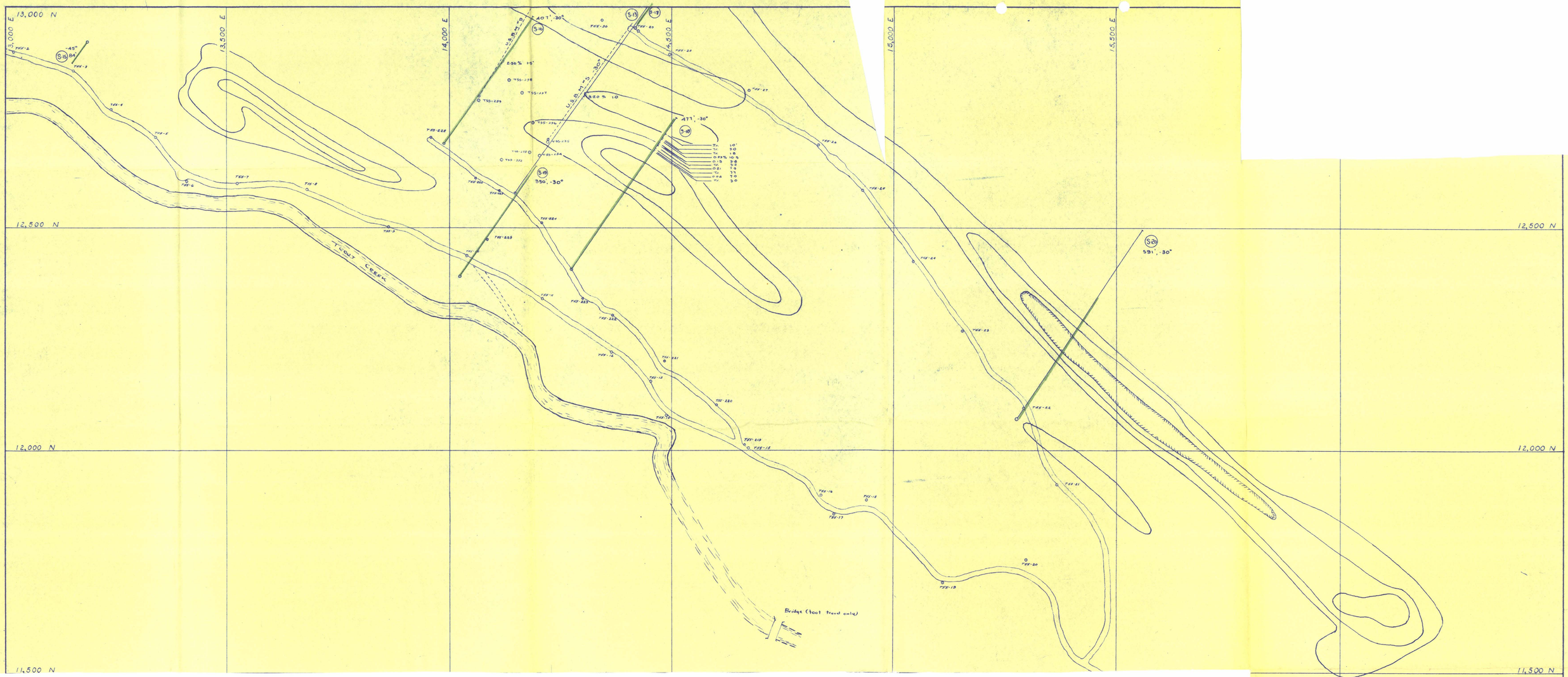
GRANORE COMPANY INDEX, WASHINGTON	TITLE INDEX MINE SURFACE PLAN	
SCALE: 1 INCH = 100 FEET	ELEV.	NO: CENTER SHEET


Copper King Vein
Johnson Vein
Harrington Vein
Sunset Hwy. Vein
Red Devil Vein
Little Copper King Vein
Blank Vein
Sunset Vein
Sunset F.W. Vein
Spur Vein
Trout Creek
ROAD
14000 N
13,500 N
13000 N
12,500 N
11,000 E
11,500 E
12,000 E
12,500 E
13,000 E
13,500 E
14,000 E
14,500 E
NOTE:
Month's advance shown in GREEN
Assays shown as: %Cu, oz/ton Au, oz/ton Ag / Length of Intersection.
Where one value only is shown it is % Cu.
Sept. 1, 1955
GRANORE COMPANY
INDEX, WASHINGTON
TITLE PLAN OF No 2 LEVEL INDEX MINE
SCALE: 1 INCH = 100 FEET
ELEV. 1400
No: U-100



Sept. 1, 1955

GRANORE COMPANY INDEX, WASHINGTON	TITLE	INDEX MINE SURFACE PLAN
SCALE: 1 INCH = 100 FEET	ELEV.	NO: WEST SHEET



WORK DONE IN SEPTEMBER
MARKED IN GREEN

GRANORE COMPANY INDEX, WASHINGTON	TITLE	INDEX MINE SURFACE PLAN
SCALE: 1 INCH = 100 FEET	ELEV.	NO: EAST SHEET